

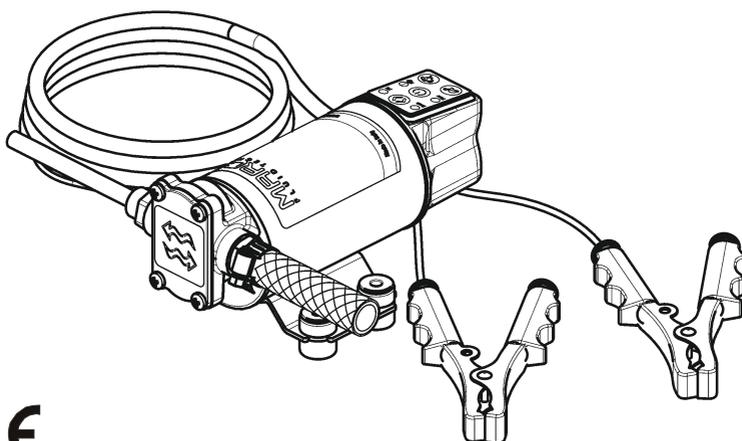
MARCO[®]

FLUID TECH

**SELF-PRIMING ELECTRIC PUMP
FOR TRANSFERRING VARIOUS LIQUIDS**

INSTRUCTIONS FOR USE

164 936 15-US - OCK8-E 12/24V



CE

27/11/19 Rev.01

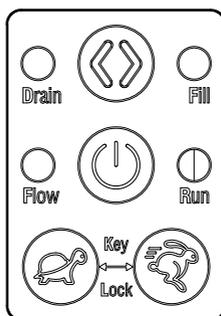
FEATURES

- The circuit lights up:
 - o The green and red LEDs slowly flash, while the circuit is performing the initial self-check and parameter reset.
 - o If something fails, the pump does not come out of this condition and the red and green LEDs continue to blink indefinitely.
- After self-check:
 - o The "RUN" LED starts blinking: the pump is waiting for the direction to be chosen.
 - o By pressing the "CHANGE DIRECTION" button, the pumping direction can be set and the relative LED will start to blink together with "RUN" LED.
 - o If you do not press the "CHANGE DIRECTION" button when only the "RUN" LED is blinking, but instead you press the "ON/OFF" button, the pump will not start: the "FILL" and "DRAIN" LEDs will flash fast alternately to indicate "I do not know in which direction I have to move".
- After choosing the direction, pressing the "ON / OFF" key will start the motor: the LED indicating the direction will become solid and the "FLOW" LED will also light up indicating that the motor is running.
- The motor speed setting is set by default to the maximum achievable: if current limitation occurs, the "FLOW" LED starts to flash, indicating that the motor cannot maintain the revolutions due to excessive load.
- It is possible to change the motor speed (in 100rpm steps) by pressing the "TURTLE" and "HARE" keys. The speed setting applies to both directions of rotation and remains stored in the memory until the pump is switched off.
- To save the current direction and speed in permanent memory, to have them by default each time the pump is switched on, press and hold down the "CHANGE DIRECTION" key for a long time, until the direction LED starts blinking. This operation with the pump switched off resets the direction to its default value, but does not edit the speed value.

- If the “ON/OFF” button is held pushed at power-on until the green led flashes, the automatic start of the pump is toggled (i.e. if the pump starts immediately after power on or if it waits an user input before starting).
- If the “TURTLE” button is held pushed at power-on until the blue led flashes, the enabling of the audible signal at startup is toggled.
- If the “HARE” button is held pushed at power-on until the red led flashes, the enabling of the external control is toggled. The external control needs a special cable and has to be requested when the pump order is placed, otherwise it just keeps the pump always on. The “ON/OFF” and the “CHANGE DIRECTION” buttons are inhibited, and the red led flashes if pressed. The long press of both these buttons is not inhibited, therefore their standard function will keep working.
- By pressing for more than 3 seconds both the “TURTLE” and “HARE” keys the keyboard lock is enabled, and every button pressed is ignored, also in case of reboot or power cycle: if a button is pressed, the red led flashes briefly. To disable it, long press the same keys again.

