POMONA

Self-priming centrifugal pumps

50 Hz

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Table of contents

1. General description

Product introduction

Universal self-priming wastewater pumps with electric motors or combustion engines for stationary, portable and mobile use.

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Fig. 1 POMONA PO23 with electric motor on carrying frame

The self-priming POMONA wastewater pump is a well proven and reliable product for numerous applications in construction industry, machine industry and trade. It is characterised by its rugged construction and wide range of applications within water supply and dewatering. These self-priming wastewater pumps have a wide range of applications. The customer can select between the stationary variant on a base frame, the portable variant on a carrying frame and the mobile variant on a trolley.

CE mark and approval

CE

Fig. 2 CE mark and approval

Applications

POMONA pumps are designed for applications such as:

- 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, i.e. flooded areas, fire, etc.
- draining of yachts and motor boats.

The pumps are suitable for both temporary and permanent installation.

Cutaway view

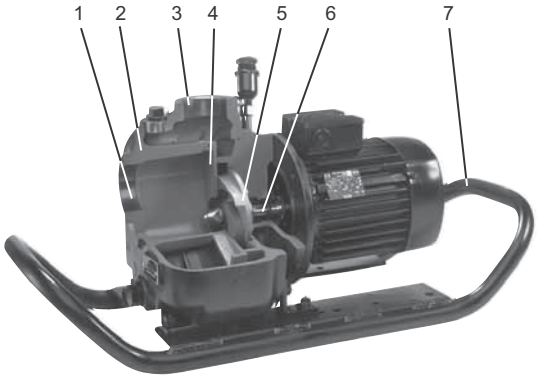

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Fig. 3 Cutaway view of POMONA PO23 with electric motor on carrying frame

Pos.	Description
1	Suction side
2	Pump housing
3	Discharge side
4	Wear plate
5	Impeller
6	Housing cover with mechanical seal
7	Carrying frame

Features and benefits

- POMONA can be supplied with electric motors or internal-combustion engines.
  – Flexibility with independence.
- Pump and driver form a robust and compact close-coupled unit with small overall dimensions.
  – Compact unit and long life.
- The pump has no valves or non-return flaps.
  – Less operational parts, thus less risk of downtime.
- Priming of the suction hose is not necessary, and a foot valve can be dispensed with.
  – User-friendly and trouble-free operation.
- Reliable mechanical seal ensures protection of the motor.
  – Reliability and long life.
- No maintenance required.
  – Low cost and downtime elimination.
- For use with drivers of other makes or designs for belt drive or drive from a tractor power take-off, etc.
  – Flexibility and customer-oriented.
- Versatile.
  – One pump for a wide range of applications, thus saving costs of additional equipment.

General technical data

Description	PO07	PO23	PO32	PO42
Maximum liquid temperature	60 °C		80 °C	
Maximum ambient temperature		40 °C		
Minimum speed [min^{-1}]		2500		
Maximum speed [min^{-1}]	7500	4500	3700	3000
Sound pressure level [dB(A)]				
Electric motor 2900 min^{-1}	< 70	82	90	90
Combustion engine	-	91	102	105
Vacuummetric suction lift [m]		Up to 6		
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)

Performance range

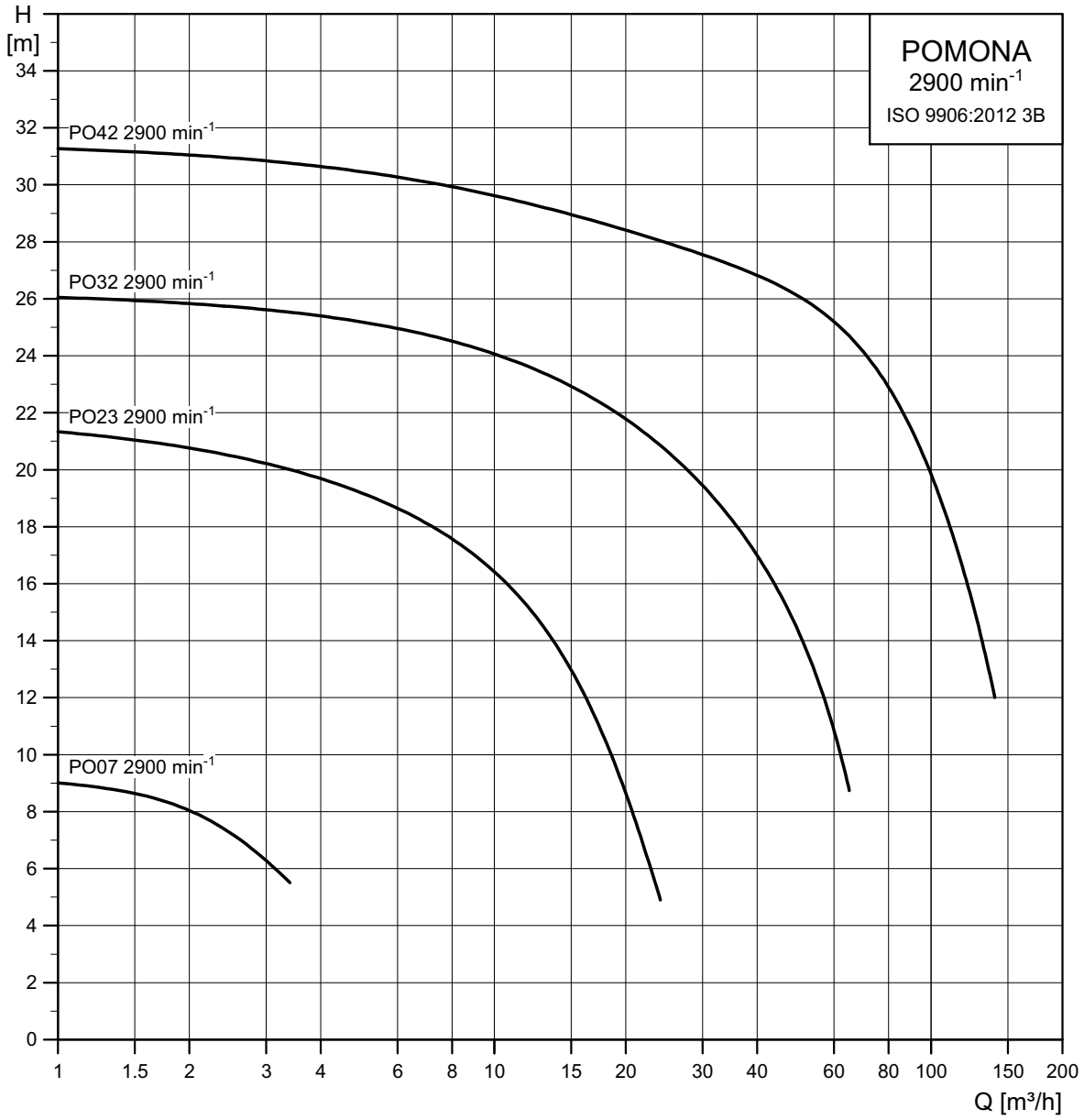

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Fig. 4 Performance range at 2900 min^{-1}

