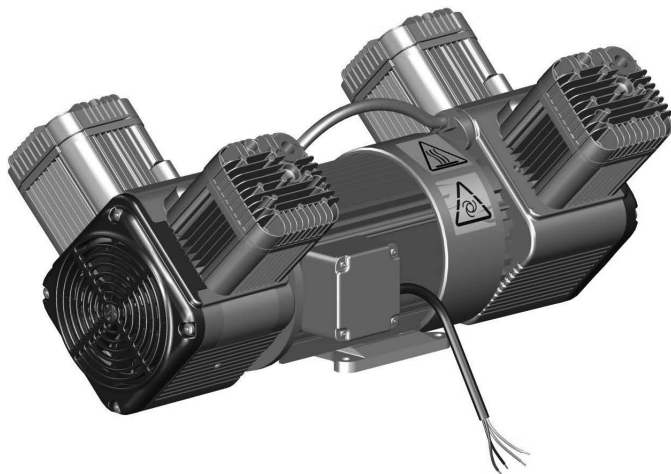


# 4-cylinder Marathon oil-free compressor

EN



Installation and Operating Instructions

CE

1035100020L02



 **DÜRR  
TECHNIK**

1612V004



# Contents



## Important information

<b>1 About this document</b> . . . . .	2
1.1 Warnings and symbols . . . . .	2
1.2 Copyright information . . . . .	2
<b>2 Safety</b> . . . . .	3
2.1 Intended use . . . . .	3
2.2 Improper use . . . . .	3
2.3 General safety information . . . . .	3
2.4 Qualified personnel . . . . .	3
2.5 Protection from electric shock . . . . .	3
2.6 Only use genuine parts . . . . .	3
2.7 Transportation and storage . . . . .	4
2.8 Disposal . . . . .	4



## Product description

<b>3 Overview</b> . . . . .	5
3.1 Scope of delivery . . . . .	5
3.2 Wear parts and spare parts . . . . .	6
3.3 Special accessories . . . . .	8
<b>4 Technical data</b> . . . . .	9
4.1 Schematic drawing . . . . .	9
4.2 Technical data . . . . .	10
4.3 Declaration of conformity for machines in accordance with the 2006/42/EC Directive . . . . .	12



## Installation

<b>5 Requirements</b> . . . . .	13
5.1 Setup . . . . .	13
5.2 Vibration dampening . . . . .	13
5.3 Installation position and fastening . . . . .	13
5.4 Noise reduction . . . . .	13

<b>6 Electrical installation</b> . . . . .	14
6.1 Electrical connection without a mains plug . . . . .	14
6.2 IP protection type . . . . .	14
6.3 Fuse protection of the supply current circuit . . . . .	14
6.4 Motor protection - temperature . . . . .	14
6.5 Circuit diagrams . . . . .	15
<b>7 Commissioning and first start-up</b> . . . . .	16
7.1 Remove the transport locks . . . . .	16
7.2 Connect oil-free piston compressor . . . . .	16
<b>8 Maintenance</b> . . . . .	17
8.1 Maintenance schedule . . . . .	17
8.2 Replacing the air intake filter . . . . .	18
8.3 Replace the vibration dampers . . . . .	18



## Troubleshooting

<b>9 Tips for operators and service technicians</b> . . . . .	19
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## Addresses



# Important information

## 1 About this document

These installation and operating instructions represent a part of the unit. They correspond to the relevant version of the unit and the status of technology valid at the time of its market launch.



In the event that the instructions and notes in these installation and operating instructions for are not observed, Dürr Technik accepts no warranty or liability of any kind for the safe operation and reliable function of the units.

This translation was prepared to the best of our knowledge. The original German language version of the manual is the definitive version. Dürr Technik is not liable for translation errors.

### 1.1 Warnings and symbols

#### Warnings

The warnings in this document are intended to draw your attention to possible injury to persons or damage to machinery.

The following warning symbols are used:



General warning symbol



Warning – dangerous high voltage



Warning – hot surfaces



Warning - automatic start-up of the unit

The warnings are structured as follows:



#### SIGNAL WORD

**Description of the type and source of danger**

Here you will find the possible consequences of ignoring the warning

- Follow these measures to avoid the danger.

