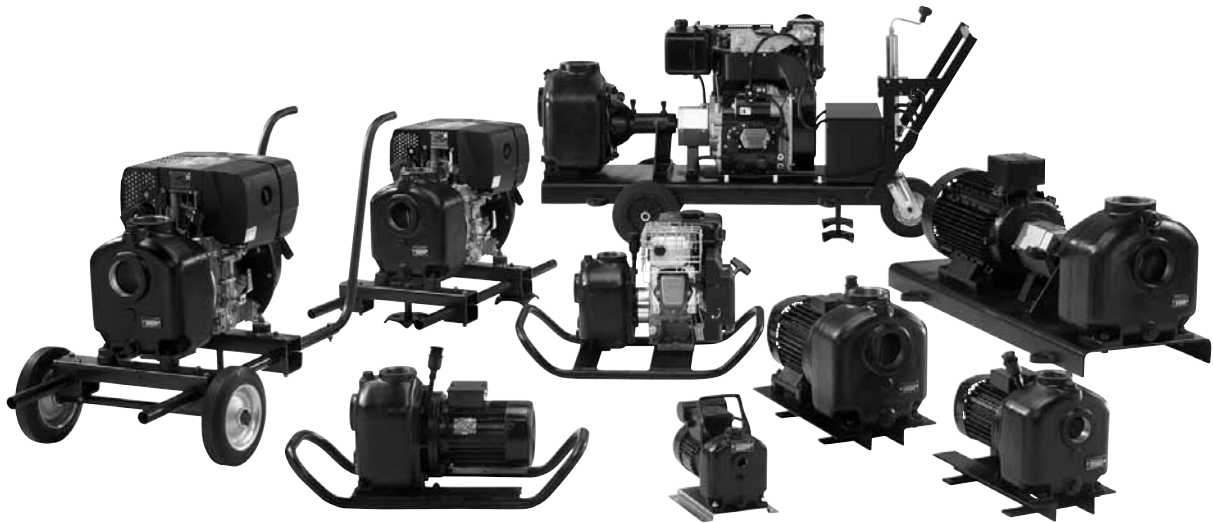


# Pomona

Installation and operating instructions

GB D RU HR CZ



## **GB Declaration of Conformity**

We, Grundfos, declare under our sole responsibility that the product POMONA, to which this declaration relates, is in conformity with these Council directives on the approximation of the laws of the EC member states:

- Machinery Directive (2006/42/EC).  
Standard used: EN 809: 2000.
- Noise Emission Directive (2000/14/EC).

### **Bare shaft pump**

We, Grundfos, declare under our sole responsibility that the product POMONA, to which this declaration relates, is in conformity with these Council directives on the approximation of the laws of the EC member states:

- Machinery Directive (2006/42/EC).  
Standard used: EN 809: 2000.

Before the pump is taken into operation, the complete machinery into which the pump is to be incorporated must be declared in accordance with all relevant regulations.

## **RU Декларация о соответствии**

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия POMONA, к которым относится настоящая декларация, соответствуют следующим Директивам Совета Евросоюза об унификации законодательных предписаний стран-членов ЕС:

- Механические устройства (2006/42/EC).  
Применявшийся стандарт: EN 809: 2000.
- Уровень шума, производимый оборудованием (2000/14/EC).

### **Насос со свободным концом вала**

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия POMONA, к которым относится настоящая декларация, соответствуют следующим Директивам Совета Евросоюза об унификации законодательных предписаний стран-членов ЕС:

- Механические устройства (2006/42/EC).  
Применявшийся стандарт: EN 809: 2000.

Прежде чем насос будет введен в эксплуатацию, необходимо получить подтверждение, что агрегат в сборе, частью которого будет данный насос, соответствует всем основным требованиям и нормам.

## **CZ Prohlášení o shodě**

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobek POMONA, na nějž se toto prohlášení vztahuje, je v souladu s ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství v oblastech:

- Směrnice pro strojní zařízení (2006/42/ES).  
Použitá norma: EN 809: 2000.
- Směrnice o hlukových emisích (2000/14/ES).

### **Čerpadlo s volným koncem hřídele**

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobek POMONA, na nějž se toto prohlášení vztahuje, je v souladu s ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství v oblastech:

- Směrnice pro strojní zařízení (2006/42/ES).  
Použitá norma: EN 809: 2000.

Před uvedením čerpadla do provozu, musí být kompletní strojní zařízení, jehož součástí čerpadlo je, deklarováno ve shodě se všemi příslušnými předpisy.

## **D Konformitätserklärung**

Wir, Grundfos, erklären in alleiniger Verantwortung, dass das Produkt POMONA, auf das sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmt:

- Maschinenrichtlinie (2006/42/EG).  
Norm, die verwendet wurde: EN 809: 2000.
- Outdoor-Richtlinie (2000/14/EG).

### **Pumpe mit freiem Wellenende**

Wir, Grundfos, erklären in alleiniger Verantwortung, dass das Produkt POMONA, auf das sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmt:

- Maschinenrichtlinie (2006/42/EG).  
Norm, die verwendet wurde: EN 809: 2000.

Vor der Inbetriebnahme der Pumpe ist eine Konformitätserklärung für die gesamte Anlage, in die die Baugruppe "Pumpe mit freiem Wellenende" eingebaut ist, auszustellen.

