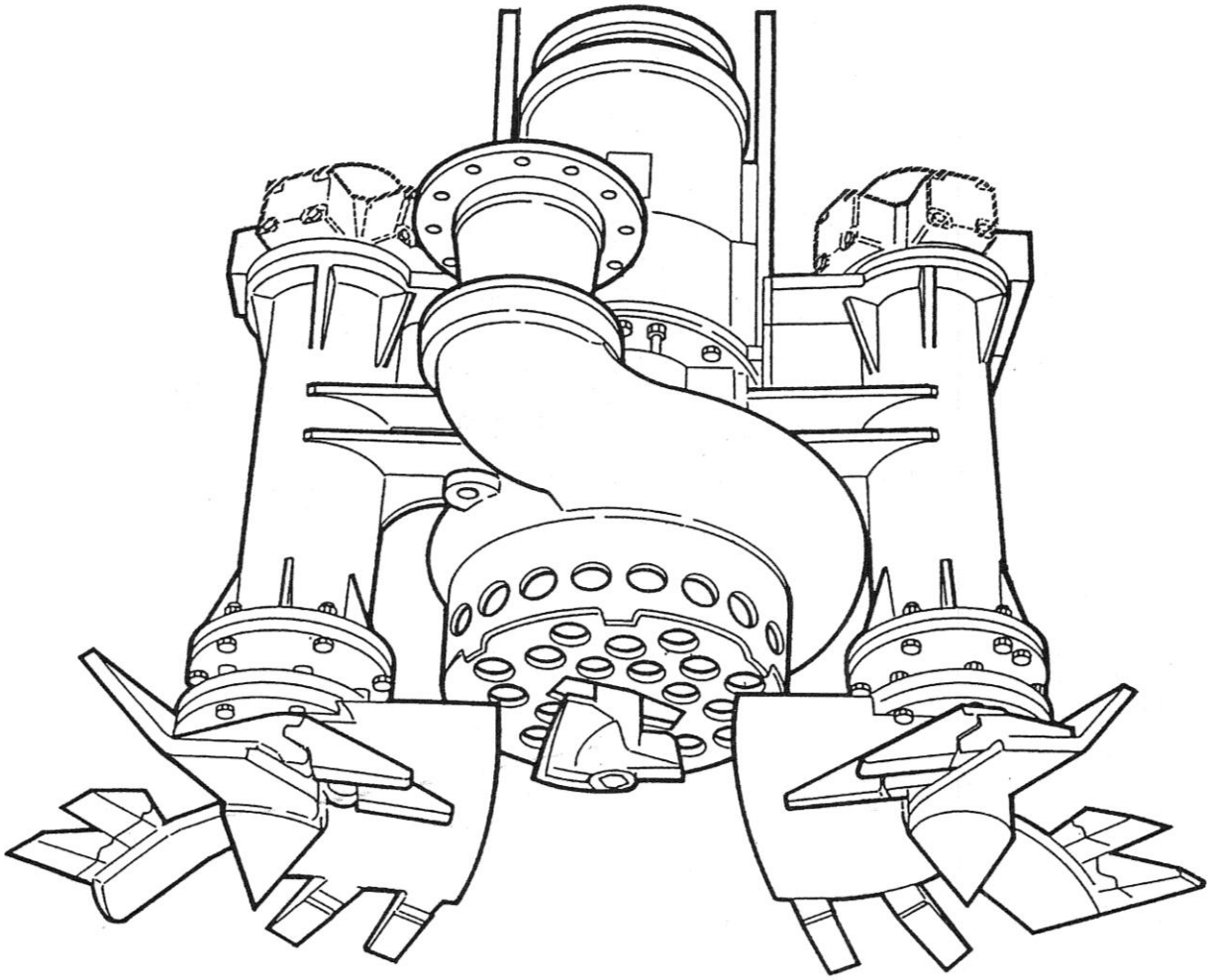
ELECTRIC PUMP
EL 1204 A/B

Instructions handbook / Spare parts

GB



DRAGFLOW

DREDGING • MINING • INDUSTRY

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INDEX

PRESENTATION

This instructions manual has been conceived and structured for rapid and easy consultation, thanks to the index ordered by subjects, and explanatory figures and tables.

