



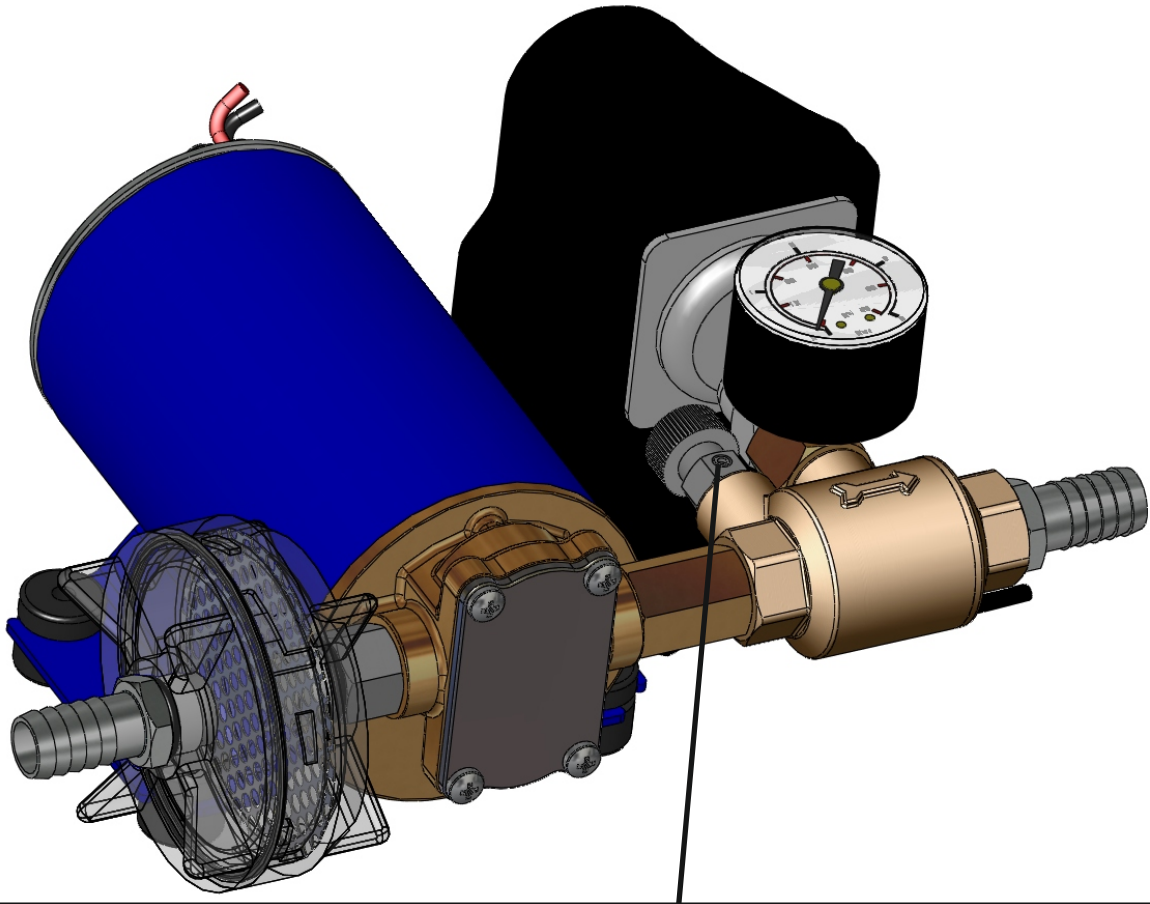
**ELETTROPOMPA AUTOMATICA  
AUTOADESCANTE PER LAVAGGIO  
SELF-PRIMING ELECTRIC PUMP  
FOR WASHING SERVICES**