Type key

Code	Example	PO	2	3	.10	.BL	.E	.1	.G	.P	.15	.3
PO	POMONA											
	Connection size [mm]											
0	DN 20 (G 3/4)											
2	DN 50 (G 2)											
3	DN 80 (G 3)											
4	DN 100 (G 4)											
	Version											
	Pump passage											
10	Maximum solids size [mm]											
	Pump											
BA	Bare-shaft pump											
BL	Block version											
CM	Pump with coupling and motor											
	Motor											
0	Without motor											
E	Electric motor, 50 Hz											
F	Electric motor, 60 Hz											
D	Four-stroke diesel engine											
P	Four-stroke petrol engine											
X	Special version											
	Frame											
0	Without frame											
1	Base frame											
2	Carrying frame											
3	Trolley											
	Impeller material											
G	Cast iron (GG20)											
B	Cast bronze (G-CuSn)											
X	Special version											
	Sealing											
P	NBR											
V	FKM (Viton®)											
X	Special version											
15	**Motor power (P2/100) [W]**											
	Motor											
1	Single-phase (220-240)											
3	Three-phase (220-240D / 380-415Y)											
X	Special version											

Nameplate

Pos.	Description
1	Type designation
2	SAP code
CE	CE mark

List of variants

Pump type	PO07	PO23	PO32	PO42
Pump				
Block version	•	•	•	-
Bare-shaft pump	•	•	•	•
Bare-shaft pump with coupling	•	•	•	•
Motor				
Without motor	•	•	•	•
Electric motor, 50 Hz, single-phase	•	•		
Electric motor, 50 Hz, three-phase	•	•	•	•
Electric motor, 60 Hz	•	•	•	
Four-stroke diesel engine	-	-	•	•
Four-stroke petrol engine	-	•	-	-
Frame				
Without frame	•	•	•	•
Base frame	•	•	•	•
Carrying frame	•	•	•	
Trolley	-	-	•	•
Impeller material				
Cast iron (GG20)	•	•	•	•
Cast bronze (G-CuSn)	•	•	•	•
Sealing				
NBR	•	•	•	•
FKM (Viton®)	•	•	•	•

To a great extent, the pumps can be adapted to the requirements of the individual customer.

For customised solutions, contact your local Grundfos company.

2. Selection of pump

Ordering a pump

When ordering a POMONA pump, you need to take the following aspects into consideration:

- pump size
- custom-built variants (option)
- driver design
- frame construction
- accessories.

Pump

To identify the pump that meets your requirements, see sections *Performance range*, page 5, and *Type key*, page 6.

Custom-built variants

The POMONA pump can be customised to meet individual requirements. Many pump features and options are available for customisation, for instance special motor version, type of frame and impeller.

For variants, see section *List of variants*, page 7.

For requirements or designs not included in the list, contact Grundfos.

Accessories

Some installations may require accessories. See section *Accessories*, page 21, for selection of the correct accessories.

Note: Accessories are not fitted from factory.

3. Operating conditions

Pressures

Maximum pressure

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

Minimum inlet pressure

The minimum inlet pressure must correspond to the NPSH curve for the pump + a safety margin of minimum 0.5 metres head.

For NPSH curves, see pages 11 to 14.

Density

A high-density liquid only affects the power consumption of a centrifugal pump:

- The head, flow rate and pump efficiency will remain unchanged.
- The power consumption will increase at a ratio corresponding to the increase in density. A liquid with a specific gravity of 1.2 will thus require a 20 % larger power input.

An oversize motor will often be required.

Pumped liquids

The pumped liquid must not attack the pump materials chemically.

pH value: 4 to 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 risk of a blockage:

Pump type	Maximum particle size [mm]
POMONA PO07	3
POMONA PO23	10
POMONA PO32	20
POMONA PO42	30

Flow rates

Maximum flow rate

The maximum flow rate must not exceed the value stated on the pump nameplate. If the maximum flow rate is exceeded, cavitation and overload may occur.

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.

Curve conditions

The guidelines below apply to the curves on the following pages:

- Tolerances to ISO 9906:2012 3B, if indicated.
- Measurements have been made with airless water at a temperature of 20 °C.
- The curves apply to a kinematic viscosity of υ = 1 mm^2/s (1 cSt).

The QH curves apply to a rated speed of 2900 min^{-1}. All curves are based on actual motor speeds.

4. Construction

General construction

The rugged end-suction design is suitable for operation with electric motors and combustion engines. Thanks to the bearing pedestal and bare shaft end, the pump can also be operated by drives already available on the installation site.

The pump housing is made of grey cast iron, and the impeller is made of grey cast iron or special bronze.

The pump unit has a double shaft seal system with grease filling and lubricating nipple. A mechanical shaft seal seals the primary side (water side). A seal ring seals the secondary side (motor side).

Coupling

Flexible coupling versions with bearing pedestal.

Coupling guard

As a protection against contact with the shaft and coupling, a guard made of steel sheet is fastened to the base frame.

Base frame

Torsion-resistant steel plate.

Carrying frame and trolley are made of steel tube.

Motors

POMONA PO07

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

POMONA PO23

- 1 x 230 V motor. 1.25 kW. IP55.
- 3 x 230/400 V motor. 1.5 kW. IP55.
- Four-stroke petrol engine. 2.6 kW.

POMONA PO32

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

POMONA PO42

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

Other motors/engines are available on request.

