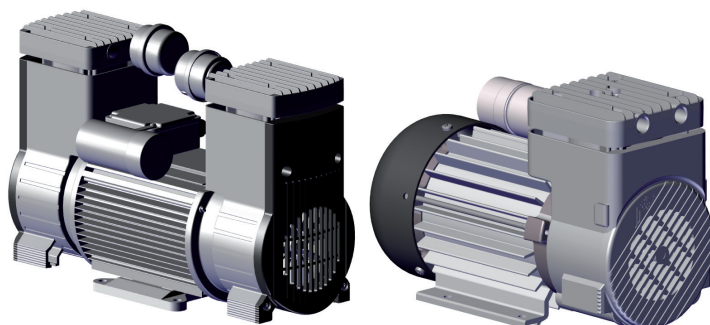


Oil-free piston compressors KK and piston vacuum pumps KV

EN



Installation and Operating Instructions



0678106030L02



1411V002

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Important information

1 Documentation

These assembly and operating instructions form an integral part of the unit. They correspond to the particular model of the unit and to the technical standards applicable at the time it was brought to market.



In the event that the instructions and information in these assembly and operating instructions are not observed, Dürr Technik undertakes to provide no warranty and accepts no liability of any kind for the safe and reliable operation of the unit.

This translation has been produced to the best of our knowledge. The original German language version of the manual is definitive. Dürr Technik will not be held liable for translation errors.

1.1 Warnings and symbols

Warnings

The warnings in this document are there to point out possible injury to persons or damage to machinery.

The following warning symbols are used:



General warning symbol



Warning - dangerous electrical voltage



Warning - high temperatures



Warning - the unit starts up automatically

The warnings are structured as follows:



SIGNAL WORD

Description of type and source of danger

Possible consequences of ignoring the safety warning here

- Measures to be taken to avoid any possible danger.

The signal word differentiates between different levels of danger:

- **DANGER**
High risk of danger of serious injury or death
- **WARNING**
Possible risk of danger of serious injury or death
- **CAUTION**
Risk of danger of minor injuries
- **NOTICE**
Risk of serious damage

Further symbols

These symbols are used within the documentation and on the unit itself:



Notes, e.g. special instructions concerning economical use of the unit.



Observe the accompanying documentation.



CE-labeling



Dispose of the unit properly according to valid state and local legislation.



Switch off the unit (i. e. unplug and disconnect from mains).

1.2 Notes on copyright

All circuits, processes, names, software programs and units specified are protected under industrial property rights.

The reprinting of the assembly and operating instructions, even in extracts, is only permitted with the written permission of Dürr Technik.

2 Safety

Dürr Technik has designed and developed the unit in such a way that danger is to a large extent excluded if the unit is used as intended. However, residual risks may be present. Therefore, please observe the following information.

2.1 Correct use

Oil-free piston compressors KK

The device is intended for the compression of atmospheric air. The device has been designed for use in systems and machines. It may only be put into operation if the manufacturer of the system/unit has ensured that all requirements necessary to guarantee safe operation have been fulfilled.

The unit has been designed for operation in dry, ventilated rooms. The device must not be operated in a damp or wet environment. Its use in the vicinity of gases or inflammable liquids is prohibited.

Oil-free piston vacuum pumps KV

The device is intended for the extraction of atmospheric air. The device has been designed for use in systems and machines. It may only be put into operation if the manufacturer of the system/unit has ensured that all requirements necessary to guarantee safe operation have been fulfilled.

The unit has been designed for operation in dry, ventilated rooms. The device must not be operated in a damp or wet environment. Its use in the vicinity of gases or inflammable liquids is prohibited.

2.2 Incorrect use

Any use of this unit above and beyond that specifically described in these instructions will be deemed to be as not according to the intended use. The manufacturer cannot be held liable for any damage resulting from incorrect usage. The user bears all risks.



WARNING

Serious injury and material damage due to improper usage

- Conveying explosive mixtures in any way other than that specified is not permitted.

2.3 General safety notes

- Before using the unit observe any and all guidelines, laws, regulations and other restrictions which may apply to the unit.
- Before each use check the function and condition of the unit.
- Do not convert or change the unit in any way.
- Observe the Installation and Operating Instructions precisely.
- Keep the Installation and Operating Instructions in an accessible place so that the operator has instant access to them.

2.4 Qualified personnel

Instructions for use

Persons who operate the unit must, on the basis of their training and knowledge, ensure safe and correct handling of the unit.

- Ensure personnel are trained in the correct usage of the unit.

Installation and repair

- Assembly and installation work, readjustments, modifications, upgrades and repairs must be carried out by Dürr Technik or personnel authorised and trained by Dürr Technik, who are familiar with the technology used in the unit and are aware of the risks involved when working on or operating the unit.

2.5 Protection against electrical current

- Observe all electrical safety regulations when working on the device.
- Replace any damaged lines and plug and socket outlets immediately.

2.6 Only use original parts

- Only use accessories and special accessories that are specified or approved by Dürr Technik.
- Only use original wear parts and spare parts.



Dürr Technik accepts no liability for damage resulting from the use of non-approved accessories, special accessories or any wear parts or spare parts other than original parts.

2.7 Transportation and storage

The unit is shipped in a cardboard box filled with packaging padding. This packaging ensures that the unit is optimally protected in transit. As far as possible, always use the original packaging for transporting or storing the unit.

- Keep packaging away from children.



WARNING

Explosion of the pressure receiver and pressure hoses

- Ensure that the air has been evacuated from the pressure receiver and pressure hoses when they are stored and transported.
- Protect the unit against moisture during transit.
- Always transport the unit in an upright position.
- Only transport the unit using the transport handles provided.
- Do not transport the unit by the air intake filter.

The unit may be stored in its original packaging:

- in warm, dry and dust-free rooms;
- protected from contaminants.



If possible, retain the packaging material.

Ambient conditions during storage and transport

Ambient conditions during storage and transport		
Temperature	°C	-25 to +55
Rel. atmospheric humidity	%	10% to 90%

Please note here the label on the packaging padding.

2.8 Disposal

Unit



Dispose of the unit properly according to valid state and local legislation.

Packaging



Dispose of packaging material in an environmentally responsible manner.

- Note current disposal routes.
- Keep packaging away from children.



Product description

3 Overview

3.1 Delivery Contents

Oil-free piston compressors KK

Modular structure

Oil-free piston compressors of series KK8, KK15, KK40 and KK70 each consisting of a compressor head with an electric motor.

The following electric motors are available:

Type A	Single-phase AC motors
Type B	Three-phase AC motors
Type D	Permanent-magnet DC motors

Oil-free piston vacuum pumps KV

Modular structure

Oil-free piston vacuum pumps of series KV8, KV15 and KV40 each consisting of a compressor head with an electric motor.

The following electric motors are available:

Type A	Single-phase AC motors
Type B	Three-phase AC motors
Type D	Permanent-magnet DC motors



3.2 Spare parts and accessories

Oil-free piston compressors and piston vacuum pumps of series KK8 / KV8

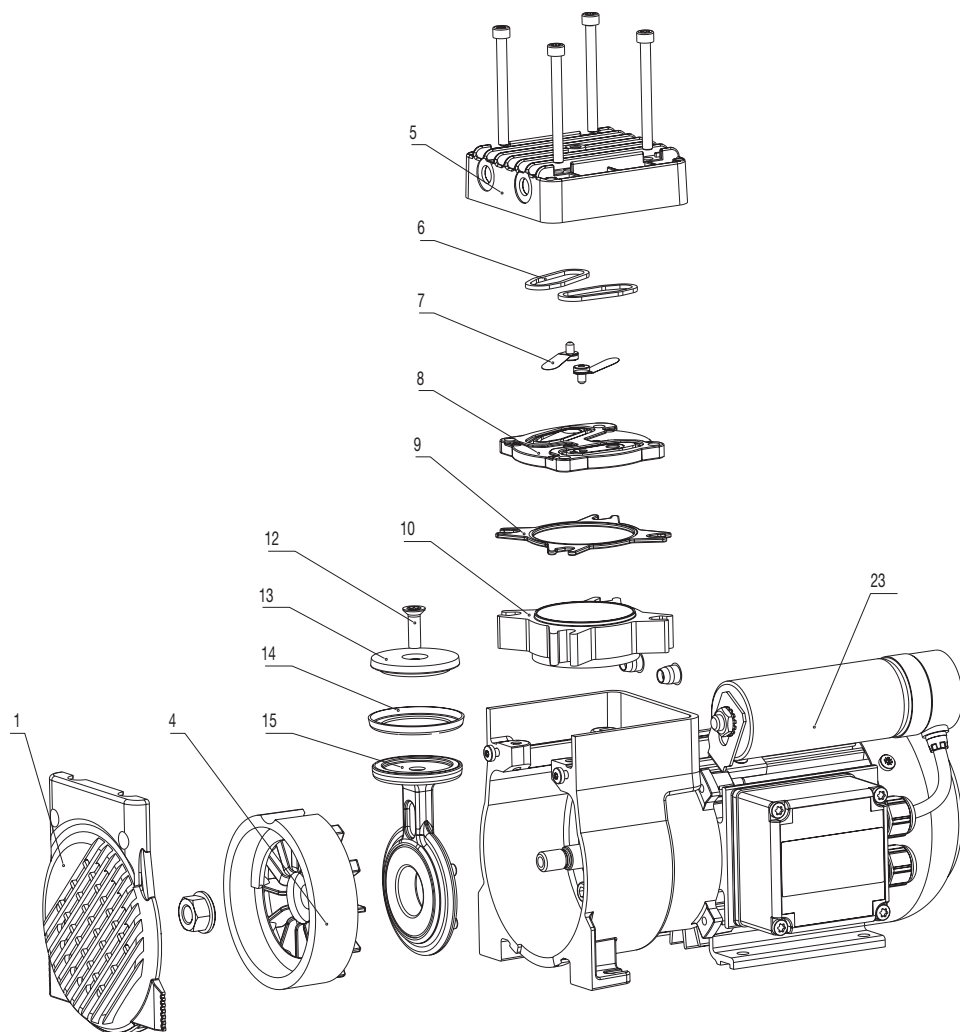


Figure 1: Oil-free piston compressors and piston vacuum pumps KK8 / KV8 with item numbers for spare parts

Spare parts KK8

Type		A-025	A-025	D-030	D-030
Article no.		0536 1030	0536 1130	0825-02	0825-03
	Item no.				
Crankcase cover	1	0825-119-01	0825-119-01	0825-119-01	0825-119-01
Cylinder head	5	0825-111-02	0825-111-02	0825-111-02	0825-111-02
Lamellar valve	7	2 x 0825-118-01	2 x 0825-118-01	2 x 0825-118-01	2 x 0825-118-01
Valve plate	8	0825-115-02	0825-115-02	0825-115-02	0825-115-02
Crank with connecting rod	4, 15	0825-241-50	0825-241-50	0825-241-50	0825-241-50
Spare parts kit: cup seal/cylinder incl. assembly instructions	6, 9, 10, 12, 14	0825-981-00	0825-981-00	0825-981-00	0825-981-00
Capacitor	23	9000-120-0251	9000-120-0251	-	-
Carbon brushes	-	-	-	2 x 9000-158-14	2 x 9000-158-15
End cap	-	-	-	2 x 9000-158-16	2 x 9000-158-16
Vibration damper set	-	0835-991-00	0835-991-00	0832-020-0000	0832-020-0000



Spare parts KV8

Type		A-025E	A-025E	D-030E	D-030E
Article no.		0536 2030	0536 2130	0826-02	0826-03
	Item no.				
Crankcase cover	1	0825-119-01	0825-119-01	0825-119-01	0825-119-01
Cylinder head	5	0825-111-02	0825-111-02	0825-111-02	0825-111-02
Lamellar valve	7	2 x 0825-118-01	2 x 0825-118-01	2 x 0825-118-01	2 x 0825-118-01
Valve plate	8	0825-115-02	0825-115-02	0825-115-02	0825-115-02
Crank with connecting rod	4, 15	0825-241-50	0825-241-50	0825-241-50	0825-241-50
Spare parts kit: cup seal/cylinder	6, 9, 10, 12, 14	0825-981-00	0825-981-00	0825-981-00	0825-981-00
Carbon brushes	-	-	-	2 x 9000-158-14	2 x 9000-158-15
End cap	-	-	-	2 x 9000-158-16	2 x 9000-158-16
Vibration damper set	-	0835-991-00	0835-991-00	0832-020-0000	0832-020-0000

Oil-free piston compressors and piston vacuum pumps of series KK15 / KV15

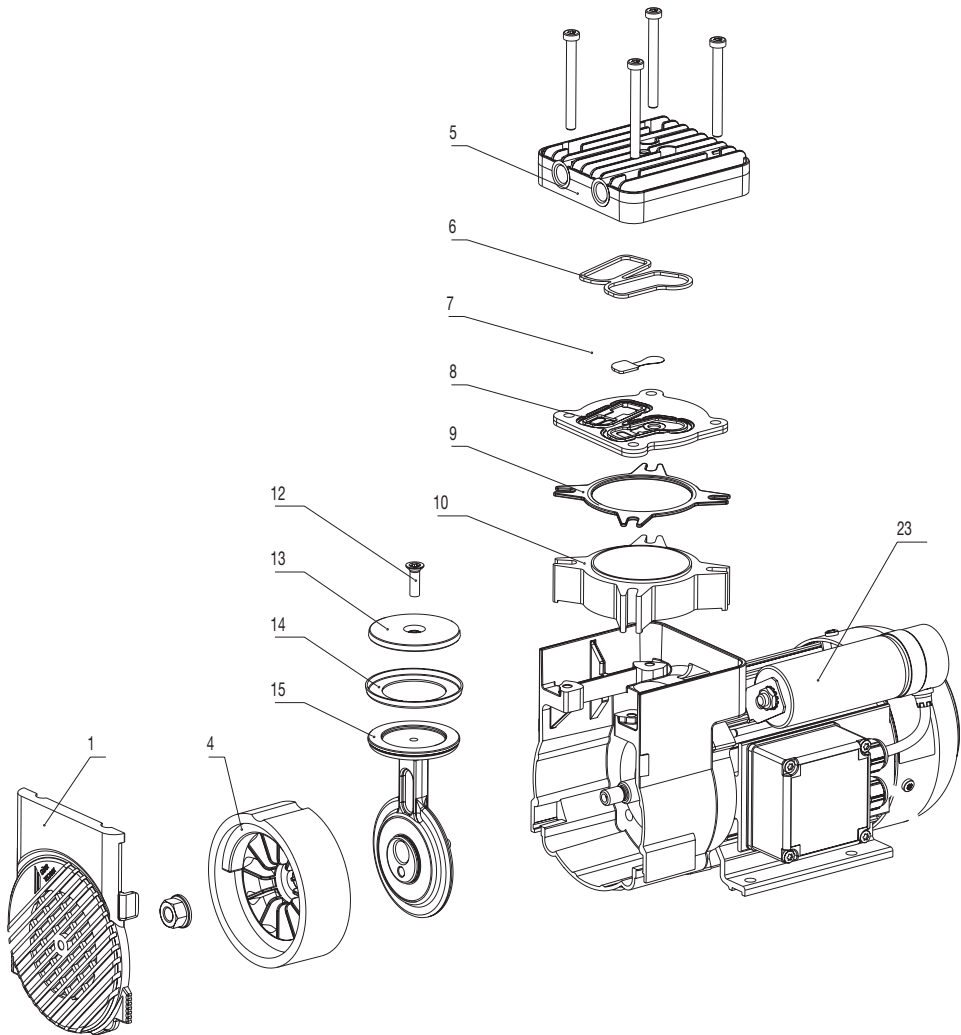


Figure 2: Oil-free piston compressors and piston vacuum pumps KK15 / KV15 with item numbers for spare parts

Spare parts KK15

Type		A-038	A-038	A-038
Article no.		0574 1030	0574 1130	0835-73..
	Item no.			
Crankcase cover	1	0832-119-02	0832-119-02	0832-119-02
Cylinder head	5	0833-111-02	0833-111-02	0833-111-02
Lamellar valve	7	2 x 0832-118-01	2 x 0832-118-01	2 x 0832-118-01
Valve plate	8	0832-115-01	0832-115-01	0832-115-01
Crank with connecting rod	4, 15	0832-241-51	0832-241-51	0832-241-51
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	0832-981-00	0832-981-00	0832-981-00
Vibration dampers	-	0835-991-00 (33 Shore)	0835-991-00 (33 Shore)	0835-991-00 (33 Shore)

