INSTALLATION, OPERATION & MAINTENANCE MANUAL

Series: Compatta, Alpha V, BIC, DNA, DNB, GRIX, APX

Electric Submersible Pumps

Single Phase	Three Phase
115V & 230V	230V & 460V

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IO&M Compatta, Alpha V, BIC, DNA, DNB, GRIX & APX
December 2023

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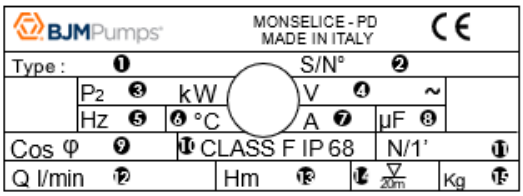
EXPLANATION PLATE



1	Electropump type
2	Serial number
3	Max power at motor shaft P2
4	Voltage rating
5	Frequency
6	Max permissible liquid temperature
7	Nominal absorption
8	Capacitor
9	Power factor
10	Insulation class and motor protection
11	R.P.M
12	Capacity
13	Head
14	Maximum depth of immersion
15	Pump weight

WARRANTY

The warranty and related terms and conditions can be found through our website:

https://flowsolutions.com/terms-and-conditions/ or contact us at sales@flowsolutions.com

1. APPLICATIONS

The heavy built portable submersible electric motor pumps “DRENO POMPE” of the series Compatta (EVO), BIC (EVO), Alpha-V (EVO), AM-AT, DNA, DNB are used in the domestic and industrial field, for pumping of raw and waste waters, stirred sludge, raw sludge, sludge, and mixed waters.
Maximum temperature of the pumped liquid: 104°F with the pump completely submerged.
Maximum submersion depth: 65 ft
Minimum submersion depth: check the size B on Overall dimensions
pH-value of pumped liquid: 6 -11
Liquid density: lower as 1.1 SG The pumped liquid may contain suspended solid particles up to the diameters allowed by the impeller design:

Type	Free Passage Ø mm		Type	Free Passage Ø mm		Type	Free Passage Ø mm
Compatta 1-1.5	30		BIC 32-2-025, -037	8x10		DNB 80-2/4..	70
Compatta *(EVO) 2-3	40		BIC *(EVO) 32-2-056, -075	20x10		AM-AT 40-2-110 C.218	20x10
DNA 50-2/4..	50		Alpha V *(EVO) 22-32	40		AM-AT 40-2-110 C.219	20x10
DNA 65-2..	65		Alpha V *(EVO)4-55	45		GRIX 32-2-090, -110, -140	-
DNA 80-2/4..	80		DNB 65-2/4..	50		APX 32-2-..	20x10

*EVO version with double mechanical seals in oil chamber:
The electro pump must not be used either in places with danger of explosion or fires, or for pumping inflammable liquid. For different applications of the pump, contact Industrial Flow Solutions for information.

2. TECHNICAL CHARACTERISTICS

Materials

The construction materials of each component have been chosen with particular attention to obtain high reliability and durability, that will last even in high-stress situations.

The components of the pumps of the series Compatta (EVO), BIC (EVO), Alpha-V (EVO), AM-AT, DNA, DNB have got the motor cover (where provided), the motor casing, the oil chamber flange, oil chamber closing cover, the body pump, the body closing cover and the impeller made of cast iron GG 25; the motor shaft of stainless steel AISI420, screws AISI 304, Orings of nitrile NBR 70 and the handle of hard nylon Compatta (EVO), Alpha V (EVO) - Alpha (EVO).

Ball Bearings

The upper and lower ball-bearings are radial with a single row of balls. The ball-bearings are lubricated and must be changed after a long period of time.

Electric motor

The electric motors are asynchronous 2 and 4 poles, single or three phase, with squirrel-cage rotor.

The frequency is 60 Hz.(On request we can supply also 50Hz).

These motors are projected to output the maximum nominal power with variations up to 5% of the nominal voltage and 2% of the nominal frequency Hz.

All the stators are built with insulation class F (311°F) and protection degree IP 68; they can be used with surrounding liquid temperature of 200°F. Single phase windings are equipped with thermal overload protection to prevent the motor from rising to the limit temperature fixed to 266°F. The thermal overload protections are normally closed bimetallic switches, inserted in the windings and at a temperature of 266°F they open, stopping the power supply of the pump. When these protections are cooled (167°F) the power supply of the pump will start again. The cooling is provided by the liquid the pump is submerged.