**AVVERTENZE D'USO  
INSTRUCTIONS FOR USE**

**164 820 12 - DP9 12 V  
164 820 13 - DP9 24 V**



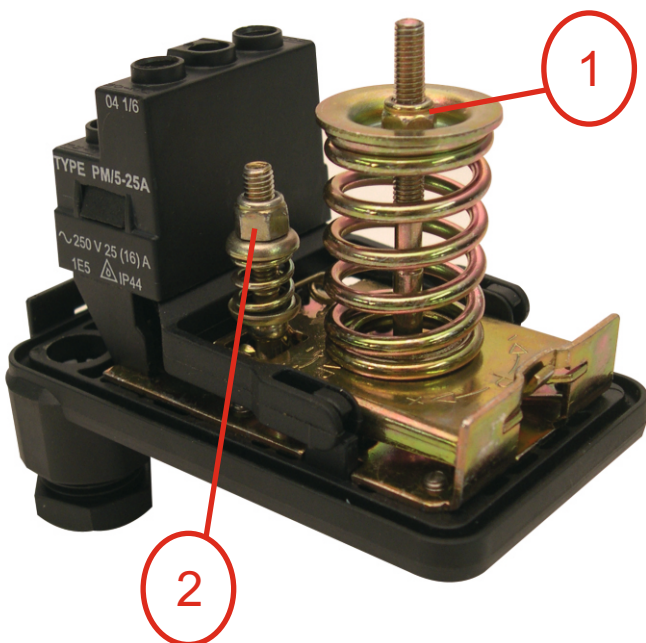
## ATTIVAZIONE VALVOLA DI SFIATO / AIR VENT VALVE ACTIVATION



When starting the pump slightly open the small valve located next to the pressure switch, in order to let the air out and facilitate the pump priming. As soon as the pump is operating close the small valve.

All'avviamento pompa agire brevemente sulla valvolina manuale posizionata vicino al pressostato per sfogare l'aria e favorire l'adescamento pompa. Una volta azionata la pompa, richiudere la valvolina.

## REGOLAZIONE PRESSOSTATO / PRESSURE SWITCH ADJUSTMENT



**MODALITA' DI TARATURA.** Per modificare la taratura standard di fabbrica bisogna operare sul dado rif.(1) per variare la pressione di avvio della pompa (minimo 0,6 bar) e sul dado rif.(2) per variare la pressione di stacco della pompa (max 3,0 bar). Avvitando il dado di regolazione in senso orario si incrementano i valori di taratura. Non operare al di fuori di questi due campi di intervento.

**CALIBRATION METHOD.** In order to modify the standard factory calibration parameters, the following should be followed: regulator nut 1 (see figure) changes pump start-up pressure setting (min 0,6 bar) and regulator nut 2 (see figure) changes pump switch-off pressure setting (max 3,0 bar). Settings are increased by turning the regulator nuts clockwise. Do not operate outside the min and max settings indicated.

**AVVERTENZE.** Quando la pompa viene usata come sistema automatico per la distribuzione di acqua potabile su imbarcazioni, campers, caravans e simili, è necessario l'utilizzo di adeguato vaso d'espansione dalla capacità minima di 2 litri. Solo nel caso che il circuito abbia una lunghezza minima di almeno 4 metri e la tubazione sia di materiale elastico, si può utilizzare la pompa senza vaso d'espansione.

**PRECAUTIONS.** A suitable accumulator tank with min 2 lt capacity should be installed when the pump is used as an automatic water distribution system on boats, campers, etc. This accumulator tank is not necessary where water lines are less than 4m in length and tubing is made of plastic material.

Portata max in Ampere sui contatti: 25A  
Max rated current at the contact terminals: 25A

Idoneo solo per impiego con acqua.  
Suitable for water applications only.

## PRODUCT DESCRIPTION

A

Self-priming gear pump for washing application with fresh and salt water, with in-line filter, check valve and pressure switch. Brass body, PTFE gears, stainless steel shaft, rubber lip seal. The pressure switch is preset, do not change the settings. The kit is complete with spring hose, fast-click fittings with water stop, special washing type spray gun.

## TECHNICAL DETAILS

B

CODICE	TIPO	VOLT	FUSIBILE	PORTATA	PRESSIONE	PESO	P.ZI x CART.
CODE	TYPE	VOLT	FUSE	FLOW RATE	PRESSURE	WEIGHT	PCS x CART.
164 820 12	DP9	12	15 A	12 l/min	4 bar	4,0 kg	3
164 820 13		24	10 A				

## AMBIENT CONDITIONS

C

Ambient operating conditions:

**Temperature:** min. -10 °C / max. +60 °C **Relative humidity:** max. 90 %

**Warning:** the above indicated temperature ranges are applicable to all components of the pump and these limits must be respected in order to avoid any possible damage or malfunctioning.

## ELECTRICAL CONNECTIONS

D

The electric pump must be connected to a source of direct current (either battery or transformer) with an amp rating of over 15A and 10A at nominal voltage of 12V and 24V respectively for the two models. The pump must be protected by a suitable rated fuse.

## OPERATING CYCLE

E

The pump has been designed for discontinuous (intermittent) use, with only one flow direction (not reversible). Under conditions of high operating pressures (4bar) (eg. with closed or blocked outlet, excessive length of the delivery circuit and/or excessive pressure due to accessories or during the working time of the washing gun), the pump can be subjected to elevated stresses and overheating and therefore should not be used for prolonged periods under such conditions. Be sure that the pressure switch settings have not been changed. PRESSURE PRE-SETTINGS: ON 1,5 bar OFF 4 bar.