REPORTING ERRORS

- If the control circuit is forced to lower the motor speed due to the power limiter, when it reaches a threshold considered as "abnormal operation", the red LED will start to blinking quickly and after 5 seconds the pump will stop.
- In the event of a short-circuit in the motor or a rotor suddenly blocked by a foreign object in the gears, the motor stops immediately and the signal is solid red.
- If an internal threshold temperature of 50 ° C / 122 ° F is exceeded, the direction LED ("FILL" or "DRAIN") and the red LED will blinking slowly, the frequency of the but will allow the user to to continue using the pump.
- If an internal temperature threshold of 65 ° C / 149 ° F is exceeded, the motor will stop immediately and will not restart until it returns below 55 ° C / 131 ° F. The signal is a slowly blinking red LED.
- If the supply voltage when the engine is running falls below 80% of that when the pump is off, the motor will continue to operate but the error of excessive voltage drop will be signaled by alternating blinking of the blue and red LEDs.
- If the supply voltage is less than 9.5 volts, all the LEDs flash and the pump is prevented from turning on. If the pump was already on and this situation is due to a voltage drop, it is switched off immediately.
- There are no timeouts for the maximum duration of the transfer or the detection of a dry run: it is the user's responsibility to stop the pump if it is no longer necessary, in the event that none of the above situations exists.



PRODUCT DESCRIPTION

Self-priming electric pump for the transfer of liquids of varied nature. The pumping elements are made up of bronze gears which can possibly even run dry for brief periods.

TECHNICAL DETAILS

Tab.1 EN											
CODE	TYPE	VOLT	FUSE	FLOW RATE (*)		PRESSURE		WEIGHT	WIRE SIZE (**)		
164 936 15-US	OCK8-E	12/24V	A 15	gpm	2,6	psi	50,8	lb	4,9	AWG	16
(*) Internal tube Ø 1/2 in, water at 25 °C / (**) Length up to 6.6 ft											
IP 67 Protection											

APPLICATIONS

- Transfer of oils, antifreezing
- transfer of viscous liquids
- circulation of viscous liquids
- draining of engine sumps.

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

FLUIDS ALLOWED / NOT ALLOWED

Tab.2 EN		<u>LIQUIDS</u>	<u>DANGERS</u> 				
		WARRANTY EXPIRES IF MAX FLUID TEMPERATURE IS EXCEEDED	FIRE / EXPLOSION	MOTOR OVERHEATING	PUMP CORROSION	INJURY TO PERSONNEL	DAMAGE TO SEALS
OK	DIESEL FUEL (*)						
	OIL (max 120 °C - 248 °F)						
	WATER (max 85 °C - 185 °F)						
NO 	PETROL (GASOLINE)		●				
	FLAMMABLE LIQUIDS with PM < 38 °C		●				
	LIQUIDS WITH VISCOSITY > 20 cSt			●			
	CORROSIVE CHEMICAL PRODUCTS				●	●	
	SOLVENTS		●				●
(*) Minimum flashpoint (PM): 38 °C - 100 °F							

AMBIENT CONDITIONS

TEMPERATURE: min.-10°C 14°F-max.60°C 140°F **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.

OPERATING CYCLE

Under conditions of high operating pressures the pump can be subjected to elevated stresses and overheating and therefore should not be used for prolonged periods under such conditions.

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 packaging should be inspected for damages and the pump stored in a dry area.

INSTALLATION

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

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 specification requirements.

POSITIONING

The pump can be mounted in any position. Fix the pump utilizing suitable diameter screws corresponding to the holes.

To ensure the correct directional flow of the fluid as indicated by the arrow on the top plate, it is necessary to connect the positive pole (+) of the battery supply to the red wire on the motor end-cap and the negative pole (-) to the black wire. 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.

TUBING CONNECTIONS

- Prior to making any tube/hose connections, check that the inlet ports have no end caps;
- Do not position the pump at an 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 (mesh ASTM no. 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.

ELECTRICAL CONNECTION

The electrical installation of the pump must include a protection fuse which is suitably rated as indicated on the motor label.

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 (see Tab.1 EN). 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 internal tube diameter indicated on Tab.1 EN. Tubes with inferior diameters will cause an increase in current with potential risk of motor overheating.

TROUBLESHOOTING

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 the pump body. To do this, disconnect the power supply and unscrew the four fixing screws, remove the front cover plate and inspect the 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 2500 hours under normal operating conditions. Stoppages are possible due to brush wear and tear after such a time period.

WHY THE PUMP WILL NOT PRIME ITSELF?

- The pump is fitted at an excessive height above the fluid level
- 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 chamber before start-up
- 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 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 or Aquastop)
- Presence of liquid loops in the outlet tube
- Dirty bypass valve (VP45 series)

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 water, it is advisable to run fresh water through it and to then loosen the front plate screws. Upon re-use, run the pump briefly (a few seconds) and tighten the screws again. Check under conditions of maximum operating pressure that the motor current value is within the motor label specifications.