Electric Cable

The standard electric cable is SOOW/SJOOW or 33 feet long.

The single phase pumps have been equipped with NEMA-plug , while the Three phase pumps are supplied with free terminals.

Mechanical seal

The series Compatta, Alpha V, BIC, AM-AT, have a mechanical seal (impeller side) and lip seal (motor side). The series GRIX and APX have a mechanical seal on oil chamber (Impeller side) and lip seal (motor side).

The series DNA, DNB and *(EVO) version have a double mechanical seal in oil chamber: Motor side: carbon/ceramic (CA/CE/FKM).

Motor impeller: carbon ceramic/silicon carbide (SIC/SIC/FKM).

3. TECHNICAL DATA

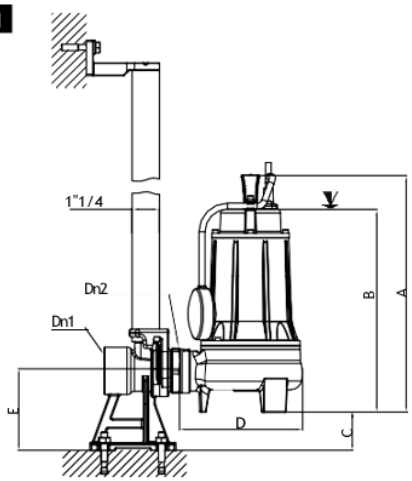
Type	Discharge NPS	RPM	Power		Full Load Amperage				Cable	Weight
			kW	Hp	1 - Phase		3 - Phase			Lbs
					115	230V	230	480		
Compatta 1 M	1” ¼	3450	0.25	0.4	5.2	2.6	-	-	-1	24.25
Compatta 1.5 M-T	1” ¼	3450	0.37	0.5	9.8	4.9	2.2	1.1	(1) (2)	25.25
Compatta *(EVO) 2 M-T	1” ½	3450	0.56	0.75	13.8	6.9	3.2	1.6	(1) (2) (3)	38.5
Compatta *(EVO) 3 M-T	1” ½	3450	0.75	1	16	8	4.2	2.1	(1) (2) (3)	39.75
Compatta *(EVO) 22 M-T	2”	3450	0.56	0.75	13.8	6.9	3.2	1.6	(1) (2) (3)	42
Compatta*(EVO) 32 M-T	2”	3450	0.75	1	16	8	4.2	2.1	(1) (2) (3)	43
Compatta *(EVO) 4 M-T	2”	3450	1.1	1.5	-	10	6	3	(1) (2)	47.5
Compatta *(EVO) 55 M-T	2”	3450	1.5	2	-	12	6.8	3.4	(1) (2)	50.75
Alpha V *(EVO) 2 M-T	1” ½	3450	0.56	0.75	13.8	6.9	3.2	1.6	(1) (2) (3)	39.75
Alpha V *(EVO) 3 M-T	1” ½	3450	0.75	1	16	8	4.2	2.1	(1) (2) (3)	42
Alpha V *(EVO) 22 M-T	2”	3450	0.56	0.75	13.8	6.9	3.2	1.6	(1) (2) (3)	39.75
Alpha V *(EVO) 32 M-T	2”	3450	0.75	1	16	8	4.2	2.1	(1) (2) (3)	42
Alpha V *(EVO) 4 M-T	2”	3450	1.1	1.5	-	10	6	3	(1) (2)	49.5
Alpha V *(EVO) 55 M-T	2”	3450	1.5	2	-	12	6.8	3.4	(1) (2)	50.75
BIC *(EVO) 40-2-056 M-T	1” ½	3450	0.56	0.75	13.8	6.9	3.2	1.6	(1) (2) (3)	39.75
BIC 32-2-028 M-T	1” ¼	3450	0.28	0.4	5.2	2.6	-	-	-1	24.25
BIC 32-2-037 M-T	1” ¼	3450	0.37	0.5	9.8	4.9	2.2	1.1	(1) (2)	25.25
BIC *(EVO) 40-2-075 M-T	1” ½	3450	0.75	1	16	8	4.2	2.1	(1) (2) (3)	39.75
BIC *(EVO) 50-2-0110 M-T	2”	3450	1.1	1.5	-	10	6	3	(1) (2)	47.5
BIC *(EVO) 50-2-0150 M-T	2”	3450	1.5	2	-	12	6.8	3.4	(1) (2)	50.75
AM-AT 40-2-110 C.218	1” ½	3450	0.55	0.75	13.8	6.9	3.2	1.6	(1) (2) (3)	40.75
AM-AT 40-2-110 C.219	1” ½	3450	0.75	1	16	8	4.2	2.1	(1) (2) (3)	42
DNA 50-2-110 M-T	DN50	3450	1.1	1.5	-	10	6	3	(1) (2)	57.25
DNA 50-2-150 M-T	DN50	3450	1.5	2	-	12	6.8	3.4	(1) (2)	61.75