Type		A-038	A-035/62
Article no.		0835-49	0841-29
	Item no.		
Crankcase cover	1	0832-119-02	on request
Cylinder head	5	0833-111-02	
Lamellar valve	7	2 x 0832-118-01	
Valve plate	8	0832-115-01	
Crank with connecting rod	4, 15	0832-241-51	
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	0832-981-00	
Vibration dampers	-	0835-992-00	

Type		B-038	D-040	D-040
Article no.		0835-75..	0832-22..	0832-25
	Item no.			
Crankcase cover	1	0832-119-02	0832-119-02	0832-119-02
Cylinder head	5	0833-111-04	0833-111-02	0833-111-02
Lamellar valve	7	2 x 0832-118-01	2 x 0832-118-01	2 x 0832-118-01
Valve plate	8	0832-115-03	0832-115-01	0832-115-01
Crank with connecting rod	4, 15	0832-241-51	0832-241-50	0832-241-50
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	0832-981-00	0832-981-00	0832-981-00
Carbon brushes	-	-	2 x 9000-158-15	2 x 9000-158-14
End cap	-	-	2 x 9000-158-16	2 x 9000-158-16
Interference filter set	-	-	0832-990-50	-
Relay	-	-	9000-167-47	9000-167-46
Vibration dampers	-	0835-991-00 (33 Shore)	0832-010-00 (40 Shore)	0832-010-00 (40 Shore)

Type		A-061	B-061
Article no.		0835-74	0575 1000
	Item no.		
Crankcase cover	1	0832-119-02	0832-119-02
Cylinder head	5	0833-111-02	0833-111-02
Lamellar valve	7	2 x 0832-118-01	2 x 0832-118-01
Valve plate	8	0832-115-01	0832-115-01
Crank with connecting rod	4, 15	0832-241-51	0832-241-51
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	0832-981-00	0832-981-00
Vibration dampers	-	0835-991-00 (33 Shore)	0835-991-00 (33 Shore)

Type		D-061	D-061	D-061
Article no.		0361 1000	0513 1000	0835-46
	Item no.			
Crankcase cover	1	0832-119-02	0832-119-02	0832-119-02
Cylinder head	5	0833-111-02	0833-111-02	0833-111-02
Lamellar valve	7	2 x 0832-118-01	2 x 0832-118-01	2 x 0832-118-01
Valve plate	8	0832-115-01	0832-115-01	0832-115-01
Crank with connecting rod	4, 15	on request	0832-241-51	0832-241-51
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	0832-981-00	0832-981-00	0832-981-00
Carbon brushes	-	9000-158-0001ET	9000-158-0003ET	on request
Vibration dampers	-	0835-991-00 (33 Shore)	0835-991-00 (33 Shore)	0835-991-00 (33 Shore)

Type		A-062	A-062	A-062	B-062
Article no.		0834-27	0833-36	0834-23..	0834-13
	Item no.				
Crankcase cover	1	2 x 0832-119-02	2 x 0832-119-02	2 x 0832-119-02	2 x 0832-119-02
Spare parts kit: cylinder head	5	0833-110-02ET	0833-110-02ET	0833-110-02ET	0833-110-02ET
Lamellar valve	7	4 x 0832-118-01	4 x 0832-118-01	4 x 0832-118-01	4 x 0832-118-01
Valve plate	8	2 x 0832-115-01	2 x 0832-115-01	2 x 0832-115-01	2 x 0832-115-01
Crank with connecting rod	4, 15	2 x 0832-241-51	2 x 0832-241-50	2 x 0832-241-51	2 x 0832-241-51
Spare parts kit: cup seal/ cylinder	6, 9, 10, 12, 14	2 x 0832-981-00	2 x 0832-981-00	2 x 0832-981-00	2 x 0832-981-00
Vibration dampers	-	0832-008-00	0832-008-00	0832-008-00	0832-008-00



Spare parts KV15

Type		A-038E	D-040E	D-040E	A-062E1
Article no.		0839-43	0839-22	0839-25	0837-21A
	Item no.				
Crankcase cover	1	0832-119-02	0832-119-02	0832-119-02	2 x 0832-119-02
Cylinder head	5	0833-111-04	0833-111-04	0833-111-04	2 x 0833-111-04
Lamellar valve	7	2 x 0832-118-01	2 x 0832-118-01	2 x 0832-118-01	4 x 0832-118-01
Valve plate	8	0832-115-03	0832-115-03	0832-115-03	2 x 0832-115-03
Crank with connecting rod	4, 15	0832-241-51	0832-241-50	0832-241-50	2 x 0832-241-51
Spare parts kit: cup seal/cylinder	6, 9, 10, 12, 14	0839-981-00	0839-981-00	0839-981-00	2 x 0839-981-00
Carbon brushes	-	-	2 x 9000-158-15	2 x 9000-158-14	-
End cap	-	-	2 x 9000-158-16	2 x 9000-158-16	-
Interference filter set	-	-	0832-990-50	-	-
Relay	-	-	9000-167-47	9000-167-46	-
Vibration dampers	-	0835-991-00 (33 Shore)	0832-010-00 (40 Shore)	0832-010-00 (40 Shore)	0832-010-00 (40 Shore)

Type		A-062E2	B-061E	D-061E
Article no.		0838-21A	0575 1100	0513 1100
	Item no.			
Crankcase cover	1	2 x 0832-119-02	0832-119-02	0832-119-02
Cylinder head	5	2 x 0833-111-04	0833-111-04	0833-111-04
Lamellar valve	7	4 x 0832-118-01	2 x 0832-118-01	2 x 0832-118-01
Valve plate	8	2 x 0832-115-03	0832-115-03	0832-115-03
Crank with connecting rod	4, 15	2 x 0832-241-51	0832-241-51	0832-241-51
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	2 x 0839-981-00	0839-981-00	0839-981-00
Vibration dampers	-	0832-010-00 (40 Shore)	0835-991-00	0835-991-00

Oil-free piston compressors and piston vacuum pumps of series KK40 / KV40

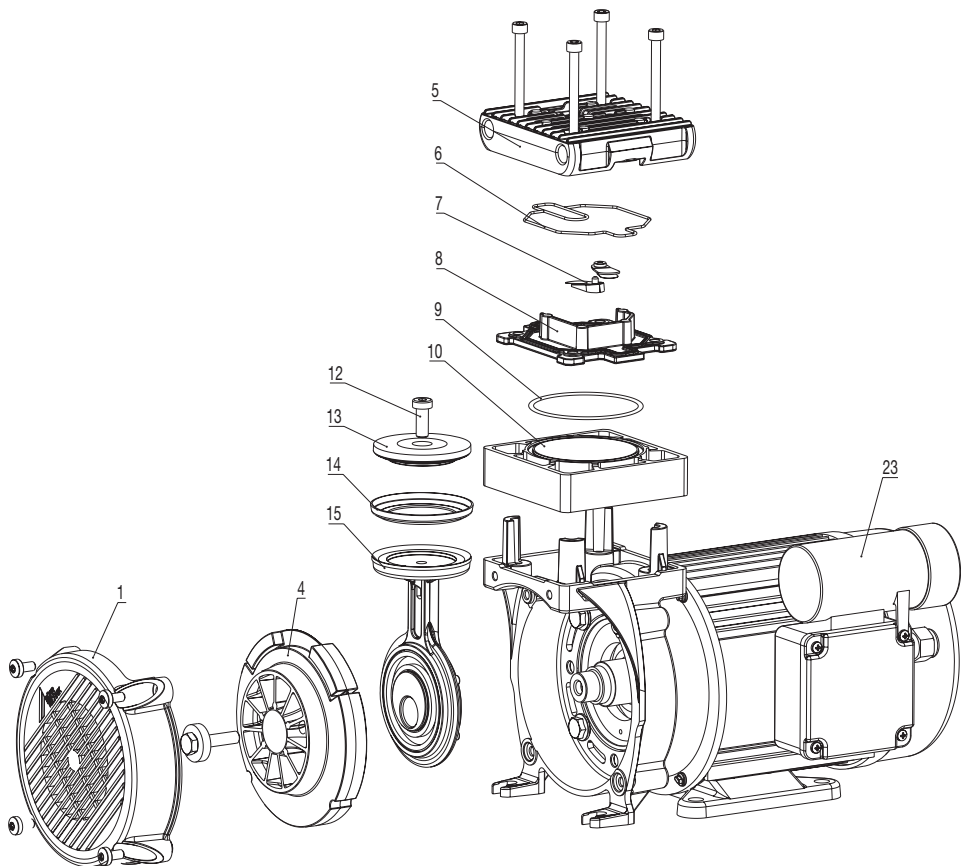


Figure 3: Oil-free piston compressors and piston vacuum pumps KK40 / KV40 with item numbers for spare parts



Spare parts KK40

Type		A-065	A-065	B-065
Article no.		0431 1100	0431 1400	0431 1300
	Item no.			
Crankcase cover	1	0431 0090	0431 0090	0431 0090
Cylinder head 2 connections	5	0833-111-12	0833-111-12	0833-111-12
Cylinder head 4 connections	5	-	-	-
Valve plate	8	0832-115-50	0832-115-50	0832-115-50
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	0431 0902	0431 0902	0431 0902
Vibration damper set	-	0880-991-00	1225-991-00	0880-991-00

Type		AG-132	AG-132	BG-132	DG-160
Article no.		0431 2200	0431 2300	0431 2500	0571 3000
	Item no.				
Crankcase cover	1	0431 0091	0431 0091	0431 0091	0431 0091
Cylinder head 2 connections	5	0833-111-12	0833-111-12	0833-111-12	0833-111-12
Cylinder head 4 connections	5	0833-111-13	0833-111-13	0833-111-13	0833-111-13
Valve plate	8	2 x 0832-115-50	2 x 0832-115-50	2 x 0832-115-50	2 x 0832-115-50
Spare parts kit: cup seal / cylinder incl. assembly instructions	6, 9, 10, 12, 14	2 x 0431 0902	2 x 0431 0902	2 x 0431 0902	2 x 0431 0902
Vibration damper set	-	0880-991-00	0880-991-00	0880-991-00	0880-991-00

Type		D-070	D-075
Article no.		0593 1100	0692 1000
	Item no.		
Crankcase cover	1	0431 0090	0431 0090
Cylinder head 2 connections	5	0833-111-12	0833-111-12
Cylinder head 4 connections	5	-	-
Valve plate	8	0832-115-50	0832-115-50
Spare parts kit: cup seal / cylinder incl. assembly instructions	6, 9, 10, 12, 14	0431 0902	0431 0902
Vibration damper set	-	0880-991-00	0880-991-00

Spare parts KV40

Type		AG-065-2E	AG-132E
Article no.		0431 3100	0431 4400
	Item no.		
Crankcase cover	1	0431 0091	0431 0091
Cylinder head 2 connections	5	0832-111-12	0832-111-12
Cylinder head 4 connections	5	0833-111-13	0833-111-13
Valve plate	8	2 x 0832-115-50	2 x 0832-115-50
Crank with connecting rod	15	-	-
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	2 x 0431 0904	2 x 0431 0904
Vibration damper set	-	0880-991-00	0880-991-00

Type		A-065E	BG-132E
Article no.		0431 4700	0431 4100
	Item no.		
Crankcase cover	1	0431 0090	0431 0091
Cylinder head 2 connections	5	0833-111-12	0832-111-12
Cylinder head 4 connections	5	-	0833-111-13
Valve plate	8	0832-115-50	2 x 0832-115-50
Spare parts kit: cup seal / cylinder	6, 9, 10, 12, 14	0431 0904	2 x 0431 0904
Vibration damper set	-	0880-991-00	0880-991-00



Oil-free piston compressors and piston vacuum pumps of series KK70

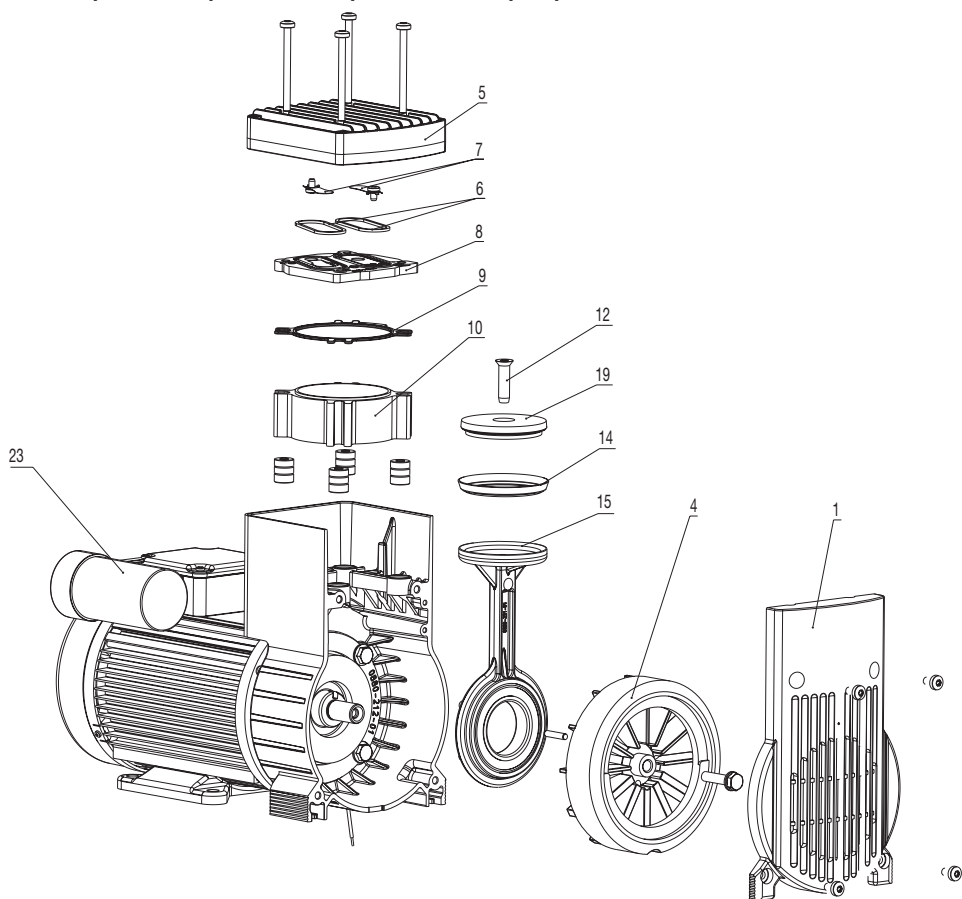


Figure 4: Oil-free piston compressors and piston vacuum pumps KK70 with item numbers for spare parts

Spare parts KK70



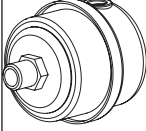
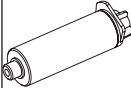
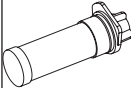
Type		A-100	A-100	B-100
Article no.		0880-03	0880-04	0880-05
	Item no.			
Crankcase cover	1	0880-119-01	0880-119-01	0880-119-01
Cylinder head	5	0880-290-01	0880-290-01	0880-290-01
Valve plate + lamellar valve	8	0880-280-01	0880-280-01	0880-280-01
Seal (cylinder)	9	0880-114-02	0880-114-02	0880-114-02
Seal (valves)	6	2 x 0880-121-01	2 x 0880-121-01	2 x 0880-121-01
Spare parts kit: cup seal and cylinder	10, 14	0880-981-00	0880-981-00	0880-981-00
Spare parts kit: Crank with piston, cylinder, cup seal, complete	-	0880-992-00	0880-992-00	0880-992-00
Capacitor	23	on request	on request	--
Vibration damper set		0880-991-00	0880-991-00	0880-991-00

Type		D-100	D-100	D-100	D-100
Article no.		0448 1000	0484 1000	0425 1000	0422 1000
	Item no.				
Crankcase cover	1	0880-119-01	0880-119-01	0880-119-01	0880-119-01
Cylinder head	5	0880-290-01	0880-290-01	0880-290-01	0880-290-01
Valve plate + lamellar valve	8	0880-280-01	0880-280-01	0880-280-01	0880-280-01
Seal (cylinder)	9	0880-114-02	0880-114-02	0880-114-02	0880-114-02
Seal (valves)	6	2 x 0880-121-01	2 x 0880-121-01	2 x 0880-121-01	2 x 0880-121-01
Spare parts kit: cup seal and cylinder	10, 14	0880-981-00	0880-981-00	0880-981-00	0880-981-00
Spare parts kit: Crank with piston, cylinder, cup seal, complete	-	on request	on request	on request	on request
Vibration damper set		0881-991-00	0881-991-00	0881-991-00	0881-991-00