## **HR Izjava o usklađenosti**

Mi, Grundfos, izjavljujemo pod vlastitom odgovornošću da je proizvod POMONA, na koji se ova izjava odnosi, u skladu s direktivama ovog Vijeća o usklađivanju zakona država članica EU:

- Direktiva za strojeve (2006/42/EZ).  
Korištena norma: EN 809: 2000.
- Direktiva o emisiji buke (2000/14/EZ).

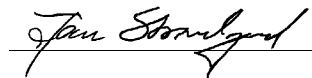
### **Crpka s golim vratilom**

Mi, Grundfos, izjavljujemo pod vlastitom odgovornošću da je proizvod POMONA, na koji se ova izjava odnosi, u skladu s direktivama ovog Vijeća o usklađivanju zakona država članica EU:

- Direktiva za strojeve (2006/42/EZ).  
Korištena norma: EN 809: 2000.

Prije puštanja u pogon crpke, kompletan uređaj u koji je crpka ugrađena mora biti u skladu s odgovarajućim propisima.

Bjerringbro, 1th January 2010



Jan Strandgaard  
Technical Director

# Pomona

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<b>Montage- und Betriebsanleitung</b>	<b>11</b>	<b>D</b>
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<b>Montažne i pogonske upute</b>	<b>28</b>	<b>HR</b>
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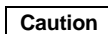


**Warning**  
*Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.*

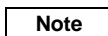
**1. Symbols used in this document**



**Warning**  
*If these safety instructions are not observed, it may result in personal injury!*



**Caution**  
*If these safety instructions are not observed, it may result in malfunction or damage to the equipment!*



**Note**  
*Notes or instructions that make the job easier and ensure safe operation.*

**2. Scope of delivery**

The pumps are delivered from the factory in purpose-designed packaging with a wooden base suitable for transport by fork-lift truck or a similar vehicle.

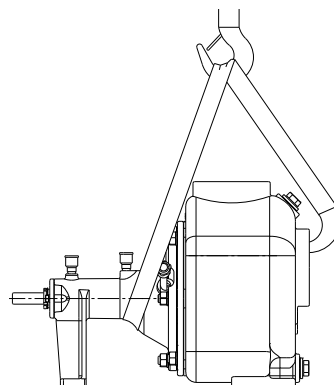
Depending on type, these items are supplied:

- pump
- motor
- base plate/carrying frame
- coupling
- coupling guard
- installation and operating instructions
- in the case of POMONA with combustion engine, the operating instructions for the engine.

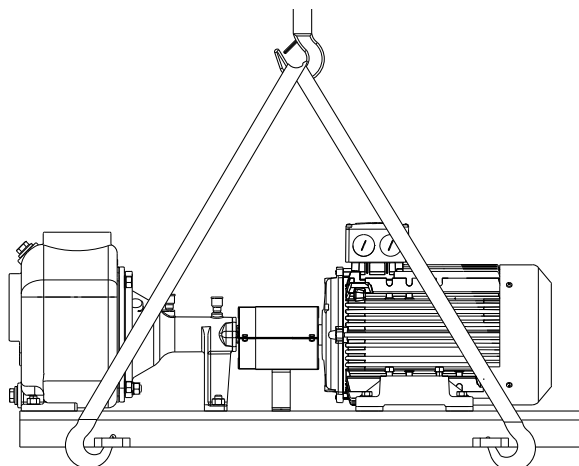
**3. Handling**



**Warning**  
*Heavy pumps are to be transported by means of lifting equipment. Attach the strap so that the pump remains in a stable position and cannot turn or fall. See fig. 1.*



**Fig. 1** Correct lifting of bare shaft pump



**Fig. 2** Correct lifting of motor and pump on base frame

TM04 6028 4709

TM04 6026 4709

## 4. Type key

Code Example	PO 2 3 .10 .BL .E .1 .G .P .15 .3
PO POMONA	
<b>DN connection size [mm]</b>	
0	DN 20 (G = 3/4")
2	DN 50 (G = 2")
3	DN 80 (G = 3")
4	DN 100 (G = 4")
<b>Version No</b>	
10	<b>Maximum solids size [mm]</b>
<b>Pump type</b>	
BA	Bare shaft pump
BL	Block version
CM	Pump with coupling and motor
<b>Motor</b>	
0	Without motor
E	Electric motor, 50 Hz
F	Electric motor, 60 Hz
D	4-stroke diesel engine
P	4-stroke petrol engine
X	Special motor version
<b>Frame</b>	
0	Without frame
1	Base frame
2	Carrying frame
3	Trolley
<b>Impeller</b>	
G	Cast iron (GG)
B	Cast bronze (G-CuSn)
X	Special version
<b>Sealing</b>	
P	NBR
V	FKM (Viton®)
X	Special version
<b>15 Motor power (P2/100) [W]</b>	
<b>Motor</b>	
1	1-phase (220-240)
3	3-phase (220-240D / 380-415Y)
X	Special version

### 4.1 Coupling

Flexible coupling versions with bearing pedestal in accordance with DIN 740-1: 1986-08.

### 4.2 Coupling guard

As a protection against contact with the shaft and coupling, a guard made of steel sheet are fastened to the base frame. For protection against touching in accordance with DIN 31001-1: 1983-04.