Type	Discharge NPS	RPM	Power		Full Load Amperage				Cable	Weight
			kW	Hp	1 - Phase		3 - Phase			Lbs
					115 V	230	230 V	480		
DNA 50-2-220 (-1) T	DN50	3450	2.2	3	-	-	9.6	4.8	-2	70.5
DNA 50-4-090 M-T	DN50	1750	0.9	1	16	8	4.2	2.1	(1) (2) (3)	70.5
DNA 65-2-110 M-T	DN65	3450	1.1	1.5	-	10	6	3	(1) (2)	64
DNA 65-2-150 M-T	DN65	3450	1.5	2	-	12	6.8	3.4	(1) (2)	70.5
DNA 65-2-220 T	DN65	3450	2.2	3	-	-	9.6	4.8	-2	77.25
DNA 80-2-110 M-T	DN80	3450	1.1	1.5	-	10	6	3	(1) (2)	70.5
DNA 80-2-150 M-T	DN80	3450	1.5	2	-	12	6.8	3.4	(1) (2)	75
DNA 80-2-220 T	DN80	3450	2.2	3	-	-	9.6	4.8	-2	83.75
DNA 80-4-090 M-T	DN80	1750	0.9	1	16	8	4.2	2.1	(1) (2) (3)	83.75
DNB 65-2-080 M-T	DN65 - 2”	3450	TBD	TBD	TBD	TBD	TBD	TBD	TBD	46.25
DNB 65-2-110 M-T	DN65 - 2”	3450	1.1	1.5	-	10	6	3	(1) (2)	64
DNB 65-2-220 T	DN65 - 2”	3450	2.2	1 - Ph	3 - Ph	-	9.6	4.8	-2	77.2
DNB 65-2-220-1 T	DN65 - 2”	3450	kW	Hp	-	-	9.6	4.8	-2	kW
DNB 65-2-220-2 T	DN65 - 2”	3450	2.2	3	115 V	230V	9.6	4.8	-2	79.4
Compatta 1 M	1” ¼	3450	0.25	0.4	5.2	2.6	Compatta 1 M	1” ¼	3450	0.25
Compatta 1.5 M-T	1” ¼	3450	0.37	0.5	9.8	4.9	Compatta 1.5 M-T	1” ¼	3450	0.37
Compatta *(EVO) 2 M-T	1” ½	3450	0.56	0.75	13.8	6.9	Compatta *(EVO) 2 M-T	1” ½	3450	0.56
Compatta *(EVO) 3 M-T	1” ½	3450	0.75	1	16	8	Compatta *(EVO) 3 M-T	1” ½	3450	0.75
Compatta *(EVO) 22 M-T	2”	3450	0.56	0.75	13.8	6.9	Compatta *(EVO) 22 M-T	2”	3450	0.56
Compatta*(EVO) 32 M-T	2”	3450	0.75	1	16	8	Compatta*(EVO) 32 M-T	2”	3450	0.75
Compatta *(EVO) 4 M-T	2”	3450	1.1	1.5	-	10	Compatta *(EVO) 4 M-T	2”	3450	1.1
Compatta *(EVO) 55 M-T	2”	3450	1.5	2	-	12	Compatta *(EVO) 55 M-T	2”	3450	1.5
Alpha V *(EVO) 2 M-T	1” ½	3450	0.56	0.75	13.8	6.9	Alpha V *(EVO) 2 M-T	1” ½	3450	0.56
Alpha V *(EVO) 3 M-T	1” ½	3450	0.75	1	16	8	Alpha V *(EVO) 3 M-T	1” ½	3450	0.75