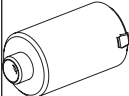

Type		A-200	B-200
Article no.		0881-01	0881-05
	Item no.		
Crankcase cover	1	2 x 0880-119-01	0880-119-01
Cylinder head	5	2 x 0880-290-01	0880-290-01
Valve plate + lamellar valve	8	2 x 0880-280-01	0880-280-01
Seal (cylinder)	9	2 x 0880-114-02	0880-114-02
Seal (valves)	6	4 x 0880-121-01	2 x 0880-121-01
Spare parts kit: cup seal and cylinder	10, 14	2 x 0880-981-00	2 x 0880-981-00
Spare parts kit: Crank with piston, cylinder, cup seal, complete	-	2 x 0880-992-00	2 x 0880-992-00
Capacitor	23	9000-104-0008ET	-
Vibration damper set		0881-991-00	0881-991-00

Piston compressors KK accessories

Piston compressors		KK8	KK15	KK40	KK70
	Designation	G1/8"	G1/4"	G1/4"	G1/4"
	Air intake filter single G1/8"	9000-416-01	-	-	-
	Air intake filter single G1/4"	-	9000-416-16	9000-416-16	9000-416-16
	Air intake filter standard	9000-416-0030**	9000-416-0030	9000-416-0030	9000-416-0030
not shown	Filter cartridge standard (insert in air intake filter 9000-4167-0030)	9000-416-31	9000-416-31	9000-416-31	9000-416-31
	Microfilter in aluminium housing G1/4"	-	0832-994-00	0832-994-00	0832-994-00
	Microfilter insert (insert in the aluminium housing G1/4" 0832-994-00)	9000-416-50	9000-416-11	9000-416-11	9000-416-11

**requires reduction nipple 9000-310-57

**Accessories for piston vacuum pumps KV**

Piston vacuum pumps		KV8	KV15	KV40
	Designation	G1/8"	G1/4"	G1/4"
	Silencer G1/4" external thread	0837-001-00**	0837-001-00	0837-001-00
	Filter with non-return valve (kit of 3)	1100-040-00	1100-040-00	1100-040-00

* Applies to piston vacuum pumps starting from year of manufacture 02/2006

**requires reduction nipple 9000-310-57



Capacitors on request.

Accessories available on request or at www.duerr-technik.com

4 Technical data

4.1 Piston compressor of series KK8

Schematic drawing KK8/KV8

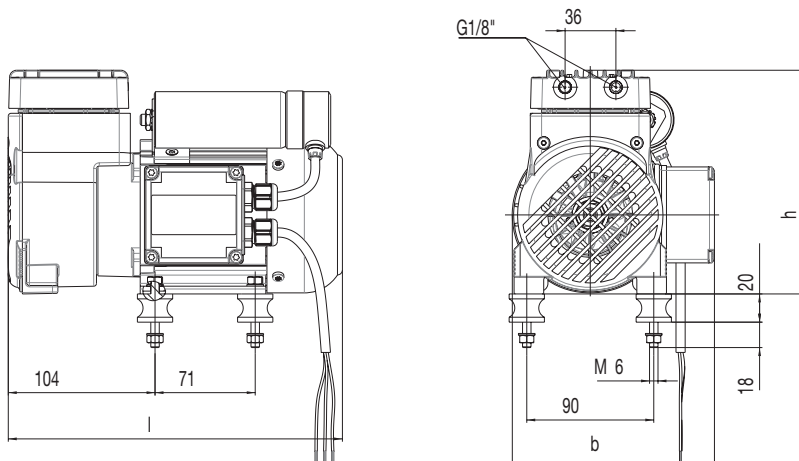


Figure 5: KK8 / KV8; Type: A-025; A-025E

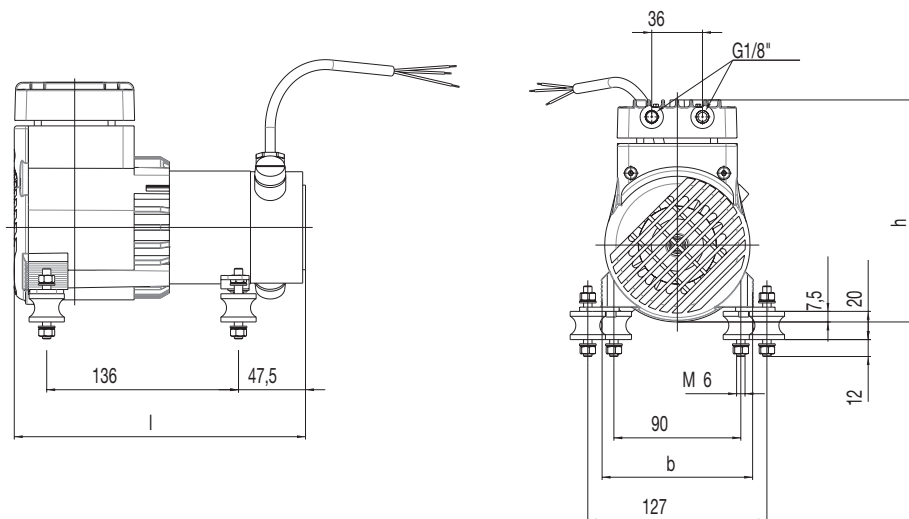


Figure 6: KK8 / KV8; Type: D-030; D-030E

**Technical Data KK8***Type A-025*

Electrical data					
Type		A-025		A-025	
Article no.		0536 1030		0536 1130	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	110/115	110/115	230	230
Rated output	P1 (W)	180	200	220	270
Rated current	A	1.7	1.8	1	1.2
Rotational speed	min ⁻¹	1400	1660	1400	1600
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Delivery volume 0 bar	l/min	25	28	25	28
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	55	57	55	57
Weight	kg	4.8	4.8	4.8	4.8
Dimensions (l x w x h)	mm	237 x 143 x 159	237 x 143 x 159	237 x 143 x 159	237 x 143 x 159
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

Type D-030

Electrical data			
Type		D-030	D-030
Article no.		0825-02	0825-03
Mains frequency	Hz	-	-
Nominal voltage	V	12 VDC	24 VDC
Rated output	P1 (W)	156	122
Rated current	A	13	6.4
Rotational speed	min ⁻¹	1500	1570
Duty cycle		100%	100%
Type of protection	IP	00	00

General technical data			
Delivery volume 0 bar	l/min	30	30
Rated pressure	bar	7	7
Safety pressure PS	bar	10	10
Sound pressure level	dB(A)	61	61
Weight	kg	4.4	4.4
Dimensions (l x w x h)	mm	209 x 108 x 156	209 x 108 x 156
Remarks			

Ambient conditions for operation			
Temperature	°C	+5 to +40	+5 to +40

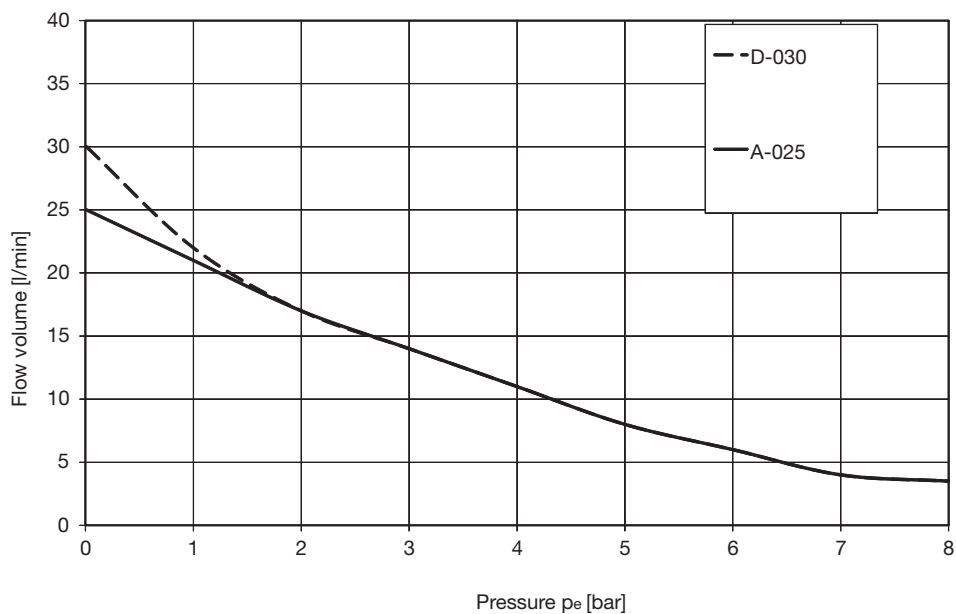
**Performance diagram KK8**

Figure 7: Delivery volume at 50 Hz (60 Hz approx. +18%)

4.2 Piston vacuum pump of series KV8

Schematic drawing KK8/KV8

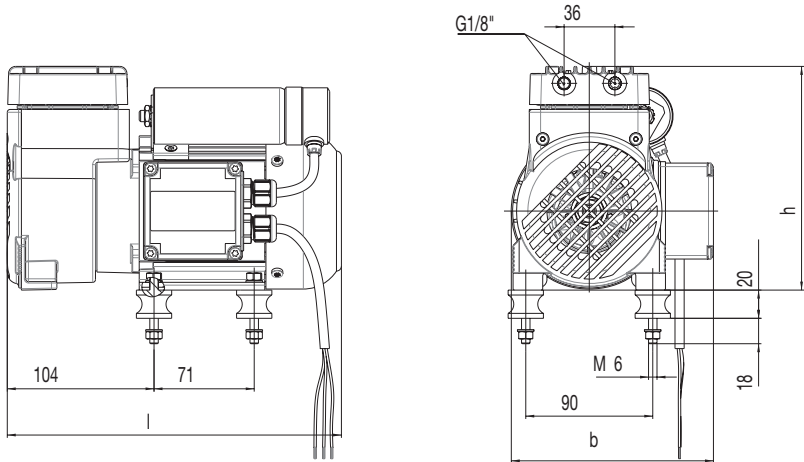


Figure 8: KK8 / KV8; Type: A-025; A-025E

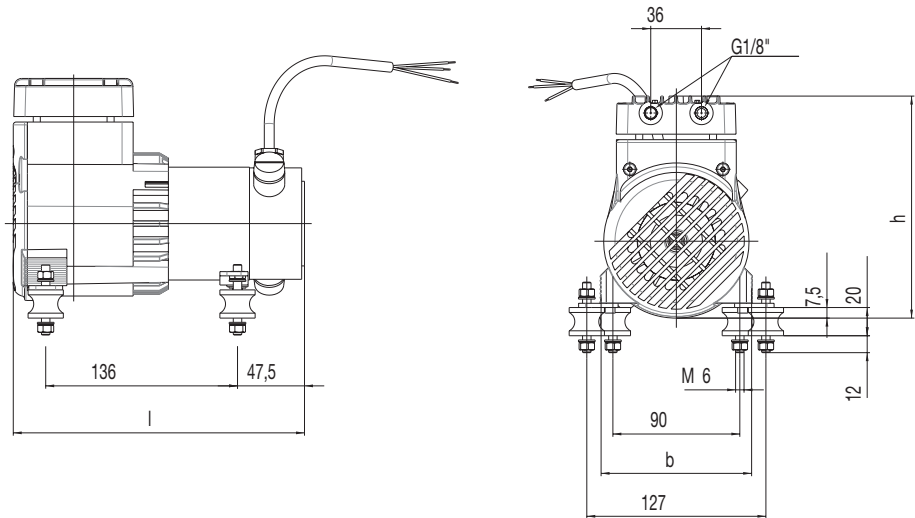


Figure 9: KK8 / KV8; Type: D-030; D-030E

Technical data KV8

Type A-025E

Electrical data					
Type		A-025E		A-025E	
Article no.		0536 2030		0536 2130	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	110/115	110/115	230	230
Rated output	P ₁ (W)	190	170	160	200
Rated current	A	1.64	1.5	0.7	0.9
Rotational speed	min ⁻¹	1300	1600	1450	1720
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Suction capacity S_{eff}	l/min	25	28	25	28
End pressure P_{abs}	mbar	<150	<150	<150	<150
Sound pressure level	dB(A)	55	57	55	57
Weight	kg	4.8	4.8	4.8	4.8
Dimensions (l x w x h)	mm	237 x 143 x 159	237 x 143 x 159	237 x 143 x 159	237 x 143 x 159
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

Type D-030E

Electrical data			
Type		D-030E	D-030E
Article no.		0826-02	0826-03
Mains frequency	Hz	-	-
Nominal voltage	V	12 VDC	24 VDC
Rated output	P1 (W)	80	75
Rated current	A	6.7	3
Rotational speed	min ⁻¹	1750	1700
Duty cycle		100%	100%
Type of protection	IP	00	00

General technical data			
Suction capacity S_{eff}	l/min	30	30
End pressure P_{abs}	mbar	<180	<180
Sound pressure level	dB(A)	53	59
Weight	kg	4.4	4.4
Dimensions (l x w x h)	mm	209 x 108 x 156	209 x 108 x 156
Remarks			

Ambient conditions for operation			
Temperature	°C	+5 to +40	+5 to +40

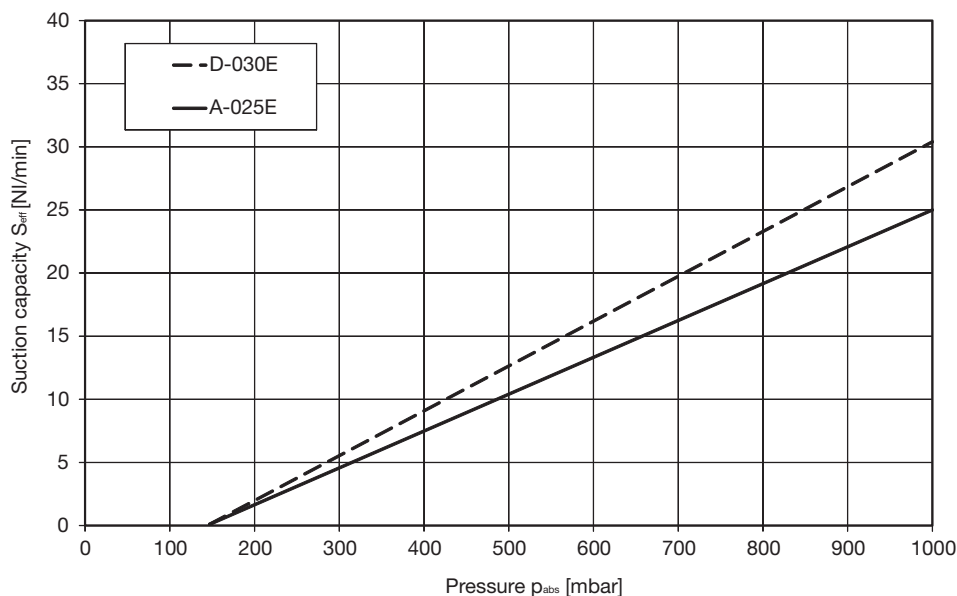
**Performance diagram KV8**

Figure 10: Suction capacity based on atmospheric pressure at 50 Hz (60 Hz approx. + 18%)