GENERAL WARNINGS

This instructions manual must be studied by the owner of the machine, the technical personnel within the factory, the operators, that is, all those that will be using the machine, the maintenance technician.
The manual is an integral part of the machine and contains information on its use, technical characteristics, as well as instructions for handling, installation, assembling, regulation and maintenance.
It also contains a section for trouble-shooting, if necessary, and for the ordering of spares.
The **DRAGFLOW S.r.l.** technicians are always available, by telephone, fax or e-mail, to supply all the explanations that may be needed.

This manual:

- must be considered as integral part of the machine until it is taken to the breakdown yard;
- must be kept in an easily accessible place and suitable for its preservation;
- must be consulted each time that there are problems or doubts on the operation of the machine;
- must be carefully followed for whatever regards the necessary maintenance operations set out in it.

In case it is lost, apply for a copy directly from **DRAGFLOW S.r.l.**

DRAGFLOW S.r.l. reserves the right to carry out all modifications to update the machine or instructions manual according to the technological progress and the state of the art.
This constitutes no obligation to carry out modifications to the machines that have already been sold. If the machine is ceded to a third party, it is recommended that of the instructions manual follow it.

DRAGFLOW S.R.L. RETAINS ITSELF FREE FROM LIABILITY OF ANY KIND, AND ESPECIALLY FOR:

- improper use of the machine;
- use of the machine by personnel not trained to used it;
- power supply defects;
- maintenance defects;
- unauthorized and unforeseen modifications;
- use of spares that are not original or not specific for the model;
- non observance of the instructions;

The uses of the machine for different purposes are to be considered dangerous for the operator and for the machine. Likewise, modalities of installation and utilizations different from that indicated in the present manual could cause damage to persons and/or to the machine itself.

WARRANTY REGULATIONS

DRAGFLOW S.r.l. guarantees the original user that the machine will be reasonably free from factory and material defects.
This warranty lasts for 1 (one) year from the invoice date, **excluding wear parts (indicated in section 4.0 of this manual "MAINTENANCE AND CLEANING"),** and refers to the connection of any defect that will be recognized by **DRAGFLOW S.r.l.** as being subject to warranty (after presentation of adequate proof of claim), in one of the following ways and at the discretion of **DRAGFLOW S.r.l.:**

- replacement of defective part with a new one, made available in the offices of the Purchaser at the lowest transport rate;
- repair of defective part, after this has been returned to **DRAGFLOW S.r.l.** with transport expenses prepaid.

As soon as the spare is ready, The Client will make the defective part available to **DRAGFLOW S.r.l.**
The warranty does not apply to those parts that result defective because of incorrect use, handling or bad observance of the use and maintenance instructions supplied by **DRAGFLOW S.r.l.**
The consumable parts or those parts subject to normal wear (such as seals and gaskets, impellers, stirrer, wear-plates, volutes and electrical components) are not included in this warranty.
The warranty on the electric motor is applied only if the **standard electronic control console** foreseen has been installed.
If the Purchaser tries, either to repair any fault that is under guarantee, or obtain direct supply of the spare part without previous written consent of **DRAGFLOW S.r.l.** the latter will not be responsible for the results of the repair and will not be held to reimburse the expenses sustained by the Purchaser.
DRAGFLOW S.rl. declines all responsability for the expenses due to "down time", business costs and losses deriving there from.
All justifiable claims of breakdown will be transmitted in writing by the Purchaser to **DRAGFLOW S.r.l.** before expiry of the warranty. There are no other guarantees, explicit or implicit, that can be treated or adapted for any particular purpose.

1.0 DESCRIPTION

STRUCTURAL DESCRIPTION OF THE MACHINE (Fig. 1)

The Dragflow motor driven pumps are made of high quality materials and undergo severe controls before leaving the factory.
They are essentially made up of a cylindrical pump casing **3** inside of which is housed an electrical motor **4**.
The upper part **2** is completely water-tight, and contains the terminal box for connection to the electric motor, the seal is guaranteed by the cover **1** and by a series of seals.
Inside the oil housing **5** is housed the group of seals and gaskets **11** that prevents the water from passing to the motor.
On the main shaft **12**, inside the casing **6** there is a keyed impeller **7,** made in high chrome content anti-wear materials.
A wear plate **8,** made with the same material, partially closes the impeller inlet.
Inside the strainer protection **9** houses a cutter **10** that rotates and stirs the mixture of solids in the water to be pumped.