1 = Cable SOOW AWG 16/3 Ø 9.9 mm
2 = Cable SOOW AWG 16/4 Ø 10.7 mm
3 = Cable SJOOW AWG 14/3 Ø 13.6 mm

4. OVERALL DIMENSIONS

1



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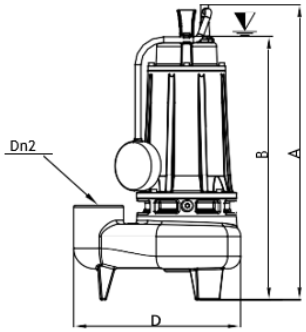

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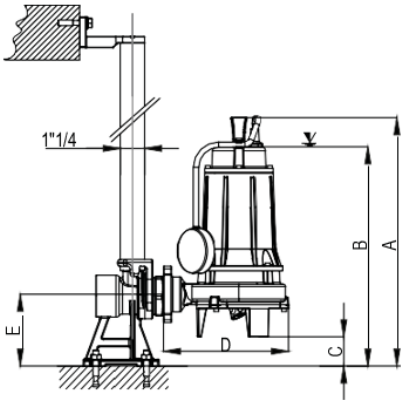

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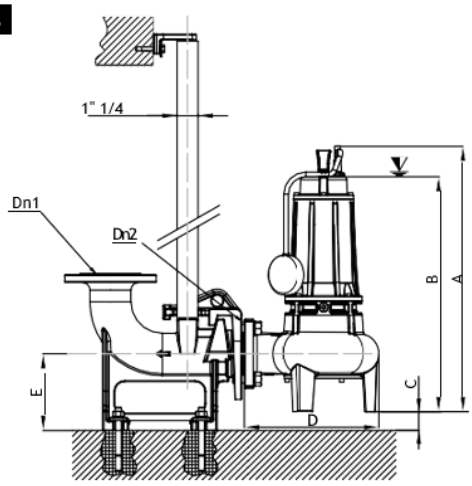

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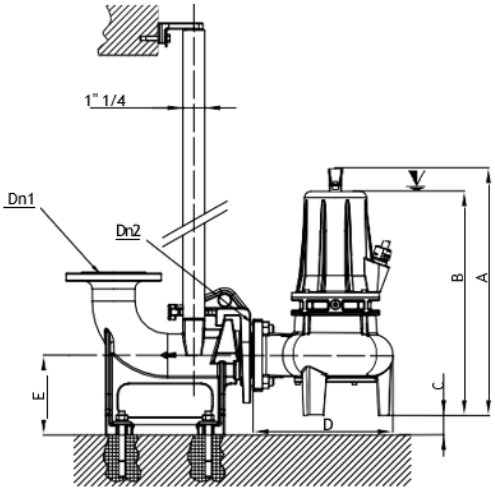


