

**TMB SERIES**

IDENTIFICATION CODE												
Pump data						Motor data						
TMB	<input type="checkbox"/> 10				<input type="checkbox"/> K (FFKM)		<input type="checkbox"/> B (BSP threaded)					
	<input type="checkbox"/> 20	<input type="checkbox"/> 20U	<input type="checkbox"/> 35	<input type="checkbox"/> 35U	<input type="checkbox"/> WR (GFR-PP)	<input type="checkbox"/> E (EPDM)	<input type="checkbox"/> R1 (C/Al <sub>2</sub> O <sub>3</sub> )	<input type="checkbox"/> N (NPT threaded)	<input type="checkbox"/> 2900	<input type="checkbox"/> 220-240 VAC		
	<input type="checkbox"/> 30	<input type="checkbox"/> 30U	<input type="checkbox"/> 65	<input type="checkbox"/> 65U	<input type="checkbox"/> GF (CFF-E-CTFE)	<input type="checkbox"/> V (FPM)	<input type="checkbox"/> N1 (CFF-PTFE/Al <sub>2</sub> O <sub>3</sub> )	<input type="checkbox"/> P (HOSE connected)	<input type="checkbox"/> 3500	<input type="checkbox"/> 120 VAC	<input type="checkbox"/> 1(1 phase)	
range	model		Execution (materials)		O-ring material	Internal structure		Connections	rpm	motor	voltage	phases

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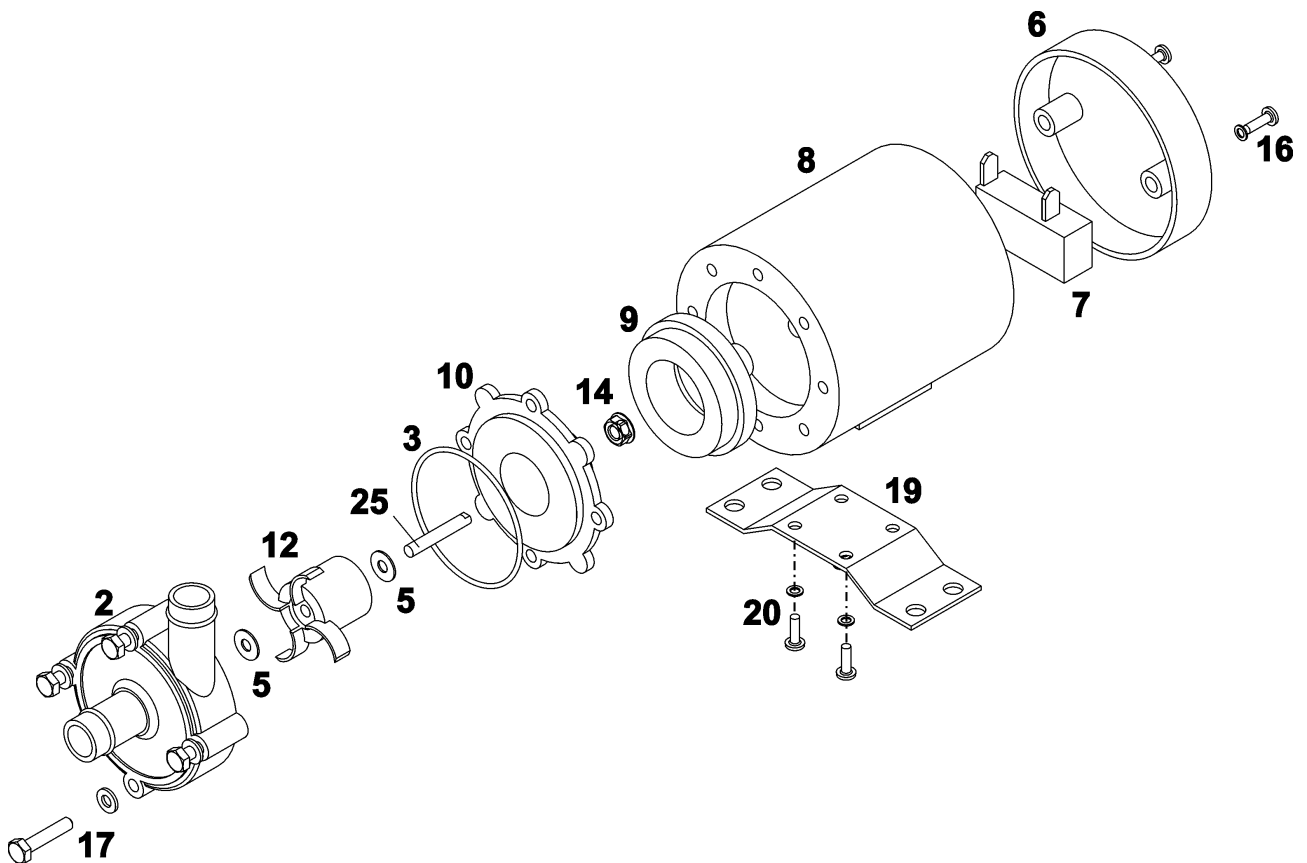
ATTACHMENT: EC DECLARATION OF CONFORMITY  
GENERAL CONDITIONS OF SALE

for MAINTENANCE
Date of commissioning
position / system reference
service

DEALER

## 2. PARTS DESCRIPTION AND EXPLODED VIEW

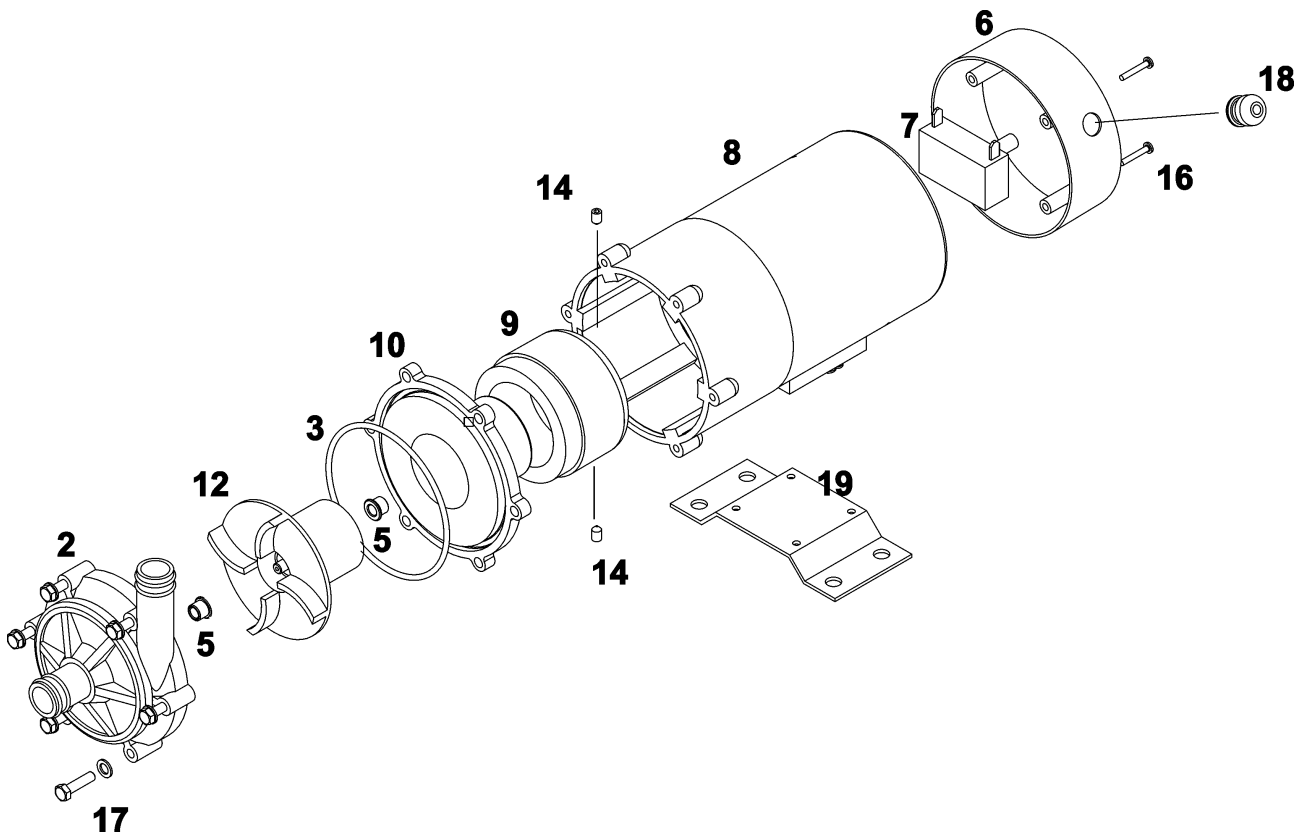
### TMB 10 PARTS DESCRIPTION AND EXPLODED VIEW