The signal word differentiates between four levels of danger:

- **DANGER**  
Immediate danger of severe injury or death
- **WARNING**  
Possible danger of severe injury or death
- **CAUTION**  
Risk of minor injuries
- **NOTICE**  
Risk of extensive material/property damage

#### Other symbols

These symbols are used in the document and on or in the unit:



Note, e.g. specific instructions regarding efficient and cost-effective use of the unit.



CE labelling



Serial number



Order number



Take note of the accompanying documents.



Date of manufacture



Dispose of the unit properly and in accordance with applicable national, regional and local laws.



Switch off and de-energise the device (e. g. unplug from mains).

### 1.2 Copyright information

All names of circuits, processes, names, software programs and units used in this document are protected by copyright.

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

## 2 Safety

Dürr Technik has developed and constructed the units in such a way that danger is to a large extent excluded if the units are used as intended. Nevertheless, residual risks can remain. You should therefore observe the following notes.

### 2.1 Intended use

#### Oil-free piston compressors KK

The unit is intended for the compression of atmospheric air. It provides oil-free air for a range of applications. The unit has been designed for installation into systems and machines. The unit has been designed for operation in dry, ventilated rooms. The unit must not be operated in a damp or wet environment. When deployed outside, the unit must be protected against mechanical damage, moisture and excessive soiling by a housing (e.g. sheet casing). The unit may only be commissioned after the manufacturer has ensured that all requirements requisite to safe operation have been fulfilled.

Its use in the vicinity of gases or flammable liquids is prohibited.

### 2.2 Improper use

Any other usage or usage beyond this scope is deemed to be improper. The manufacturer accepts no liability for damages resulting from this. In these cases the user/operator will bear the sole risk.



#### 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 information

- › When operating this device always observe all guidelines, laws, and other rules and regulations that are applicable at the site of operation.
- › Prior to each use, check condition of the device and make sure it is in perfect working order.
- › Do not convert or modify the units.
- › Observe the Installation and Operating Instructions.

- › Make the Installation and Operating Instructions available to the person operating the device at all times.

### 2.4 Qualified personnel

#### Operation

Persons who operate the units must ensure safe and correct handling based on their training and knowledge.

- › Instruct or have every user instructed in handling the unit.

#### Installation and repairs

- › Always arrange for any assembly work, readjustments, alterations, extensions, and repairs to be performed by Dürr Technik or by personnel authorised and trained by Dürr Technik. Qualified personnel are defined as those trained by Dürr Technik; who are familiar with the unit technology; and are aware of the dangers presented by the unit.

### 2.5 Protection from electric shock

- › When working on the units observe all the relevant electrical safety regulations.
- › Immediately replace any damaged cables or plugs.

### 2.6 Only use genuine parts

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



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

## 2.7 Transportation and storage

The original packaging provides optimum protection for the unit during transport.



Dürr Technik will not accept any responsibility or liability for damage occurring during transport due to the use of incorrect packaging, even where the unit is still under guarantee.

- Only transport the unit in its original packaging.
- Keep the packing materials out of the reach of children.



### NOTICE

#### Damage to the unit due to incorrect transportation/storage

Incorrect storage and transportation can cause damage to the unit.

- > Protect the unit from moisture during transportation.
- > Transport the unit with the motor base pointing downwards.

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. humidity	%	10 % to 90 %

Please refer to the labels on the packaging padding.

## 2.8 Disposal

### Unit



Dispose of the unit properly and in accordance with applicable national, regional and local laws.

### Packaging



Dispose of the packaging material in an environmentally responsible manner.

- Note current disposal routes.
- Keep the packing materials out of the reach of children.



## 3 Overview

### 3.1 Scope of delivery

The following items are included in the scope of delivery (possible variations due to country-specific requirements and/or import regulations):

#### Marathon 1035100100

<b>Product name</b> . . . . .	<b>Article number</b>
Compressor unit . . . . .	1035100100
Installation and Operating	
Instructions . . . . .	1035100020Lxx

The vibration damper set is not included in the scope of delivery and must be ordered separately

Vibration damper set . . . . .	1035100410
--------------------------------	------------



An air intake filter is required and must be provided on the customer-side.