5. Performance curves and technical data

POMONA PO07

Performance curves

Electric motor

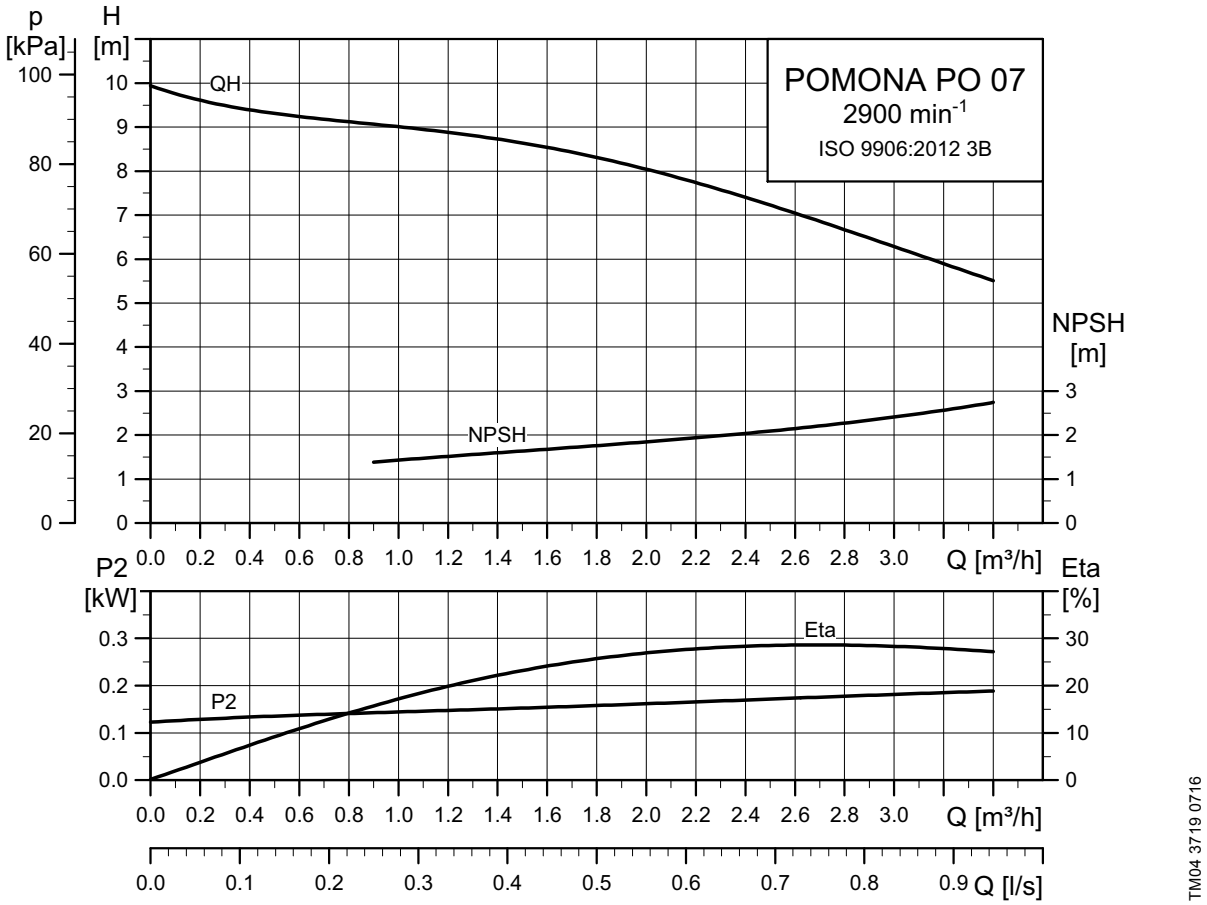

Fig. 5 Performance curves for single- and three-phase motors

Technical data

Pump type	Weight [kg]	Connection DN	Pump passage [mm]	Frame	Power P2 [kW]	Speed [min^{-1}]	Impeller material	Sealing material	Voltage [V] (50 Hz)	Product number
PO07.3.BA.0.0.G.P	9.0	20	3	-	0.25 required	2900 required	Cast iron	NBR	-	L6126667
PO07.3.BA.0.0.B.P	9.0	20	3	-	0.25 required	2900 required	Cast bronze	NBR	-	L6Z10002
PO07.3.BL.E.1.G.P.2.5.1	13.5	20	3	Base frame	0.25	2900	Cast iron	NBR	1 x 230	L6Z10010
PO07.3.BL.E.1.B.P.2.5.1	13.5	20	3	Base frame	0.25	2900	Cast bronze	NBR	1 x 230	L6126659
PO07.3.BL.E.1.G.P.2.5.3	13.0	20	3	Base frame	0.25	2900	Cast iron	NBR	3 x 400	L6Z10009
PO07.3.BL.E.1.B.P.2.5.3	13.0	20	3	Base frame	0.25	2900	Cast bronze	NBR	3 x 400	L6126661
PO07.3.BL.E.1.G.V.2.5.3	13.0	20	3	Base frame	0.25	2900	Cast ion	FKM	3 x 400	L6Z10023

POMONA PO23

Performance curves

Electric motor and petrol engine

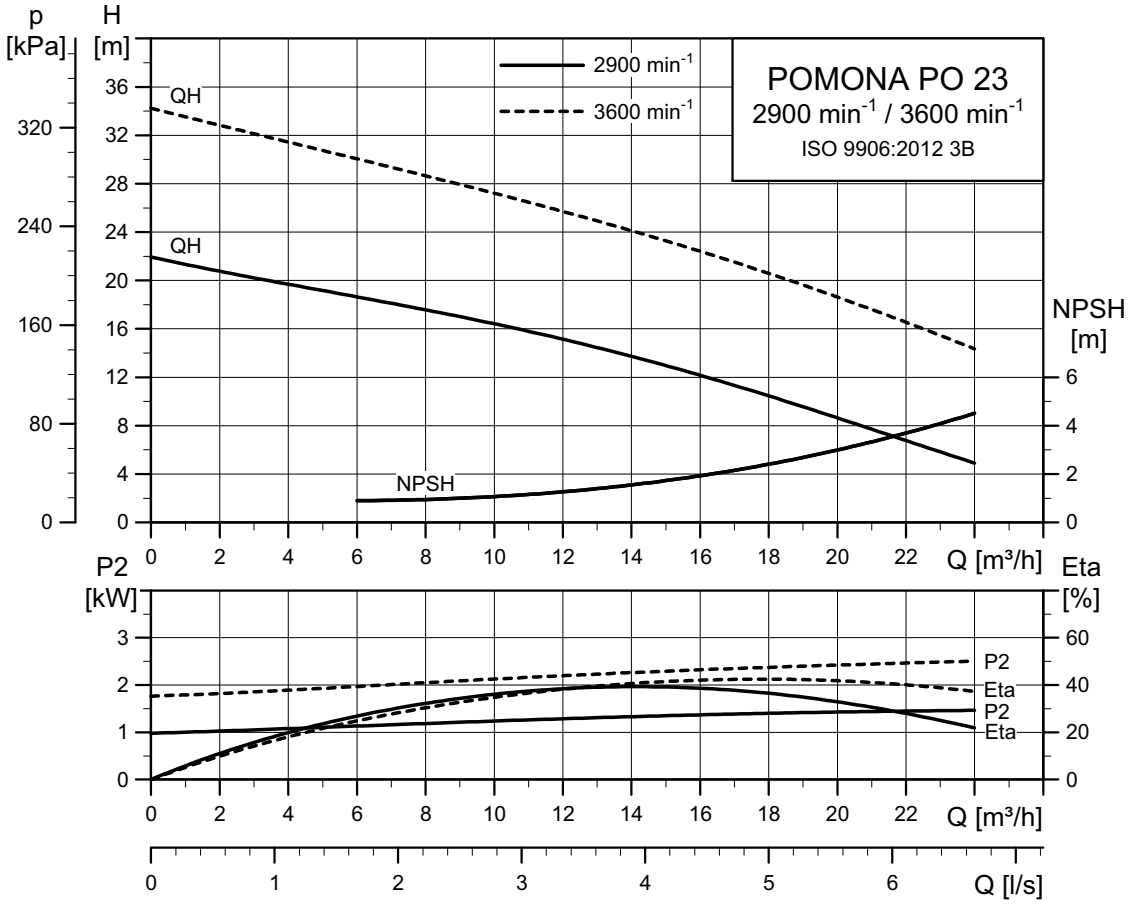

Fig. 6 Performance curves for single- and three-phase motors and four-stroke petrol engine