### TMB 10 LEGEND AND DISASSEMBLING STEPS SEQUENCE

Ref.	Pos.	Part name	Q.ty	Disassembling steps sequence										Spare stock for working years				
				n°	1	2	3	4	5	6	7	8	9	10	2	5		
102	2	Volute casing	1		o													
412	3	O ring (volute casing)	1		o												1	1
386	5	Thrust bush	2				o										2	2
832	6	Motor cover	1															
837	7	Capacitor	1															
801	8	Electric motor	1								o							
855	9	Drive magnet assembly	1						o									
162	10	Rear casing	1			o												1
235	12	Centrifugal impeller	1			o											1	1
910.1	14	Nuts (magnet-assembling locking)	1						o									
910.2	16	<b>Connection electric motor/motor cover</b>	2										o					
910.3	17	<b>Connection volute casing/rear casing/motor</b>	4	o														
181	19	Baseplate	1								o							
910.5	20	<b>Connection baseplate/electrical motor</b>	4							o								
210	25	Shaft	1				o											1

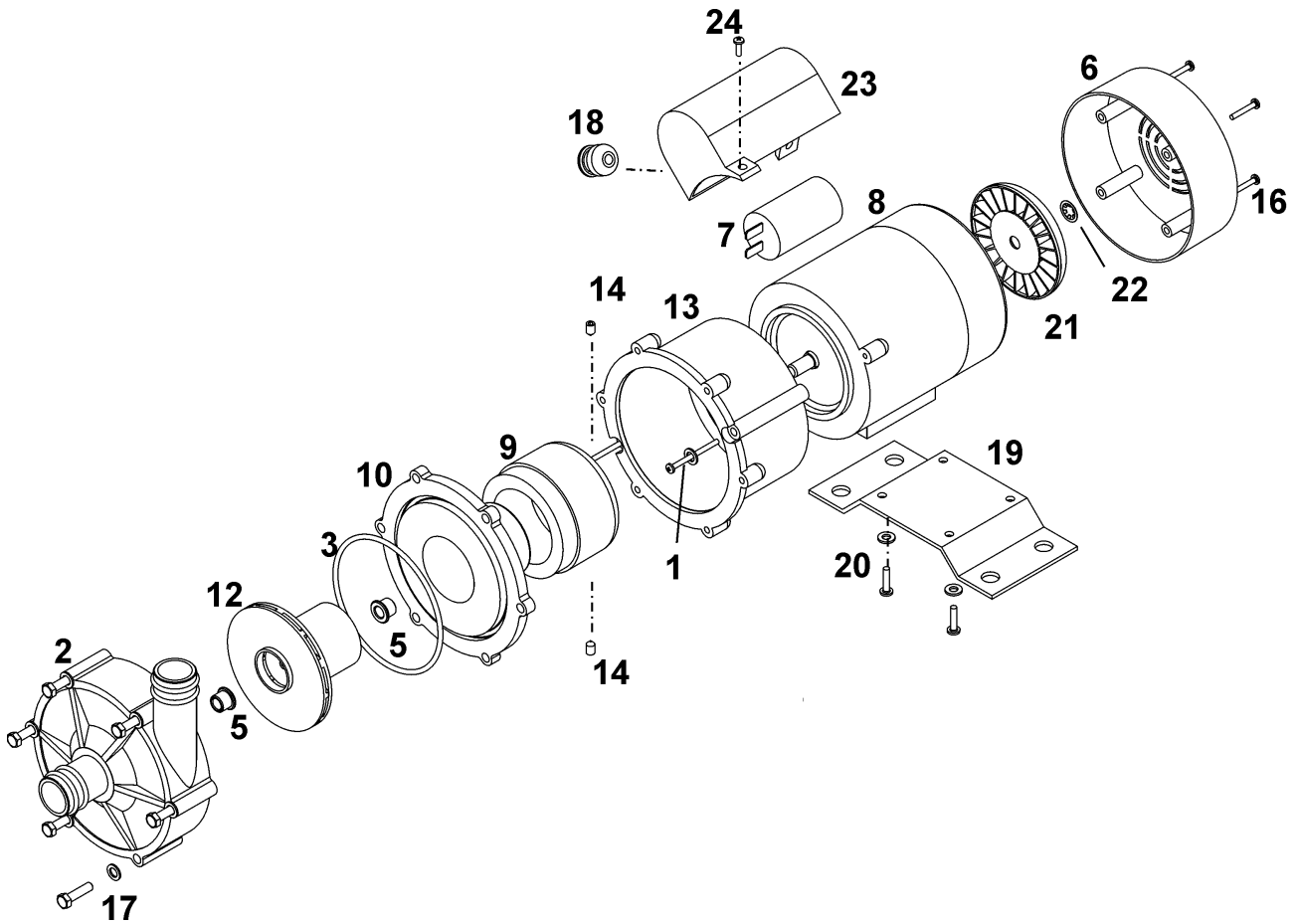
**TMB 20 –30-35 PARTS DESCRIPTION AND EXPLODED VIEW**



**TMB 20 –30-35 LEGEND AND DISASSEMBLING STEPS SEQUENCE**

Ref.	Pos	Part name	Q.ty	Disassembling steps sequence										Spare stock for working years				
				n°	1	2	3	4	5	6	7	8	9	10	2	5		
102	2	Volute casing	1		o													1
412	3	O ring (volute casing)	1		o													1
545	5	Guide bushing	2				o											2
832	6	Motor cover	1										o					
837	7	Capacitor	1										o					
801	8	Electric motor	1							o								
855	9	Drive magnet assembly	1						o									
162	10	Rear casing	1			o												1
235	12	Centrifugal impeller	1			o											1	1
910.2	14	Screws (magnet-assembling locking)	2					o										
910.3	16	<b>Connection electric motor/motor cover</b>	4										o					
910.4	17	<b>Connection volute casing/rear casing/bracket</b>	6	o														
816	18	Cable glands	1												o			
181	19	Baseplate	1							o								
910.5	20	<b>Connection baseplate/electrical motor</b>	4					o										

**TMB 65 PARTS DESCRIPTION AND EXPLODED VIEW**

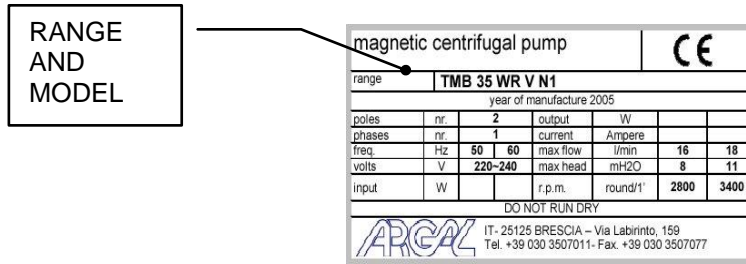


**TMB 65 LEGEND AND DISASSEMBLING STEPS SEQUENCE**

Ref.	Pos	Part name	Q.ty	Disassembling steps sequence										Spare stock for working years				
				n°	1	2	3	4	5	6	7	8	9	10	2	5		
102	2	Volute casing	1				o											
412	3	O ring (volute casing)	1		o													
545	5	Guide bushing	2				o											
832.1	6	Motor cover	1											o				
837	7	Capacitor	1											o				
801	8	Electric motor	1								o							
855	9	Drive magnet assembly	1						o									
162	10	Rear casing	1			o				o								1
235	12	Centrifugal impeller	1			o												1
910.2	14	Screws (magnet-assembling locking)	3						o									
910.3	16	<b>Connection electric motor/motor cover</b>	4										o					
910.4	17	<b>Connection volute casing/rear casing/bracket</b>	6	o														
816	18	Cable glands	1												o			
181	19	Baseplate	1								o							
910.5	20	<b>Connection baseplate/electrical motor</b>	4							o								
815	21	Fan	1												o			
920	22	Speednut	1												o			
832.2	23	Capacitor cover	1												o			
910.6	24	<b>Connection cover capacitor/electric motor</b>	2										o					

### 3. IDENTIFICATION CODES

Each pump is supplied with range and model description on the rating plate, which is placed on the support side. Check these data upon receiving the goods. Any discrepancy between the order and the delivery must be communicated immediately.