### 4.3 Base plate

In accordance with DIN 24259-1: 1979-03, torsion-resistant design made from steel. Carrying frames and trolleys made from steel tube.

### 4.4 Surface treatment

Top coat: water-based paint.

## 5. Applications

The POMONA pumps are designed for applications, such as these:

- dewatering of construction sites
- draining of stormwater
- groundwater level control
- irrigation of gardens and parks
- water supply in agriculture and horticulture
- well-tube injection
- emergency pumping - flooded areas, fire etc.
- draining of yachts and motor boats.

The pumps are suitable for both temporary and permanent installation.

## 5.1 Combustion engine

### Warning

*In the case of petrol and diesel engines, observe the manufacturer's instructions. Information on the direction of rotation is of particular importance. The pump rotates to the right (clockwise) when viewed from the drive shaft.*

*Information on air supply and the extraction of exhaust gases is of particular importance when installed in closed rooms.*

*When draining the tank, appropriately sized containers are to be made available.*



## 6. Pumped liquids

The pumped liquid must not attack the pump materials chemically.

pH value: 4-10.

POMONA pumps are wear-resistant and not sensitive to contamination from mud, dirt or sand. Solid matter up to the following particle sizes can be pumped in the liquid without any danger of a blockage:

Type	Max. particle size [mm]
POMONA PO07	3
POMONA PO23	10
POMONA PO32	20
POMONA PO42	30

*If the POMONA is used for pumping liquid fertilisers, pesticide, milk of lime or wood preservative (free from animal fat and carbolineum), the pump must be thoroughly cleaned after use, however, at least once a day. If the POMONA is used for pumping potable water, no other liquid may be pumped. It is not permitted to pump flammable fluids, with the exception of EL and L type heating oils. When pumping heating oils, the POMONA must be placed in an oil-tight pan or similar to provide protection against environmental pollution.*

### Caution

### Warning

*The pump must not run against a closed valve due to the risk of scalding hot water caused by conversion of motor energy into heat in the pump.*

*The pump is not suitable for continuous pumping of abrasive materials (e.g. river sand).*

Warning note from VDE:

*The usage of the POMONA with electric motors for swimming pools and garden ponds and in the area of such items is only permitted if installation is carried out in accordance with DIN 57 100 Part 702/VDE 0100 Part 702.*

*Please ask your electrician.*



## 7. Technical data

For performance curves, see page 44.

Description	PO07	PO23	PO32	PO42
Maximum liquid temperature	60 °C		100 °C	
Maximum ambient temperature		40 °C		
Minimum speed [min <sup>-1</sup> ]		2500		
Maximum speed [min <sup>-1</sup> ]	7500	4500	3700	3000
Sound pressure level [dB (A)]				
Electric motor 2900 min <sup>-1</sup>	< 70	82	90	90
Combustion engine	-	91	102	105
Vacuummetric suction lift [m]	Up to 5		Up to 8	
Shaft seal				
Floating ring seal		NBR		
Materials				
Housing, housing cover		EN-GJL-200 (GG20)		
Bearing pedestal		EN-GJL-200 (GG20)		
Wear plate		EN-GJL-200 (GG20)		
Screw plug		Stainless steel		
Impeller		EN-GJL-200 (GG20) or G-CuSn		
Connections				
Suction and discharge connections	G 3/4" (DN 20)	G 2" (DN 50)	G 3" (DN 80)	G 4" (DN 100)
Weight with electric motor [kg]				
Bare shaft pump	9	30	40	71
Base frame	13.5	46	80	220
Carrying frame	-	48	-	-
Weight with combustion engine [kg]				
Carrying frame	-	48	90.5	-
Base frame	-	-	-	237
On trolley	-	-	103	280

### 7.1 Inlet pressure/priming

Grundfos POMONA pumps are self-priming and, once filled, continually ready for use. The pumps draw rapidly and securely, even without a foot valve.

### 7.2 Maximum pressure

The maximum pressure (inlet pressure and pump pressure against a closed valve) is 6 bar.

### 7.3 Minimum flow rate

The pump must not run against a closed discharge valve, as this will cause an increase in temperature/formation of steam in the pump. This may cause shaft damage, impeller erosion, short life of bearings, stuffing boxes with packing rings or mechanical seals due to stress or vibration.

The minimum flow rate must be at least 10 % of the maximum flow rate stated on the pump nameplate.

## 7.4 Motor data

### POMONA 07

- 1 x 230 V motor. 0.25 kW. IP55.
- 3 x 230/400 V motor. 0.25 kW. IP55.

### POMONA 23

- 1 x 230 V motor. 1.25 kW. IP55.
- 3 x 230/400 V motor. 1.5 kW. IP55.
- 4-stroke petrol engine. 4.85 kW.

### POMONA 32

- 3 x 400 V motor. 4.0 kW. IP55.
- 4-stroke diesel engine with electric start. 4.6 kW.

### POMONA 42

- 3 x 400 V motor. 11.0 kW. IP55.
- 4-stroke diesel engine with electric start, including battery and wiring. 13.1 kW.