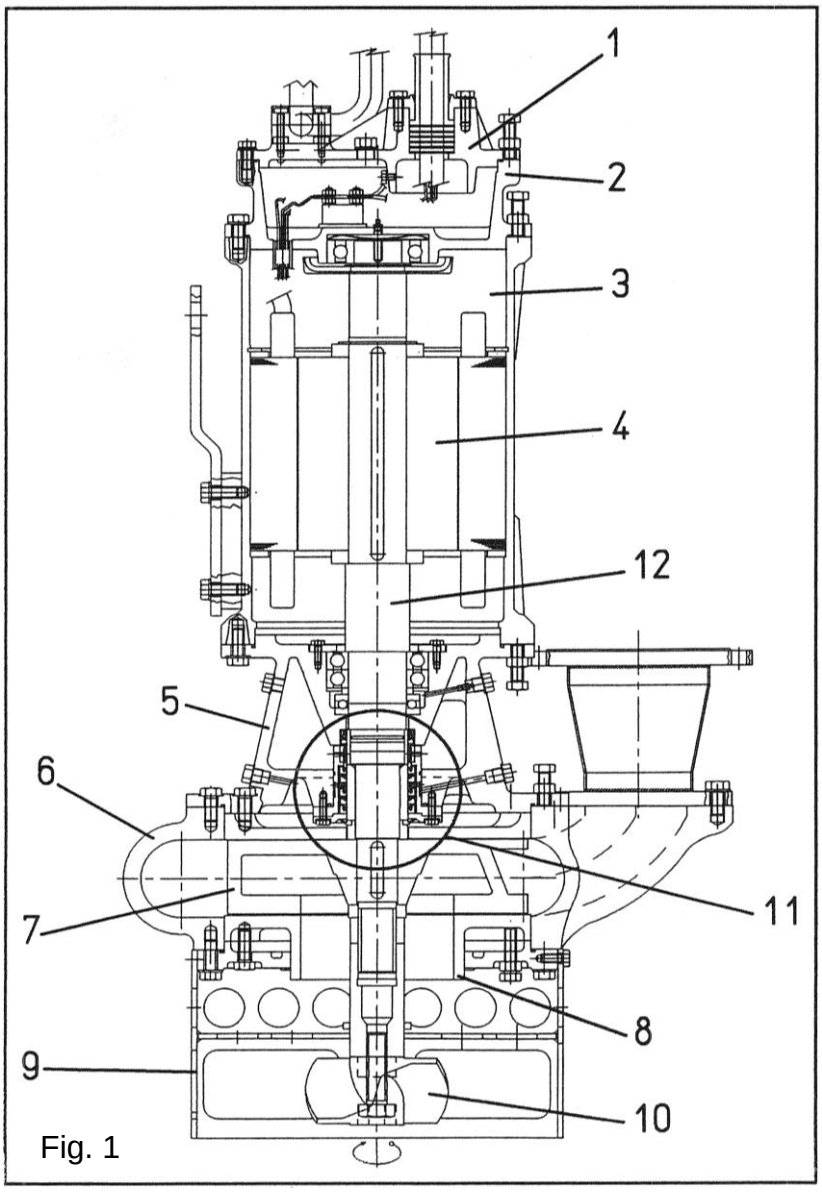
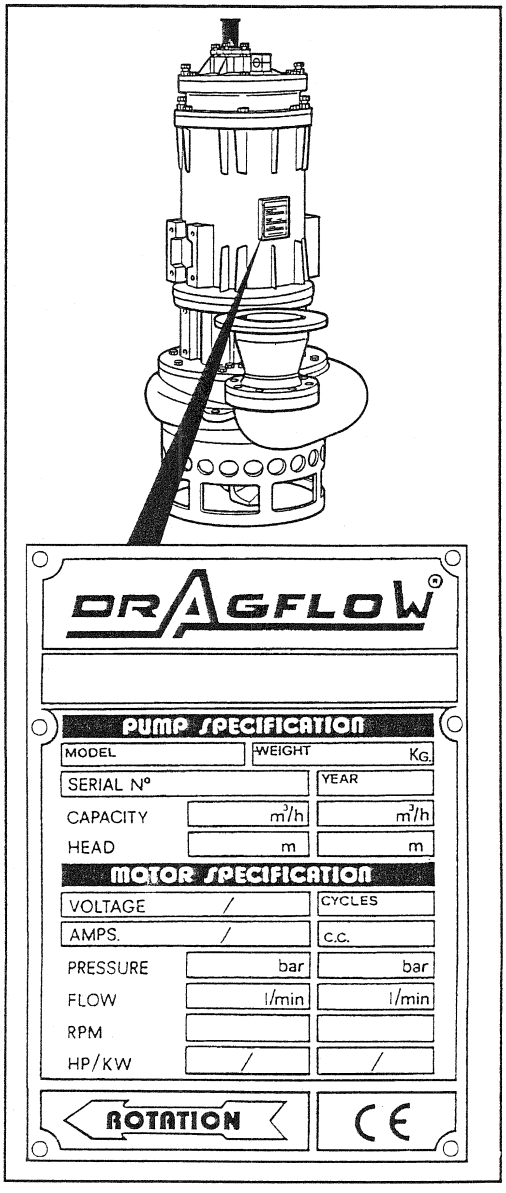