## APPLICATIONS

F

There are numerous fields of applications for the pump, however only exclusively with the allowed liquids mentioned.

Main application: washing with water and salt water.

## **G** FLUIDS ALLOWED / NOT ALLOWED

### **Allowed:**

Water and salt water for the washing application kit.

### **Not allowed:**

PETROL (GASOLINE)  
FLAMMABLE LIQUIDS with PM < 55°C  
LIQUIDS WITH VISCOSITY > 20 cSt  
FOODSTUFF LIQUIDS  
CORROSIVE CHEMICAL PRODUCTS

SOLVENTS

### **Related dangers**

FIRE EXPLOSION  
FIRE EXPLOSION  
MOTOR OVERHEATING  
FOODSTUFF LIQUID CONTAMINATION  
PUMP CORROSION -  
INJURY TO PERSONNEL  
FIRE EXPLOSION  
DAMAGE TO SEALS

## **H** TRANSPORTATION AND HANDLING

Due to limited weight and dimensions the pump does not require the use of any special handling or lifting equipment. When handling manually, normal personal protective gear should be worn (safety shoes with toe piece, etc.)

The pump is carefully packed prior to shipment. Upon receiving, the pump packaging should be inspected for damages and the pump stored in a dry area.

## **I** INSTALLATION

It is recommended that the use of the pump be according to normal safety standards and also as per the precautions listed below.

### **I-1** PACKAGING ENVIRONMENTAL DISPOSAL

The packaging material is not in any way polluting or dangerous and does not require any special environmental disposal precautions. Disposal should be carried out according to local regulations in place.

### **I-2** PRELIMINARY CHECKS

Check that there has been no damage to the pump during transportation or storage. Both inlet and outlet ports should be carefully cleaned removing possible dust or residual packaging material. Verify that the available electrical power supply corresponds to the pump specification requirements.

### **I-3** POSITIONING OF THE PUMP

The pump can be mounted in any position. Fix the pump utilizing suitable screws corresponding to the antivibration mounts supplied with the pump.

**WARNING:** THE PUMP MOTOR IS NOT EXPLOSION PROOF. Do not install the pump where flammable vapours or gases may be present. Install the pump in an accessible place for inspection. It is good practice to avoid any pump contact with water splashes possibly causing water seepage into the motor with high risk of internal oxidation and/or short circuit.

## TUBING CONNECTIONS

I-4

- Prior to making any tube/hose connections, check that the inlet ports have no end caps;
- Do not position the pump at a excessive height with respect to the minimum level of the fluid to be transferred. Damage may occur if this height is exceeded as the pump may not draw fluid. Make sure that the outlet tube is empty and without chokes.
- Avoid choking the inlet or outlet tubes so that efficiency is optimized.
- The use of an inlet filter is recommended especially with fluids containing impurities (ASTM mesh 35). In this case frequent cleaning and maintenance of the filter is advisable. The standard filter withstands a maximum positive pressure of 0.5 bar.
- Utilize tubes and connection pieces that are resistant to the fluid types handled and avoid any possible environmental dispersion.

## PUMP INSTALLATION

I-5

The electrical installation of the pump must include a protection fuse which is suitably rated as indicated on the motor label and sized with reference to the chosen point of application.

## WARRANTY EXPIRES IF NO FUSE IS UTILIZED

Always mount the anti-vibration rubber fittings supplied with the pump kit. Their usage ensures a consistent reduction in noise and vibration levels.

Electrical cabling size should depend on the distance between pump and battery power supply.

Up to 4 m length: 2,5 mm<sup>2</sup>

The use of undersized cabling can cause overheating of the electrical wiring and subsequent fire hazard. There will also be a voltage drop at the motor terminals with a consequent reduction in efficiency.

The flow rate value indicated on the motor label is obtained with a 13 mm internal tube diameter. Tubes with inferior diameters will cause an increase in current with potential risk of motor overheating. On the outlet side it is advisable to use at least a short section of flexible tubing. When starting the pump slightly open the small valve located next to the pressure switch, in order to let the air out and facilitate the pump priming. As soon as the pump is operating close the small valve.