NORMAL MAINTENANCE

- Check frequently and keep the inlet filter clean.
- Check every month the chamber and keep clean from any foreign matter.
- Check every month that electrical wiring is in good condition.
- Replace the rubber impeller every season or every 500 hours (for UP1 series).

INDICATORS THAT THE PUMP IS FUNCTIONING CORRECTLY

- Temperature of body and motor frame is within 60°C and 70°C (140 °F - 158 °F);
- Regular flow and constant noise levels;
- Amp-draw within the limits indicated in the diagrams.

TO OPEN THE PUMP

- It is recommended that a specialized service technician be consulted for any repair work or the replacement of worn out internal components, exclusively with original spare parts; during the warranty period, only by authorized Marco S.p.A. personnel, failing which the warranty will expire.

ENVIRONMENTAL DISPOSAL

It is the responsibility of the owner to dispose of this product by means of the specific refuse collection structures indicated by the government or the local governing authorities.

PACKAGING ENVIRONMENTAL DISPOSAL

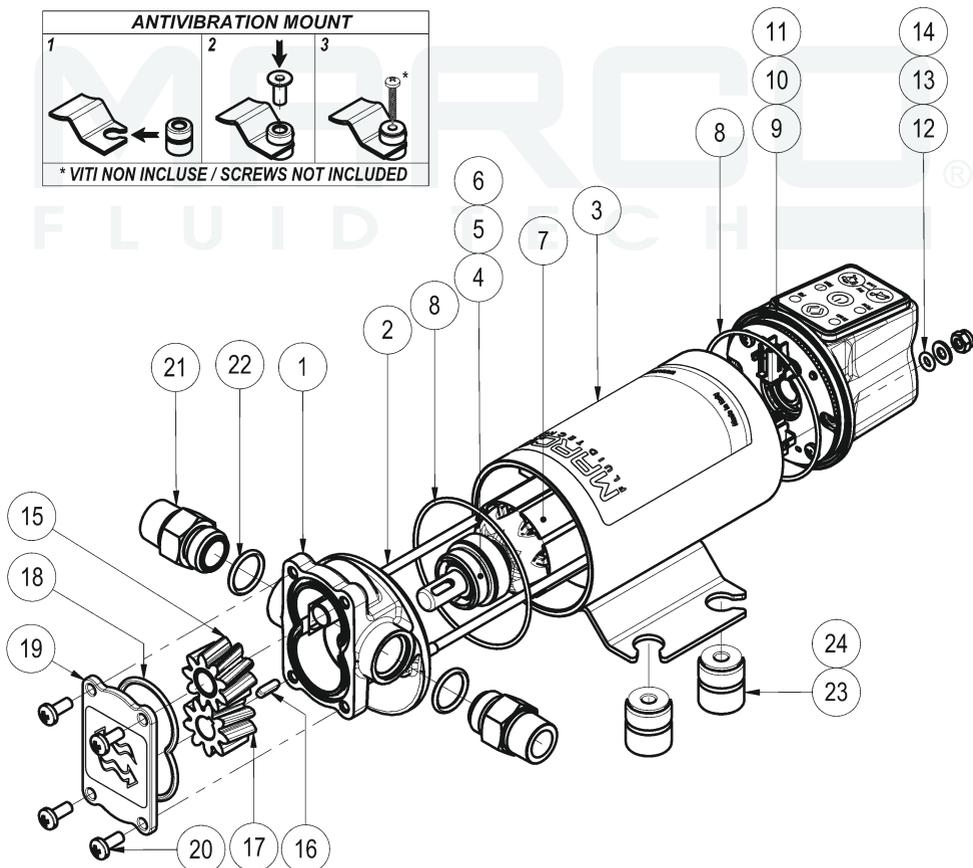
The user is invited to effect a proper waste separation, in order to facilitate the recycling of the materials of which the packing is composed.