## 8. Installation

### 8.1 Foundation

**The foundation/installation must be carried out in accordance with the following instructions. Non-compliance may result in functional faults which will damage the pump components.**

Grundfos recommends to install the pump on a concrete foundation which is heavy enough to provide permanent and rigid support to the entire pump. The foundation must be capable of absorbing any vibration, normal strain or shock. As a rule of thumb, the weight of the concrete foundation should be 1.5 times the weight of the pump. The concrete foundation must have an absolutely level and even surface.

The foundation length and width should always be 200 mm larger than the length and width of the pump.

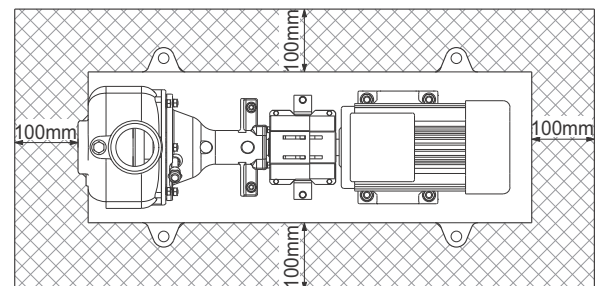


Fig. 3 Minimum size of the concrete foundation

In installations where low-noise operation is particularly important, a foundation with a weight up to five times that of the pump is recommended.

### Dimensions of base frame

Type	Description	Dimensions [mm]	
		Length	Width
PO07		280	195
PO23	Block version on base frame	475	230
PO32		565	285
PO07		485	200
PO23		740	330
PO32	Pump with coupling and motor	1000	450
PO42		1250	540
PO42	Pump with coupling and diesel engine	1250	540

### 8.2 Positioning

The pump must be installed in a well-ventilated, frost-free room.



**Warning**  
*In hot-water installations, make sure that persons cannot accidentally come into contact with hot surfaces.*

For inspection and repair, suitable clearances for pump or motor removal must be allowed.

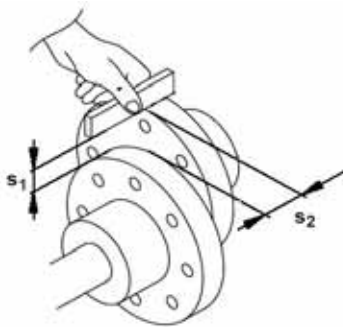
### 8.3 Aligning pedestal versions

*In installations where low-noise operation is particularly important, the pump must be placed on its own foundation. The foundation is to be isolated from the rest of the building to prevent the transmission of noise as far as possible.*

**Caution**

Check first for any transport damage. Place the fixing bolts loosely in the foundation, level the base plate with a spirit level and shims. The alignment of the pump and motor to the coupling must then be checked using a straight edge. The edge must fit snugly against both halves of the coupling. The straight edge must be moved by 90 ° and this check repeated.

Coupling size	$S_1 \wedge S_2$ [mm] (see fig. 4)
B 68-95	2.5
B 110-140	3.5
B 160-180	4.5



TMO38292 1007

Fig. 4  $S_1 \wedge S_2$

The coupling halves must have the same separation from each other around their circumference. Press against the pump impeller in the direction of the pump during this process. The dimension  $S_1 \wedge S_2$  between the ends of the pump and motor shafts is defined by the make of coupling. If the coupling and motor were not supplied by Grundfos, then the coupling manufacturer's instructions are to be observed.

Any corrections to the radial or angular positioning must be made by removing or inserting calibrated shims under the feet of the pump housing or motor.

Careful alignment significantly increases the service life of the coupling as well as that of the shaft bearings and the seals. It must be easy to turn the coupling by hand after alignment. Refit the coupling guard in accordance with regulations.



**Warning**  
*Operation without a coupling guard is not permitted on safety grounds.*

### 8.4 Connection

The hose or pipe connections, particularly on the suction side, must not leak. If hoses are used, a spiral hose must be used on the suction side to prevent the hose from collapsing due to the vacuum generated.

If the connection to the pump is made with pipes, elastic connections must be fitted between the pump and the rigid pipes.

The pump and its connectors must not be used to support the pipework (DIN 24 295, 3.2.2.3).

It is important to prevent distortion of the pump.

The suction head of the system must not be greater than the suction head guaranteed for the pump. The nominal size of the pipework should be the same as that of the pump connections or larger.

Blocking of the water intake by muddy groundwater can be prevented by suspending the strainer.

**Note**

*To ensure that the strainer is suspended vertically in the water, lower the strainer into the water in a wicker basket or lay the suction hose over a branch.*

## 9. Electrical connection



**Warning**  
*The power supply to the pump must be completely disconnected before removing the terminal box cover and before any dismantling of the pump.*

The electrical connection must be made by a qualified electrician in accordance with the regulations of the power supply company and the VDE.

The pump must be fused in the building's electrical installation and be connected via an external switch.

Make sure that the electrical data on the nameplate is the same as that of the power supply.

The electrical connection must be made in accordance with the wiring diagram in the terminal box cover.

### 9.1 Overload protection

On request, the motors are supplied with built-in sensors for connection to an external control circuit. These can be bimetallic strip type thermal switches or thermistors (PTC).

The thermal switches can be connected directly to an external control circuit; the motor is protected against slow overloading. Protective system in accordance with IEC 34-11: TP 111 (slow overloading). The motor must be equipped with a protection device if it is to be able to withstand stalling.

Thermal switches are capable of switching 1.5 A at 250 VAC.