Because of the check valve, the flow cannot be reversed. To ensure the correct directional flow of the fluid as indicated by the arrow on the top of the pump, it is necessary to connect the positive pole of the battery supply to the ( + ) marked terminal on the motor end-cap and the negative pole to the ( - ) marked terminal. Electrical connections must be made using adequate terminal blocks and connectors ensuring a tight fitment of the electrical cables. Bad wiring can cause power losses and/or overheating of the cabling itself.

**WARNING:** it is the responsibility of the installation technician to ensure a correctly designed circuit installation fitted according to regulations. Environmental risks must be taken into account with the installation.

L

## TROUBLESHOOTING

### L-1 CHECK POINTS IF THE PUMP HAS STOPPED OR WILL NOT START

- Check the effectiveness of the battery power supply (voltage activity)
- Check if the fuse has blown
- Check for any foreign matter present in-between the pump gear drives. To do this, disconnect the power supply and unscrew the four fixing screws, remove the pump front cover plate and inspect the pump chamber. Replace the cover plate in the same initial position after inspection.
- Avoid running the pump dry for more than a few minutes. **Pumps found defective that have run dry in the absence of fluid are not covered by warranty.**
- The average life span of the motor commutator brushes is approximately 2000 hours under normal operating conditions. Stoppages are possible due to brush wear and tear after such a time period.

L-2

### WHY THE PUMP WILL NOT PRIME ITSELF?

- The pump is fitted at a height greater than 1 m above the fluid level.
- Be sure that the check valve is not stuck.
- Wear and tear of the gear drives due to the presence of highly abrasive material (sand) in suspension in the fluid
- The pump has run dry for too long a period
- Long periods of inactivity. In this case it is advisable to add liquid directly into the pump chamber before start-up. It is also advisable to add, before running the pump, a drop of lubricating oil inside the pump only.
- Air leak at the suction pipe due to the following reasons:
  - Possible cuts in the pipe, inadequate hose clamps, malfunctioning of the filter due to defective/worn seals, or filter clogged.
- Air leak at the pump front plate cover due to the following reasons:
  - Loose fixing screws, poor effectiveness of the seal.
- Faulty electrical cable connections
- Presence of obstructions or restrictions in the suction or delivery pipes or the use of special devices(eg. automatic spray pistol).
- Presence of liquid loops in the outlet tube.

### L-3 GOOD PRACTICES ENSURING A WELL FUNCTIONING PUMP

If it is expected that the pump will not be used for a period of at least 30 days, especially in the case of usage with salty water, it is advisable to run fresh water through the pump and to then loosen the pump front plate screws.

Upon re-use, run the pump briefly (a few seconds) and then tighten the screws again. Check under conditions of maximum operating pressure that the motor current value is within the motor label specifications.

## NORMAL MAINTENANCE

L-4

- Check frequently and keep the inlet filter clean.
- Check every month the pump chamber and keep clean from any foreign matter.
- Check every month that electrical wiring is in good condition.
- Every 2000 hours of pump operation replace the motor brushes.

## INDICATORS THAT THE PUMP IS FUNCTIONING CORRECTLY

L-5

- Temperature of pump body and motor frame contained within 60°C - 70°C
- Regular flow and constant pump noise levels
- Amp-draw within the limits indicated in the technical details.

## TO OPEN THE PUMP

L-6

It is recommended that a specialized service technician be consulted for any pump repair work or the replacement of worn out internal components, exclusively with original spare parts.

During the warranty period, only authorized by Marco S.p.A. personnel, failing which the warranty will expire.

## ENVIRONMENTAL DISPOSAL

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Should the pump be discarded, do not pollute the environment. Please refer to the local environmental regulations.