#### Marathon 1035100200

<b>Product name</b> . . . . .	<b>Article number</b>
Compressor unit . . . . .	1035100200
Air intake filter . . . . .	4 x 9000-416-50
Installation and Operating	
Instructions . . . . .	1035100020Lxx

The vibration damper set is not included in the scope of delivery and must be ordered separately

Vibration damper set . . . . .	1035100410
--------------------------------	------------

#### Marathon 1035100300

<b>Product name</b> . . . . .	<b>Article number</b>
Compressor unit . . . . .	1035100300
Air intake filter . . . . .	4 x 9000-416-50
Installation and Operating	
Instructions . . . . .	1035100020Lxx

The vibration damper set is not included in the scope of delivery and must be ordered separately

Vibration damper set . . . . .	1035100410
--------------------------------	------------

#### Marathon 1035100400

<b>Product name</b> . . . . .	<b>Article number</b>
Compressor unit . . . . .	1035100400
Installation and Operating	
Instructions . . . . .	1035100020Lxx

The vibration damper set is not included in the scope of delivery and must be ordered separately

Vibration damper set . . . . .	1035100410
--------------------------------	------------



An air intake filter is required and must be provided on the customer-side.

## 3.2 Wear parts and spare parts

### Wear parts

The following working parts need to be changed at regular intervals (refer to the "Maintenance" section):

Wear part	Article no.	1035100100	1035100200	1035100300	1035100400
Air intake filter (qty. 4)	9000-416-50 (qty. 1) 4 parts must be ordered.	--	●	●	--
Vibration damper set	1035100410	●	●	●	●

### Spare parts



#### NOTICE

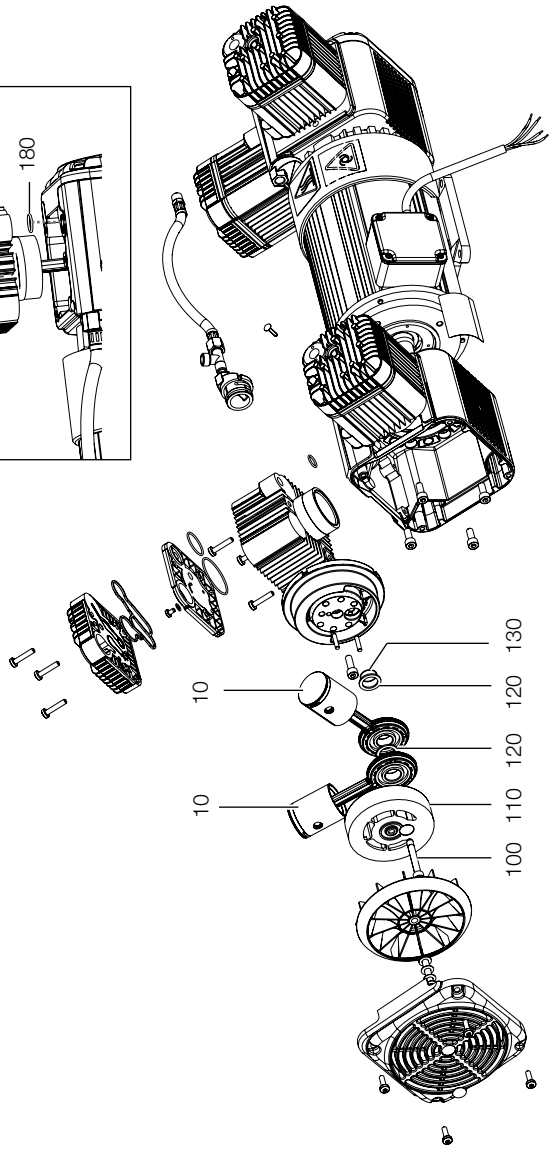
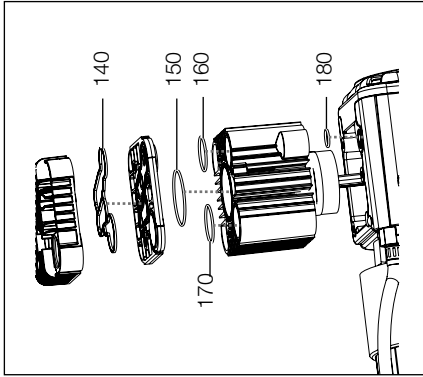
#### Damage to the unit due to faulty assembly

Replacing the spare parts requires specialist knowledge. Faulty assembly will result in unit outage.