WARRANTY

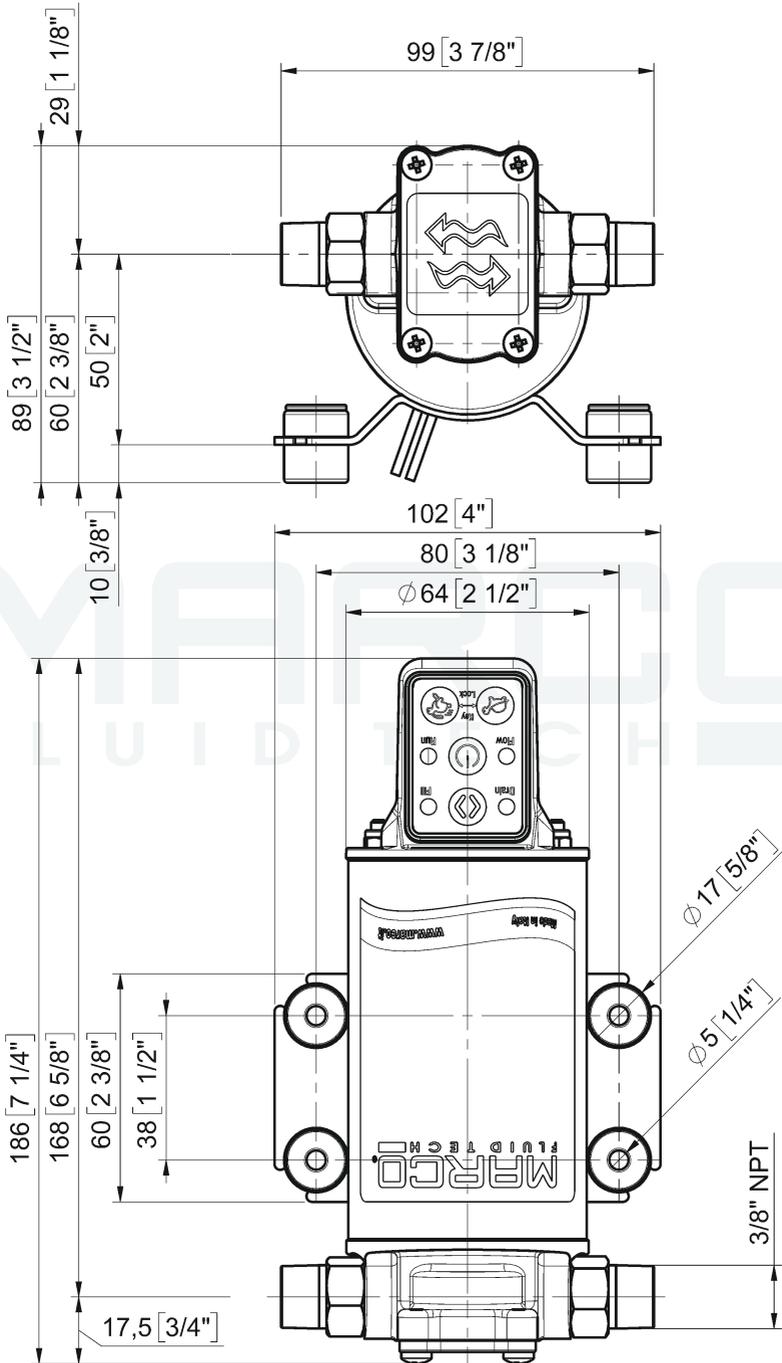
- 1) The Warranty period is 2 years from date of purchase on production of the appropriate sales invoice.
- 2) Should the original sales invoice not be available, then the 2 year warranty period will be valid from production date.
- 3) The Warranty becomes null and void in the case of incorrect utilization 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 accepted by Marco Spa and they 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.

EXPLODED VIEW

Pos.	Q.ty	Description	Spare Part
1	1	PUMP BODY	
2	2	ROD	
3	1	PUMP FRAME	
4	1	RUBBER LIP SEAL	
5	1	WASHER	X
6	1	BALL BEARING	
7	1	ARMATURE	
8	2	O-RING	
9	1	BRUSH HOLDER	
10	1	BALL BEARING	X
11	1	COMPENSATION SPRING	
12	2	O-RING	
13	2	WASHER	
14	2	NUT	
15	1	IDLE GEAR	
16	1	KEY	
17	1	DRIVING GEAR	
18	1	O-RING	X
19	1	TOP PLATE	
20	4	SCREW	
21	2	NIPPLE	X
22	2	O-RING	
23	4	ANTIVIBRATION MOUNT	X
24	4	ANTIVIBRATION INSERT	X