Technical data

Pump type	Weight [kg]	Connection DN	Pump passage [mm]	Frame	Power P2 [kW]	Speed [min^{-1}]	Impeller material	Sealing material	Voltage [V] (50 Hz)	Product number
PO23.10.BA.0.0.G.P	30.0	50	10	-	1.25 required	2900 required	Cast iron	NBR	-	L6124737
PO23.10.BA.0.0.B.P	30.0	50	10	-	1.25 required	2900 required	Cast bronze	NBR	-	L6124710
PO23.10.BL.E.2.G.P.12.5.1	48.0	50	10	Carrying frame	1.25	2900	Cast iron	NBR	1 x 230	L6124673
PO23.10.BL.E.2.B.P.12.5.1	48.0	50	10	Carrying frame	1.25	2900	Cast bronze	NBR	1 x 230	L6Z20025
PO23.10.BL.E.1.G.P.12.5.1	49.0	50	10	Base frame	1.25	2900	Cast iron	NBR	1 x 230	L6124924
PO23.10.BL.E.1.G.P.15.3	46.0	50	10	Base frame	1.5	2900	Cast iron	NBR	3 x 400	L6124683
PO23.10.BL.E.1.B.P.15.3	46.0	50	10	Base frame	1.5	2900	Cast bronze	NBR	3 x 400	L6Z20012
PO23.10.BL.E.2.G.P.15.3	45.0	50	10	Carrying frame	1.5	2900	Cast iron	NBR	3 x 400	L6124672
PO23.10.BL.E.2.B.P.15.3	45.0	50	10	Carrying frame	1.5	2900	Cast bronze	NBR	3 x 400	L6124674
PO23.10.BL.P.2.G.P.26	48.0	50	10	Carrying frame	2.6	3600	Cast iron	NBR	-	L6124435
PO23.10.BL.P.2.B.P.26	48.0	50	10	Carrying frame	2.6	3600	Cast bronze	NBR	-	L6Z20029

POMONA PO32

Performance curves

Electric motor and diesel engine

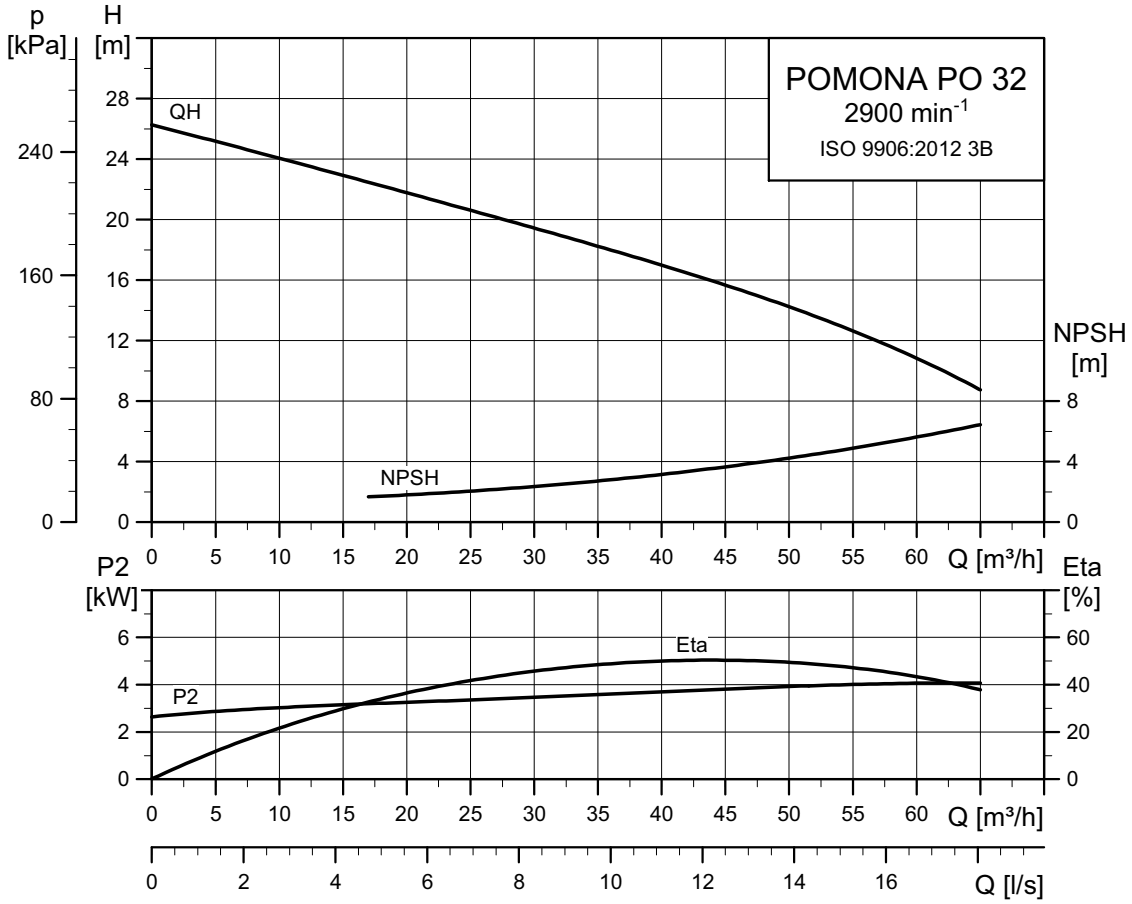

Fig. 7 Performance curves for three-phase motors and diesel engine

Technical data

Pump type	Weight [kg]	Connection DN	Pump passage [mm]	Frame	Power P2 [kW]	Speed [min^{-1}]	Impeller material	Sealing material	Voltage [V] (50 Hz)	Product number
PO32.20.BA.0.0.G.P	40.0	80	20	-	4.0 required	2900 required	Cast iron	NBR	-	L6124290
PO32.20.BL.E.1.G.P.40.3	80.0	80	20	Base frame	4	2900	Cast iron	NBR	3 x 400	L6125628
PO32.20.BL.E.1.B.P.40.3	80.0	80	20	Base frame	4	2900	Cast bronze	NBR	3 x 400	L6125629
PO32.20.BL.E.3.G.P.40.3	93.0	80	20	Trolley	4	2900	Cast iron	NBR	3 x 400	L6123986
PO32.20.BL.D.2.G.P.46	90.5	80	20	Carrying frame	4.6	2900	Cast iron	NBR	-	L6125156
PO32.20.BL.D.3.G.P.46	103.0	80	20	Trolley	4.6	2900	Cast iron	NBR	-	L6125423