### 4. GENERAL NOTES

"TMB" pumps are designed and built for the transfer of liquid chemical products having a specific weight, viscosity, temperature and stability of state appropriate for use with centrifugal pumps in a fixed installation, from a tank at a lower level to a tank or a pipe to a higher level. The characteristics of the liquid (pressure, temperature, chemical reactivity, specific weight, viscosity, vapour tension) and the ambient atmosphere must be compatible with the characteristics of the pump and are defined upon ordering.

The max pump's performances (capacity, head, rpm) are defined on the identification plate.

"TMB" pumps are centrifugal, horizontal, single stage, coupled to a non-synchronous electric motor via a magnetic coupling, with axial inlet and radial outlet for connection to the hydraulic system. They are foot-mounted for floor fixing.

"TMB" pumps are not self priming.

The liquid to be pumped must be clean.

Clockwise rotation seen from the motor side.

Make sure that the chemical and physical characteristics of the liquid have been carefully evaluated for pump suitability.

The maximum admitted temperature of the liquid pumped is:

60°C - WR version

95°C - GF version

The max viscosity is 20 cPt

The specific weight is:

not above 1,05 kg/dm<sup>3</sup> (at the max flow)

- WR version, standard impeller

not above 1,05 kg/dm<sup>3</sup> (at the max flow)

- GF version, impeller A-H

not above 1,35 kg/dm<sup>3</sup> (at the max flow)

- GF version, impeller C-K

not above 1,80 kg/dm<sup>3</sup> (at the max flow)

- GF version, impeller L

The environment temperature range is:

0°C ÷ 45°C - WR version

-20°C ÷ 45°C - GF version

The maximum pressure the pump may be subjected to is 1.5 times the head value developed with the outlet closed.

The vapour pressure value of the liquid to be pumped must exceed (by at least 1m w.c) the difference between the absolute total head (suction side pressure added to the positive suction head, or subtracted by the suction lift) and the pressure drops in the suction side piping (including the inlet NPSHr drops shown on the specific tables).

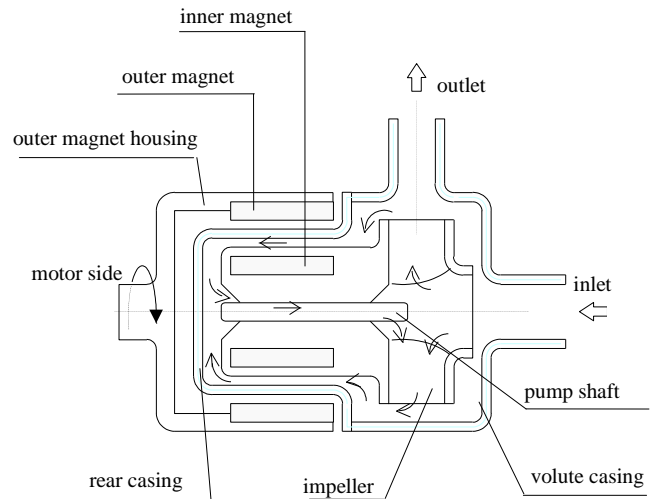
The pump does not include any non return valve nor any liquid flow control or motor stop device.

## 5. OPERATING PRINCIPLE

HYDRAULICALLY alike to all centrifugal pumps, it is equipped with a blade-type impeller rotating within a fixed housing. It has a tangential outlet (or radial with an internal deflector) and, by creating a depression in the center, it allows the liquid to flow from the central suction side. Then, flowing through the impeller's blades, the fluid acquires energy and is conveyed towards the outlet.

MECHANICALLY different from the traditional centrifugal pumps in the impeller motion drive thanks to the magnetic field created between the primary outer magnet and the inner magnet (not visible because housed inside the impeller hub). The magnetic field crosses the plastic parts and the liquid, and firmly couples the two magnet assemblies. When the motor causes the outer magnet to rotate together with its housing, the inner magnet assembly is dragged at the same speed. As a result the impeller, which is integral to it, is maintained in rotation.

The SHAFT, totally within the housing, is not involved in the transmission of rotary motion; its only function is to act as a centering guide and support for the impeller. To this end the components are designed so that a spontaneous cooling circuit (due to a simple effect of pressure) is established to cool the surfaces subject to friction. Periodic inspections prevent the build-up of sediments between the shafts and the guide bushes significantly lengthening their working life.



## 6. MOTOR

The protection level of TMB motors is IP 54

Protection level

The initials IP are followed by two numbers :

The first number indicates the level of protection against penetration of solid objects and in particular :

- 4 for solids whose dimension is greater than 1mm
- 5 for dust (eventual internal deposits will not harm operation)
- 6 for dust (no penetration)

The second number indicates the protection against the penetration of liquids. In particular:

- 4 for water sprays from all directions
- 5 for jets of water from all directions
- 6 for tidal and sea waves.

According to the IP protection indicated on the identification plate of the motor and to the environmental conditions, arrange for opportune extra protections allowing in any case correct ventilation and rapid drainage of rainwater.

## 7. DRY RUNNING SURVEY

Though the pump can occasionally run dry, it is therefore suitable to safeguard the pump and the plant to use:

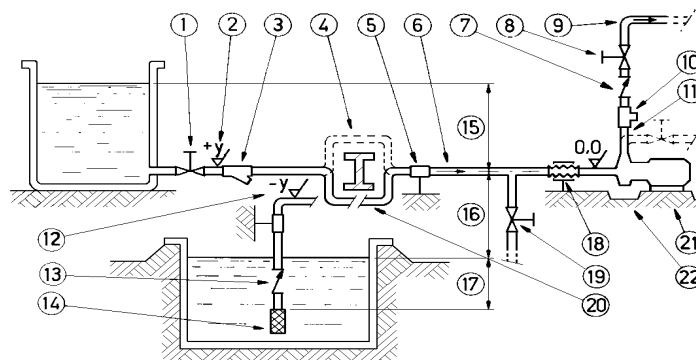
- pressure switch;
- fluxmeter;
- control devices for the motor power absorption.

## 8. INSTRUCTIONS ON INSTALLATION AND USE

### **INSTALLATION**

- clean the plant before connecting the pump
- make sure that no foreign bodies are left in the pump.
- follow the instructions indicated in the following diagram:
  - 1) YES: gate valve (may also be near pump in the case of long piping)
  - 2) With positive head: tilt of piping towards pump
  - 3) YES: line strainer (3-5 mm mesh)
  - 4) NO: air pockets: the circuit must be short and straight
  - 5) YES: pipe fixing parts
  - 6) Fluid speed suction: 2.5 m/s
  - 7) YES: check valve (especially for long vertical or horizontal pipes; compulsory with parallel pumps).
  - 8) YES: adjusting gate valve on outlet
  - 9) speed of delivered fluid: 3.,5 m/s max. .
  - 10) YES: attachment for gauge or safety pressure switch
  - 11) NO: elbow joints (and other parts) on the pump (discharge and suction lines)
  - 12) With negative suction lift: tilt of piping towards suction tank
  - 13) YES: check valve (with negative suction lift)
  - 14) YES: strainer (3-5 mm mesh)
  - 15) Suction head varies according to flow in order to prevent windage (min. 0.5 m, max. 15% of pump head)
  - 16) Suction head, 3 m max.