➤ Repairs may only be performed by Dürr Technik.

Spare part sets	Item no.	1035100100 1035100200 1035100300 1035100400
Pistons and flywheel	10, 110, 120, 130	0735100006 (1 ET set) 2 ET sets must be ordered.
Set of seals	140, 150, 160, 170, 180	5150-981-00 (qty. 1) 4 parts must be ordered.







### 3.3 Special accessories

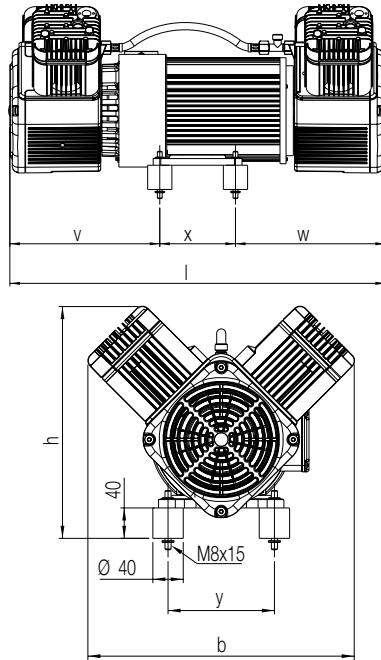
The following optional items can be used with the unit:

Central air intake filter . . . . . 1035100150

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## 4 Technical data

### 4.1 Schematic drawing



Compressed air connection exterior thread M16x1.5

## 4.2 Technical data

Electrical data			
Type		B-304 ZF	B-304 HP
Article no.		1035100100	1035100200
Electrical frequency	Hz	50	50
Nominal voltage	V <sub>AC</sub>	3~ 400	3~ 400
Rated power	P1 (W)	2200	2200
Nominal current	A	4.0	4.0
Speed	min <sup>-1</sup>	1450	1450
Type of protection (motor)	IP	54	54
Temperature switch (motor)	PTC	Yes	Yes
Motor protection switch (motor)		No	No
FU capable		Yes	Yes
Mains connection		Prysmian H07RN-F 4G1.0; 4 x 1.0 mm <sup>2</sup> ; Total length: 890 mm; length from terminal box connection: c. 770 mm	

General technical data			
Delivery quantity p <sub>e</sub> 0 bar	l/min	290	290
Delivery quantity p <sub>e</sub> 5 bar	l/min	248	248
Nominal pressure	bars	10	10
Safety pressure PS	bars	12	12
Noise level	dB(A)	77-79	77-79
Weight	kg	47	47
Dimensions (LxWxH)	mm	620 x 351 x 278	620 x 351 x 284
Dimensions v; w; x; y		247.5; 247.5; 125 ; 140	247.5; 247.5; 125 ; 140
Remarks	-	No air intake filter included. The unit must be connected to a central air intake filter. e. g. central air intake filter 1035100150 Connection: internal thread 3/8"	Compressed crankcase and protective coating against corrosion

Ambient conditions during operation		
temperature	°C	+5 to +40

<b>Electrical data</b>			
Type		<b>B-304</b>	<b>B-304 WR</b>
Article no.		<b>1035100300</b>	<b>1035100400</b>
Electrical frequency	Hz	50	50
Nominal voltage	V <sub>AC</sub>	3~ 400	3~ 400
Rated power	P1 (W)	2200	2500
Nominal current	A	4.0	4.0
Speed	min <sup>-1</sup>	1450	1450
Type of protection (motor)	IP	54	65
Temperature switch (motor)	PTC	Yes	Yes
Motor protection switch (motor)		No	No
FU capable		Yes	Yes
Mains connection		Prysmian H07RN-F 4G1.0; 4 x 1.0 mm <sup>2</sup> ; Total length: 890 mm; length from terminal box connection: c. 770 mm	

<b>General technical data</b>			
Delivery quantity p <sub>e</sub> 0 bar	l/min	290	290
Delivery quantity p <sub>e</sub> 5 bar	l/min	248	248
Nominal pressure	bars	10	10
Safety pressure PS	bars	12	12
Noise level	dB(A)	77-79	77-79
Weight	kg	47	58.5
Dimensions (LxWxH)	mm	620 x 351 x 278	604 x 351 x 278
Dimensions v; w; x; y		247.5; 247.5; 125 ; 140	249; 215; 140 ; 160
Remarks	-	-	No air intake filter included. The unit must be connected to a central air intake filter. e. g. central air intake filter 1035100150 Connection: internal thread 3/8"

<b>Ambient conditions during operation</b>			
temperature	°C	+5 to +40	-40 to +40

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

We hereby declare that the unit described below conforms to all requirements of the machine directive 2006/42/EC.