POMONA PO42

Performance curves

Electric motor and diesel engine

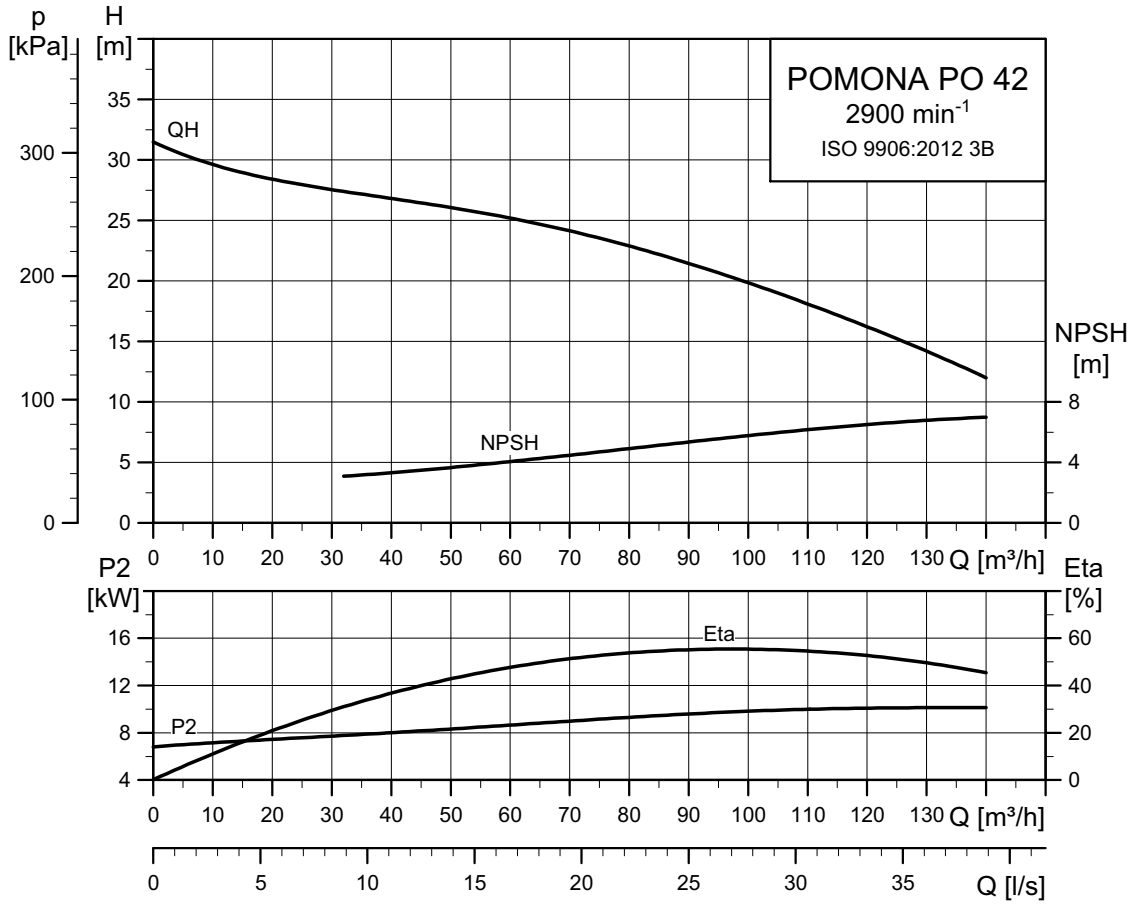

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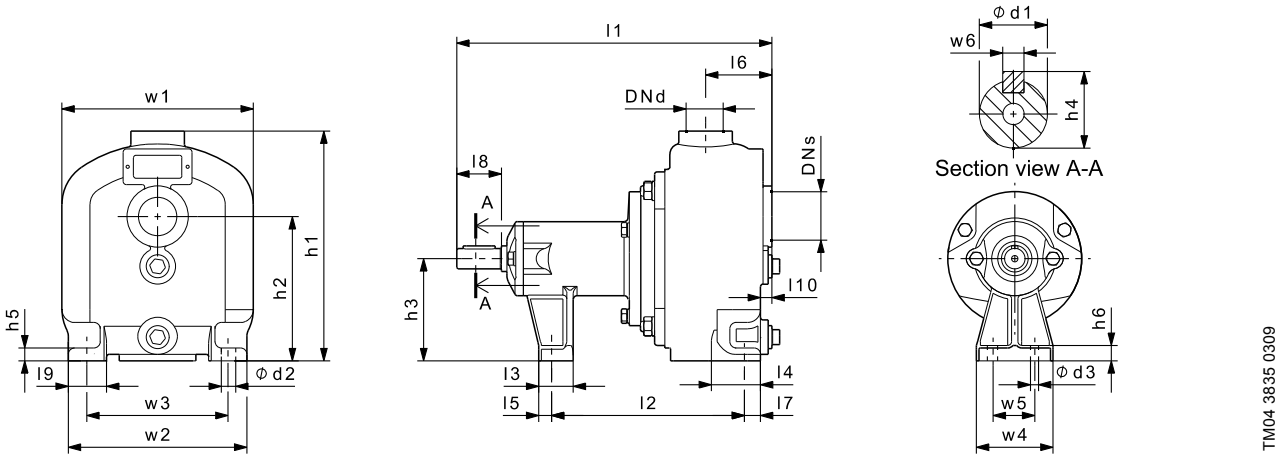
Fig. 8 Performance curves for three-phase motors and diesel engine

Technical data

Pump type	Weight [kg]	Connection DN	Pump passage [mm]	Frame	Power P2 [kW]	Speed [min^{-1}]	Impeller material	Sealing material	Voltage [V] (50 Hz)	Product number
PO42.30.BA.0.0.G.P	71.0	100	30	-	11.0 required	2900 required	Cast iron	NBR	-	L6123439
PO42.30.BA.0.0.B.P	71.0	100	30	-	11.0 required	2900 required	Cast bronze	NBR	-	L6123412
PO42.30.CM.E.1.G.P.110.3	220.5	100	30	Base frame	11	2900	Cast iron	NBR	3 x 400	L6Z40008
PO42.30.CM.E.1.B.P.110.3	220.5	100	30	Base frame	11	2900	Cast bronze	NBR	-	L6Z40007
PO42.30.CM.D.1.G.P.131	237.0	100	30	Base frame	13.1	2900	Cast iron	NBR	-	L6Z40004
PO42.30.CM.D.3.G.P.131	280.0	100	30	Trolley	13.1	2900	Cast iron	NBR	-	L6Z40022