The thermistor is to be connected to an external amplifying relay connected to the control circuit. In this case, the motor is protected against rapid and slow overloading.

Protective system in accordance with IEC 34-11: TP 211 (both slow overloading and blocking).

Thermistors in accordance with DIN 44 082.

**Caution**

*When repairing motors incorporating thermal switches (Klixon), make sure that the motor cannot start automatically after cooling.*

## 10. Start-up

**Caution** *The pump must be filled with the liquid to be pumped before start-up. Risk of dry running!*

### 10.1 Priming

Prime the pump by removing the priming plug or via the discharge port. Fit and tighten the priming plug when the pump has been primed. Do not forget the seal.

Description	P007	P023	P032	P042
Approx. amount of liquid in litres	1	3	6	9

### 10.2 Checking the direction of rotation

The pump must be filled with the liquid to be pumped prior to checking the direction of rotation. The direction of rotation of the motor/engine must be the same as shown by the arrow on the pump. The pump must only run for a short period!

Change the direction of rotation by interchanging two phases.

### 10.3 Starting the pump

**Caution** *Do not start the pump when it is empty. The pump must not run against a closed valve.*

Start the petrol or diesel engine in accordance with the manufacturer's instructions.

### 10.4 Maximum number of starts per hour

Motor smaller than 4 kW: 100.

Other motors: 20.

Do not operate combustion engines continually at full load.

## 11. Maintenance

Instructions as to maintenance, dismantling and assembly, see service instructions on [www.Grundfos.com](http://www.Grundfos.com).

### Warning

*Before carrying out maintenance, make sure that the power supply has been switched off, and that it cannot be accidentally switched on.*

*In the case of petrol and diesel engines, observe the manufacturer's instructions. Maintenance must only be carried out by qualified personnel.*



### 11.1 Lubricator

The pump is equipped with a double-seal system. The floating ring seal is resistant to heating oil, but not to petrol or benzene. Semiautomatic lubrication using lubricators prevents wear on the seal. The entire seal system is filled with lubricant. A high-viscosity gear oil or semi-liquid grease is to be used for refilling, e.g. amprolium.

To adjust the lubricator, slacken the lock nut by four turns. Turn the upper section four turns down and lock it with the lock nut. If the upper section is screwed home in the lower section, the lubricator is empty and must be refilled.

To do so, remove the lock nut and screw it back completely.

Unscrew the upper section, remove the piston, grease lightly and replace. Then fill the lower section with lubricant up to the lip.

Screw the upper section four turns into the lower section and lock it with the lock nut.

When heating oil and diesel oil are pumped, the lubricator is not required. An angled threaded fitting R 1/8 with a leakage pipe should be fitted instead and connected to a collecting tray.

This makes it possible to recognise immediately when the floating ring seal starts to leak. This prevents the pumped liquid from penetrating into the ground.

Note that the motor must meet safety regulations.

Maintenance of the petrol or diesel engine is to be performed in accordance with the manufacturer's instructions.

### 11.2 Floating ring seals

*Floating ring seals are maintenance-free and work with practically no leakage. In the event of heavy or increasing leakage, the floating ring seal must be inspected without delay. If damage can be seen on the sealing surfaces, the entire floating ring seal must be replaced. Floating ring seals must be treated with great care. See also section 14. Service.*

### Caution

### 11.3 Motor bearings

As standard, the pumps are delivered with motors without grease nipples. The motor bearings are therefore maintenance-free.

If the pump is fitted to a motor with grease nipples, regreasing should be performed using a lithium-based grease.

In the case of petrol or diesel engines, see the manufacturer's instructions.

### 11.4 Roller bearing grease

Basis: lithium-loaded, temperature range  $-20\text{ }^{\circ}\text{C}$  to  $+120\text{ }^{\circ}\text{C}$ , drop point approx.  $+185\text{ }^{\circ}\text{C}$ .

Manufacturer	Grease
Aral	HL 2
BP	BP Energrease LS 3
Calypso	Calypso H 443 GF
Castrol	SPEEROL AP 3
Fina	Fina Marson HTL 3
Shell	Shell Alvania-Fett R 3
Esso	Beacon 3
Fuchs	FWA 160 or 220
Gasolin	DEGANOL LW 3
Mobil Oil	Mobilux 3

## 12. Frost protection

If the pump is to be taken out of service for an extended period, it is recommended to turn the pump shaft by hand from time to time to prevent the impeller from seizing up. If there is a risk of frost, the pump must be completely drained by unscrewing the drain plug.

### Warning

*Make sure that liquid flowing out of the pump cannot cause a hazard to personnel or damage to the motor or other components. In hot-water installations, pay special attention to the risk of injury caused by scalding hot water.*

*When taking combustion engines out of service, see the engine manufacturer's operating instructions.*



## 13. Fault finding



### Warning

Before removing the terminal box cover and carrying out any work on the pump, make sure that the power supply has been switched off, and that it cannot be accidentally switched on. Drain the pump.