The unit named below fulfills the requirements of the following directives:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- RoHS directive 2011/65/EU

Manufacturer's name:	Dürr Technik GmbH & Co. KG
Manufacturer's address:	Pleidelsheimer Straße 30 D-74321 Bietigheim-Bissingen

Reference number:	Marathon
Article designation:	Compressor
From the serial number:	H400000

We hereby declare that the unit may only be commissioned once it has been established that the machine into which this unit 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 60034-1:2011-02
- DIN EN 60034-5:2007-09
- DIN EN 60335-1:2014-11
- DIN EN 61000-6-2:2011-06
- DIN EN 61000-6-3:2012-11
- DIN EN 60204-1:2010-05
- DIN EN 50106:2009-05
- DIN EN ISO 12100:2013-08

Bietigheim-Bissingen, 20/04/2016

Andreas Ripsam  
Executive Board of Dürr Technik

Proof of signature in the  
Original document held by Dürr Technik

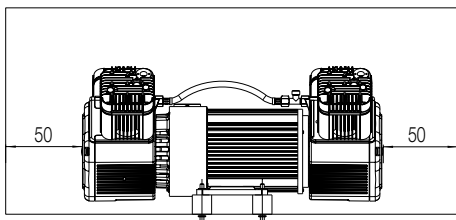
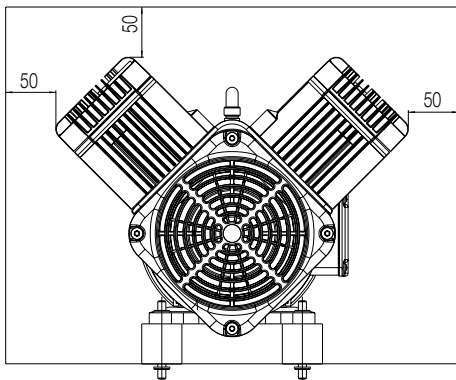


## 5 Requirements

### 5.1 Setup

The room chosen for set up must fulfil the following requirements:

- Dry, well-ventilated room (not made for another purpose such as e. g. boiler room or wet cell)
- When deployed outside, the unit must be protected against, moisture soiling and mechanical damage by a housing (e.g. sheet casing).
- Set up the unit on a clean, level and sufficiently stable surface (take the weight of the unit into account).
- The type plate of the unit must be easily readable (also after installation).
- The unit must be easily accessible for operation and maintenance.
- Maintain sufficient distance (see drawing).



**i** **Marathon 1035100100 and 1035100400 (does not include an air intake filter):**

The intake air must be filtered. The unit must be connected to a suitable central air intake filter see "3.3 Special accessories".



**NOTICE**

**Risk of overheating due to insufficient ventilation**

The units generate heat. Possibility of heat damage and/or reduced service life of the unit.

- Do not install the unit on a closed housing, for ventilation reasons.
- Air must be able to flow in and out unobstructed.
- Ventilation openings must be sufficiently large.
- Installed units may require an independent ventilation system in unfavourable cases (applicable in case of installation inside a close housing).

### 5.2 Vibration dampening

The unit generates 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.

### 5.3 Installation position and fastening

Install the units as near as possible to the horizontal. Other fitting positions must be agreed in advance with Dürr Technik.

### 5.4 Noise reduction

Raised levels of noise can develop at both the intake ports and venting ports. Use a suitable silencer. Air intake and exhaust filters (silencers) are listed in our list of spare parts.



Air filters act simultaneously as silencers.

## 6 Electrical installation

### 6.1 Electrical connection without a mains plug



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

- › Comply with the regulations from 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 power supply voltage complies with the voltage specifications of 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 the standard 60204-1:2010-05, 5.3.