Fig. 1



2.0 TRANSPORT, ASSEMBLY AND DEMOLITION

Dragflow pumps are generally transported encased inside a crate to avoid damage to the pump or parts of it. The crate is arranged for unloading with a fork-lift truck, whose capacity must be able to sustain the weight of the pump (see data sheet enclosed in this instructions handbook) as shown in **Fig. 2.**
The pump is placed inside the crate as seen in **Fig. 3**, it must be freed from the packing and lifted with ropes hooked to the appropriate lifting plate **A.**

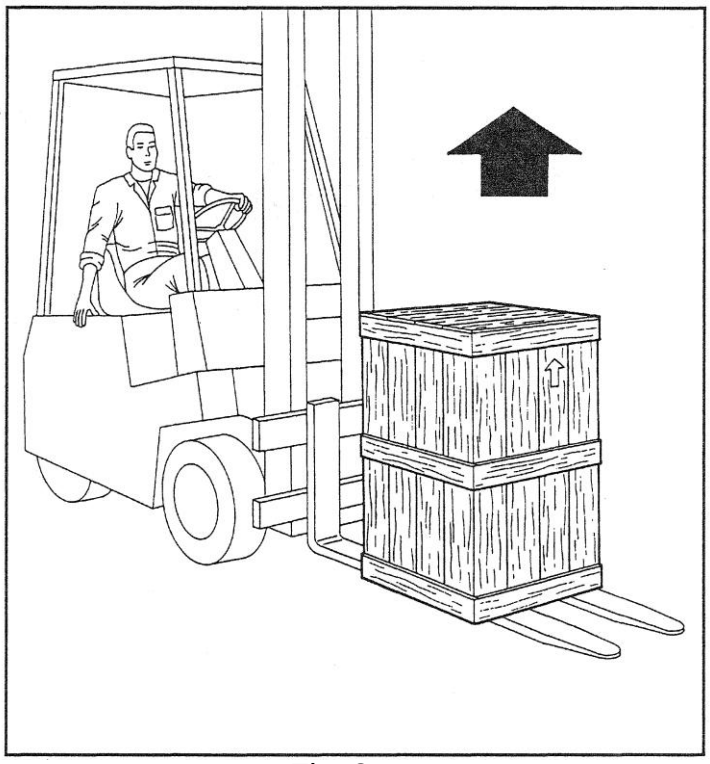


Fig. 2

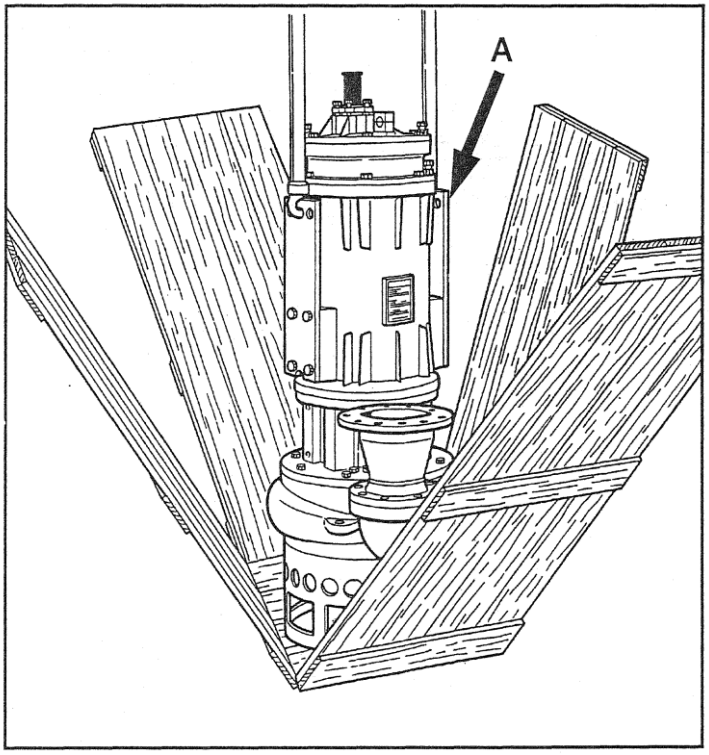


Fig. 3

INSTALLATION

1) Connect the delivery pipe.
- The delivery pipes must never form siphons **(Fig. 5)** pag. 6, to avoid problems due to the formation of air pockets or deposits of solid material.
- Before connecting then pump to the electrical supply source, make sure that all the data on the rating plate correspond (voltage, power, absorption, etc.)

The pump is supplied with a supply cable already connected.
2) Connect the end of the wires to the control panel, taking care to respect the power supply phases and the yellow/green ground wire that will be connected to the general grounding system of the plant.
- The user must guarantee the electrical conductivity between the machine and the main grounding system of the plant.