REF	TYPE	A	B	C	D	E	DN1	DN2
1	Compatta 1-1,5 M-T	307	254	-	202	-	-	1” ¼
	Compatta 2-3 M-T	375	322	59	192	124	1” ½	1” ½
	Compatta 22 -32 M-T	400	347	38	225	124	2”	2”
	Compatta 4 - 55 M-T	444	391	38	226	124	2”	1” ½
1	Compatta EVO 2-3 M-T	395	342	59	225	124	1” ½	1” ½
	Compatta EVO 22-32 M-T	420	367	38	225	124	2”	2”
	Compatta EVO 4-55 M-T	464	411	38	226	124	2”	2”
2	Alpha V 2-3 M-T	381	329	-	232	-	-	1” ½
	Alpha V 22-32 M-T	382	340	-	261	-	-	2”
	Alpha V 4-55 M-T	439	386	-	238	-	-	2”
2	Alpha V EVO 2-3 M-T	401	349	-	232	-	-	1” ½
	Alpha V EVO 22-32 M-T	401	360	-	261	-	-	2”
	Alpha V EVO 4-55 M-T	459	406	-	238	-	-	2”
2	BIC 32-2/025-037 M-T	306	253	-	202	-	-	1” ¼
	BIC 40-2/056-075 M-T	365	312	-	233	-	-	1” ½
	BIC 50-2/075-110 M-T	402	349	-	266	-	-	2”
2	BIC EVO 40-2/056-075 M-T	385	273		233	-	-	1” ½
	BIC EVO 50-2/075-110 M-T	459	369		266	-	-	2”
3	GRIX 32-2/090M-T	389	339	52	183	127	2”	1” ¼
	GRIX 32-2/110 M-T	425	374	52	189	127	2”	1” ¼
	GRIX 32-2/140 M-T	425	374	52	189	127	2”	1” ¼
3	APX 32-2/090 M-T	389	339	52	183	127	2”	1” ¼
	APX 32-2/110 M-T	425	374	52	189	127	2”	1” ¼
	APX 32-2/150 M-T	425	374	52	189	127	2”	1” ¼
4	DNA 50-2/110 M-T	502	430	30	268	131	2”	DN50-2”
	DNA 50-2/150 M-T	502	430	30	268	131	2”	DN50-2”
5	DNA 50-2/220 T	485	411	30	268	131	2”	DN50-2”
	DNA 50-2/220-1 T	485	411	30	268	131	2”	DN50-2”
	DNA 50-4/090 T	485	411	30	268	131	2”	DN50-2”
4	DNA 65-2/110 M-T	536	474	38	270	155	DN 65	DN 65
	DNA 65-2/150 M-T	536	474	38	270	155	DN 65	DN 65
	DNA 65-2/220 T	520	436	38	270	155	DN 65	DN 65
4	DNB 65-2/080 M-T	460	419	45	235	155	DN 65	DN 65
	DNB 65-2/110 M-T	504	451	45	235	155	DN 65	DN 65
	DNB 65-2/150 M-T	504	451	45	235	155	DN 65	DN 65

5	DNA 65-2/220 (-1) (-2) T	456	412	45	246	155	DN 65	DN 65
5	DNA 80-2/110 M-T	548	506	46	290	185	DN 80	DN 80
	DNA - DNB 80-2/150 M-T	548	506	46	290	185	DN 80	DN 80
	DNA - DNB 80-2/220 (-1) T	513	467	46	290	185	DN 80	DN 80
	DNA - DNB 80-4/.. M-T	513	467	46	290	185	DN 80	DN 80

5. INSTALLATION

Safety rules

To protect yourself during the pump maintenance or installation, you should follow the following rules:

1. It is very important that the installation is carried out by qualified technicians.
2. The pump is not to be used by person (including children) with reduced physical, sensory, or mental capabilities, or lack of experiences and knowledge, unless they have been given supervision or instruction.
3. Children being supervised not to play with the pump.
4. Do not ignore the health dangers and observe the sanitary measures.
5. Staff working in pumping stations of dirty waters must be vaccinated against the possible illness which may be transmitted by wounds or only by contact or inhalation.
6. To avoid contact at the epidermis with hazardous liquids, you may wear suitable clothes and shoes, use also a safety belt, a rope, a helmet, safety glasses, and if necessary, a gas mask.
7. Do not ignore the danger of drowning. Do not work alone, even if the conditions are the best, we recommend the presence of another worker outside the tank.
8. Mark the area in which you are working by bars & other suitable signals, especially if it is a crossing area.
9. Check oxygen level in the tank and test for the presence of dangerous gases.
10. Before any intervention in the pumping station, pay attention that all the electric cables present in the tank are switched off.
11. Check there is not the risk of explosion danger before soldering or before executed whatever kind of operation which may produces flames or sparks.
12. These installation and operation instructions do not cancel or exclude the standard general rules do not specify in it. All the safety rules and general regulations of good technical practice must be observed.

For a correct installation

The suction inlet of the pump must be placed in the lowest point of the tank. Pay attention the pump does not sink in the mud, it must be located on a base or suspended from the bottom. The electric equipment should be set up outside the tank and must be protected from all weather and from whatever kind of gas coming from the tank.

Installation illustration for automatic working

This drawing represents the installation of a pump with automatic installation (with float). The float applied to a pump placed in a tank must have enough space to rise freely. It is recommended a non-return valve be installed in the discharge pipes to stop backflow.

6. ELECTRICAL CONNECTION

All the electrical connections must be executed by a qualified electrician.
The supply frequency and voltage must correspond to those indicated on the pump plate.
ATTENTION: Stop the power supply before opening the pump. You can access the connection area, unscrewing the screws that connect the cover to the motor casing in the models Compatta *(EVO), BIC *(EVO), Alpha-V *(EVO), AM-AT, DNA e DNB 2-110-150, while for DNA ..-2-220, DNA - DNB 4 poles, & Grix, contact a specialized workshop.