- 17) Immersion depth: 0.3 m min.
- 18) YES: expansion joint (indispensable with long pipes or hot liquids) and/or anti-vibration facility during discharge and suction; anchored near to pump
- 19) YES: pipe discharge (completely sealed), discharge valve shut during normal operations
- 20) YES: overcoming obstacles at lower depths.
- 21) Fix the pump by the fixing holes provided: the supports must be level
- 22) YES: drainage channel around base



- anchor the pump to an adequate base plate having a mass at least 5 times that of the pump
- do not use anti-vibration mounts to fix the pump
- anti-vibration joints are recommended on the pipe connections
- make sure that the power supply is compatible with the data shown on the pump motor identification plate
- connect the motor to the power supply via a magnetic/thermal control switch
- install emergency stop devices to switch off the pump in case of low liquid level (floating, magnetic, electronic, pressure- sensitive)
- ambient temperature as a function of the physical-chemical characteristics of the liquid to be pumped and in any case not greater or lower than the interval indicated in the GENERAL NOTES
- other environmental conditions in accordance with the IP protection of the motor
- install a drainage pit to collect any liquid overflow from the base drainage channel due to normal maintenance work
- leave enough free space around the pump for a person to move
- leave free space above the pump for lifting operations
- highlight the presence of aggressive liquids with coloured tags following the local safety regulations
- do not install the pump (made in thermoplastic material) in close proximity to heating apparatus
- do not install the pump in areas subject to solid or liquid matter falling
- do not install the pump in an explosive atmosphere
- do not install the pump in close proximity to workplaces or crowded areas
- install extra protection guards for the pump or persons as the need arises
- install a spare equivalent pump in parallel



## **START-UP**

- verify that the instructions outlined in the INSTALLATION have been followed
- ensure that the NPSH available is greater than that required by the pump (in particular for hot liquids, liquids with high vapour pressure, very long suction pipes or negative suction lift)
- close the drain valve (pos. 19); totally flood the suction pipe and the pump
- start the pump with the suction valve completely open and the discharge valve partially closed
- slowly regulate the flow by opening or closing the discharge valve (never the suction valve). Make sure that the power absorbed by the motor does not exceed the rated one indicated on the motor identification plate
- do not operate the pump at the limit values of its performance curve: maximum head (discharge valve excessively closed) or maximum capacity (total absence of drops and geodetic head on the discharge side)
- set the operating point to that for which the pump was requested
- ensure that there are no abnormal vibrations or noise due to inadequate mounting or cavitation
- avoid short and/or frequent starts by properly setting the control devices
- ensure that the temperature, pressure and liquid characteristics are as those specified at the time of order

## **USE**

- switch automatic control on
- do not activate valves whilst the pump is in operation
- risks of dangerous water hammer effects in case of sudden or improper valve actuation (only trained personnel should operate valves)
- completely empty and wash the pump before using a different liquid
- isolate or empty the pump if the crystallization temperature of the liquid is the same or lower than the ambient temperature
- stop the pump if the liquid temperature exceeds the maximum allowed temperature indicated in the general notes; if the increase is of approximately 20%, check internal parts
- close the valves in case of leaks
- wash with water only if compatible from the chemical point of view. As alternative use an appropriate solvent that will not generate dangerous exothermal reactions
- contact the liquid supplier for information on the appropriate fire precautions
- empty the pump in case of long periods of inactivity (in particular with liquids which would easily crystallize)

## **SHUTDOWN**

- disconnect the motor
- before starting maintenance, turn off the suction and discharge valves

## **DISASSEMBLY**

- all these maintenance operations must be performed under supervision of qualified personnel
- cut off the power supply from the motor and disconnect the electrical wiring; pull the wires out from the terminal box and isolate their extremities accordingly
- close the suction and discharge valves and open the drain valve
- use gloves, safety glasses and acid-proof overalls when disconnecting and washing the pump
- disconnect the piping and leave enough time for the residual liquid to exit the pump body and atmospheric air to fill the empty volume
- wash the pump before carrying out any maintenance work
- do not scatter the liquid in the environment
- before attempting to dismantle the pump ensure that its motor is disconnected and that it may not be started accidentally
- now open the pump following the sequence indicated in the respective table of the LEGEND
- for the disassembly of the rotating parts follow the suggestions outlined in the RECOMMENDATIONS section

## **INSPECTION**

Check:

- the pump shaft for cracks and excessive wear
- guide bushing for excessive wear ( $\cong 5\%$ )
- counterthrust bushing for cracks or excessive wear
- pump shaft clutch
- the impeller, volute and rear chamber for abrasion and corrosion
- for lumps and clusters created by the pumped liquid (especially at the bottom the rear chamber)
- for infiltration of liquid into the chamber containing the inner magnets
- abrasions on the outside surface of the rear chamber due to scratching of the outer magnets

Replace broken, cracked or deformed parts.

Reopen all the blocked pipes and eliminate any chemical agglomeration.

Clean all the surfaces before re-assembly, especially the O-ring seats (risk of drip leaks).

## **MAINTENANCE**

- all these maintenance operations must be performed under the supervision of qualified personnel
- make periodic inspections (2 to 30 days depending on the type of liquid and the operating conditions) of the in-line and foot filters as well as of the bottom valve
- make periodic inspections (2 to 6 months depending on the type of liquid and the operating conditions) on the rotating parts of the pump; clean or replace or lubricate as necessary (see RECOMMENDATIONS)
- make periodic inspections (3 to 5 months depending on the type of liquid and the operating conditions) on the functionality of the motor control system; efficiency must be guaranteed
- the presence of liquid below the pump could be a clue to pump problems
- excessive current consumption could be an indication of impeller problems
- unusual vibrations could be due to unbalanced impeller (due to damage or presence of foreign material obstructing its blades)
- reduced pump performance could be due to an obstruction of the impeller or damages to the motor
- motor damages could be due to abnormal friction within the pump
- damaged parts must be replaced with new original parts
- the replacement of damaged parts must be carried out in a clean dry area

## 9. SAFETY RISKS

### **WARNING! MAGNETIC FIELDS.**



Magnetic pumps contain some of the most powerful magnets in existence. The magnets are positioned on the back of the impeller and the outer magnet housing. The magnetic fields may adversely affect persons fitted with electronic devices (e.g. pacemakers and defibrillators): such persons must not be allowed to handle magnetic pumps and magnetic pump components.

### **WARNING! MAGNETIC FORCE.**



Exercise extreme caution and follow instructions carefully during pump assembly/dismantling. Magnetic force attract (cause insertion of) internal and magnetic units, and are therefore a potential source of injury to fingers and hands.

### **WARNING! CHEMICAL HAZARD.**



The pumps are designed to pump different types of liquid and chemical. Follow the specific instructions to decontaminate during inspection or maintenance.

#### **WARNING!**



Safety risks for personnel mainly arise from improper use or accidental damages.

These risks may be of an electrical nature as far as the non-synchronous motor is concerned and may cause injury to hands if working on an open pump. Risks may also arise due to the nature of the liquids pumped. It is therefore of utmost importance to closely follow all the instructions contained in this manual so as to eliminate the causes that may lead to pump failure and the consequent leakage of liquid dangerous for both personnel and the environment.

Risks may also arise from improper maintenance or dismantling practices.