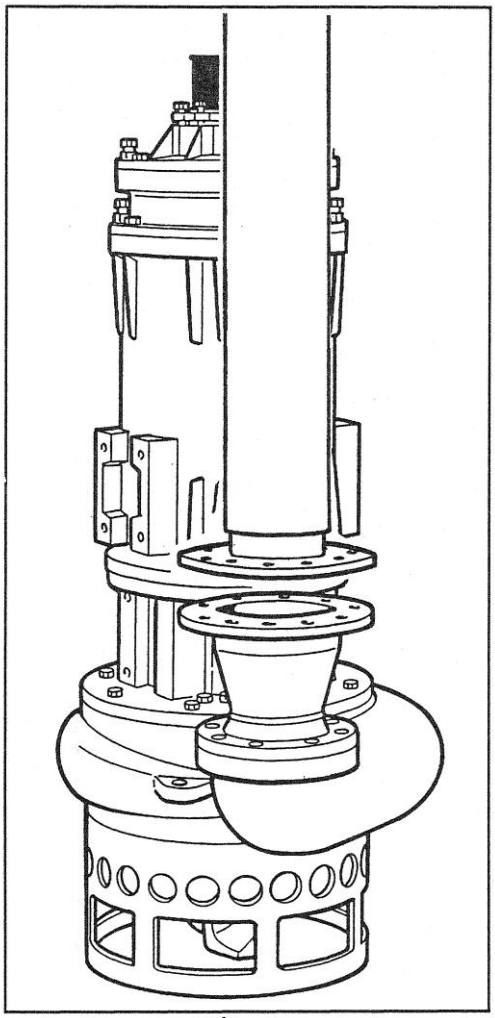


Fig. 4

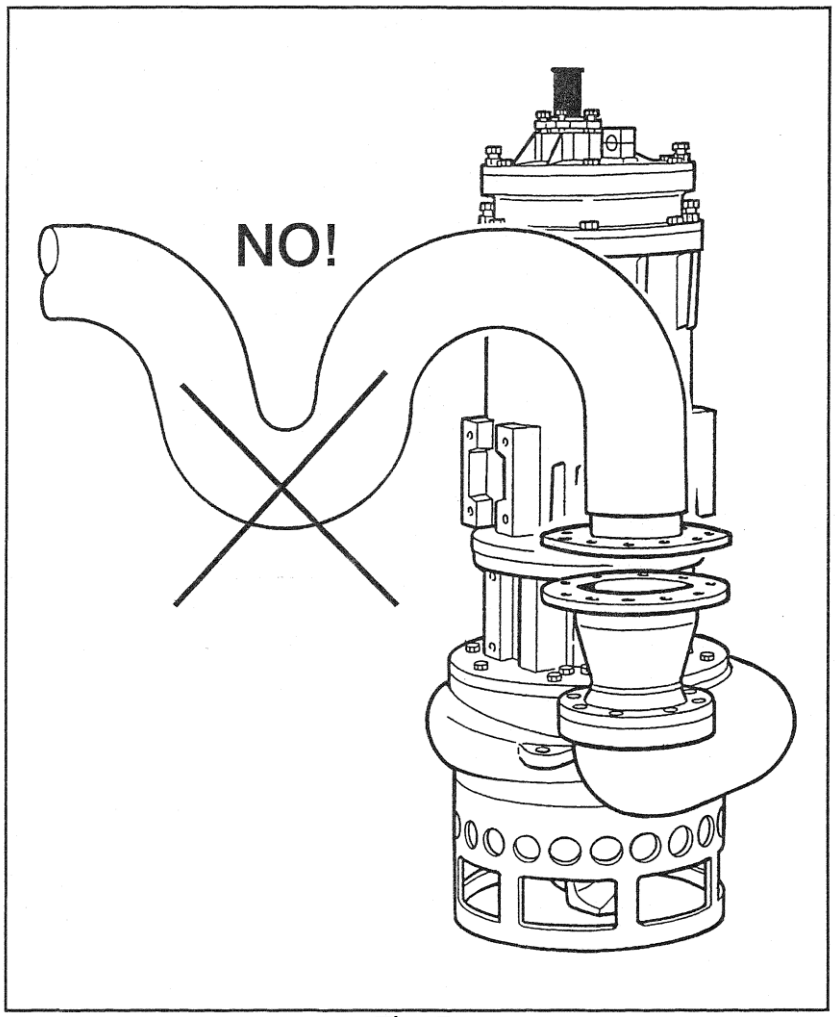


Fig. 5

3) If the electric cable has not been requested proceed as follow **(Fig. 6)** pag. 7:

- Remove screws **6**, lift upper cover **77**.
- Remove screws **4** and lift the cable lock **1**.
- Slip the cable lock **1** onto the electric cable and after that the seal composed by Kit **2A-2B-2C** alternating the iron washers with the rubber washers.
- Slip on the upper cover **77**, taking care that the still completely insulated cable comes out sufficiently to be connected to the terminal box **85**.
- Tighten the screws **4** until the cable **1** lock rests on the upper cover **77**, making sure that the composed pack is sufficiently compressed to avoid water leaking in.
- Insert the seal **76** in its lodging.
- Connect the electric cables to the terminal box, including the yellow/green ground cable, to the screws prepared for this purpose.
- Position upper cover **77** on the pump casing, making sure that the seal remains in its seat, to avoid damage and as a result water leakage, tighten down the screws **6**.
- Connect the other end of the cable as shown in the wiring diagram.

Warning: the pump supply cable must be a cable HO7RN-F type with rubber insulated flexible wires, chloroprene-type 076 internal sheath in compliance with CEI 20-19- mark HAR with a cross-section for the current absorption of the pump, or of equivalent type.