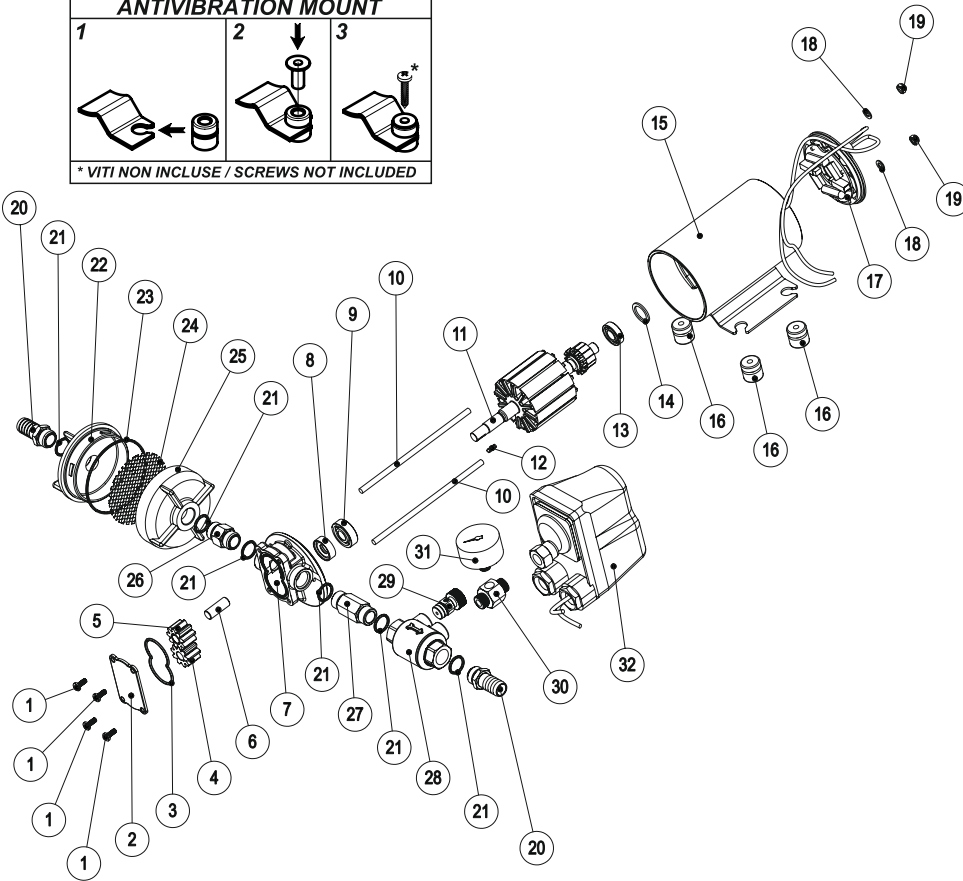
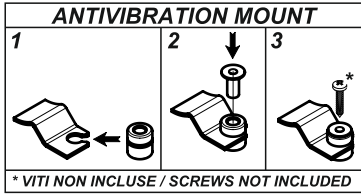
## WARRANTY

N

- 1) The Warranty period is 2 years from date of purchase on production of the appropriate sales invoice.
- 2) Should the original sales invoice not be available, then the 2 year warranty period will be valid from date of production.
- 3) The Warranty becomes null and void in the case of incorrect utilization or disregard of the instructions contained herein.
- 4) The Warranty only covers original production defects.
- 5) The Warranty does not cover any related installation costs involved.
- 6) Transport costs are refundable only in the case where warranty has been duly recognized and accepted by Marco Spa. These costs will be limited to the actual shipment costs between Marco Spa warehouse and the client's delivery address.
- 7) No credit notes or replacement items will be issued prior to the receipt and proper testing of any Marco goods that are deemed faulty.