In any case five general rules are important:

- A - all services must be carried out by specialised personnel or supervised by qualified personnel depending on the type of maintenance required
- B - install protection guards against eventual liquid sprays (when the pump is not installed in remote areas) due to an accidental pipe rupture. Arrange for safety basins to collect possible leakage
- C - when working on the pump always wear acid-proof protective clothing
- D - arrange for proper conditions for suction and discharge valve closing during disassembly
- E - make sure that the motor is completely disconnected during disassembly.

Proper design and building of the plants, with well positioned and well marked piping fitted with shut-off valves, adequate passages and work areas for maintenance and inspections are extremely important (since the pressure developed by the pump could give some kind of damage to the plant in case this one should be faulty made or wear and tear-damaged).

It must be stressed that the major cause of pump failures leading to a consequent need to intervene is due to the pump running dry in manually operated plants. This is generally due to:

- the suction valve being closed at start-up or
- the suction tank being emptied without stopping

## **INSTALLATION AND COMMISSIONING PERSONNEL**

Interventions allowed only to specialised personnel who may eventually delegate to others some operations depending on specific evaluations (technical capability required: specialisation in industrial plumbing or electric systems as needed).

## **OPERATORS AND MAINTENANCE PERSONNEL**

Interventions allowed to general operators (after training on the correct use of the plant):

- pump starting and stopping
- opening and closing of valves with the pump at rest
- emptying and washing of the pump body via special valves and piping
- cleaning of filtering elements

Interventions allowed to qualified personnel (technical capacities required: general knowledge of the mechanical, electrical and chemical features of the plant being fed by the pump and of the pump itself):

- verification of environmental conditions
- verification of the condition of the liquid being pumped
- inspections of the control/stop devices of the pump
- inspections of the rotating parts of the pump
- trouble shooting

## **REPAIR PERSONNEL**

Interventions allowed to general operators under the supervision of qualified personnel:

- stopping of the pump
- closing of the valve
- emptying of pump body
- disconnection of piping from fittings
- removal of anchoring bolts
- washing with water or suitable solvent as needed
- transport (after removal of electrical connections by qualified personnel)

Interventions by qualified personnel (technical capacities required: general knowledge of machining operations, awareness of possible damage to parts due to abrasion or shocks during handling, know-how of required bolt and screw tightening required on different materials such as plastics and metals, use of precision measuring instruments):

- opening and closing of the pump body
- removal and replacement of rotating parts

## **WASTE DISPOSAL**

Materials: separate plastic from metal parts. Dispose of by authorized companies.

## **10. IMPROPER USE**

The pump must not be used for purposes other than the transfer of liquids.

The pump cannot be used to generate isostatic or counter pressures.

The pump cannot be used to mix liquids generating an exothermal reaction

The pump must be installed horizontally on a firm base.

The pump must be installed on a suitable hydraulic plant with inlet and outlet connections to proper suction and discharge pipes.

The plant must be able to shut off the liquid flow independently from the pump.

Handling of aggressive liquids requires specific technical knowledge

## 11. RECOMMENDATIONS

### Disassembly

All threads are right handed

The impeller, once the pump body is open, is held in its seat only by a magnetic field. Take care it does not fall away whilst being pulled out axially (risk of damage to counterthrust ring or finger injury)

Replace the parts that was: broken, cracky, smelt.

Clean all surfaces before reassembly; in particular bushes, counterthrust rings (risk of premature wear) and O-RING seats (risk of leakage).

### Improper use:

The pump must not be used for purposes other than the transfer of liquids.

The pump cannot be used to generate isostatic or counter pressures.

The pump cannot be used to mix liquids generating an exothermal reaction

The pump must be installed horizontally on a firm base.

The pump must be installed on a suitable hydraulic plant with inlet and outlet connections to proper suction and discharge pipes.

The plant must be able to shut off the liquid flow independently from the pump.

Handling of aggressive liquids requires specific technical knowledge

## 12. OPERATING FAULTS AND POSSIBLE CAUSES

### Pump does not deliver:

1. rotates in wrong direction
2. suction pipe is excessively long and tortuous
3. insufficient geodetic pump head or excessive suction geodetic lift
4. air infiltration into the suction pipe or branches
5. pump or suction pipe not completely covered by liquid
6. impeller channels blocked by impurities
7. check valve on discharge pipe jammed
8. geodetic system height is greater than maximum potential pump head
9. impeller jammed by considerable layer of crystals or by melting of materials for dry rotation.
10. bottom valve blocked by mud or other debris
11. bottom valve insufficiently immersed
12. bottom valve faulty, thereby causing suction valve to empty when pump stops
13. magnets release a much greater specific weight and flow rate of liquid than planned
14. the magnets release due start-up made while impeller is CCW moving (feed-back of the liquid in the discharge side)

### Pump discharge rate or pressure insufficient:

see. 01, 02, 03, 04, 05, 06, 10, 11, 12, 13

15. system's resisting head is greater than expected
16. suction pipe, closing valve and other items have an insufficient nominal diameter
17. small geometric pump suction head
18. damaged or worn impeller
19. liquid viscosity greater than expected
20. excessive quantities of air or gas in liquid
21. elbow joints, check valves or other items on the outlet port
22. liquid (especially if hot) with tendency to change into gaseous state

### Pump absorbs too much power :

see. 19

23. pump operates at greater capacity than expected
24. specific weight of liquid is greater than expected
25. impurities inside pump create abnormal wear
26. electric motor supply voltage is not rated voltage

### Pump vibrates and is noisy

see 25

27. operates at full capacity (no head)
28. pump or pipes inadequately fixed
29. eccentric impeller operation because of worn bushes

Pump's internal parts wear out too quickly :

see. 25

30.liquid excessively abrasive

31.recurring cavitation problems (see. 02, 15, 19, 17)

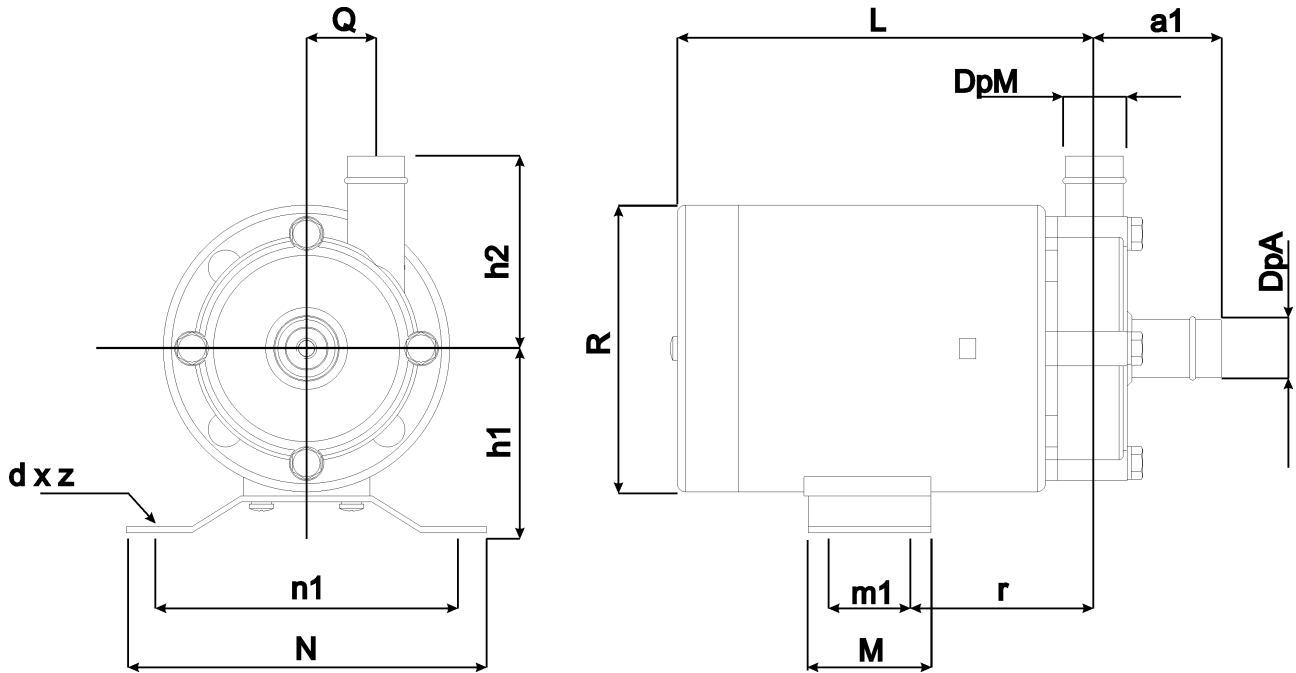
32.high tendency of liquid to crystallise or polymerise when pump is not operating.