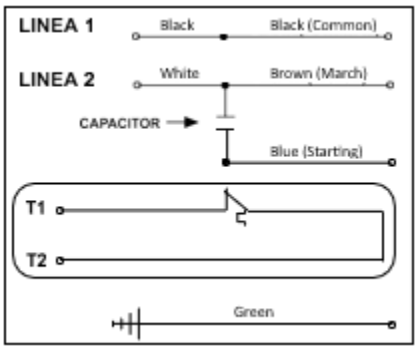
- For the electrical connections, look them up in the schematics.
- In the 3-phase motors, check the rotation direction of the impeller (see the rotation direction section).
- Never force the pump to work without having found and corrected the cause of bad operation.
- To prevent water infiltration into the pump, always use a new gasket (cable gland) when you reassemble the cable and be sure that the cable entry gland is perfectly closed.

All the electrical connections must be protected against humidity and all joints must be watertight.

Electrical Drawings

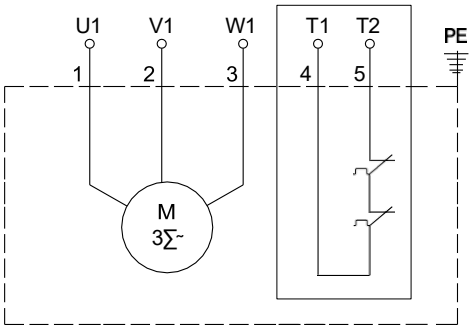
Connection

1-Phase 115V/230V



Connection

3-Phase 230V/460V



Motor Protection T1-T2

The models DNA 2-220 (-1), DNA ..4-090, DNB ..2-220 (-1/-2), DNB 80-4-110 are equipped with thermal detectors T1-T2 in the winding (that must be connected to a control box equipped with suitable protection contacts), which promptly warn and stop the pump when the motor overheats. This safety device is normally closed and opens at a temperature of 266°F, thereby cutting out the pump from its power supply, and closes back only when the temperature reaches 167°F.

Rotation direction (only for three phase pumps)

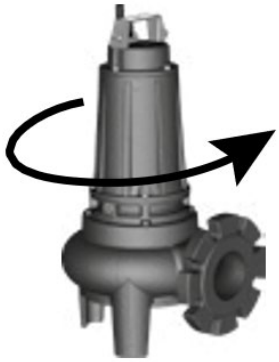
After every new connection, loss of phase or voltage, it is possible that the phases are inverted, so check the rotation direction. The wrong rotation direction causes the overheating of the motor, induces strong vibrations, and considerably reduces the pump capacity. To check the right impeller rotation direction slightly tilt the pump and start it.

ATTENTION: Keep away from the impeller at the pump starting. Pay attention at the starting kickback, that may be harmful.

If the pump gives you a counterclockwise (bird's-eye view) kickback when starting, the connection is right, otherwise stop the power supply and invert the two phases.

Seen from the suction inlet, the right impeller rotation is counterclockwise.

Starting Kickback



7. OPERATING RULES

Transport

Do not lift the pump by the electric cable, use only the handle provided for the purpose. In case you must move it from one place to another, for safety reasons we suggest disconnecting the power supply.

Below zero temperatures

While working or submerged in the liquid, the pump does not freeze. Removing the pump from the water and exposing it to below zero temperatures, the impeller may be blocked by the freeze. In case the impeller is blocked by ice, submerge the pump in the water and let the ice melt before starting. Avoid quick ways to defrost (for example to warm it) to avoid damaging the pump.

Cleaning

If the pump worked with liquid containing solid bodies, when it stops working, let it run a few minutes in clean water. Remove the impurities (mud, stones, etc..) to avoid them drying, blocking impeller and mechanical seal, stopping the pump from working.

Storage

In the case of pump storage:

- Store the pump in places protected from humidity and warm temperature.
- Place it in vertical position, paying attention to its stability just to avoid rolling and falling.