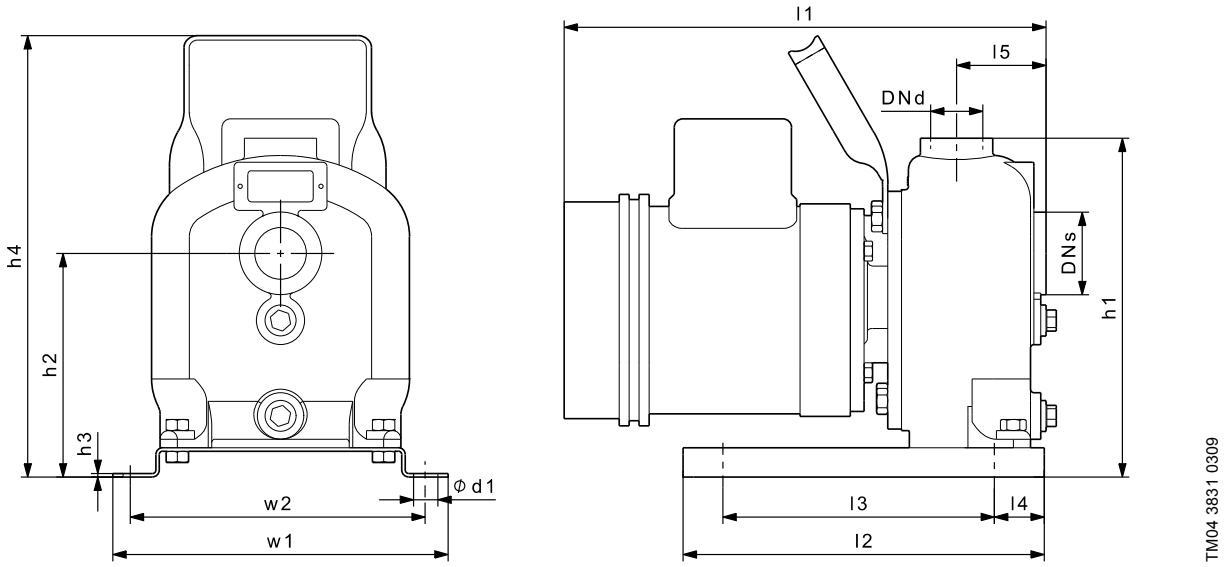
6. Dimensions

PO07 to PO42 bare-shaft pumps



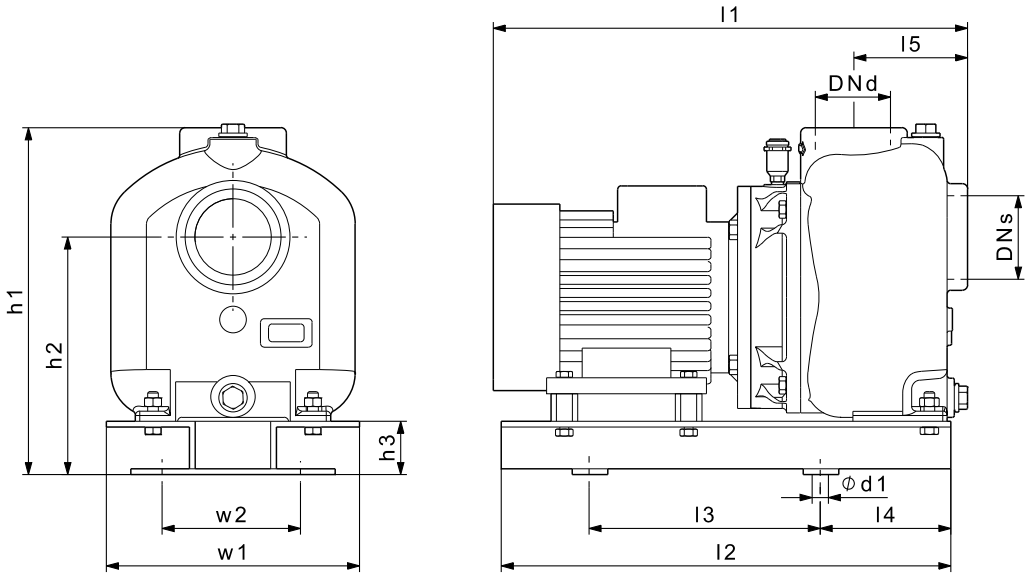
Type	DNs	DNd	Dimensions [mm]																						
			l1	l2	l3	l4	l5	l6	l7	l8	l9	l10	h1	h2	h3	h4	h5	h6	w1	w2	w3	w4	w5	w6	Ød1	Ød2	Ød3
PO07.3.BA	3/4"	3/4"	247	154	27	38	10	52	10	35	30	9	180	113	$80_{-0.2}$	$18.0^{+0.1}$	10	12	150	140	120	60	36	5	16k6	9.5	9.5
PO23.10.BA	2"	2"	417	293	40	93	17	112	13	40	40	19	270	167	115	$20.6^{+0.1}$	11	11	230	185	150	185	150	6	18k5	12	12
PO32.20.BA	3"	3"	500	348	38	106	14	129	20	60	48	23	333	210	$142_{-0.2}$	$24.5^{+0.1}$	14	12	275	220	180	220	180	6	22k5	13.5	13.5
PO42.30.BA	4"	4"	577	411	50	124	19	151	27	60	70	27	397	230	$170_{-0.2}$	$24.5^{+0.1}$	15	14	360	310	254	310	254	6	22k5	18.0	18.0

PO07 block version on base frame



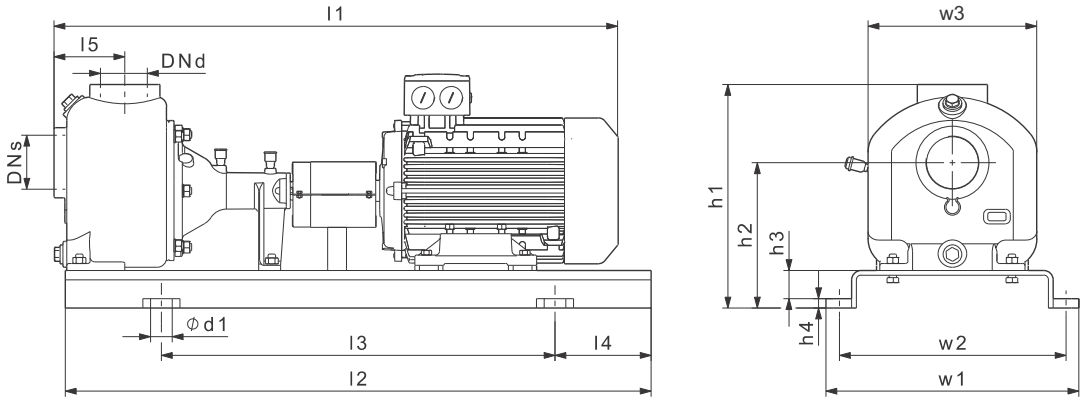
Type	DNs	DNd	Dimensions [mm]										
			l1	l2	l3	l4	l5	h1	h2	h3	h4	w1	w2	Ød1
PO07.3.BLE.1	3/4"	3/4"	306	210	150	30	52	197	130	2	257	195	175	12

PO23 and PO32 block versions on base frame



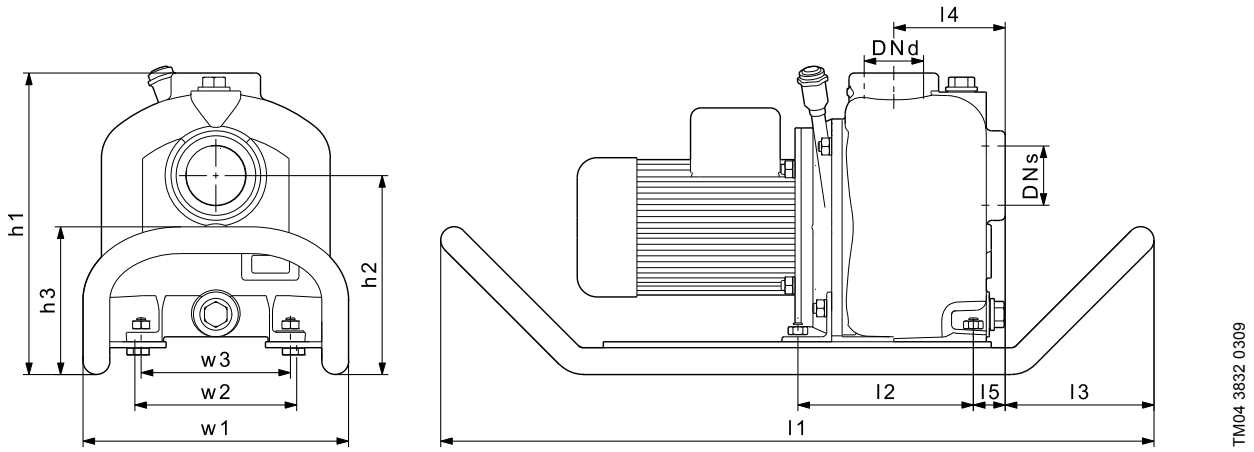
Type	DNs	DNd	Dimensions [mm]										
			l1	l2	l3	l4	l5	h1	h2	h3	w1	w2	Ød1
PO23.10.BL.E.1	2"	2"	486	435	260	110	112	328	225	58	230	190	14
PO32.20.BL.E.1	3"	3"	630	506	260	140	130	391	268	58	285	190	19