Fault	Cause	Remedy
1. Pump does not pump, pump performance is poor, or pump does not suck.	a) Incorrect electrical connection.	Check electrical connection, and correct, if necessary.
	b) Incorrect direction of rotation.	Interchange two phases.
	c) Insufficient liquid in the pump housing.	Bleed and fill suction pipe and pump.
	d) Air cannot escape.	Discharge pipe clogged. Open all valves.
	e) Suction head too large. *	Increase the liquid level on the suction side. Open the shut-off valve in the suction pipe.
	f) Pipes clogged or foreign body in the impeller.	Open pump and remove blockage.
	g) Air sucked in through a defective seal.	Inspect pipe seals, pump housing seals and shaft seals. Replace, if necessary.
	h) Pump sucks in air because of insufficient liquid.	Increase the liquid level on the suction side, and keep it constant, if possible.
2. Motor-protective circuit breaker trips; motor is overloaded.	a) Pump blocked.	Open pump and remove blockage.
	b) Pump blocked during starting due to distortion of the pump body by the pipework.	Install the pump free of distortion, support pipework at fixed points.
	c) The density or viscosity of the pumped liquid is higher than that stated in the order. *	If lower performance than that given is sufficient, then throttle back the pump flow on the suction side. Otherwise, use larger motor.
	d) Motor-protective circuit breaker not correctly set.	Check setting. Replace motor-protective circuit breaker, if necessary.
	e) Motor running on two phases of three-phase supply.	Check electrical connection. Replace defective fuse.
3. Pump makes too much noise. Pump does not run smoothly and vibrates.	a) Suction head too large. *	Raise liquid level on the suction side, completely open shut-off valve in the suction pipe.
	b) Air in the suction pipe or pump.	Bleed and fill suction pipe and pump.
	c) Pump draws in air because of insufficient liquid.	Increase amount of liquid on the suction side and, if possible, keep constant.
	d) Impeller unbalanced (impeller blades blocked).	Clean and check impeller.
	e) Internal parts worn.	Replace parts.
	f) Pump distorted (starting noises as a result).	Install the pump free of distortion. Support pipework.
	g) Bearings damaged.	Replace bearings.
	h) Bearings have insufficient, too much or incorrect type of grease.	Add, remove or replace grease.
	i) Motor fan defective.	Replace fan.
	j) Coupling buffer block (power transmission) defective.	Replace coupling buffer block; re-align coupling. See section 8.3).
	k) Foreign body in the pump.	Open and clean pump.
4. Pump or connections leak. Floating ring seal leaks. Gland seal leak.	a) Pump is distorted (leaks in the pump body or at the connections as a result).	Install the pump free of distortion. Support pipeworks.
	b) Housing seal and connection seals defective.	Replace housing and connection seals.
	c) Floating ring seal dirty or stuck.	Check and clean floating ring seals.
	d) Floating ring seal worn.	Replace floating ring seal.
5. Overtemperature of pump, bearing carrier or motor.	a) Air in the suction pipe or pump.	Bleed and fill suction pipe and pump.
	b) Suction head too large.	Increase the liquid level on the suction side. Open the shut-off valve in the suction pipe.
	c) Bearings have insufficient, too much or incorrect type of grease.	Add, remove or replace grease.
	d) Pump with bearing carrier is distorted.	Install the pump free of distortion, support pipework at fixed points, check alignment of coupling.
	e) Motor-protective circuit breaker defective or not correctly set.	Check setting. Replace motor-protective circuit breaker, if necessary.

\* Contact the manufacturer.

## 14. Service

### Warning

**Compliance with the legal regulations on health safety such as, for example, the German Directive on Work Places (ARBstättV), the German Directive on Dangerous Materials (GefStoffV), the German Regulations on Accident Avoidance as well as regulations on environmental protection, such as the German Laws on Waste (AbGG) and Household Water (WHG,) oblige all businesses to protect their staff, people and the environment from harmful effects when dangerous materials are used.**



### 14.1 Spare parts

A complete list of spare parts of Pomona pumps is available in the Service Kit Catalogue. For further information, see [www.Grundfos.com](http://www.Grundfos.com)

### 14.2 Contaminated pumps

If the pump has been used for pumping poisonous or hazardous liquids, the pump is classified as contaminated.

In this case, detailed information on the pumped liquid must be provided with every request for service.

In the event of service being requested, contact must be made with Grundfos *before* the pump is shipped. Information on the pumped liquid must be provided, otherwise Grundfos can refuse to accept the pump.

#### Caution

***Pumps that have been operated with radioactive liquid are not accepted under any circumstances.***

#### Note

***The document certifying that the pump is safe included with the pump when supplied is part of the inspection/repair order.***

However, this does not affect the fact that we still reserve the right to refuse to accept a request on other grounds.

An inspection/repair of Grundfos products and their parts will therefore only be performed if the document certifying that the pump is safe is filled out correctly and completely by an authorised and qualified specialist.

#### Note

***We wish to specifically highlight that spares and accessories not supplied by us are not tested or certified by us.***

The installation and/or usage of such products can, in certain circumstances change and impair the properties of the pump.

All liability and warranty on the part of Grundfos for damages caused by the use of non-original spare parts is excluded.

Malfunctions that you cannot rectify yourself should only be rectified by Grundfos Service or authorised specialist firms.

In the case of malfunction, please provide a detailed description of the problem so that our service engineer can prepare himself and be equipped with the appropriate spare parts.

The technical data can be found on the pump nameplate.

### ***The following information is necessary for an order:***

- Pump number and type designation (punched on the nameplate) or the order number.
- Number and type of the replacement part (can be seen in the sectional diagrams of the pumps and the tables of spare parts).
- Required method of shipment (freight, express, post).