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

### 6.2 IP protection type



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



**DANGER**  
**Comply with the IP protection type for protecting the unit against contact, foreign matter, and moisture**

Failure to comply with this information can result in electric shock, personal injury, or material damage.

- › The unit must only be installed or used in accordance with its type of protection.

The owner is responsible for ensuring that the units are only installed or used in accordance with their protection type.

### 6.3 Fuse protection of the supply current circuit



**DANGER**  
**Insufficient fuse protection of the units**

Insufficient fuse protection of the units can result in fire, electric shock, personal injury or material damage.

- › Protect the supply current circuits at all poles in accordance with the nominal current of the electric motors.
- › In the case of unmonitored installations, overcurrent protection in accordance with EN 60204-1:2010-05, 7.2 must be provided.



We recommend the installation of a motor protection circuit breaker. A minimum of one line cable fuse with nominal current + 10% unless specified otherwise.

### 6.4 Motor protection - temperature

#### 3-phase motors

The electric motor can overheat!

The electrical connection must be performed in accordance with the circuit diagram "6.5 Circuit diagrams".



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



**DANGER**  
**The temperature switch may suffer damage from a motor lockage or a short circuit in the motor winding**

Insufficient fuse protection of the electric motors can result in fire, electric shock, personal injury or material damage.

- › Installation of a circuit breaker.






**DANGER**  
**Insufficient fuse protection of the electric motors in unmonitored installations**

Insufficient fuse protection of the electric motors can result in fire, electric shock, personal injury or material damage.

- > Installation of a circuit breaker.
- > The temperature switch must be connected to a suitable relay.

**6.5 Circuit diagrams**

**Three-phase current / delta connection**

 Images are shown schematically.

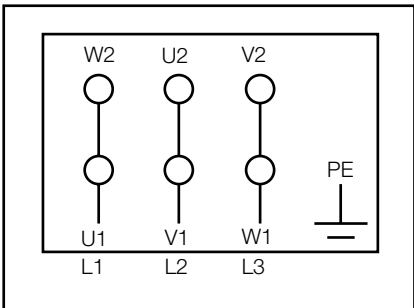
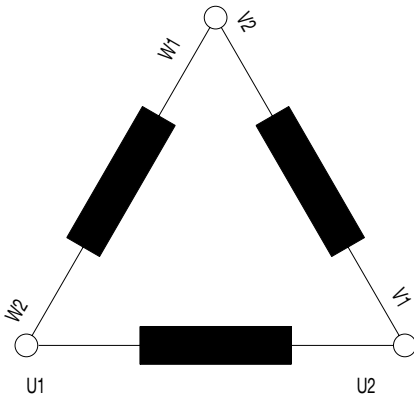



Figure 1: Three-phase current / delta connection

**Three-phase current / Y-connection**

 Images are shown schematically.

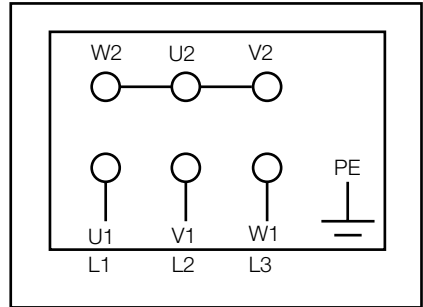
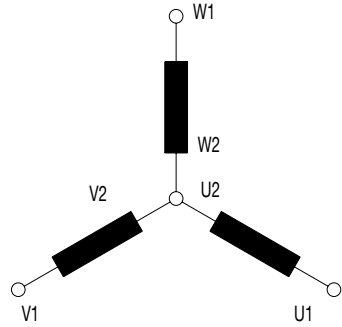


Figure 2: Three-phase current / Y-connection

## 7 Commissioning and first start-up

### 7.1 Remove the transport locks

The unit is securely protected with packaging material to ensure safe transportation.

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

### 7.2 Connect oil-free piston compressor



Depending on the product, the units are designed for a specific nominal pressure (see "4.2 Technical data").

If this nominal pressure is exceeded, the service life of the product 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. A suitable air intake filter must be mounted on the air intake filter to preserve the service life of the unit.