PO07 to PO42 pumps with coupling and motor



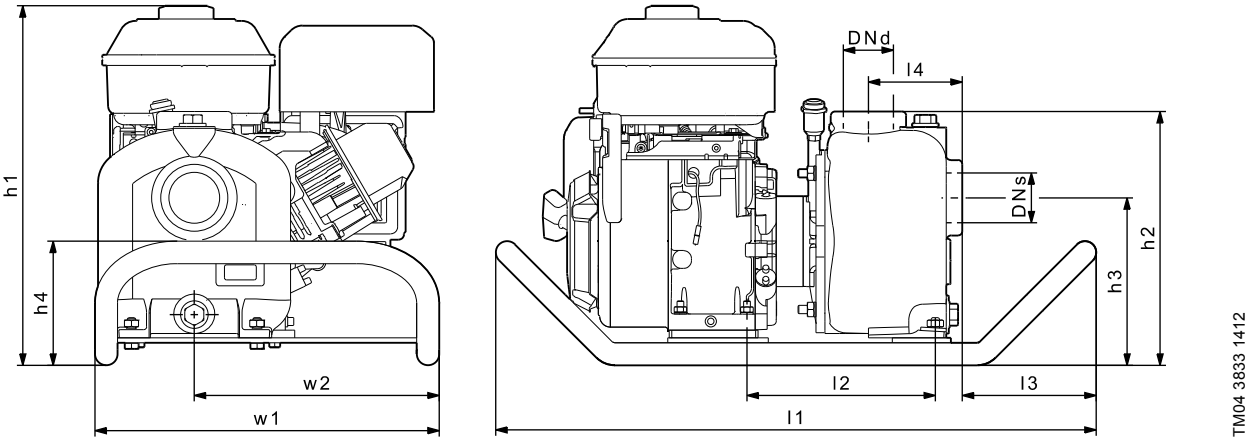
Type	DNs	DNd	Dimensions [mm]												
			l1	l2	l3	l4	h1	h2	h3	h4	l5	w1	w2	w3	Ød1
PO07.3.CM.E.1	3/4"	3/4"	485	465	300	82	245	173	58	20	52	200	180	150	10
PO23.10.CM.E.1	2"	2"	740	720	480	115	335	232	45	20	112	330	292	230	19
PO32.20.CM.E.1	3"	3"	974	1000	660	170	413	222	60	20	128	450	402	275	24
PO42.30.CM.E.1	4"	4"	1203	1250	840	205	477	310	60	20	151	540	484	360	24

PO23 block version on carrying frame



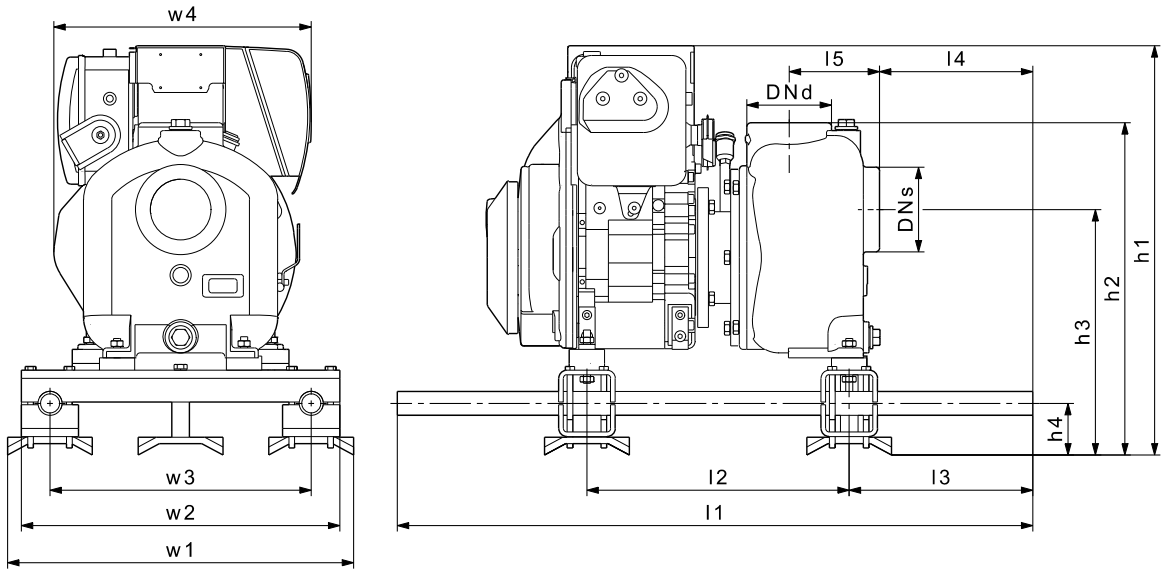
Type	DNs	DNd	Dimensions [mm]										
			l1	l2	l3	l4	l5	h1	h2	h3	w1	w2	w3
PO23.10.BL.E.2	2"	2"	717	176	149	112	32	303	200	148	267	163	150

PO23 block version with petrol engine on carrying frame



Type	DNs	DNd	Dimensions [mm]										
			l1	l2	l3	l4	l5	h1	h2	h3	h4	w1	w2
PO23.10.BL.P.2	2"	2"	717	225	160	112	32	429	303	200	148	292	119

PO32 block version with diesel engine on carrying frame



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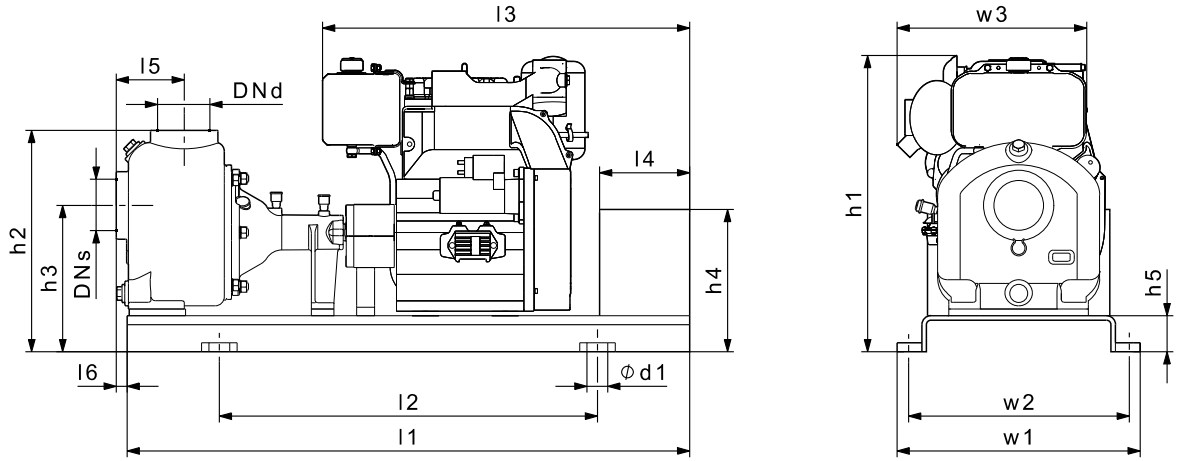
Type	DNs	DNd	Dimensions [mm]												
			l1	l2	l3	l4	l5	h1	h2	h3	h4	w1	w2	w3	w4
PO32.20.BL.D.2	3"	3"	900	372	260	217	128	580	471	348	73	490	451	370	365