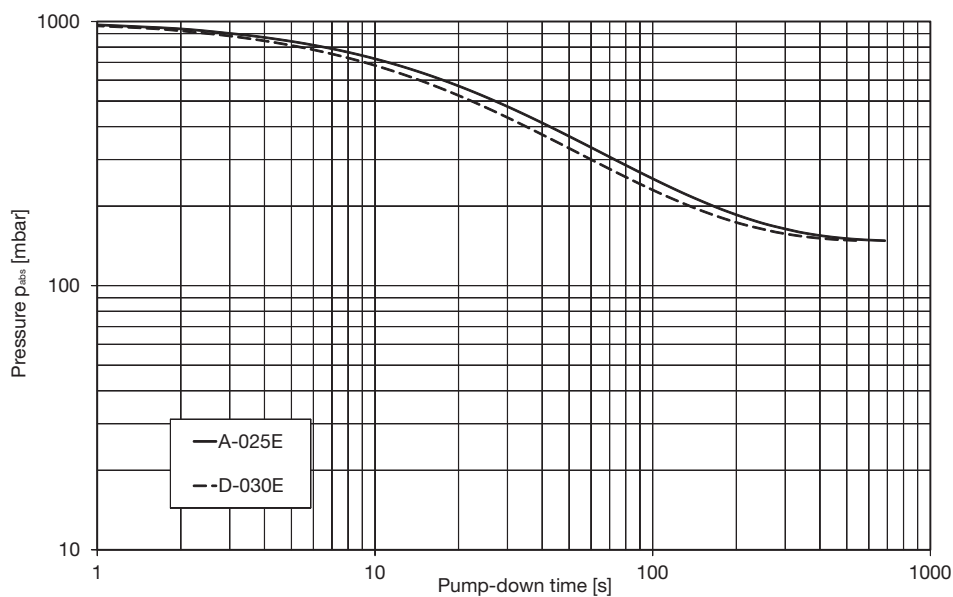


Figure 11: Pump down time for a 10-l volume at 50 Hz

4.3 Piston compressor of series KK15

Schematic drawing KK15/KV15

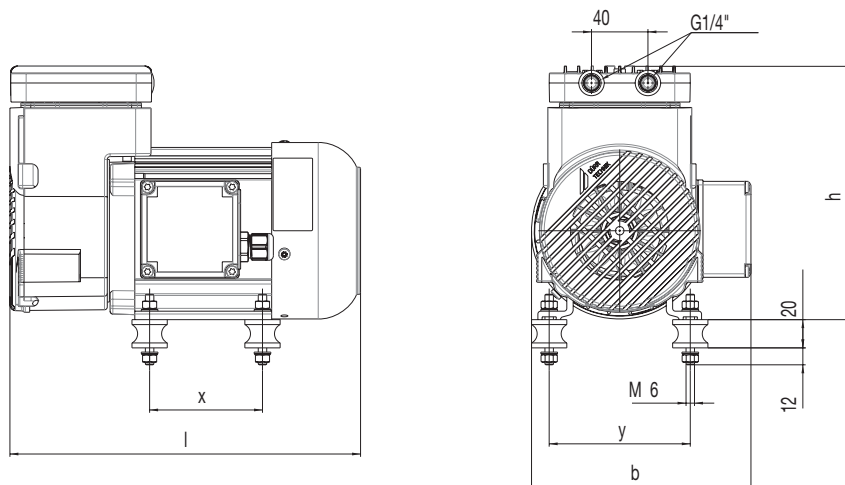


Figure 12: KK15 / KV15, Type: A-038; B-038; A-061; B-061

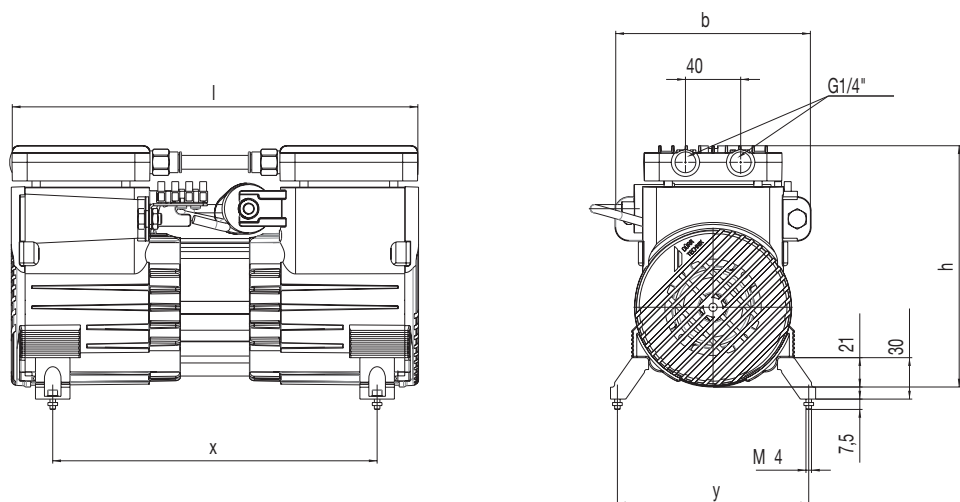


Figure 13: KK15 / KV15, Type: A-062



EN

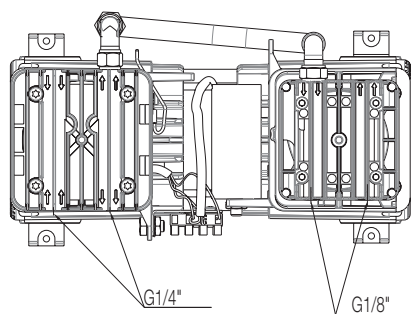


Figure 14: KK15; Type: A-035/62

Technical data KK15*Type A-035/62; A-038*

Electrical data					
Type		A-035/62		A-038	
Article no.		0841-29		0835-73..	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	230	230	230	230
Rated output	P1 (W)	350	390	300	340
Rated current	A	1.7	1.6	1.5	1.5
Rotational speed	min ⁻¹	1385	1650	1300	1500
Duty cycle		100%	100%	100%	100%
Type of protection	IP	00	00	54	54

General technical data					
Delivery volume 0 bar	l/min	32	32	38	38
Rated pressure	bar	12	12	7	7
Safety pressure PS	bar	12	12	10	10
Sound pressure level	dB(A)	57	57	57	59
Weight	kg	8.5	8.5	6.4	6.4
Dimensions (l x w x h)	mm	282 x 185 x 205	282 x 185 x 205	249 x 156 x 180	249 x 207 x 127
Dimensions (x; y)	mm	283; 139	283; 140	80; 100	80; 100
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40



Type A-038

Electrical data					
Type		A-038		A-038	
Article no.		0835-49		0602 1030	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	100-110	100-127	230	230
Rated output	P1 (W)	270-300	280-350	300	340
Rated current	A	3.2-3.5	2.8-3.1	1.5	1.5
Rotational speed	min ⁻¹	1380	1650-1700	1300	1500
Duty cycle		100%	100%	100%	100%
Type of protection	IP	44	44	54	54

General technical data					
Delivery volume 0 bar	l/min	38	38	38	38
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	57	59	57	59
Weight	kg	9.7	9.7	6.4	6.4
Dimensions (l x w x h)	mm	258 x 120 x 180	258 x 120 x 180	249 x 207 x 127	249 x 207 x 127
Dimensions (x; y)	mm	80; 100	80; 100	80; 100	80; 100
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

Type A-038

Electrical data					
Type		A-038			
Article no.		0574 1030			
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	115*	115*	230	230
Rated output	P1 (W)	310	330	350	410
Rated current	A	4.1	3.2	2.1	1.9
Rotational speed	min ⁻¹	1370	1630	1370	1630
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Delivery volume 0 bar	l/min	38	38	38	38
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	57	59	57	59
Weight	kg	7.5	7.5	7.5	7.5
Dimensions (l x w x h)	mm	269 x 156 x 180	269 x 156 x 180	269 x 156 x 180	269 x 156 x 180
Dimensions (x; y)	mm	80; 100	80; 100	80; 100	80; 100
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

*Coupling, delivered state



Type A-038

Electrical data					
Type		A-038			
Article no.		0574 1130			
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	230*	230*	115	115
Rated output	P1 (W)	350	410	310	330
Rated current	A	2.1	1.9	4.1	3.2
Rotational speed	min ⁻¹	1370	1630	1370	1630
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Delivery volume 0 bar	l/min	38	38	38	38
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	57	59	57	59
Weight	kg	7.5	7.5	7.5	7.5
Dimensions (l x w x h)	mm	269 x 156 x 180	269 x 156 x 180	269 x 156 x 180	269 x 156 x 180
Dimensions (x; y)	mm	80; 100	80; 100	80; 100	80; 100
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

*Coupling, delivered state

Type B-038; D-040

Electrical data					
Type		B-038		D-040	D-040
Article no.		0835-75..		0832-25	0832-22..
Mains frequency	Hz	50	60	-	-
Nominal voltage	V	3 ph. 400	3 ph. 400	12 VDC	24 VDC
Rated output	P1 (W)	410	370	192	192
Rated current	A	0.9	0.8	17.5	9
Rotational speed	min ⁻¹	1400	1670	1600	1800
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	00	00

General technical data					
Delivery volume 0 bar	l/min	38	38	40	40
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	57	59	61	61
Weight	kg	6.5	6.5	5.9	5.9
Dimensions (l x w x h)		249 x 156 x 180	249 x 156 x 180	242 x 121 x 175	242 x 121 x 175
Dimensions (x; y)	mm	80; 100	80; 100	155; 92/139	155; 92/139
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

*Type A-061; B-061*

Electrical data					
Type		A-061		B-061	
Article no.		0835-74..		0575 1000	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	230	230	3 ph. 400	3 ph. 400
Rated output	P1 (W)	540	610	500	500
Rated current	A	2.9	2.7	0.9	0.9
Rotational speed	min ⁻¹	2680	3130	2740	3200
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Delivery volume 0 bar	l/min	60	60	60	60
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	66	68	66	66
Weight	kg	7.6	7.6	6.1	6.1
Dimensions (l x w x h)		269 x 156 x 180	269 x 156 x 180	225 x 165 x 180	225 x 165 x 180
Dimensions (x; y)	mm	80; 100	80; 100	80; 100	80; 100
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

Type D-061; A-062

Electrical data					
Type		D-061	D-061	D-061	A-062
Article no.		0361 1000	0513 1000	0835-46	0834-23..
Mains frequency	Hz	-	-	-	50
Nominal voltage	V	110 VDC	24 VDC	12 VDC	230
Rated output	P1 (W)	400	500	520	435
Rated current	A	3.7	21	43	2
Rotational speed	min ⁻¹	2610	2900	2400	1390
Duty cycle		S3 30 min 50%	100%	S3 10 min 50%	100%
Type of protection	IP	54	54	54	00 / 20*

General technical data					
Delivery volume 0 bar	l/min	60	60	60	78
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	69	69	69	59
Weight	kg	6.9	6.9	7.2	9.8
Dimensions (l x w x h)		247 x 132 x	247 x 132 x	234 x 132 x	298 x 125 x
	mm	188	188	188	175
Dimensions (x; y)	mm	90; 112	90; 112	90; 112	225; 139
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

*If a terminal box is fitted, the electrical components are covered. The IP rating is then IP20.



Type A-062; B-062

Electrical data					
Type		A-062	A-062	B-062	
Article no.		0834-27	0833-36	0834-13	
Mains frequency	Hz	60	60	50	60
Nominal voltage	V	230	115	3 ph. 380-415	3 ph. 460-500
Rated output	P1 (W)	550	530	470	570
Rated current	A	2.4	5.3	0.9	0.9
Rotational speed	min ⁻¹	1660	1620	1315	1635
Duty cycle		100%	100%	100%	100%
Type of protection	IP	00 / 20*	00	20	20

General technical data					
Delivery volume 0 bar	l/min	75	75	78	78
Rated pressure	bar	7	7	8.5	8.5
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	60	60	60	60
Weight	kg	10	10	9.1	9.1
Dimensions (l x w x h)		298 x 125 x	283 x 125 x	286 x 125 x	286 x 125 x
	mm	175	175	175	175
Dimensions (x; y)	mm	225; 139	225; 139	218; 139	218; 139
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

*If a terminal box is fitted, the electrical components are covered. The IP rating is then IP20.

Performance diagram KK15

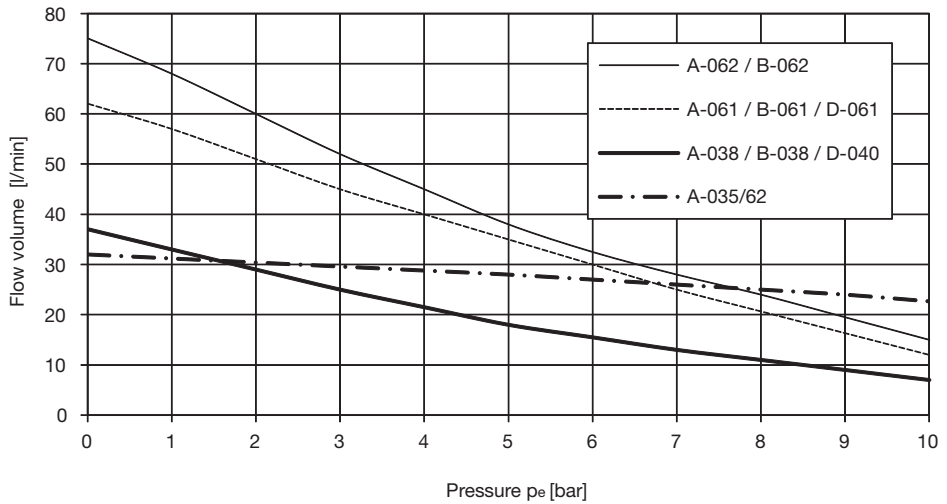


Figure 15: Delivery volume at 50 Hz (60 Hz approx. +18%)



4.4 Piston vacuum pump of series KV15

Schematic drawing KK15/KV15

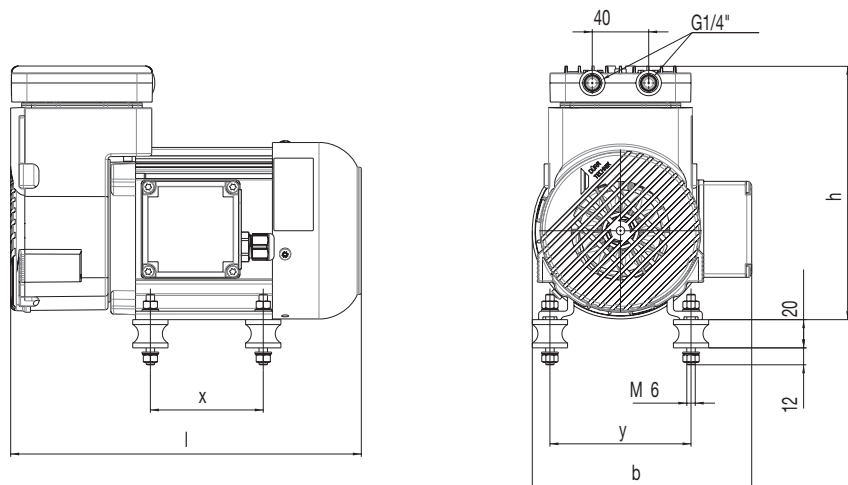


Figure 16: KK15 / KV15, Type: A-038; B-038; A-061; B-061

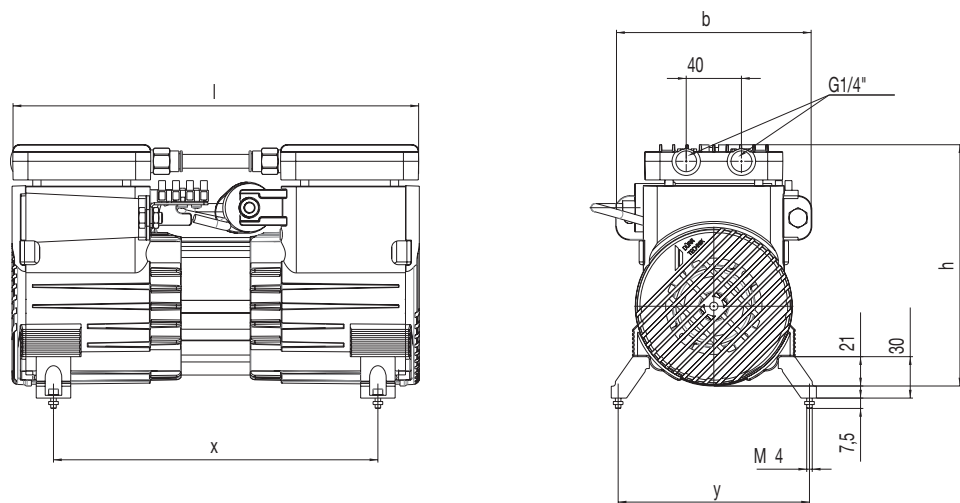


Figure 17: KK15 / KV15; Type: A-062

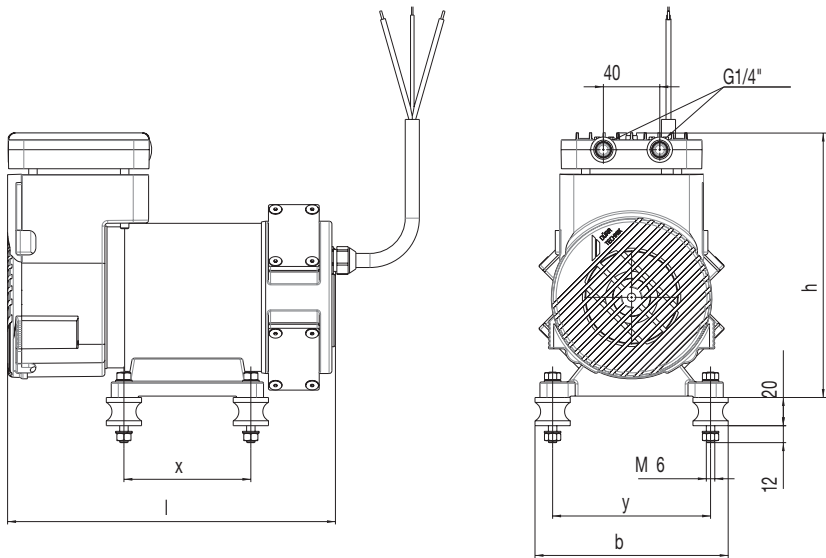


Figure 18: KK15 / KV15; Type: D-040; D-040E; D-061E

**Technical data KV15***Typ A-038E*

Electrical data			
Type		A-038E	
Article no.		0839-73	
Mains frequency	Hz	50	60
Nominal voltage	V	230	230
Rated output	P1 (W)	200	220
Rated current	A	1.3	1
Rotational speed	min ⁻¹	1440	1710
Duty cycle		100%	100%
Type of protection	IP	54	54