#### Note

***Any shipment costs are to be met by the sender.***

In the event of faults on the petrol or diesel engines that occur outside of the guarantee, we recommend that the engine be sent to the nearest customer service centre of the engine supplier.

The addresses are given in the vendor's operating instructions.

## 15. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

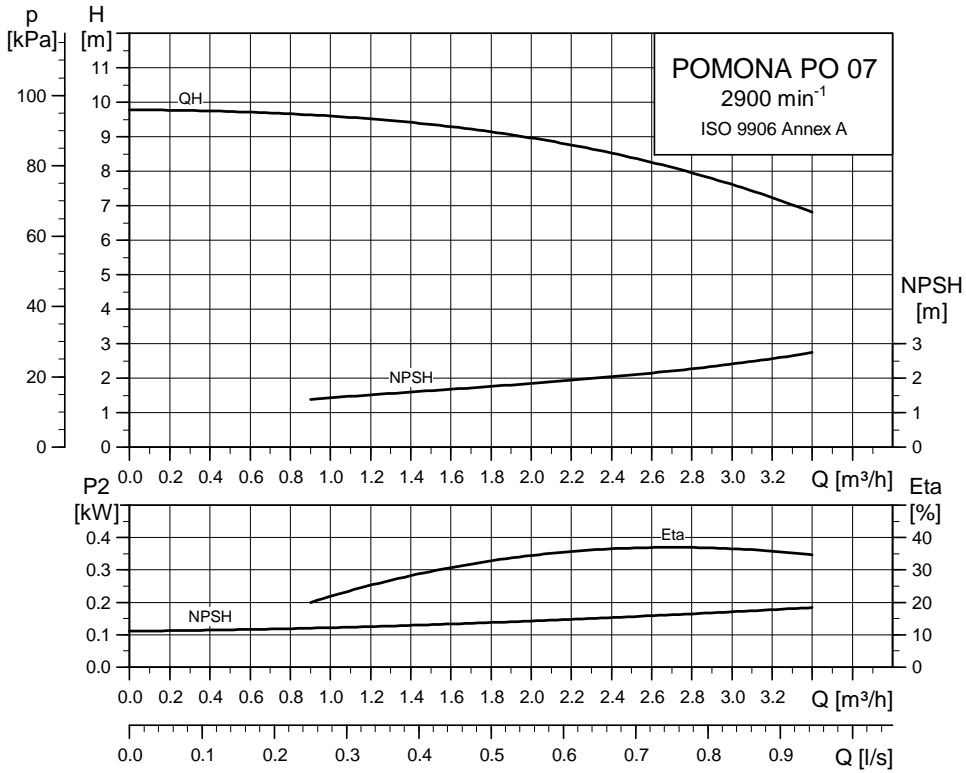


Fig. 1 Performance curves for 1- and 3-phase motors

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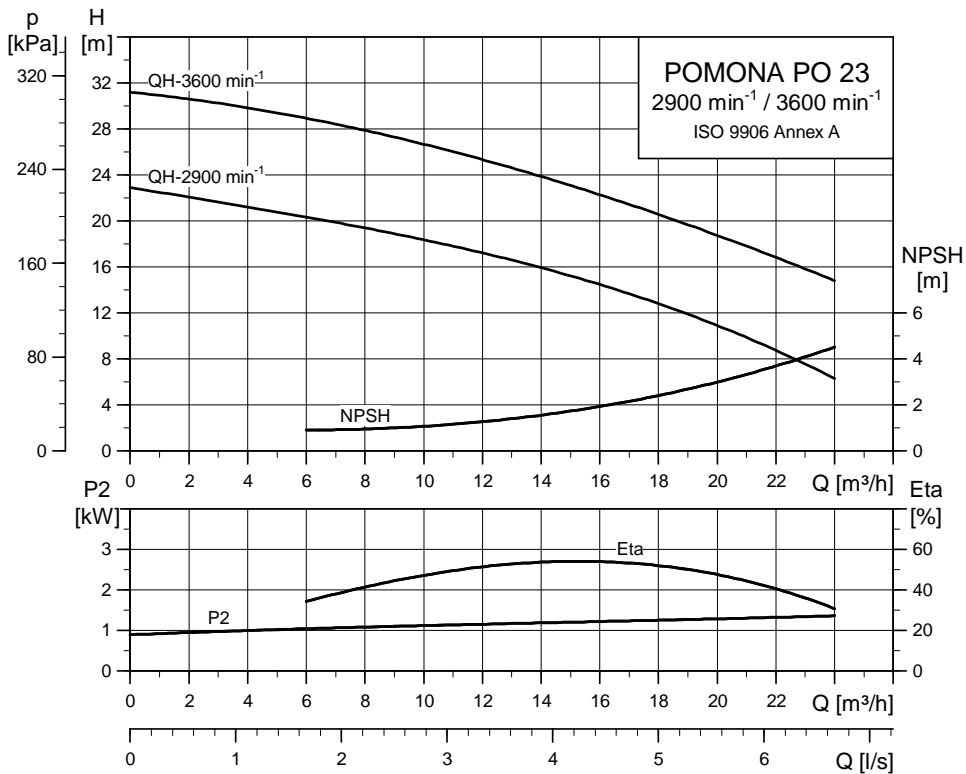