PO42 pump with coupling and diesel engine



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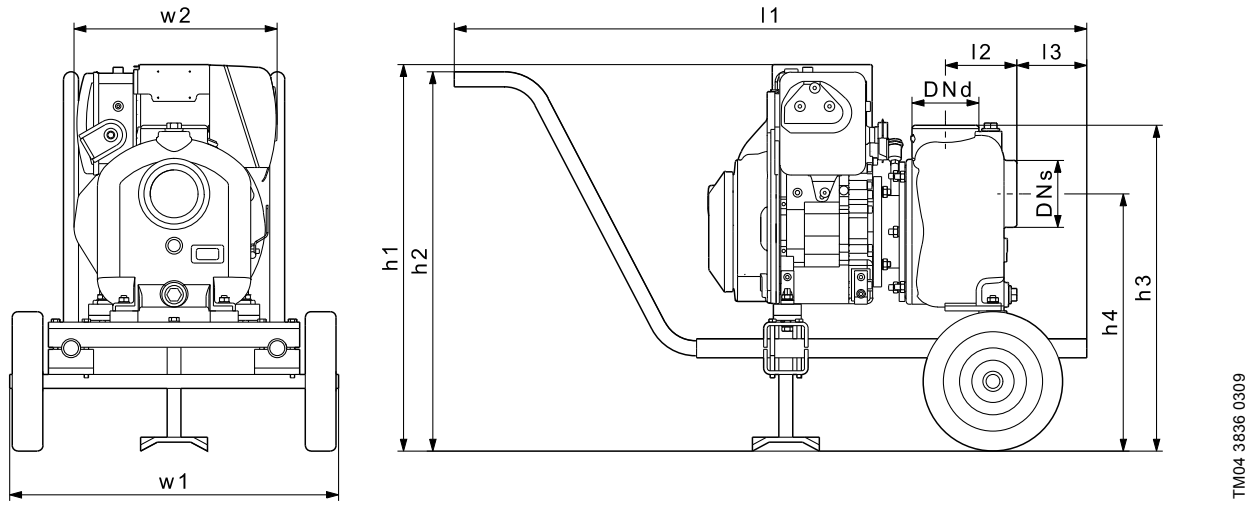
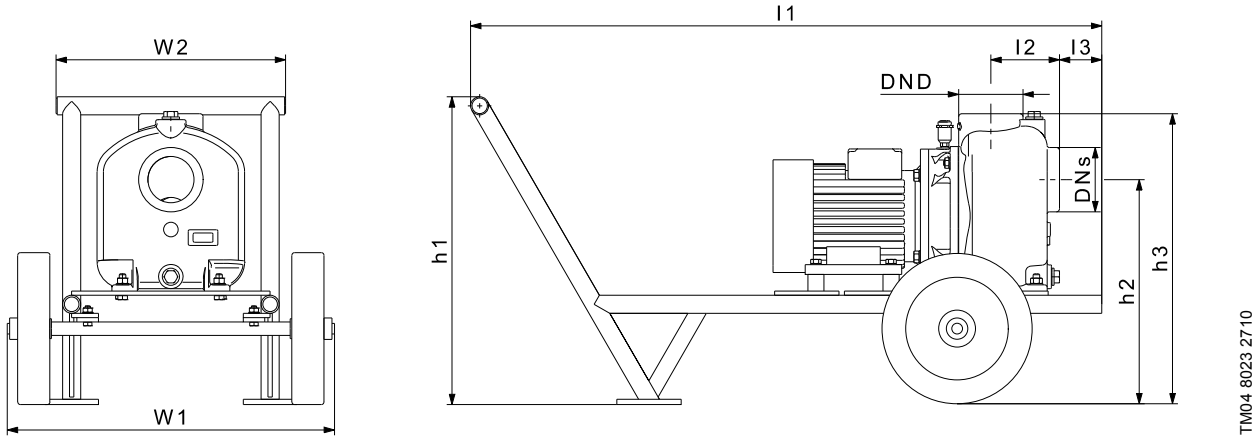
Type	DNs	DNd	Dimensions [mm]														
			l1	l2	l3	l4	l5	l6	h1	h2	h3	h4	h5	w1	w2	w3	Ød1
PO42.30.CM.D.1	4"	4"	1250	840	816	200	151	24	658	492	325	316	80	540	490	421	24

PO32 pump with diesel engine on trolley



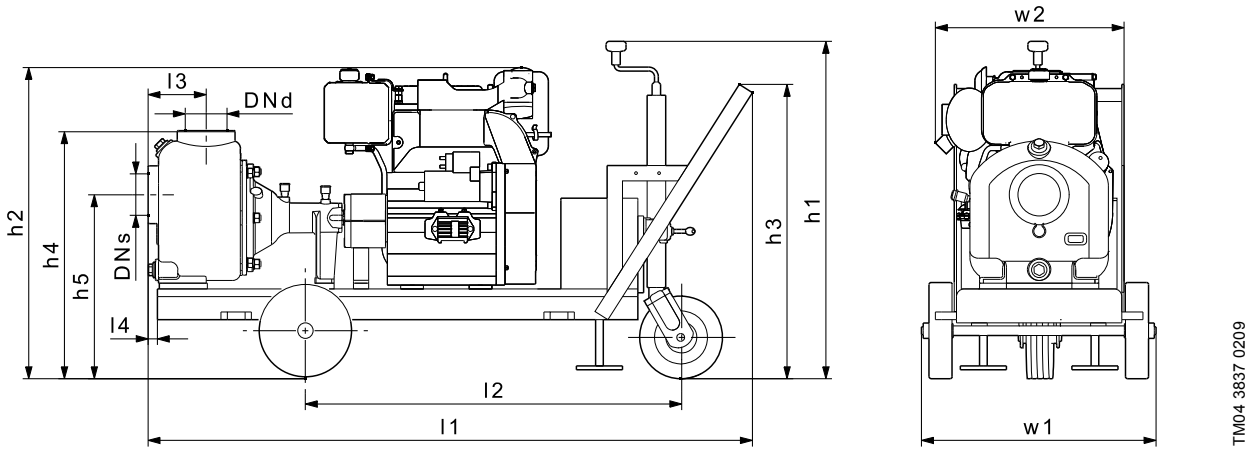
Type	DNs	DNd	Dimensions [mm]								
			l1	l2	l3	h1	h2	h3	h4	w1	w2
PO32.20.BL.D.3	3"	3"	1135	128	126	694	680	585	462	590	365

PO32 pump with electric motor on trolley



Type	DNs	DNd	Dimensions [mm]							
			l1	l2	l3	h1	h2	h3	w1	w2
PO32.20.BL.E.3	3"	3"	1177	128	79	574	419	542	610	428

PO42 pump with diesel engine on trolley



Type	DNs	DNd	Dimensions [mm]										
			l1	l2	l3	l4	h1	h2	h3	h4	h5	w1	w2
PO42.30.CM.D.3	4"	4"	1572	979	151	24	877	809	766	643	476	610	491