General technical data			
Suction capacity S_{eff}	l/min	38	38
End pressure P_{abs}	mbar	150	150
Sound pressure level	dB(A)	54	56
Weight	kg	6.4	6.4
Dimensions (l x w x h)	mm	249 x 156 x 180	249 x 156 x 180
Dimensions (x; y)	mm	80; 100	80; 100
Remarks			

Ambient conditions for operation			
Temperature	°C	+5 to +40	+5 to +40

Typ D-040E; B-061E

Electrical data					
Type		D-040E (12V)	D-040E (24V)	B-061E	
Article no.		0839-25	0839-22	0575 1100	
Mains frequency	Hz	-	-	50	60
Nominal voltage	V	12 VDC	24 VDC	3 ph. 400	3 ph. 400
Rated output	P1 (W)	104	120	500	500
Rated current	A	8.7	5	0.9	0.9
Rotational speed	min ⁻¹	1800	2000	2740	3200
Duty cycle		100%	100%	100%	100%
Type of protection	IP	20	20	54	54

General technical data					
Suction capacity S_{eff}	l/min	40	40	61	61
End pressure P_{abs}	mbar	150	150	150	150
Sound pressure level	dB(A)	59	59	61	63
Weight	kg	6	6	6.1	6.1
Dimensions (l x w x h)	mm	242 x 121 x 175	242 x 121 x 175	225 x 165 x 180	225 x 165 x 180
Dimensions (x; y)	mm	155; 92/139	155; 92/139	80; 100	80; 100
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

*Type D-061E (24V)*

Electrical data		
Type		D-061E (24V)
Article no.		0513 1100
Mains frequency	Hz	-
Nominal voltage	V	24 VDC
Rated output	P ₁ (W)	264
Rated current	A	11
Rotational speed	min ⁻¹	2950
Duty cycle		100%
Type of protection	IP	54

General technical data		
Suction capacity S_{eff}	l/min	61
End pressure P_{abs}	mbar	150
Sound pressure level	dB(A)	61
Weight	kg	7.1
Dimensions (l x w x h)	mm	234 x 137 x 190
Dimensions (x; y)	mm	90; 112
Remarks		

Ambient conditions for operation		
Temperature	°C	+5 to +40

Type A-062E2; A-062E1

Electrical data					
Type		A-062E2		A-062E1	
Article no.		0838-21A		0837-21A	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	230	230	230	230
Rated output	P ₁ (W)	260	340	250	260
Rated current	A	1.2	1.7	1.6	1.2
Rotational speed	min ⁻¹	1360	1620	1410	1630
Duty cycle		100%	100%	100%	100%
Type of protection	IP	20	20	20	20

General technical data					
Suction capacity S_{eff}	l/min	72	72	38	38
End pressure P_{abs}	mbar	150	150	30	30
Sound pressure level	dB(A)	53	55	49	51
Weight	kg	9.3	9.3	9.3	9.3
Dimensions (l x w x h)	mm	291 x 150 x 183	291 x 150 x 183	291 x 139 x 205	291 x 139 x 205
Dimensions (x; y)	mm	225; 139	225; 139	225; 139	225; 139
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

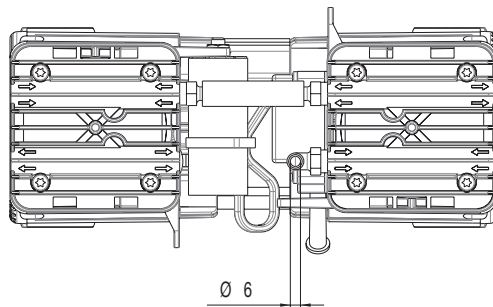


Figure 19: KV15; Type: A-062E1

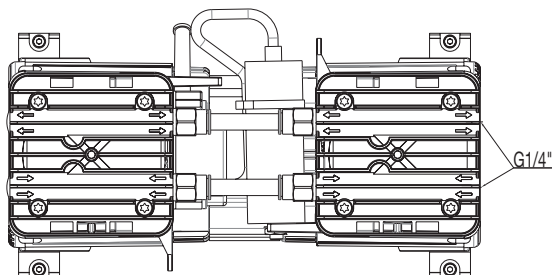


Figure 20: KV15; Type: A-062E2

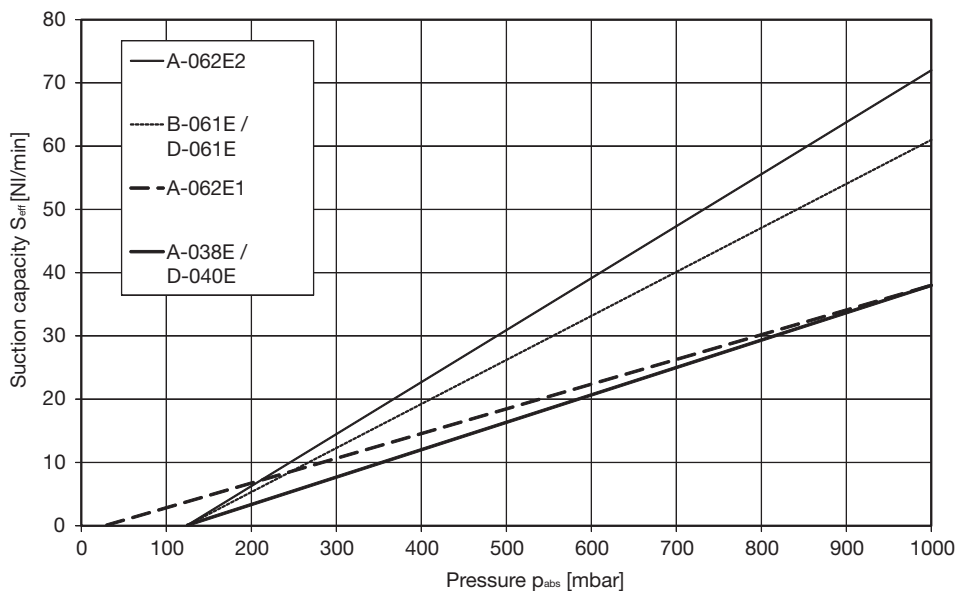
**Performance diagram KV15**

Figure 21: Suction capacity based on atmospheric pressure at 50 Hz (60 Hz approx. + 18%)

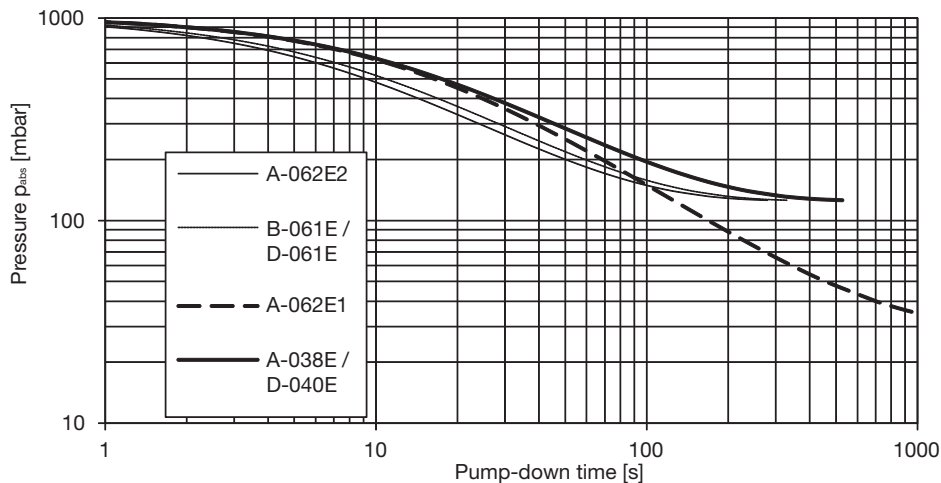


Figure 22: Pump down time for a 10-l volume at 50 Hz

4.5 Piston compressor of series KK40

Schematic drawing KK40/KV40

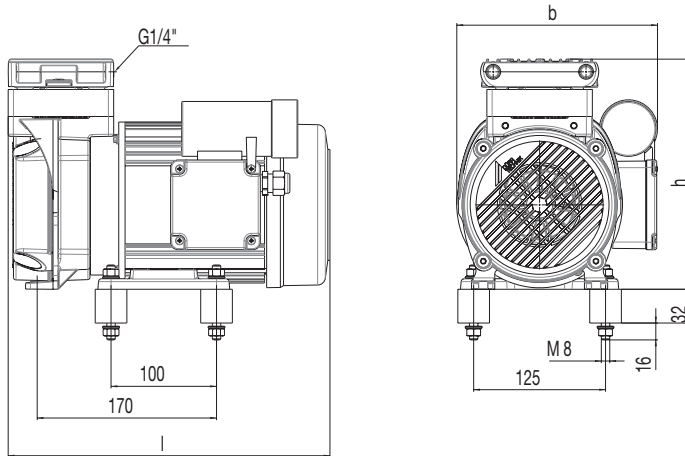


Figure 23: KK40 / KV40; Type: A-065; B-065; A-065E

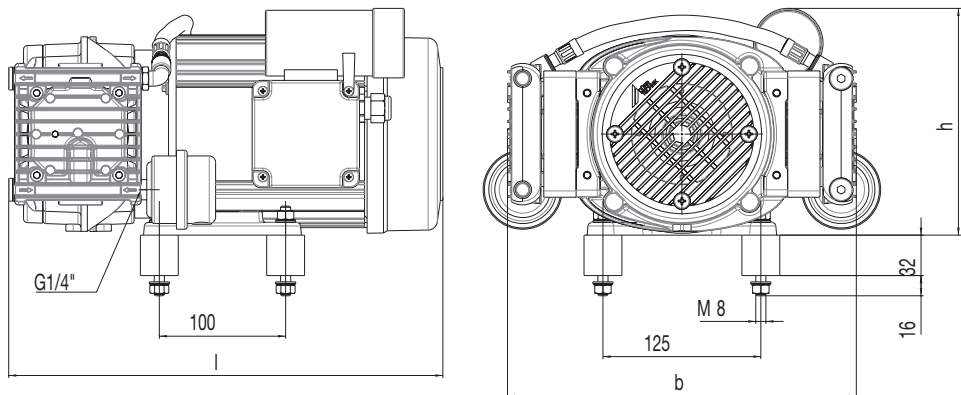


Figure 24: KK40 / KV40; Type: AG-132; BG-132; AG-065-2E; A-065E; AG-132E; BG-132E



EN

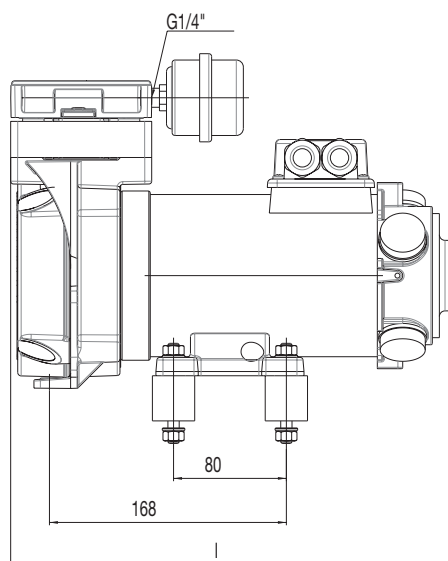


Figure 25: KK40 / KV40; Type: D-075

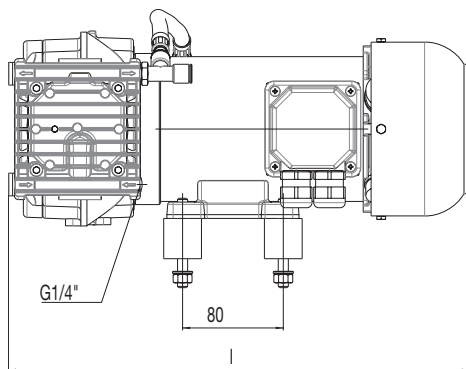
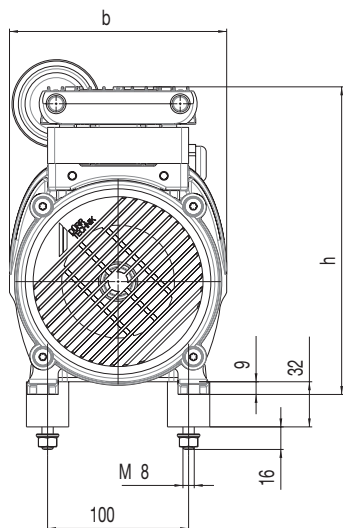
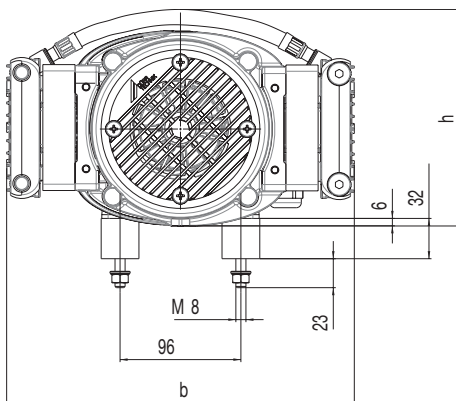


Figure 26: KK40; Type: DG-160



Technical data KK40*Type A-065; B-065*

Electrical data					
Type		A-065		B-065	
Article no.		0431 1100		0431 1300	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	230	230	3 ph. 400	3 ph. 400
Rated output	P1 (W)	530	590	560	610
Rated current	A	2.5	2.6	1.1	1.1
Rotational speed	min ⁻¹	1350	1600	1440	1710
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Delivery volume 0 bar	l/min	65	65	65	65
Rated pressure	bar	7	7	7	7
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	68	70	68	70
Weight	kg	14.4	14.4	14.4	14.4
Dimensions (l x w x h)	mm	305 x 195 x 218	305 x 195 x 218	305 x 188 x 218	305 x 188 x 218
Remarks					

Ambient conditions for operation					
Temperature	°C	-30 to +55	-30 to +55	-30 to +55	-30 to +55

*Type A-065; D-075*

Electrical data				
Type		A-065		D-075
Article no.		0431 1400		0692 1000
Mains frequency	Hz	50	60	-
Nominal voltage	V	110/115	110/115	24 VDC
Rated output	P1 (W)	510	590	520
Rated current	A	5.1	5.3	22
Rotational speed	min ⁻¹	1400	1650	1800
Duty cycle		100%	100%	100%
Type of protection	IP	54	54	54

General technical data				
Delivery volume 0 bar	l/min	65	65	75
Rated pressure	bar	7	7	7
Safety pressure PS	bar	10	10	10
Sound pressure level	dB(A)	68	70	72
Weight	kg	14.4	14.4	14.1
Dimensions (l x w x h)	mm	310 x 190 x 218	310 x 190 x 218	333 x 154 x 218
Remarks				

Ambient conditions for operation				
Temperature	°C	-30 to +55	-30 to +55	-30 to +40