O

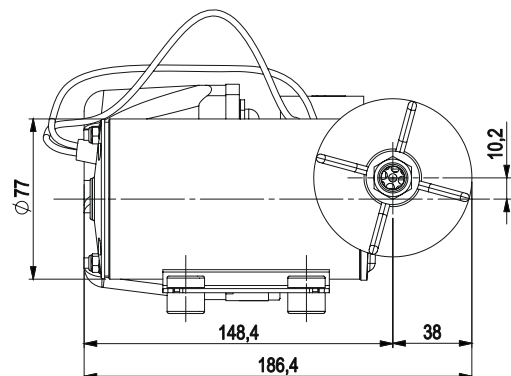
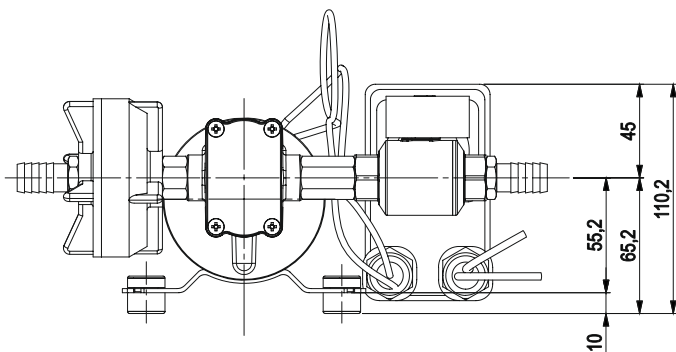
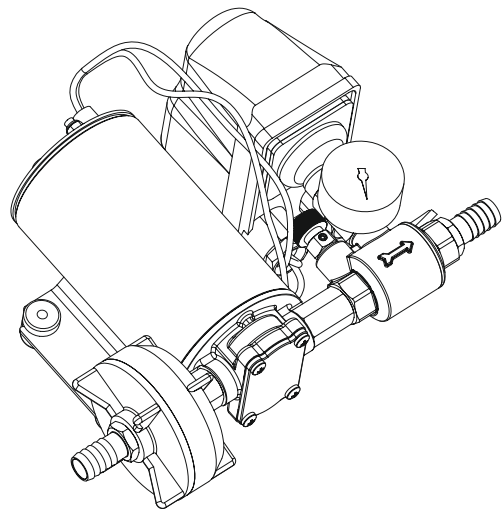
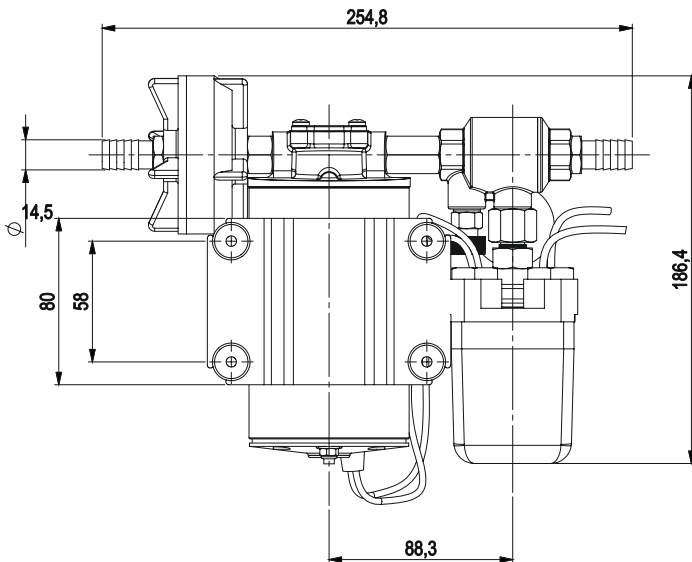
# EXPLODED VIEW



ART.	Q.TY	DESCRIPTION
1	4	TOP PLATE SCREW M 4 X 10
2	1	TOP PLATE
3	1	TOP PLATE O-RING
4	1	DRIVING GEAR
5	1	IDLE GEAR
6	1	IDLE SHAFT
7	1	PUMP BODY
8	1	RUBBER LIP SEAL
9	1	BALL BEARING
10	2	ROD
11	1	ARMATURE
12	1	KEY
13	1	BALL BEARING
14	1	COMPENSATION SPRING
15	1	PUMP FRAME WITH MAGNETS
16	4	ANTIVIBRATION MOUNT
17	1	BRUSH HOLDER
18	2	WASHER
19	2	NUT
20	2	TUBE OUTLET
21	6	O-RING
22	1	FILTER HOUSING ( MALE )
23	1	FILTER O-RING
24	1	FILTER NET
25	1	FILTER HOUSING ( FEMALE )
26	1	NIPPLE 3/8 "
27	1	LONG NIPPLE 3/8 "
28	1	NON RETURN VALVE
29	1	AIR VENT VALVE
30	1	NIPPLE FOR PRESSURE-GAUGE
31	1	PRESSURE-GAUGE
32	1	PRESSURE SWITCH