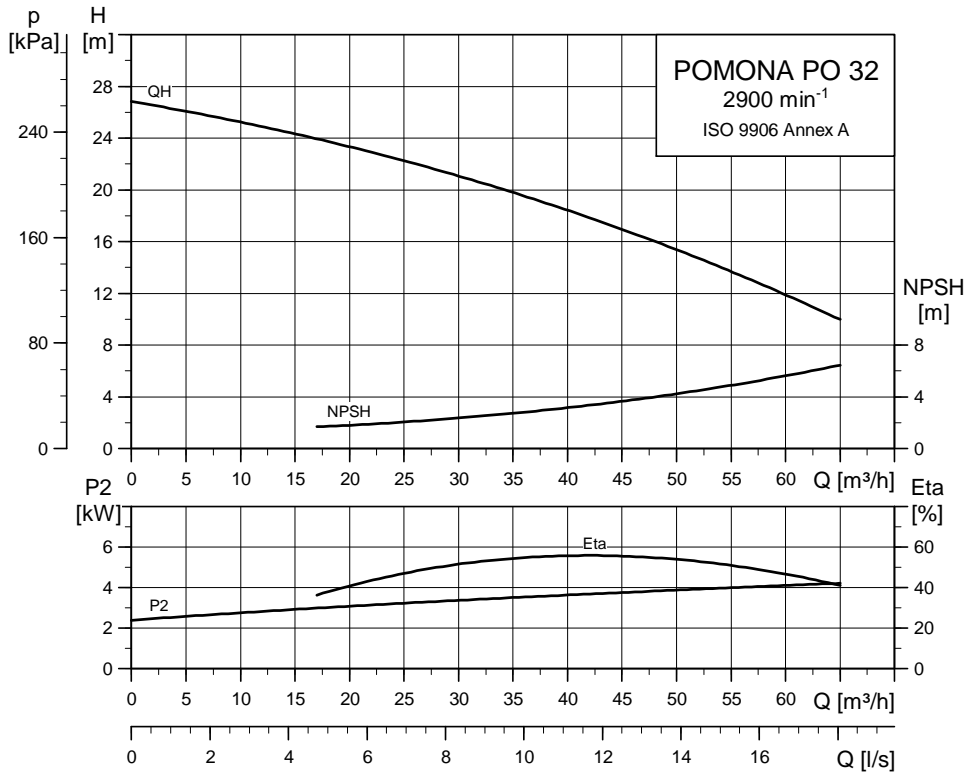


Fig. 2 Performance curves for 1- and 3-phase motors and 4-stroke petrol engine

TM04 3719 4908

TM04 3720 4908

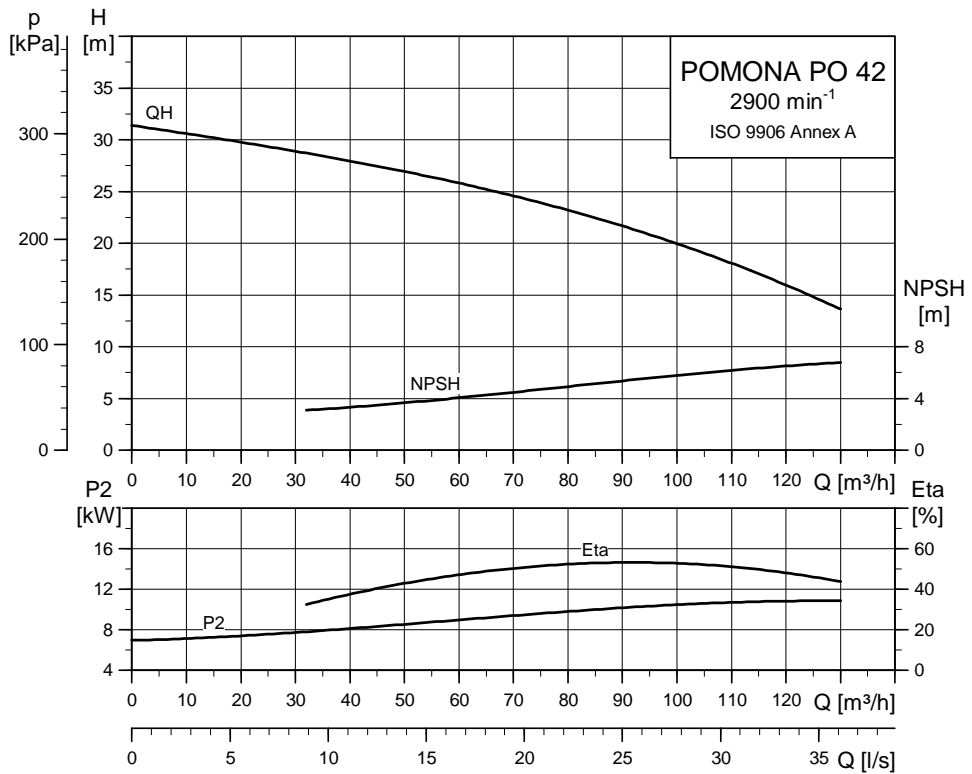
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TM04 3721 4908

Fig. 3 Performance curves for 3-phase motors and diesel engine

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TM04 3679 4908

Fig. 4 Performance curves for 3-phase motors and diesel engine

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