8. INSPECTION AND MAINTENANCE

For your personal safety during a simple inspection

Before working on the pump, check the power supply is disconnected and the pump cannot energize. For personal cleanliness, be sure the pump has been carefully cleaned with water or specified products. If the pump is disassembled it is necessary to use working gloves.

Recommendations

Periodical controls and maintenances are suggested to guarantee safer future operation. If the pump is new or if the mechanical seals have been replaced, an inspection is recommended after the first week of operation. The pump must be inspected after 2000 hours of working or at least once a year. Hard working conditions or occasional use require necessary frequent controls. A general check must be done on the following points:

- Check there are no infiltrations coming from the cable (in this case replace the cable gland, making sure that screws and bush are perfectly closed).
- If the supply cord is damaged, it must be replaced by the manufacturer, authorized distributor, or similarly qualified persons in order to avoid any hazard.
- For the all the series with oil chamber, check the level and quantity of oil in the chamber (the charge of oil is complete when its level, with the pump laid on one side is of 1 -1.5 cm under the hole for the oil cap).

Motor insulation control

Once a year at least or after 4000 hours of working, check the insulation of the motor.
The measurement must be executed at the cable extremities (switch off from the panel) using a megohmmeter.
The test voltage is 1000V maximum continuous.
The resistance of the winding towards the earth must be higher than 5 MΩ, otherwise it is necessary to execute two measurements, one for the cable and the other for the motor.
Take off the cable from the motor and execute the measurements of the winding towards the earth, connecting all the extremities of the winding.

- If the value of insulation of the cable is lower than 5 MΩ, it means the cable is damaged.
- If the motor has low insulation values, this means the winding is damaged.

9. SPARE PARTS LIST

The spare parts list and related purchases, are available on-line though our web site www.flowsolutions.com or contact IFS at sales@flowsolutions.com 860-631-3618

10. IMPELLER REPLACEMENT

Series Compatta *(EVO), Alpha V *(EVO), BIC *(EVO), AM-AT, DNB 65

1. *Turn the pump upside down while keeping the oil plug turned upwards.
2. Remove the oil plug and let the oil flow out of the tank.
3. Unscrew the four screws that connect the motor casing to the pump housing.
4. Remove the pump housing.
5. Keeping the impeller blocked, unscrew the hexagonal head screw or the self-locking nut, which connects it to the motor shaft.
6. Unscrewing this screw or nut you can easily remove the impeller. Before mounting a new impeller, pay attention that the terminal part of the shaft is clean and without imperfections.
7. Assemble the body pump paying attention to put correctly the oring between the oil chamber plate and oil chamber flange.
8. *Fill up the oil chamber, follow the operation on paragraph 11 (Oil Change).

*only for EVO versions.

Series DNA, DNB 80

1. Unscrew the four screws that connect the motor casing to the body pump.
2. Unscrew the four screws that connect body pump to closing plate and remove the closing plate.
3. Keeping the impeller blocked, unscrew the hexagonal head screw or the self-locking nut, which connects it to the motor shaft.
4. Unscrewing this screw or nut you can easily remove the impeller. Before mounting a new impeller, pay attention that the terminal part of the shaft is clean and without imperfections.

Series GRIX, APX

1. Unscrew the 4 screws that connect the pump body on the tripod.
2. Remove the grinder rotating part, unscrewing the screw inside.
3. Remove the tripod support. Keeping the impeller blocked, unscrew the nut, which connects it to the motor shaft.
4. Remove the impeller. Before mounting a new impeller, pay attention that the terminal part of the shaft is clean and without imperfections.

11. OIL REPLACEMENT

The oil used to refill the chamber of our pumps is ecological, non-toxic, tasteless, and colorless. (Marcol 82 ESSO, Pharma 19, Q8 WF15 or equivalent product)

Change the oil:

- When at a simple inspection you find that it is mixed with other liquid
- At overhaul
- After 2000 hours of operation or in any case once a year.

To replace oil (where expected)

1. Turn the pump upside down while keeping the oil plug turned upwards.
2. Unscrew the plug.

Warning:

In case of seepage through the seal, the oil tank could be under pressure; be very careful and protect yourself from sprays. Take care not to endanger people or the environment when replacing oil, especially if the pump has worked with toxic fluids.