Type AG-132

Electrical data				
Type		AG-132		AG-132
Article no.		0431 2200		0431 2300
Mains frequency	Hz	50	60	60
Nominal voltage	V	230	230	110/115
Rated output	P1 (W)	820	940	1000
Rated current	A	3.9	4.1	9.3*
Rotational speed	min ⁻¹	1380	1630	1700
Duty cycle		100%	100%	100%
Type of protection	IP	54	54	54

General technical data				
Delivery volume 0 bar	l/min	130	130	130
Rated pressure	bar	7	7	7
Safety pressure PS	bar	10	10	10
Sound pressure level	dB(A)	71	73	73
Weight	kg	18	18	18
Dimensions (l x w x h)		340 x 276 x 190	340 x 276 x 190	340 x 276 x 194
Remarks				

Ambient conditions for operation				
Temperature	°C	-30 to +55	-30 to +55	-30 to +55

*Temperature switch, passive

*Type BG-132; DG-160*

Electrical data				
Type		BG-132		DG-160
Article no.		0431 2500		0571 3000C
Mains frequency	Hz	50	60	-
Nominal voltage	V	3 ph. 400	3 ph. 400	24 VDC
Rated output	P1 (W)	890	970	910
Rated current	A	2	1.8	38
Rotational speed	min ⁻¹	1440	1700	1850
Duty cycle		100%	100%	100%
Type of protection	IP	54	54	56

General technical data				
Delivery volume 0 bar	l/min	130	130	160
Rated pressure	bar	7	7	7
Safety pressure PS	bar	10	10	10
Sound pressure level	dB(A)	71	73	72
Weight	kg	18	18	17
Dimensions (l x w x h)	mm	326 x 276 x 190	326 x 276 x 190	366 x 276 x 190
Remarks				

Ambient conditions for operation				
Temperature	°C	-30 to +55	-30 to +55	+5 to +40

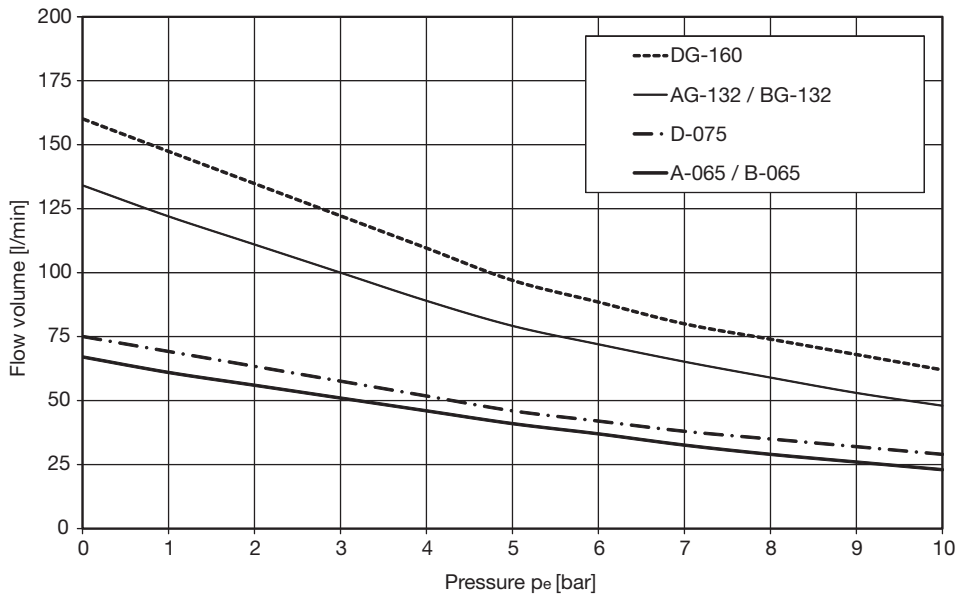
Performance diagram KK40

Figure 27: Delivery volume at 50 Hz (60 Hz approx. +18%)

4.6 Piston vacuum pump of series KV40

Schematic drawing KK40/KV40

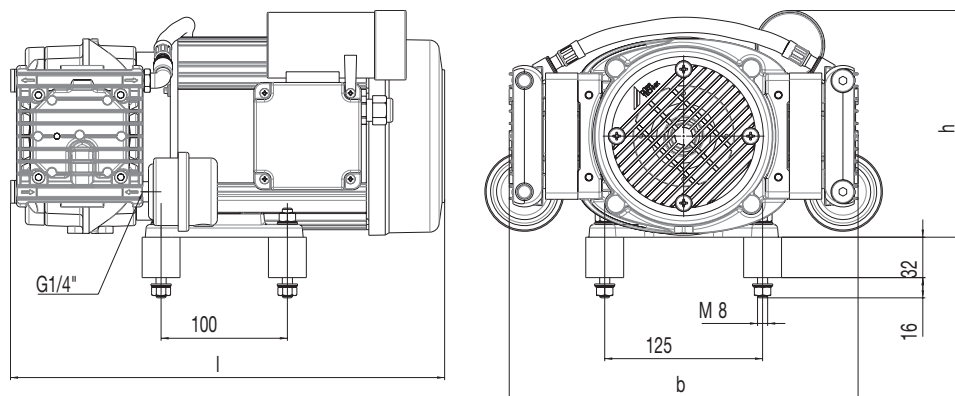


Figure 28: KK40 / KV40; Type: AG-132; BG-132; AG-065-2E; A-065E; AG-132E; BG-132E

Technical data KV40*Type AG-065-2E; A-065E*

Electrical data					
Type		AG-065-2E		A-065E	
Article no.		0431 3100		0431 4700	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	230	230	230	230
Rated output	P1 (W)	530	590	390	390
Rated current	A	2.5	2.6	1.7	1.7
Rotational speed	min ⁻¹	1350	1600	1350	1600
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Suction capacity S_{eff}	l/min	63	63	65	65
End pressure P_{abs}	mbar	30	30	120	120
Sound pressure level	dB(A)	63	65	60	62
Weight	kg	16.5	16.5	14	14
Dimensions (l x w x h)	mm	322 x 276 x 180	322 x 276 x 180	305 x 188 x 218	305 x 188 x 218
Remarks					

Ambient conditions for operation					
Temperature	°C	-30 to +55	-30 to +55	-30 to +55	-30 to +55



Type AG-132E; BG-132E

Electrical data					
Type		AG-132E		BG-132E	
Article no.		0431 4400		0431 4100	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	230	230	3 ph. 230/400	3 ph. 230/400
Rated output	P ₁ (W)	530	590	380	410
Rated current	A	2.5	2.6	0.9	0.8
Rotational speed	min ⁻¹	1350	1600	1460	1740
Duty cycle		100%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Suction capacity S_{eff}	l/min	130	130	130	130
End pressure P_{abs}	mbar	120	120	120	120
Sound pressure level	dB(A)	63	65	63	65
Weight	kg	16.5	16.5	16.5	16.5
Dimensions (l x w x h)	mm	322 x 276 x 180	322 x 276 x 180	322 x 276 x 180	322 x 276 x 180
Remarks					

Ambient conditions for operation					
Temperature	°C	-30 to +55	-30 to +55	-30 to +55	-30 to +55

Performance diagram KV40

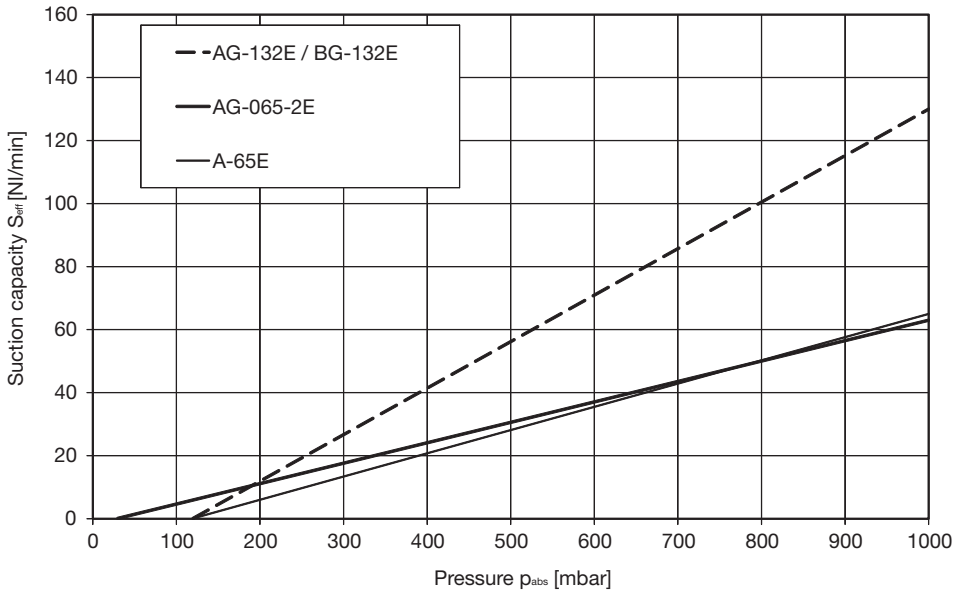


Figure 29: Suction capacity based on atmospheric pressure at 50 Hz (60 Hz approx. + 18%)

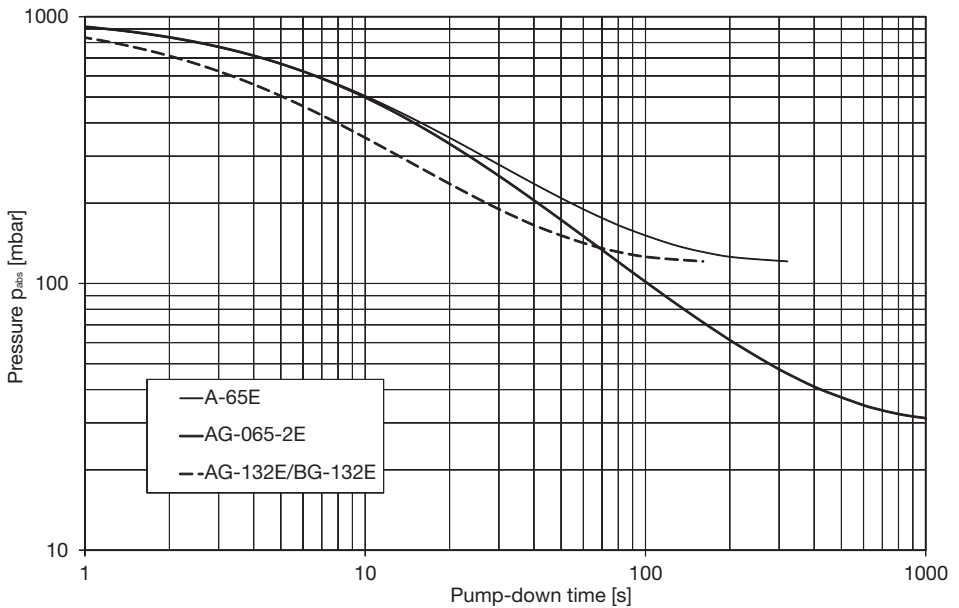


Figure 30: Pump down time for a 10-l volume at 50 Hz

4.7 Piston compressor of series KK70

Schematic drawing KK70

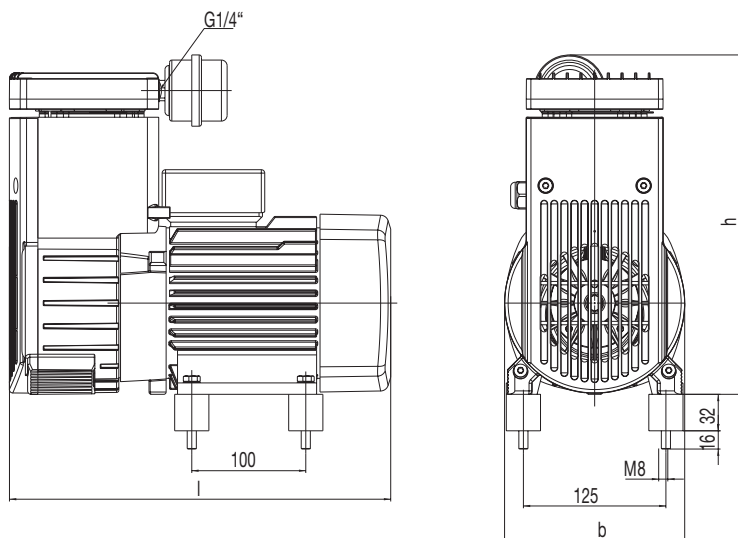


Figure 31: KK70; Type: A-100; B-100; D-100

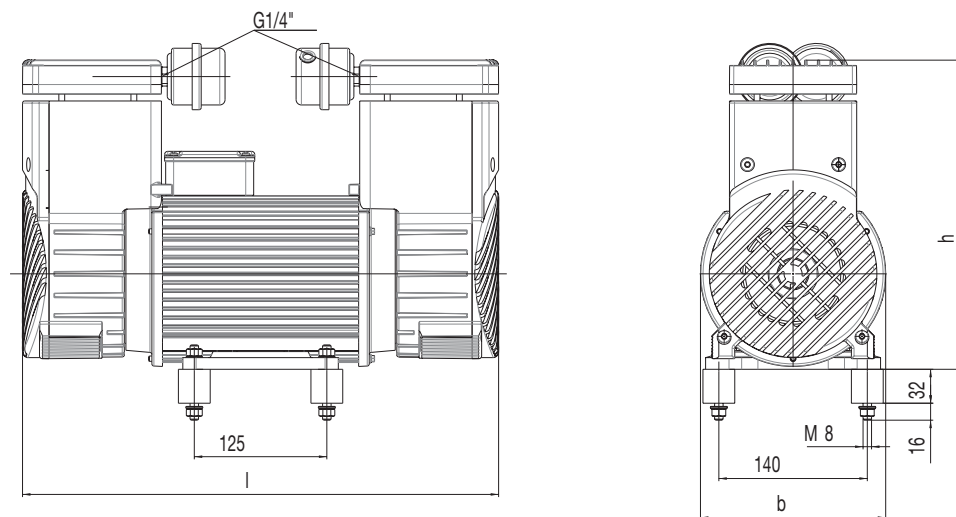


Figure 32: KK70; Type: A-200; B-200

Technical data KK70*Type A-100*

Electrical data					
Type		A-100		A-100	
Article no.		0880-03		0880-04	
Mains frequency	Hz	50	60	50	60
Nominal voltage	V	100-110	100-127	230	230
Rated output	P1 (W)	1030	1110	920	970
Rated current	A	12.9*	11.4*	4.9	4.3
Rotational speed	min ⁻¹	1380	1700	1330	1660
Duty cycle		100%	100%	100%	100%
Type of protection	IP	44	44	54	54

General technical data					
Delivery volume 0 bar	l/min	105	120	105	120
Rated pressure	bar	8	8	8	8
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	66	68	66	68
Weight	kg	21	21	20	20
Dimensions (l x w x h)	mm	340 x 200 x 283	340 x 200 x 283	355 x 200 x 283	355 x 200 x 283
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	+5 to +40	+5 to +40

*Temperature switch, passive



Type B-100

Electrical data			
Type		B-100	
Article no.		0880-05	
Mains frequency	Hz	50	60
Nominal voltage	V	3 ph. 400	3 ph. 400
Rated output	P1 (W)	1000	920
Rated current	A	3.1	2.1
Rotational speed	min ⁻¹	1450	1740
Duty cycle		100%	100%
Type of protection	IP	44	44

General technical data			
Delivery volume 0 bar	l/min	105	120
Rated pressure	bar	8	8
Safety pressure PS	bar	10	10
Sound pressure level	dB(A)	66	68
Weight	kg	20.3	20.3
Dimensions (l x w x h)	mm	330 x 200 x 283	330 x 200 x 283
Remarks			

Ambient conditions for operation			
Temperature	°C	+5 to +40	+5 to +40

Type D-100

Electrical data					
Type		D-100	D-100	D-100	D-100
Article no.		0448 1000	0484 1000	0425 1000	0422 1000
Mains frequency	Hz	-	-	-	-
Nominal voltage	V	12 VDC	24 VDC	72 VDC	110 VDC
Rated output	P1 (W)	730	630	620	720
Rated current	A	61	26	8.8	6.5
Rotational speed	min ⁻¹	1250	1320	1300	1320
Duty cycle		S3 10 min 50%	100%	100%	100%
Type of protection	IP	54	54	54	54