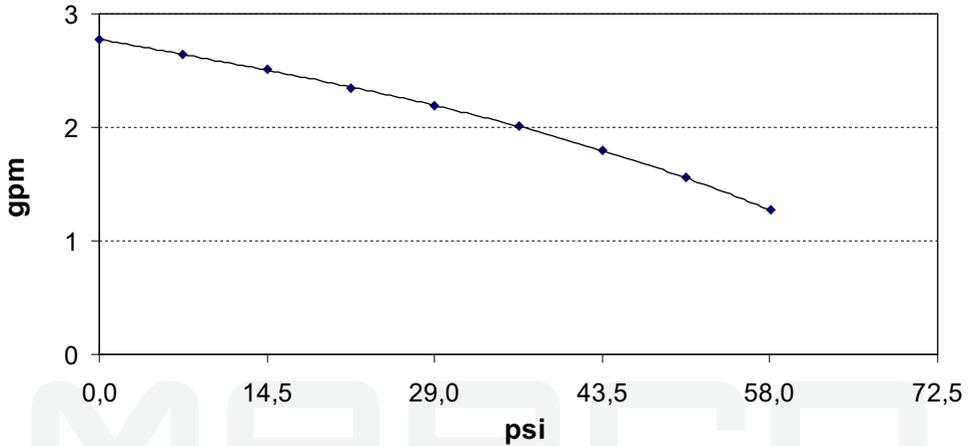


DIMENSIONS

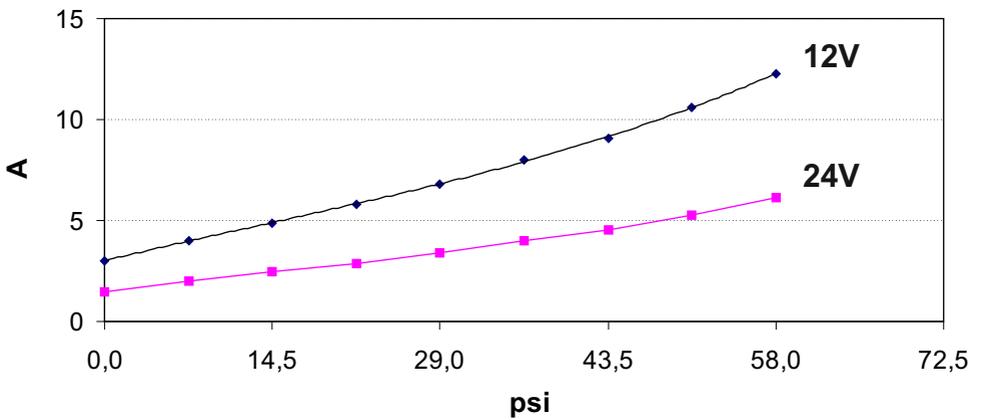


DIAGRAMS

FLOW RATE DIAGRAM



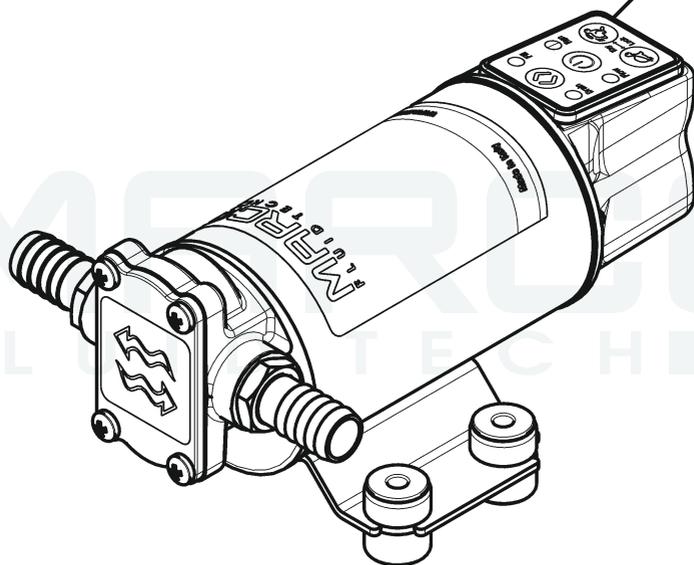
AMPERE-DRAW DIAGRAM



WARNING



HOT SURFACE





E.C. DECLARATION OF CONFORMITY

We confirm that the product:

164 936 15-US - OCK8-E 12/24V Electronic Gear pump

is in conformity with the Directive 2014/30/EU (ex. 2004/108/EC) relating to electromagnetic compatibility and with the Directive 2006/42/EC relating to the machines.

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 the Electromagnetic Compatibility the following standards are applied:

EN 55014-1

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

This declaration is given under the sole responsibility of:

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