3. Slowly turn the pump to let all the oil flow out of the tank (Iet it drip for a few minutes)
4. Wash the chamber inside with washing oil.
5. To refill the oil, place the pump so that the plug is turned upwards.
6. Fill the chamber with non-toxic, tasteless, and odorless paraffin oil. (Marcol 82, ESSO, Pharma 19 or similar).
7. The chamber is full when the oil level is 20 mm below the oil plug thread. (See section 9 for the exact oil quantity.
8. Before screwing back, the screw plug, check the gasket and replace if required.

12. MECHANICAL SEAL REPLACEMENT

12.1 Series: Compatta, Alpha V, BIC, AM-AT

1. Remove the impeller in accordance with section 10 “Impeller replacement”.
2. Using two slot-headed screwdrivers, pull out the old seal, prying first on the revolving part, then on the fixed ring.
3. Before mounting a new mechanical seal, check the seats are clean, without burrs or rulings, which may damage the mechanical seal or compromise the perfect seal on the shaft.
4. Wet both components of the mechanical seal with water-soap solution, to insert it easier.

ATTENTION: To push in seat the fixed ring, use a bushing (having the same diameter as the shaft), to avoid jamming that can cause the broken of the fixed ring. Follow with the insertion of the rotating part.

5. Now you can insert and fix the impeller and close the pump.

12.2 Series: DNA, DNB, EVO versions

1. Drain the oil chamber in accordance with section 11 “Replace oil”.
2. Remove the impeller in accordance with section 10 “Impeller replacement”. Unscrew the four screws that connect the motor casing to the body pump.
3. Keeping the pump vertical, remove the oring between the body pumps and the closing oil chamber cover.
4. Remove the oil chamber cover
5. Remove the mechanical seal rotation component.
6. Using two slot-headed screwdrivers, pull out the old seal, prying first on the revolving part, then on the fixed ring.
7. Before fitting in a new seal, make sure the housings are clean, with no burrs or scorings which could damage the seal or in any case reduce the shaft sealing efficiency.
8. Wet both parts of the seal with a mixture of soap and water to fit it easily.

WARNING: To push the fixed ring into its housing, use a bushing (same diameter as the shafting) to avoid any jamming which could damage the fixed ring. Then, fit in the revolving part.
Now, fit in and secure the impeller and close everything again.

9. Fit the oil chamber flange with oring and close the pump in accordance with section 10 “Impeller replacement”.
10. Fill up the oil chamber in accordance with section 11 “Replace oil”.
11. Now you can insert and fix the impeller and close the pump.

12.3 Series: GRIX APX

1. Drain the oil chamber in accordance with section 11 “Replace oil”.
2. Remove the impeller in accordance with section 10 “Impeller replacement”.
3. Unscrew the 4 screws that connect the body pump to motor casing and remove the body pump.
4. Using two screwdrivers, remove mechanical seal rotation component.
5. Wet both parties of the mechanical seal with water-soap solution, to insert it easier.

ATTENTION: To push in seat the fixed ring, use a bushing (having the same diameter of the shaft), to avoid jamming that can cause the broken of the fixed ring. Follow with the insertion of the rotating part.

6. Now you can insert and fix the impeller and close the pump.

13. TOOLS

The tools necessary for a normal maintenance of the pumps are the following:

- Allen screw keys of 4, 5 and 6 mm
- Phillips head screwdriver
- 2 slot head screwdrivers
- Hexagonal keys of 8 and 17 mm

14. TROUBLES AND REMEDIES

The pump does not start:

- Loss of electric power supply (check if the fuses have blown or a protection relay of the circuit has tripped)
- The selection switch is turned OFF (turn ON)
- Loss of phase (check the connection)
- The impeller is blocked
- Mechanical seal or ball bearing seized.

The pump does not stop:

- Failure to the stop regulator (clean or replace the stop regulator).
- The pump is not able to empty the tank till the stop level: there may be leaks in the installation; absence of the non-return valve, to avoid the liquid reflow; necessity to replace the pump with another one of bigger capacity.

The pump works, but the delivery is scarce or inexistent:

- The pump works with a wrong rotating direction (this is possible only with three phase motors)
- Check the wear conditions of the hydraulic part, if necessary, replace the parts
- The pump is closed by an air-pocket (switch off the electropump and restart it after few minutes)
- The delivery pipe is obstructed, valves are in part closed.

Interventions Recording

Serial #	Date	Working Hours	Notes	Signature