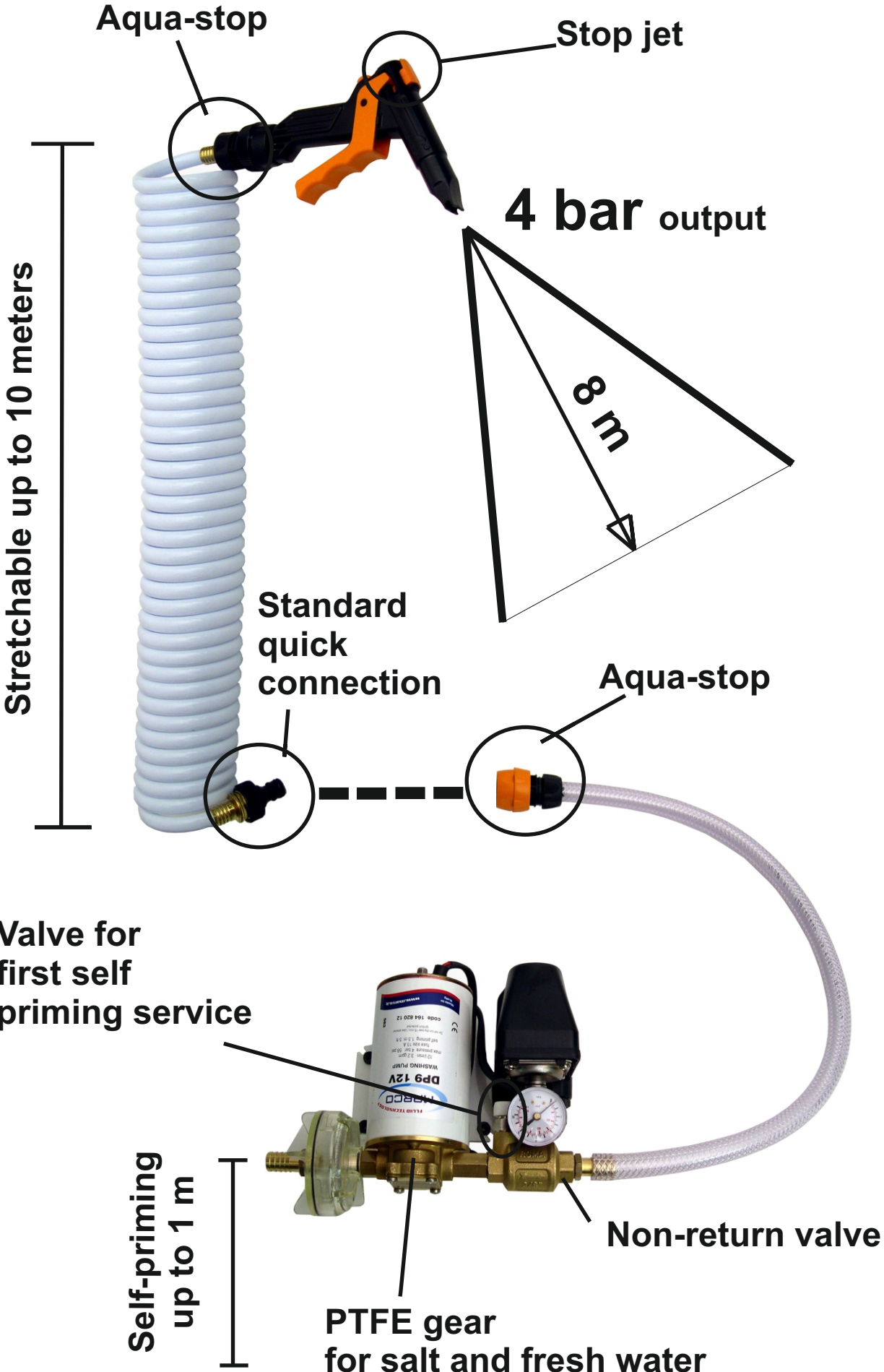
P

# DIMENSIONS





# KIT DP9 DECK WASHING PUMP



# MARCO PUMPS & ACCESSORIES LIST

ITEM	DESCRIPTION
1620011C	UP1 220V a.c. rubber impeller pump 30 l
16200012	UP1 12V rubber impeller pump 35 l
16200013	UP1 24V rubber impeller pump 35 l
16200212	UP1-N 12V rubber impeller pump 35l
16200213	UP1-N 24V rubber impeller pump 35l
16420012	UP2 12V gear pump 8 l
16420013	UP2 24V gear pump 8 l
16466015	UP2/A 12/24V automatic pump with electronic pressure switch 8 l
16422012	UP2/OIL 12V gear pump for lubricating oil
16422013	UP2/OIL 24V gear pump for lubricating oil
16420212	UP2/P 12V PTFE gear pump 8 l
16420213	UP2/P 24V PTFE gear pump 8 l
16420412	UP2-PV 12V PTFE gear pump 8 l + non-return valve
16420413	UP2-PV 24V PTFE gear pump 8 l + non-return valve
1640031C	UP3/AC 220V 50Hz oil / diesel gear pump 10 l
1640011C	UP3/AC 220V a.c. gear pump 10 l
16400012	UP3 12V gear pump 14 l
16460215	UP3/E 12/24V automatic pump with electronic pressure switch 14 l
16400013	UP4 24V gear pump 14 l
16400212	UP3/P 12V PTFE gear pump 14 l
16400213	UP4/P 24V PTFE gear pump 14 l
16402012	UP3/OIL 12V gear pump for oil
16402013	UP4/OIL 24V gear pump for oil
16460012	UP3/A 12V automatic pump group with accumulator
16460013	UP4/A 24V automatic pump group with accumulator
1640621C	UP6/AC 220V a.c. gear pump 28 l
1640611C	UP6 220V a.c. gear pump 28 l
16406012	UP6 12V gear pump 26 l
16406013	UP6 24V gear pump 26 l
16408012	UP6/OIL 12V gear pump for oil
16408013	UP6/OIL 24V gear pump for oil
16462012	UP6/A 12V automatic pump group with accumulator
16462013	UP6/A 24V automatic pump group with accumulator
16410212	UP9-PN 12V internal brushes PTFE gear pump
16410213	UP9-PN 24V internal brushes PTFE gear pump
16410012	UP9 12V heavy duty gear pump
16410013	UP9 24V heavy duty gear pump
16464012	UP9/A 12V heavy duty automatic pump group with accumulator
16464013	UP9/A 24V heavy duty automatic pump group with accumulator
16440012	UP10 12V bronze gear pump 18 l
16440013	UP10 24V bronze gear pump 18 l
16440212	UP10/P 12V PTFE gear pump 18 l
16440213	UP10/P 24V PTFE gear pump 18 l
16468012	UP12/A 12V water pressure pump system
16468013	UP12/A 24V water pressure pump system
16432012	UP12/OIL 12V bronze gear pump 15 l
16432013	UP12/OIL 24V bronze gear pump 15 l
16430012	UP12 12V gear pump 40 l
16430013	UP12 24V gear pump 40 l