- › The compressors 1035100200 and 1035100300 are supplied with matching air intake filters.
- › The compressors 1035100100 and 1035100400 must be operated with a central air intake filter see "3.3 Special accessories" (connection: internal thread G 3/8").

#### Air outlet

The air outlet opening is located on the T-piece between the cylinder heads.

- › Connect a pressure hose to the external thread M16 x 1.5.

#### 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"). Ensure 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 or working pressure may not exceed the nominal 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 Maintenance

### 8.1 Maintenance schedule



#### CAUTION

#### Burns from hot surfaces

The surfaces of the unit are hot during operation

› Allow surfaces to cool down before performing operating or maintenance work.



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

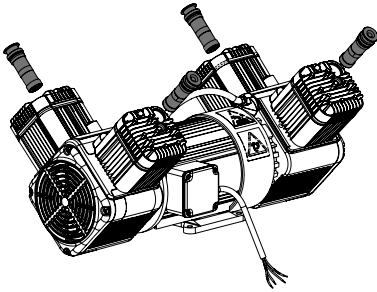
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Maintenance interval	Maintenance work
Monthly	› Clean the surface of the unit with a non-fuzzing cloth. Keep the ventilation openings of the crankcase chamber and cylinder head free from dust and impurities.
Annually	› Replace the air intake filter - every six months given a high concentration of dust.
Every 4 years	› Replace the vibration dampers.

## 8.2 Replacing the air intake filter


For units 1035100200 and 1035100300

- › Remove the air intake filter.
- › Insert a new air intake filter.



## 8.3 Replace the vibration dampers

Attachment to the compressor motor base:

 Schematic diagram.

- Mount the vibration dampers (2) with the lock washer (3) and the hexagonal nut (4) on the motor base (10) as shown in the assembly overview.

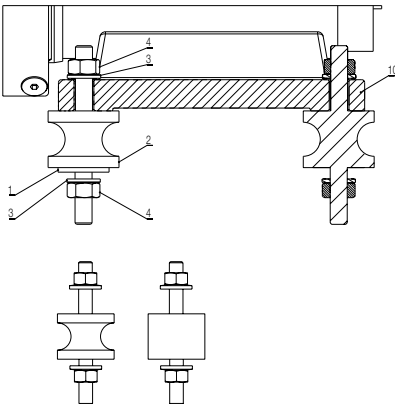


### NOTICE

**Rotation of the vibration dampers causes increased wear.**

The service life of the vibration dampers is reduced.

- › When tightening the screws, ensure that the rubber of the vibration dampers does not become twisted.





## 9 Tips for operators and service technicians



Any repairs above and beyond routine maintenance must only be carried out by suitably qualified personnel or by one of our service technicians.



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

Fault	Probable cause	Solution
<b>Unit does not start</b>	No power supply voltage	› Inform an electrician. Check mains fuse and if possible, switch on unit again.
	Undervoltage or overvoltage	› Inform an electrician. Measure power supply voltage.
	Motor defective	› Replace the unit.
	Air intake filter blocked	› Insert a new air intake filter.
<b>Reduction in air flow</b>	Lines, hoses or connections leaking	› Inform a service technician. Check / renew lines, hoses or connections.
	Air intake filter soiled	› Replace the air intake filter at least 1x per year.
<b>Unit too noisy</b>	Bearing damaged	› Inform a service technician.
	Vibrations are being transmitted to the housing	› Use suitable vibration dampers.
	Defective vibration dampers	› Install new vibration dampers.



## Service

Dürr Technik GmbH & Co. KG  
74301 Bietigheim-Bissingen  
Telephone 0 71 42 / 90 22 - 20  
Fax 0 71 42 / 90 22 - 99  
e-mail: [service@duerr-technik.de](mailto:service@duerr-technik.de)

## Replacement order

Telephone 0 71 42 / 9022 - 0  
Fax 0 71 42 / 9022 - 99  
e-mail: [office@duerr-technik.de](mailto:office@duerr-technik.de)

The following information is required when ordering spare parts:

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

## Repairs/return delivery

Ensure that the unit is **depressurized** before transport! Use the original packaging when returning units, if possible. Always pack the units in a plastic bag. Use recyclable packing material.

## Return delivery address:

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

## International addresses for Dürr Technik

[www.duerr-technik.com](http://www.duerr-technik.com)



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