33.pump made of materials that are unsuitable for pumped liquid

34.operation with capacity too reduced

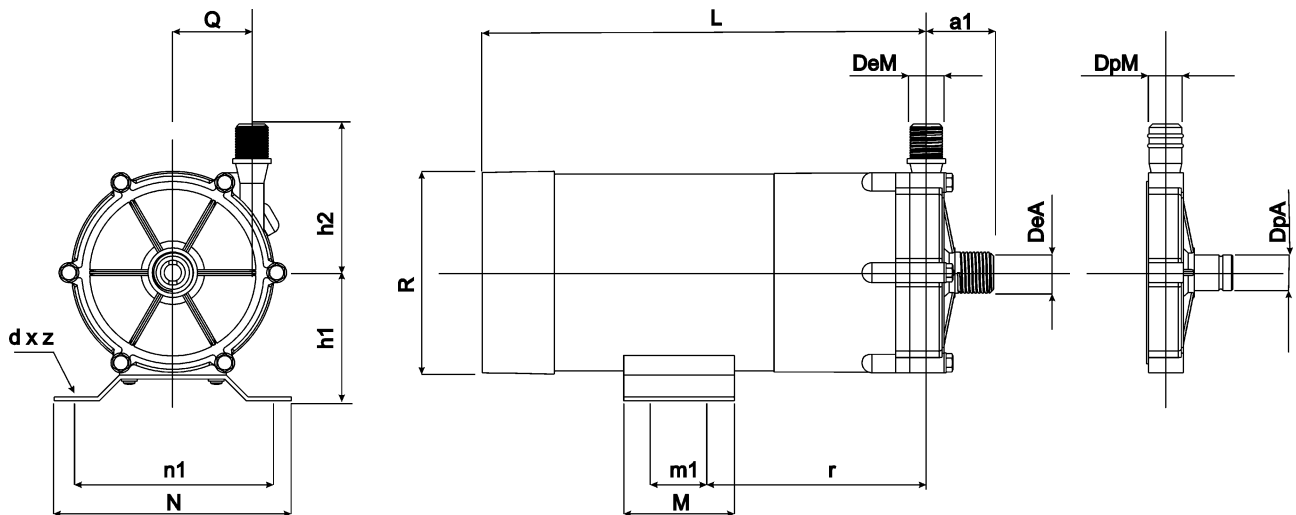
13. TECHNICAL DATA

**TMB 10 DIMENSIONS**



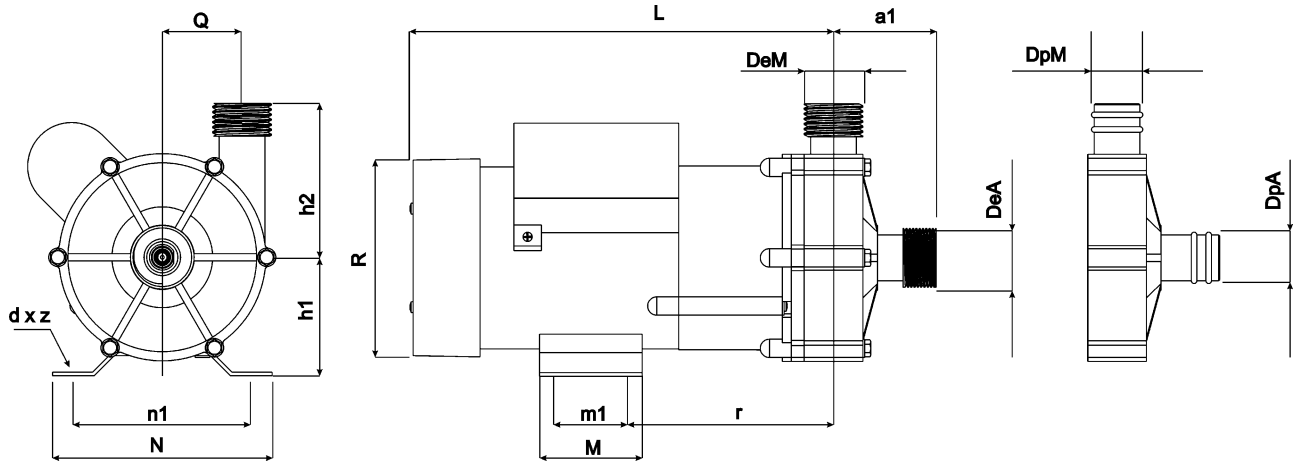
model	a1	h1	h2	L	m1	M	n1	N	Q	r	R	dxz	DeA	DeM	DpA	DpM
10	31	45	47	100	16	30	78	90	17	46.5	70	Ø5 x 4	/	/	14	14

**TMB 20-30-35 DIMENSIONS**



Model	a1	h1	h2	L	m1	M	n1	N	Q	r	R	dxz	DeA	DeM	DpA	DpM
20	37	55	74	181	30	50	70	92	30	75	90	Ø6 x 4	3/4"	3/4"	18	17
30	48	60	75	206	40	64	100	120	32	100	90	Ø8 x 4	3/4"	3/4"	20	20
35	34	60	75	206	40	64	100	120	40	100	90	Ø8 x 4	1/2"	3/8"	18	18

**TMB 65 DIMENSIONS**



model	a1	h1	h2	L	m1	M	n1	N	Q	r	R	dxz	DeA	DeM	DpA	DpM
65	62	67	84	222	40	68	120	144	45	115	115	Ø8 x 4	1"	1"	26	26

**14. TMB SPECIFICATIONS**

<b>TMB</b>				<b>10</b>	<b>20</b>	<b>30</b>	<b>35</b>	<b>65</b>
Connect.	thread	Ø inlet	BSP/ NPT	-	3/4"	3/4"	1/2"	1"
		Ø outlet	BSP/ NPT	-	3/4"	3/4"	3/8"	1"
	hose	Ø inlet	mm	14	18	20	18	26
		Ø outlet	mm	14	17	20	18	26
motor	Power IN ( 50/60 Hz )		W	25/21	29/39	57/73	57/73	97/134
	Power OUT ( 50/60 Hz )		W	8/7	15/21	30/43	30/43	63/87
	Phases		n°	1				
	Std voltage		V	AC 220/240 - 50/60 Hz				
pump	Max. Head ( 50/60 Hz)		m	1.8/2.2	3/4	3.4/4.5	8/11	6/8.2
	Max. Capacity ( 50/60 Hz)		L/min	12/14	21/25	41/45	16/18	62/70
	Noise		dB	35	40			45
	weight		Kg	0,9	2,2	3	3	5
<b>TMB</b>				-	<b>20 U</b>	<b>30 U</b>	<b>35 U</b>	<b>65 U</b>
Connect.	thread	Ø inlet	BSP/ NPT	-	3/4"	3/4"	1/2"	1"
		Ø outlet	BSP/ NPT	-	3/4"	3/4"	3/8"	1"
	hose	Ø inlet	mm	-	18	20	18	26
		Ø outlet	mm	-	17	20	18	26
motor	Power IN (60 Hz )		W	-	41	72	72	145
	Power OUT (60 Hz )		W	-	26	48	48	96
	Phases		n°	1				
	Std voltage		V	AC 120 - 60 Hz				
pump	Max. Head (60 Hz)		m	-	4	4.5	11	8.2
	Max. Capacity (60 Hz)		L/min	-	25	45	18	70
	Noise		dB	-	40			45
	weight		Kg	-	2,2	3	3	5