ITEM	DESCRIPTION
16430212	UP12/P 12V PTFE gear pump 40 l
16430213	UP12/P 24V PTFE gear pump 40 l
1640421C	UPX 220V a.c. gear pump 10 l stainless-steel version
16404012	UPX 12V gear pump 14 l stainless-steel AISI 316
16404013	UPX 24V gear pump 14 l stainless-steel AISI 316
1640431C	UPX-C 220V a.c. stainless-steel gear pump for chemicals 10 l
16404112	UPX-C 12V stainless-steel gear pump for chemicals 14 l
16404113	UPX-C 24V stainless-steel gear pump for chemicals 14 l
16410112	UP9-XC 12V heavy duty gear pump - s.s. AISI 316
16410113	UP9-XC 24V heavy duty gear pump - s.s. AISI 316
16440112	UP10-XC 12V heavy duty gear pump - s.s. AISI 316 - 18 l
16440113	UP10-XC 24V heavy duty gear pump - s.s. AISI 316 - 18 l
16490015	SP2 12/24V shower pump
16480012	DP3 12V deck washing pump
16480013	DP3 24V deck washing pump
16482012	DP9 12V deck washing pump
16482013	DP9 24V deck washing pump
16484012	DP12 12V deck washing pump
16484013	DP12 24V deck washing pump
16010012	UP500 12V bilge pump
16010013	UP500 24V bilge pump
16012012	UP1000 12V bilge pump
16012013	UP1000 24V bilge pump
16014012	UP1500 12V bilge pump
16014013	UP1500 24V bilge pump
16016012	UP2000 12V bilge pump
16016013	UP2000 24V bilge pump



Associazione AIB  
associazione  
industriale  
brescia

## DICHIARAZIONE DI CONFORMITA' C.E. E.C. DECLARATION OF CONFORMITY

Confermiamo che il prodotto:  
*We confirm that the product:*

**164 820 12 - DP9 12V. Pompa ad ingranaggi automatica 22 l / washing pump**

**164 820 13 - DP9 24V. Pompa ad ingranaggi automatica 22 l / washing pump**

E' conforme alla Direttiva 2004/108/CE (ex.89/336/CE) relativa alla compatibilità elettromagnetica.  
*is in conformity with the Directive 2004/108/EC (ex.89/336/EC) relating to electromagnetic compatibility.*

Questa dichiarazione è valida per tutti gli articoli prodotti secondo la documentazione tecnica che è parte di questa dichiarazione. In caso di eventuali verifiche pertinenti alla Compatibilità Elettromagnetica sono state applicate le seguenti normative:

*This declaration is valid for all products which are produced in accordance with the technical documentation which is a part of this declaration. For verification of conformity with regard to Electromagnetic Compatibility the following standards are applied:*

EN 55014-1

Compatibilità elettromagnetica.  
Requisiti per gli elettrodomestici,  
gli utensili elettrici e apparecchi simili.  
Parte 1: Emissione.

*Electromagnetic compatibility.  
Requirements for household appliances,  
electric tools, and similar apparatus.  
Part 1: Emission.*

Questa dichiarazione è rilasciata sotto la responsabilità esclusiva di:

*This declaration is given under the sole responsibility of:*

**MARCO S.P.A.**  
**Via Mameli 10 - 25014 Castenedolo - Brescia - Italy**  
**Tel. 030/2134.1 Fax 030/2134.300**

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