General technical data					
Delivery volume 0 bar	l/min	85	105	105	105
Rated pressure	bar	8	8	8	8
Safety pressure PS	bar	10	10	10	10
Sound pressure level	dB(A)	68	68	68	68
Weight	kg	20.5	20.5	20.5	20.5
Dimensions (l x w x h)	mm	368 x 176 x 292	368 x 176 x 292	368 x 176 x 292	368 x 176 x 292
Remarks					

Ambient conditions for operation					
Temperature	°C	+5 to +40	+5 to +40	-30 to +40	+5 to +40



Type A-200; B-200

Electrical data				
Type		A-200	B-200	
Article no.		0881-01	0881-05	
Mains frequency	Hz	50	50	60
Nominal voltage	V	230	3 ph. 400	3 ph. 400
Rated output	P1 (W)	1370	1400	1630
Rated current	A	6.3	2.9	2.9
Rotational speed	min ⁻¹	1390	1450	1725
Duty cycle		100%	100%	100%
Type of protection	IP	54	54	54

General technical data				
Delivery volume 0 bar	l/min	195	195	225
Rated pressure	bar	8	8	8
Safety pressure PS	bar	10	10	10
Sound pressure level	dB(A)	69	69	71
Weight	kg	33	31	31
Dimensions (l x w x h)	mm	445 x 205 x 295	445 x 205 x 295	445 x 205 x 295
Remarks				

Ambient conditions for operation				
Temperature	°C	+5 to +40	+5 to +40	+5 to +40

Performance diagram KK70

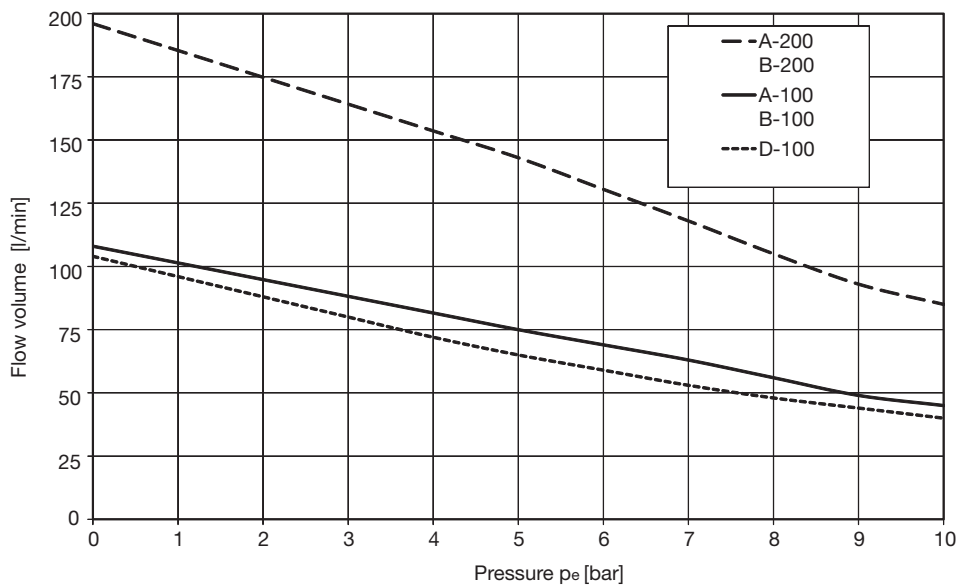


Figure 33: Delivery volume at 50 Hz (60 Hz approx. +18%)



4.8 Declaration of conformity for machines in accordance with the 2006/42/EC Directive

The manufacturer hereby declares that the machine complies with the requirements of the directive cited above and the requirements of the following additional directives:

– Electromagnetic Compatibility (EMC) Directive 2004/108/EC

Units with DC permanent-magnet motors of type "D-xxx" must be interference-suppressed if specified in the operating manual and order documents. This can be done using an interference suppression filter.

– RoHS directive 2011/65/EU

Name of manufacturer:	Dürr Technik GmbH & Co. KG
Manufacturer's address:	Pleidelsheimer Straße 30 74321 Bietigheim-BissingenGermany

Reference number:	KK/KV products
Article description:	Compressor or vacuum pump
starting with serial number:	E 000100

We hereby declare that the machine must not be commissioned until it has been established that the machine into which this machine is to be installed complies with the provisions as set out in Machinery Directive 2006/42/EC.

The following harmonised standards and other standards have been applied:

DIN EN 1012-1:2011-02

DIN EN 1012-1:2011-02

DIN EN 60034-1: 2011-02

DIN EN 60034-5: 2007-09

DIN EN 60335-1:2012-10

DIN EN 61000-6-2:2006-03

DIN EN 61000-6-3:2011-09

DIN EN 60204-1:2007-06

DIN EN ISO 12100-1:2004-04

DIN EN ISO 12100-2:2004-04

DIN EN 50106:2009-05

Bietigheim-Bissingen, 30 Sept. 2014

Andreas Ripsam

General manager at Dürr Technik

Proof of signature in the

original document in the Dürr Technik archive

5 Function

5.1 Oil-free piston compressors KK

Modular structure

The basic model consists of a compressor head with an electric motor.

The following electric motors are available:

Type A	Single-phase AC motors
Type B	Three-phase AC motors
Type D	Permanent-magnet DC motors

With the exception of three-phase motors, an integrated temperature switch is integrated in most electric motors for additional thermal protection. The unit shuts down automatically if the temperature switch is triggered.



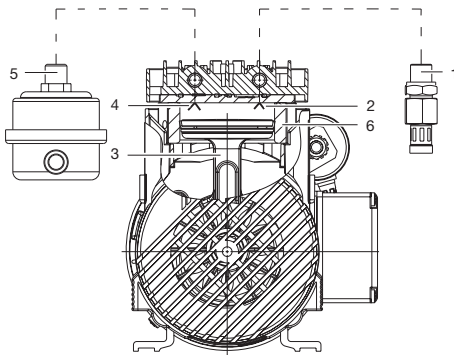
Units with a temperature switch start up again automatically once they have cooled down.



On all electric motors with rated current greater than 10 A, the temperature switch has passive wiring. An additional relay must be used for the thermal cut-off.

Functional description

The atmospheric air is induced via the air intake filter (1). This air is compressed by the piston (3) in the cylinder (6). The inlet valve (2) or the outlet valve (4) cuts off the respective flow direction. The compressed air flows through the air line (5) to the consumer.



5.2 Oil-free piston vacuum pumps KV

Modular structure

The basic model consists of a pump head with an electric motor.

The following electric motors are available:

Type A	Single-phase AC motors
Type B	Three-phase AC motors
Type D	DC permanent-magnet motors.

With the exception of three-phase motors, all electric motors are fitted with an integrated temperature switch for additional thermal protection. The unit shuts down automatically if the temperature switch is triggered.



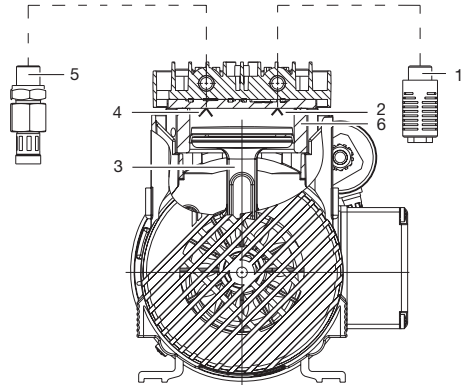
Units with a temperature switch re-start automatically once they have cooled down.



An additional relay must be used for the thermal cut-off on all electric motors with a rated current greater than 10 A.

Functional description

Air is drawn in via the intake (1). The air is drawn into the cylinder (6) by the piston (3). The inlet valve (2) or the outlet valve (4) cuts off the respective flow direction. The air extracted is expelled into the atmosphere via a silencer (5).





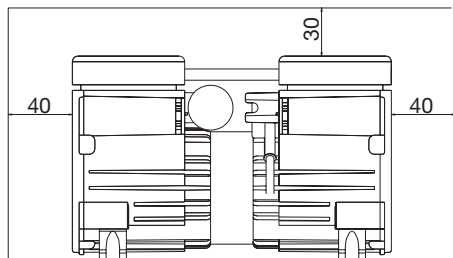
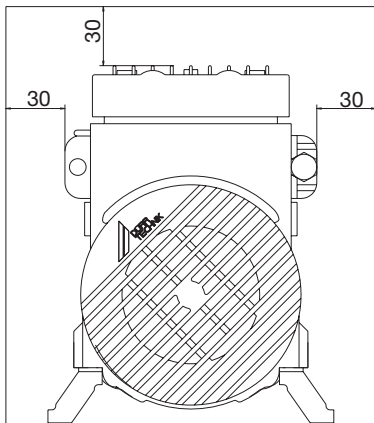
Mounting

6 Prerequisites

6.1 Area of installation

The installation area must meet the following requirements:

- Dry, well-ventilated room.
- Not a purpose-built room (e. g. heating or wet room).
- Set up the device on a clean, level and sufficiently stable surface (observe the weight of the device).
- A socket outlet must be easily accessible.
- The type plate of the device must be easily readable (also when installed).
- The device must be easily accessible for operation and maintenance.
- Once the devices are installed, the connecting terminals must be easily accessible when removing/opening the housing access.
- Maintain a sufficient distance from the wall (min. 30 to 40 mm).



The air is filtered during induction. This does not alter the composition of the air. The air induced should therefore be kept free of harmful substances (e.g. do not draw in air from a basement garage or directly next to a suction machine).



NOTICE

Risk of overheating due to insufficient ventilation

The unit produces heat. This can lead to heat damage and/or to a reduction in the service life of the unit.

- Do not cover the unit.
- Air must be able to flow in and out unobstructed.
- Ventilation openings must be sufficiently large.
- For installed units, an independent ventilation system may be required in unfavourable cases.

6.2 Vibration dampening

The units produce vibrations. Suitable vibration dampers must be used to damp these vibrations.



CAUTION

The use of rigid connections may damage the units or the system in which the units have been installed.

- Do not use rigid connection lines between the units and the system.

6.3 Installation position and fastening

Install the units such that they are as level as possible. Other installation positions must be agreed in advance with Dürk Technik.

6.4 Noise reducer

Elevated noise levels occur in pressure and vacuum mode at both the suction nozzle and the exhaust air nozzle. A suitable silencer must therefore be used. Air intake filters and exhaust air filters (silencers) can be found in our spare parts list.



Silencers act simultaneously as air filters.

7 Electrical installation

7.1 Electrical connection using a mains plug

- The unit must only be connected to a correctly installed socket outlet.
- When routing the lines to the unit, make sure that they are not subject to any mechanical tension.
- The socket must be easily accessible.
- Before commissioning, compare the mains voltage to the voltage information on the type plate.



DANGER

Electric shock due to defective mains cable

- Mains cables must not come into contact with the hot surfaces of the unit.
- Route mains cables without mechanical tension.
- Plug the mains plug into an earthed socket.
- The unit starts immediately after the mains plug is inserted.

7.2 Electrical connection without a mains plug



DANGER

Connection to the power supply may only be performed by a qualified electrician.

- Observe the regulations of the local power supply companies.
- Connect the unit to a power supply source with a correctly installed protective earth conductor. (Exception: Units with DC permanent-magnet motors.)
- Before commissioning, verify that the mains voltage complies with the voltage information on the type plate. Ensure that the current circuit on the building side has appropriate fuse protection.

If the unit is permanently connected to the power supply, a cut-off device (e.g. power circuit breaker) with a contact gap of at least 3 mm must be provided in the vicinity of the unit. The disconnecting device must comply with standard ENEN 60204-1:2006, 5.3.

Observe the information provided in the wiring diagrams, label or circuit diagram in the terminal box when making the electrical connection.

7.3 IP rating



DANGER

Take note of the IP rating for protecting the units against contact, foreign bodies and moisture

Failure to observe this information may result in electric shock, personal injury or material damage.

- The units may only be installed or used in accordance with their IP rating.
- The operator must ensure that the unit is provided with the IP rating in accordance with the purpose for which it is used.



The term "IP rating" (International Protection) is defined by IEC/EN 60529 "Type of protection by housing (IP code)".

The units are available with different types of protection (IP00 to IP54 - see see "4 Technical data" on page 21).

Units of P00 rating offer no protection against contact, foreign bodies and moisture. The operator is responsible for ensuring that the units may only be installed or used in accordance with their IP rating.

A fixed electrical installation that complies with wiring regulations is required.

If the terminal box is fitted (e.g. 2 cylinders A/B-062), the electrical components are covered. The IP rating is then IP20.

7.4 Direction of rotation

Single-phase AC motors and three-phase AC motors have no preferred direction of rotation.

The direction of rotation of DC permanent-magnet motors is specified on the motor.

7.5 Protection of the supply current



DANGER

Insufficient protection of the units

Insufficient protection of the units may result in fire, electric shock, personal injury or material damage!

- Protect the supply current circuits at all poles according to the short-circuit current of the electric motors.
- In the case of unmonitored installation, overcurrent protection in accordance with EN 60204-1:2006, 7.2 must be provided.



We recommend to install a motor protection circuit breaker. At least one line cable fuse with the rated current + 10% must be used unless specified otherwise.

7.6 Motor protection - temperature

Single-phase AC motors

The single-phase AC motors are fitted with a normally-closed temperature switch. This prevents overheating of the motor winding in the case of excessive ambient temperatures. The device shuts down if it overheats.

Units AG-132, art. no. 0431 2300 (KK40) and A-100, art. no. 0880-03 (KK70) are fitted with a passive temperature switch. A suitable, open relay switching all poles must be connected if necessary. The connection points are located in the terminal box. The temperature switch shuts the device down if it overheats.

Oil-free compressor stations and accessories must be electrically connected in accordance with the wiring diagrams "7.7 Circuit diagram".

Three-phase AC motors

The three-phase motors are not fitted with a temperature protection device.

In the event of a machine malfunction (e.g. as a result of a blackout, phase failure, start-up under pressure, mechanical faults of the device or a short circuit), **there is no protection.**

The electric motor may overheat!

The electrical connection must be performed in accordance with the wiring diagrams see "7.7" on page 70.

Oil-free compressor stations and accessories must be electrically connected in accordance with the wiring diagrams "7.7 Circuit diagram".

Permanent-magnet DC motors

The DC permanent-magnet motors are fitted with a passive temperature switch. A suitable, open relay switching all poles must be connected if necessary. The connection points are located in the terminal box. The temperature switch shuts the device down if it overheats.

A sufficient voltage supply must be present. The maximum starting current must be limited to approx. 200% of the rated current.

Some units are fitted with an EMC suppression filter in order to comply with the limit values stipulated in the EMC directive. The EMC filter must not be fixed directly to the device because of the vibrations.

The electrical connection must be performed in accordance with the wiring diagrams "7.7 Circuit diagram".

Oil-free compressor stations and accessories must be electrically connected in accordance with the wiring diagrams "7.7 Circuit diagram".



Units with a temperature switch start up again automatically once they have cooled down.



DANGER

The temperature switch may become damaged if the motor locks up or by a short circuit in the motor winding

Insufficient protection of the electric motors may result in fire, electric shock, personal injury or material damage!

- Installation of an over-current switch.



DANGER

Inadequate fuse protection of the electric motors in unmonitored installations

Insufficient protection of the electric motors may result in fire, electric shock, personal injury or material damage!

- Installation of an over-current switch.
- The temperature switch must be connected to a suitable relay.