Dimensions in mm; weight and loads in kg;  
 BSP or NPT parallel thread on the hydraulic connections;



15. MANUFACTURER DATA



[www.argalpumps.com](http://www.argalpumps.com) - [info@argal.it](mailto:info@argal.it)

Production head and legal office:  
Via Labirinto, 159 I - 25125 BRESCIA  
Tel: 030 3507011 Fax: 030 3507077

Administration	Tel: 030 3507019
Export manager	Tel: 030 3507017
Customer service	Tel: 030 3507025
Web	<a href="http://www.argal.it">www.argal.it</a>
E-mail	<a href="mailto:argal@argal.it">argal@argal.it</a>

Rev. 6 – 05/2017

The INSTRUCTION MANUAL must be delivered to the pump-user , who takes diligent note of it, fills in data for Maintenance Department (page 1), keeps the file for subsequent reference.  
Possible modifications do not imply updating of the existing manuals

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### EC DECLARATION OF CONFORMITY

(According to Council Directive 2006/42/EC Annex II.a)

The Manufacturer: **ARGAL SRL**

Production head and legal office: **Via Labirinto, 159 - 25125 Brescia – Italy**

➤ ARGAL produces and sells under its own registered trademark:



➤ The responsible person for the technical file is: **Mr. Omar Gabrieli - Via Cucca, 147 - 25127 Brescia - Italy.**

➤ ARGAL declares that its own products being part of the above mentioned categories are comply with the requirements of the *Machinery Directive 2006/42/EC* of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC. Reference to HARMONIZED STANDARDS:

EN ISO 12100:2010	EN 1299:1997 + A1:2008	EN 12162:2001 + A1:2009	EN ISO 20361:2009 + AC:2010
EN 1032:2003 + A1:2008	EN ISO 4871:2009	EN 61310- 1:2008	EN ISO 4414:2010
EN 1127-1:2011	EN ISO 11688-1:2009	EN 61310-2:2008	EN ISO 4413:2010
EN 953:1997 + A1:2009			

➤ ARGAL declares that own products could include Electric Motors in accordance to: *Directive 2014/30/EU* of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility and *Directive 2014/35/EU* of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits. Reference to HARMONIZED STANDARDS:

EN 60204-1:2006+A1:2009+AC:2010	EN 60947-1:2007+A1:2011	EN 61000-3-2:2006+A1:2009+A2:2009
EN 55014-1:2006+A1:2009+A2:2011	EN 60730-2-9:2010	EN 61000-3-2:2014
EN 55014-2:1997+AC1997+A1:2001+A2:2008	EN 60947-8:2003+A1:2006+A2:2012	EN 61000-3-12:2011
EN 60034-1:2010+AC:2010		

BS, 12.04.2017

Omar Gabrieli  
C.E.O.

Rev. 9 - 17/04

## **CONDIZIONI GENERALI DI VENDITA**

### **1. ACCETTAZIONE DELL'ORDINE.**

L'ordine si intende accettato: **a)** con la formulazione della nostra Conferma d'Ordine; **b)** con la resa di copia dell'Ordine del Cliente da noi controfirmata per accettazione. Qualsiasi deroga alle presenti Condizioni e qualsiasi accordo verbale saranno ritenuti validi solo se da noi accettati per iscritto. Il compratore rinuncia ad apporre eccezioni basate su intese verbali di qualsiasi genere. Le nostre offerte ed i preventivi non sono impegnativi e potranno subire variazioni. Misure, pesi, disegni e riproduzioni sono impegnativi per l'esecuzione dell'ordine solo se ciò è stato espressamente confermato per iscritto.

### **2. FORNITURE E TERMINI DI CONSEGNA.**

Per i limiti della fornitura e termini di consegna fa fede esclusivamente la nostra Conferma d'Ordine. Il termine di consegna da noi indicato decorre dal momento in cui sono stati chiariti tutti i dati relativi all'esecuzione dell'ordine. Interruzioni forzate del lavoro o altri casi di forza maggiore, comprese disposizioni delle Autorità, difficoltà al normale approvvigionamento, mancanza di materie prime, conflitti sindacali, ecc., tempestivamente comunicate, ci danno diritto al prolungamento del termine di consegna senza che ciò possa dar luogo a pretese di indennizzo alcuno. Senza il nostro esplicito consenso gli ordini regolarmente sottoscritti non possono essere né parzialmente, né totalmente annullati anche nel caso di ritardo delle consegne. Qualunque ordinazione assunta da nostri Agenti o Rappresentanti non è impegnativa finché non sarà data nostra approvazione formale. I medesimi non possono procedere ad incassi di alcun genere senza nostra autorizzazione scritta. In difetto il pagamento viene effettuato a rischio e pericolo del compratore. Trascorsi sette giorni dai termini di consegna pattuiti senza che la merce venga ritirata si procederà alla fatturazione della stessa con decorrenza dei pagamenti convenuti.

### **3. SPEDIZIONI.**

Qualora nei documenti d'ordine o nel contratto non siano ben specificate le modalità di spedizione, inoltreremo la merce nel modo che riterremo più conveniente. Ci riserviamo la facoltà di effettuare spedizioni anche da luoghi diversi dalla nostra Sede. Per le spedizioni in porto franco verrà richiesta al Compratore la copertura assicurativa del trasporto e l'importo relativo verrà addebitato in fattura.

### **4. RECLAMI.**

Contestazioni di qualsiasi natura devono essere fatti subito al ricevimento della merce ed in ogni caso non oltre otto giorni dalla scoperta. Reclami relativi ad ammanchi o deterioramenti durante il trasporto ci devono essere immediatamente comunicati, provvedendo a raccogliere e conservare tutte le prove relative alla irregolarità contestata allo scopo di poterle eventualmente far valere nei confronti del Vettore stesso.

### **5. IMMAGAZZINAMENTO A LUNGO TERMINE – POMPE ORIZZONTALI.**

La seguente *procedura di preservazione a lungo termine* del prodotto è consigliata per pompe che dovranno rimanere in magazzino per un ampio intervallo temporale prima di essere avviate (relativamente ad apparecchi accessori, come motori e pannelli di controllo, consultare direttamente il fabbricante di tali dispositivi, per quanto concerne le procedure raccomandate in caso di inutilizzo prolungato).

1. Pulire accuratamente la pompa.
2. Coprire le flange di aspirazione e mandata con appositi elementi di protezione per flange e chiudere le connessioni ausiliarie presenti, al fine di escludere la formazione di polvere e sporco all'interno della pompa stessa.
3. Rivestire tutte le parti metalliche (non verniciate) - a contatto con l'atmosfera esterna - di cui è costituita la pompa, mediante apposito protettore antiruggine.
4. Rimuovere lo sfiato e l'oliatore e chiudere i fori filettati presenti sul telaio della pompa.
5. Coprire ed avvolgere la pompa mediante appositi sacchi barriera (adatti alla conservazione a lungo termine di materiali che necessitano un'atmosfera stabile per mantenere intatte le proprie caratteristiche). Collocare la pompa in una cassa, se l'area di stoccaggio potrebbe presentare caratteristiche ambientali tali da arrecare danni alla pompa. Si raccomanda vivamente di scegliere un'area di stoccaggio interna.
6. Ruotare l'albero della pompa più volte ad intervalli di 4-6 mesi.

## 6. IMBALLAGGIO IDONEO PER IMMAGAZZINAMENTO A LUNGO TERMINE.

Grazie ad un'innovativa ed unica struttura resistente alla corrosione, le **Pompe Orizzontali ARGAL** necessitano di un numero ridotto di interventi tali da rendere il prodotto idoneo ad un immagazzinamento a lungo termine (intervallo temporale maggiore di **quattro** mesi). Dunque il cliente che ritiene necessario tenere in magazzino pompe orizzontali per un arco temporale prolungato, può acquistare uno speciale pacchetto di imballaggio (idoneo per prodotti che verranno stoccati per più di quattro mesi) a: un prezzo nominale. Questo particolare imballaggio include gli elementi descritti nella sopracitata *procedura di preservazione a lungo termine 1, 2, 3, 4 e 5* utilizzando una cassa in legno standard. Si asporterà un'area sulla cassa per poter effettuare la rotazione dell'albero.