7.7 Circuit diagram

Compressor unit

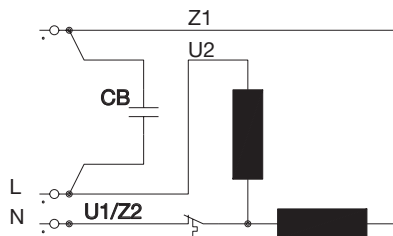


Figure 34: Single-phase AC motors

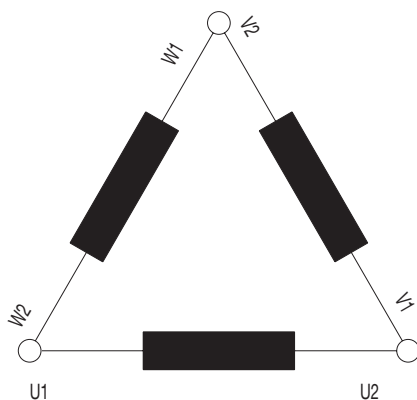


Figure 35: Three-phase AC motors, triangle connection

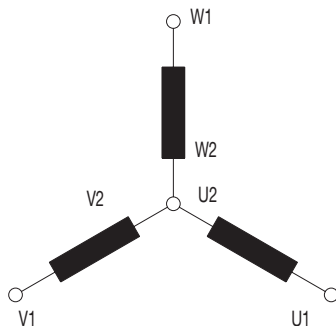


Figure 36: Three-phase AC motors, star connection

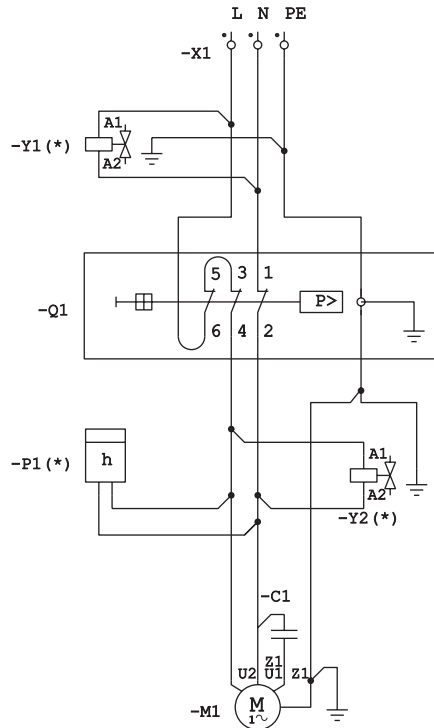
Oil-free compressor stations

Figure 37: Installation of a compressor unit with single-phase AC motors in a compressor station

- X1 Mains connection
- Y1 Solenoid valve
- Y2 Solenoid valve
- Q1 Pressure switch
- P1 Operating-hour meter
- M1 Compressor motor

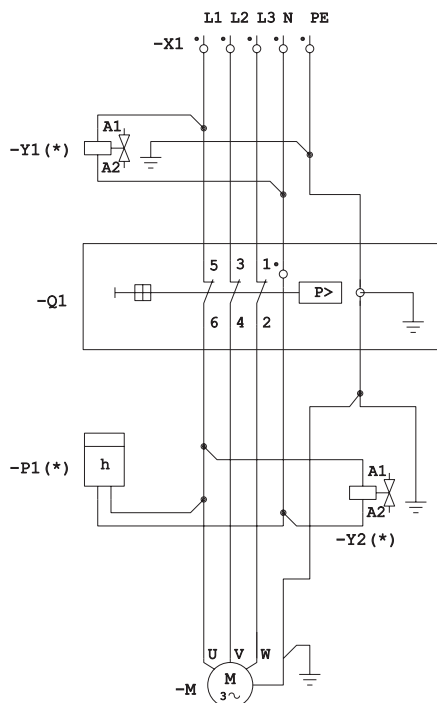


Figure 38: Installation of a compressor unit with three-phase AC motor in a compressor station

- X1 Mains connection
- Y1 Solenoid valve
- Y2 Solenoid valve
- Q1 Pressure switch
- P1 Operating-hour meter
- M1 Compressor motor

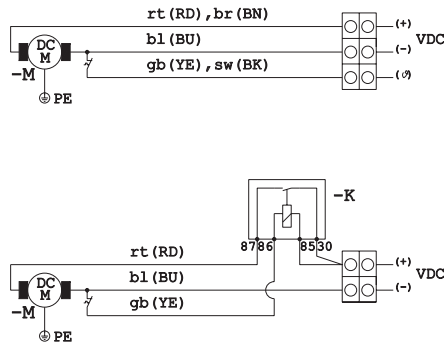
Permanent-magnet DC motors

Figure 39: Motor connection of compressor unit with DC permanent-magnet motor

-M Compressor motor

-K Relay

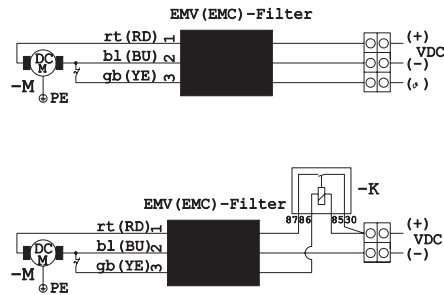


Figure 40: Connection of suppression filter for compressor units with DC permanent-magnet motors

-M Compressor motor

-K Relay

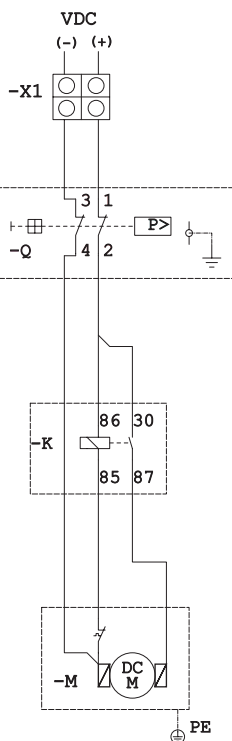


Figure 41: Installation of a compressor unit with DC permanent-magnet motor in a compressor station - connection of pressure switch with direct wiring (for small currents)

- X1 Mains connection
- Q Pressure switch
- K Relay
- M Compressor motor



- X1 Mains connection
- Q Pressure switch
- K Relay
- M Compressor motor

8 Operation

8.1 Remove the transport protection

For safe transportation, the unit is securely protected with packaging material.

- Remove the packaging material.
- Remove the protective film.
- Check the unit for damage in transit.

8.2 Connect oil-free piston compressor



The units, depending on the product, are designed for a specific rated pressure (see "4 Technical data").

If the rated pressure value is exceeded, the service life of the products is reduced.

The connections for the air inlet and air outlet are located on the cylinder head. The atmospheric air is drawn in via the air intake filter on the air inlet side. On the air outlet side, the compressed air flows through the air line to the consumer.

Air inlet

The air inlet opening is located on the cylinder head. To preserve the service life of the unit, a suitable air intake filter must be mounted on the air inlet.

The air inlet opening is indicated by arrows pointing towards the cylinder head.

- Mount air intake filter on the air inlet opening (G 1/4" internal thread or G1/8" (for KK8)) of the cylinder head

Air outlet

The air outlet opening is located on the cylinder head.

The air outlet opening is indicated by arrows pointing away from the cylinder head.

- Mount shielded, temperature-resistant compressed-air hose on the air outlet opening (G 1/4" internal thread or G1/8" (for KK8)) of the cylinder head.

Start-up against pressure

The units will not start up against pressure

- Before the unit is started up, it must always be purged on the pressure side (e.g. via a mechanical vent valve in the pressure switch or via a solenoid valve).

- There must be a start-up volume of at least 130 ml between the unit and the non-return valve.

Exception: The start-up volume is integrated in the cylinder head as standard in the series KK 40.

Operating the unit in a system

If the unit is installed in a system, the safety pressure must not be exceeded (see "4 Technical data"). It must be ensured that the safety pressure does not exceed permissible overpressure values by providing of a safety device (e.g. safety valve, solenoid valve etc.).

The operating pressure or working pressure must not exceed the rated pressure of the unit. Accessories for pressure control e.g. pressure switches and pressure reducers are necessary in order to ensure a constant mains pressure during operation.

Depending on the application, control systems, valve units, receivers or other accessories are required for safe operation.

8.3 Connecting oil-free piston vacuum pumps KV

Suction side

The suction opening is located on the cylinder head.

The suction opening is indicated by arrows pointing towards the cylinder head.

- Suction line on the air inlet opening (G 1/4" internal thread or G1/8" (for KK8)) of the cylinder head.



When the unit is shut down, air flows into the evacuated space.

If this is not wanted, a non-return valve must be integrated into the suction line. Filters combined with a non-return valve are available as accessories (see "3.2 Spare parts and accessories")

Exhaust air side

The exhaust air opening is located on the cylinder head.

The exhaust air opening is indicated by arrows pointing away from the cylinder head. A silencer can be installed (see "3.2 Spare parts and accessories") in order to reduce the exhaust air noises.

- Fit a suitable silencer on the exhaust air opening (G 1/4" internal thread) of the cylinder

head. A G1/8" to G1/4" adapter is required for series KV8.

Start-up against negative pressure

The units will not start up against negative pressure

- Before the unit is started up, it must always be purged on the suction side (e.g. via a mechanical vent valve in the pressure switch or via a solenoid valve).
- There must be a start-up volume of at least 130 ml between the unit and the non-return valve (if present).

9 Maintenance



CAUTION

Burns from hot external surfaces

The surfaces of the unit become hot during operation

- Allow surfaces to cool down before operating or maintenance work.

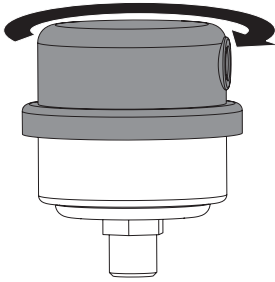


De-energise the unit prior to working on it or in the event of potential hazards (e. g. pull the mains plug) and prevent it from being switched back on again.

9.1 Maintenance plan

Maintenance interval	Maintenance work
Monthly	<ul style="list-style-type: none"> • Clean the surface of the device with a lint-free cloth. Keep the ventilation openings of the crankcase chamber and cylinder head free from dust and dirt.
Yearly	<ul style="list-style-type: none"> • Change air intake filter - every six months if dust concentration is high (see "Change the intake filter").
Every 4 years	<ul style="list-style-type: none"> • Change vibration dampers - for mobile application, every 2 years

Change the air intake filter



- Open the cover of the air intake filter by turning it clockwise.
- Remove the filter element (white/green).
- Insert a new filter element.
- Close the cover of the air intake filter by turning it anti-clockwise.

Exchange of vibration dampers

Follow the installation instructions included in the relevant spare parts kit.



Trouble-shooting

10 Units for alternating current



Repairs above and beyond simple maintenance may only be carried out by a qualified technician or one of our service technicians.



De-energise the unit prior to working on it or in the event of potential hazards (e. g. pull the mains plug) and prevent it from being switched back on again.

Problem	Probable cause	Solution
Device does not start	No mains voltage	<ul style="list-style-type: none">• Contact an electrician. Check mains fuse, switch on device again, if possible. Replace the thermal fuse if defective.
	Undervoltage or overvoltage	<ul style="list-style-type: none">• Contact an electrician. Measure mains voltage.
	Capacitor defective	<ul style="list-style-type: none">• Contact a technician. Check the capacitor and replace it, if necessary.
	Pressure switch in position "0"	<ul style="list-style-type: none">• Set to "I".
	Motor defective	<ul style="list-style-type: none">• Replace the unit.
	Temperature switch in motor is tripped (not present in all units) 1. High ambient temperatures 2. Mechanical sluggishness 3. Pressure in the line	<ol style="list-style-type: none">1. Allow the unit to cool down. Ensure better ventilation. Attention, unit restarts automatically!2. Factory repair.3. Vent the intake plenum.
	Over-current switch is tripped	<ul style="list-style-type: none">• Contact an electrician.• Check the motor protection circuit breaker setting.• Determine the cause.
	Air intake filter is clogged	<ul style="list-style-type: none">• Insert a new filter.

Problem	Probable cause	Solution
Output dropping.	Lines, hoses or connections leaking	<ul style="list-style-type: none"> • Contact a technician. Check / renew lines, hoses or connections.
	Air intake filter is clogged	<ul style="list-style-type: none"> • Replace air intake filter at least 1 x per year. The air intake filter must not be cleaned under any circumstances.
	Defective seals	<ul style="list-style-type: none"> • Contact a technician. Replace seals.
	Cup seal leaking because of wear and/or the following causes:	Contact a technician. Replace the cup seal, cylinder as well as seals (follow the installation instructions included in the relevant spare parts kit). Possibly:
	<ul style="list-style-type: none"> – Dirt – Ambient temperature too high – Unsuitable media drawn in 	<ul style="list-style-type: none"> – Connect filter in circuit or replace. – Ensure better cooling. – Only allow permitted medium.
Unit too noisy	Lamellar valves defective	<ul style="list-style-type: none"> • Contact a technician. Replace lamellar valves and possibly valve plate as well as seals.
	Damage to bearings	<ul style="list-style-type: none"> • Inform an engineer.
	Vibrations are being transmitted to the housing	<ul style="list-style-type: none"> • Fit suitable vibration dampers.
	Defective vibration dampers	<ul style="list-style-type: none"> • Install new vibration dampers.

11 Units for direct current



Repairs above and beyond simple maintenance may only be carried out by a qualified technician or one of our service technicians.



De-energise the unit prior to working on it or in the event of potential hazards (e. g. pull the mains plug) and prevent it from being switched back on again.

Problem	Probable cause	Solution
Device does not start	Operating voltage too low	<ul style="list-style-type: none"> • Contact an electrician. Charge or replace the battery, check the power supply.
	Voltage supply interrupted	<ul style="list-style-type: none"> • Contact an electrician. Check supply line.
	Relay defective	<ul style="list-style-type: none"> • Contact an electrician. Replace relay.
	Motor defective	<ul style="list-style-type: none"> • Replace the unit.
	Temperature switch in motor is tripped (not present in all units)	1.Allow the unit to cool down. Ensure better ventilation. Attention, unit restarts automatically!
	1. High ambient temperatures	2.Factory repair.
	2. Mechanical sluggishness	3.Factory repair.
	3. Temperature switch defective	
	Carbon brushes are worn	<ul style="list-style-type: none"> • Factory repair or repair by electrician. (Follow the installation instructions included in the relevant spare parts kit).
	Commutator defective or worn	<ul style="list-style-type: none"> • Factory repair.
	Mechanical sluggishness	<ul style="list-style-type: none"> • Factory repair.

Problem	Probable cause	Solution
Output dropping.	Voltage too low	<ul style="list-style-type: none"> • Contact an electrician. Check battery, check power supply.
	Lines, hoses or connections leaking	<ul style="list-style-type: none"> • Contact a technician. Check / renew lines, hoses or connections.
	Air intake filter or exhaust filter is clogged	<ul style="list-style-type: none"> • Replace air intake filter or exhaust filter at least 1 x per year.
	Defective seals	<ul style="list-style-type: none"> • Contact a technician. Replace seals.
	Cup seal leaking because of wear and/or the following causes:	Contact a technician. Replace the cup seal, cylinder as well as seals. (Follow the installation instructions included in the relevant spare parts kit). Possibly:
	– Dirt	– Connect filter in circuit or replace.
	– Ambient temperature too high	– Ensure better cooling.
Unit too noisy	– Unsuitable media drawn in	– Only allow permitted medium.
	Lamellar valves defective	<ul style="list-style-type: none"> • Contact a technician. Replace lamellar valves and possibly valve plate as well as seals.
	Bearing damage	<ul style="list-style-type: none"> • Factory repair
	Unsuitable silencer	<ul style="list-style-type: none"> • Mount appropriate silencer (see accessory list)
	Replacing defective cup seal	<ul style="list-style-type: none"> • Contact a technician. Replace the cup seal, cylinder as well as seals.
	Vibrations are transmitted to the housing	<ul style="list-style-type: none"> • Use appropriate vibration damper.
Carbon brushes wear too rapidly	Vibration damper defective	<ul style="list-style-type: none"> • Mount new vibration damper.
	Wrong battery voltage	<ul style="list-style-type: none"> • Contact an electrician. Replace battery.
	Deep scoring on commutator	<ul style="list-style-type: none"> • Factory repair.
	Too frequent switching cycles	<ul style="list-style-type: none"> • Avoid frequent switching on/off, work with a larger compressed-air receiver, if necessary.
	Carbon brushes and commutator too hot (> 160° C)	<ul style="list-style-type: none"> • Contact an electrician. Check voltage. – Ensure better ventilation. – If the current draw is too high, replace the unit.



Addresses

Service

Dürr Technik GmbH & Co. KG
74301 Bietigheim-Bissingen
Tel +49 (0)71 4290 2220
Fax +49 (0)71 4290 2299
E-mail: service@duerr-technik.de

Spare parts orders

Tel +49 (0)71 4290 0
Fax +49 (0)71 4290 99
E-mail: office@duerr-technik.de

Please provide the following information when ordering spare parts:

- Type code and article number
- Order number as appears on the spare parts list
- Quantity required
- Exact shipping address
- Shipping information

Repairs / returns

Please **depressurise** the unit before transporting it. If possible, please use the original packaging when returning units. Always pack the units in a plastic bag. Please use recyclable packing material.

Return address

Dürr Technik GmbH & Co. KG
Pleidelsheimer Straße 30
74321 Bietigheim-Bissingen
-Germany-

International addresses for Dürr Technik

www.duerr-technik.com

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