**QUESTO PACCHETTO DI IMBALLAGGIO "A LUNGO TERMINE" DEL PRODOTTO ARGAL HA UN COSTO PER POMPA.**

## 7. GARANZIA.

Dati tecnici, dimensioni o quanto altro contenuto nei nostri cataloghi e listini è quanto ci risulta esatto. Comunque li stessi sono forniti solo a titolo informativo, senza responsabilità e possono essere variati in qualunque momento senza preavviso. In ogni caso ci riserviamo di introdurre, in qualunque momento, nei nostri prodotti, quelle modifiche non sostanziali che riteniamo convenienti, senza che da parte del Compratore possano essere sollevate contestazioni al riguardo. Tutti i disegni apprestati restano di nostra esclusiva proprietà e non possono essere comunicati a terzi, né riprodotti senza autorizzazione scritta.

**COLLAUDO:** è facoltà del Compratore richiedere il collaudo delle pompe presso la nostra officina; tale collaudo dovrà essere richiesto in tempo opportuno prima della spedizione e le prove ad esso relative saranno quelle possibili con i mezzi a nostra disposizione. Il costo del collaudo dovrà essere pattuito con il nostro Ufficio Vendite e sottoscritto. La data del collaudo verrà comunicata al Compratore con un preavviso di dieci giorni. A tale termine le prove saranno eseguite anche in mancanza del Compratore (o del Delegato ufficiale) e a questi saranno comunicati i risultati che, se soddisfacenti, varranno come collaudo.

**DURATA DELLA GARANZIA:** ARGAL costruisce i propri prodotti con materiali di prima scelta, utilizzando Personale qualificato e collaudi di verifica nelle varie fasi di produzione. ARGAL si impegna, entro **dodici** mesi dalla installazione e non oltre **diciotto** dalla consegna, ad esaminare quelle parti che risultassero difettose e, determinata la propria responsabilità della difettosità, ne garantisce la sostituzione rapidamente ed a titolo gratuito.

Tali riconosciute difettosità non devono dipendere da logoramento o usura, da guasti causati da imperizia o negligenza del Compratore, da casi fortuiti o di forza maggiore. Il periodo di garanzia è ridotto del 50% qualora le macchine funzionino continuativamente ventiquattro ore al giorno. Le macchine da riparare, anche se in garanzia, dovranno essere spedite in porto franco al nostro stabilimento. Le stesse, una volta riparate, saranno rispedite al Compratore in porto assegnato. La spedizione di parti disassemblate sarà a carico del Compratore. Le parti sostituite restano di proprietà di ARGAL e dovranno esserci restituite.

La garanzia decade: **1a)** se le macchine non sono state conservate in modo idoneo; **1b)** se usate difformemente alle norme tecniche contenute nei manuali allegati alla fornitura; **1c)** se le macchine vengono smontate senza nostra preventiva autorizzazione; **1d)** se le macchine vengono "maltrattate"; **1e)** se le macchine vengono utilizzate per far circolare liquidi in condizioni applicative diverse da quelle specificatamente e anticipatamente approvate da ARGAL. Nessun indennizzo sarà da noi dovuto per la condizione di fermo tecnico derivante dalle riparazioni o dalle sostituzioni in garanzia sulle nostre macchine.

ARGAL non sarà responsabile per alcun danno o perdita diretta, accidentale o consequenziale (incluso, ma non limitato a danni accidentali o consequenziali dovuti a: perdite di profitto, di vendite, a danni provocati a persone o proprietà o qualsiasi altre perdite accidentali o consequenziali) o danni dovuti all'uso o all'incapacità d'uso della macchina stessa. Prima dell'uso, l'Utilizzatore dovrà determinare l'adattabilità della macchina allo scopo per cui intende servirsene e dovrà assumersene ogni rischio e responsabilità.

L'Utilizzatore prende atto che l'utilizzo delle pompe da noi fornitegli lo obbligherà ad adottare, a norma dell'art. 2050 del Codice Civile, tutte le misure previste dalle norme legislative e regolamentari che disciplinano l'esercizio di un'attività pericolosa come quella di utilizzare, stoccare e convogliare prodotti chimici aggressivi ed inquinanti.

Lo stesso si obbliga ad osservare le prescrizioni dettate in ordine alle caratteristiche degli impianti (con relative protezioni, guarnizioni, tenute, ecc.) entro i quali dovranno essere collocate le pompe, in ordine alle modalità di installazione delle stesse, in ordine ai controlli ed alle manutenzioni che dovranno effettuarsi su pompe ed impianti.

L'Utilizzatore dovrà inoltre consentirci, se del caso, la previa verifica sulla funzionalità dell'impianto e del successivo controllo sulla corretta installazione della pompa. Ove l'Utilizzatore non osservasse le prescrizioni da noi dettate, ovvero impedisse la verifica di cui sopra, se richiesta, non potrà invocare né la garanzia contrattuale, né la garanzia di cui agli artt. 1667 e 1668 del Codice Civile.

**NOTE:** L'acquisto di un IMBALLAGGIO IDONEO PER IMMAGAZZINAMENTO A LUNGO TERMINE DI UNA POMPA ARGAL **non comporta in ogni modo l'estensione automatica della garanzia standard** della pompa, cioè, **dodici** mesi dall'installazione e non oltre **diciotto** mesi dalla consegna. Infatti per poter **richiedere un'estensione** della garanzia standard ARGAL, è necessario innanzitutto che venga fornito l'imballaggio a lungo termine (conforme alla procedura ARGAL di preservazione a lungo termine del prodotto), ed inoltre il cliente deve consentire ad un rappresentante ARGAL di ispezionare l'equipaggiamento prima delle operazioni di installazione ed avviamento. Si specifica che il cliente deve sostenere il costo di questa visita, comprese le spese di viaggio per il rappresentante. Nel caso in cui ARGAL non avesse il permesso di valutare in prima persona le reali condizioni di stoccaggio della merce, tutte le eventuali riparazioni o parti di ricambio, necessarie per ripristinare l'attrezzatura, saranno fatturate al cliente.

**Se il cliente vuole richiedere un'estensione della garanzia standard ARGAL, concordando con le condizioni di cui sopra, deve contattare l'ARGAL Division Management, il solo che detiene l'autorità di estendere la garanzia standard ARGAL.**

## 8. CONDIZIONI DI PAGAMENTO E RISERVATA PROPRIETÀ.

Solo le condizioni di pagamento stipulate nei documenti accettati sono valide. Il diritto di proprietà sulla merce venduta resta a noi riservato fino ad integrale pagamento della fornitura. Abbiamo la facoltà di risolvere e/o sospendere le forniture nel caso di mora del Compratore per qualsiasi importo o qualora la sua situazione patrimoniale e/o finanziaria dovesse peggiorare successivamente alla conclusione del Contratto. Verificandosi ritardi nei pagamenti da parte del Compratore, anche per altre forniture, anche se motivati da contestazioni sulle forniture, potremo richiedere il pagamento del residuo importo complessivo a nostro credito o valerci della riserva di proprietà esigendo l'immediata riconsegna della merce. Sui ritardati pagamenti decorrerà l'interesse in ragione del tasso di sconto corrente maggiorato di due punti, senza necessità di messa in mora del Compratore.

## 9. CONTROVERSIE.

Ogni controversia relativa alla interpretazione od alla esecuzione del Contratto sarà di competenza esclusiva del Foro di Brescia, qualunque sia il mezzo di pagamento concordato.

BS, 11.04.2017

ARGAL S.r.l

Rev. 01 - 2017