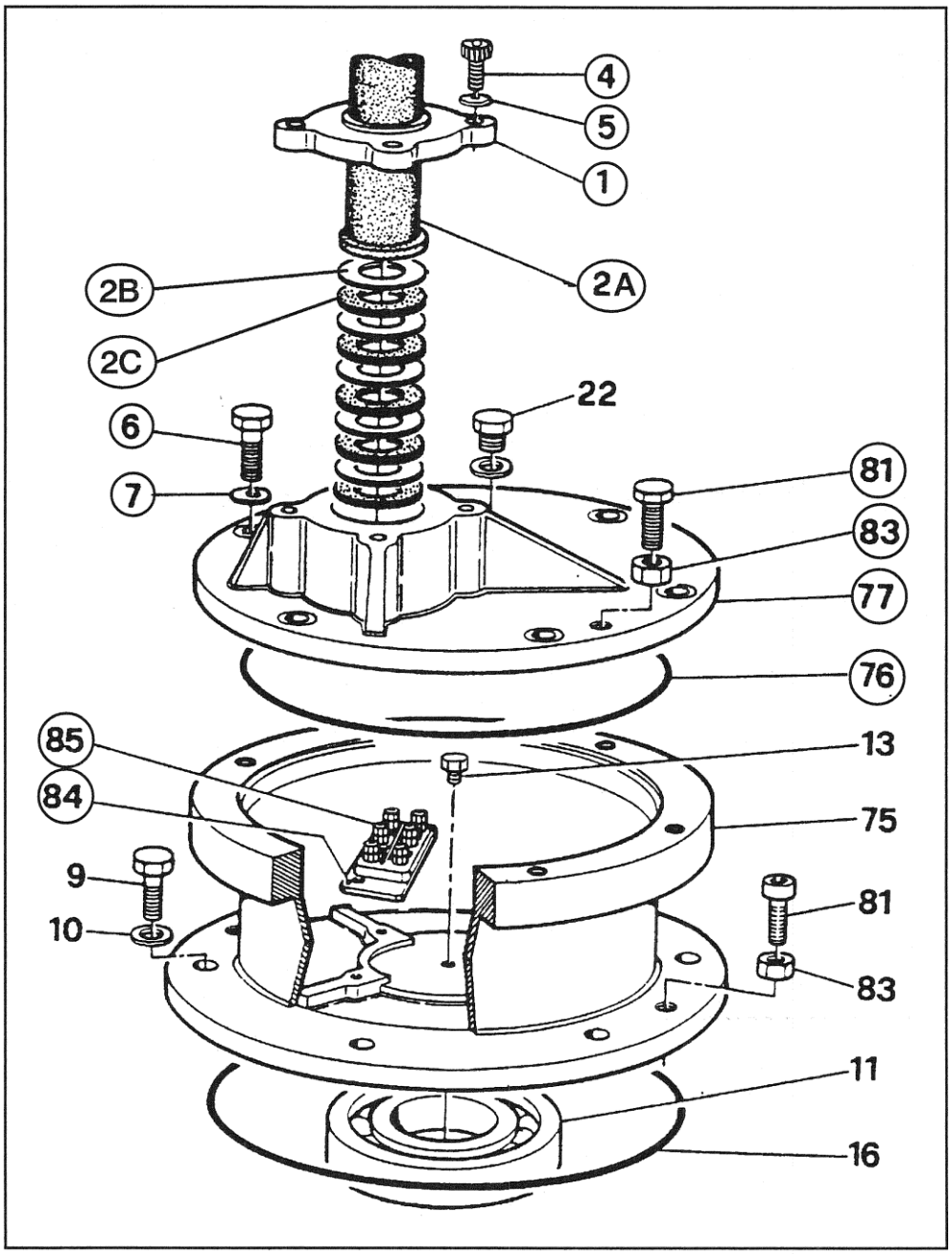


Fig. 6

DISMANTLING

Before doing anything on the pump, be sure to disconnect the electrical supply and disconnect the delivery pipes.

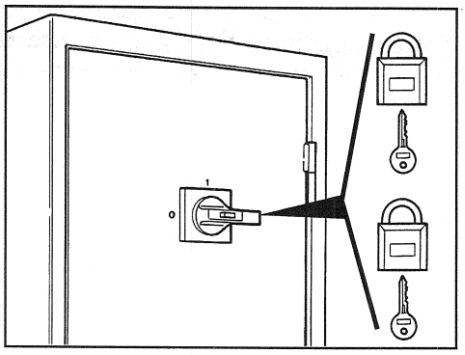
Warning: the machine that is considered completely useless must be removed from the department and collected by the manufacturer or any other firm specialized in demolition. Remember that dismantling the machine in your establishment will “produce” different materials (metals, plastics, oil, etc.) whose disposal will be done in compliance with the legislative regulations in force in the state where the machine is found.

3.0 STARTING AND OPERATION

STARTING

The pump has been created to pump suspended matter, even with solid parts, as long as water is always present. It can be used for civil and industrial purposes, as long as conditions described in this manual are observed.

ATTENTION
1) The control panel has a switch to which must be applied a device with a lock that stops the use of the pump. The key will be given to someone in charge who will be responsible for all the operations which he will supervise to avoid improper use of the machine.



Check the direction of rotation: by passing very short current impulses with the START/STOP switches placed on the control panel, and check that the direction of rotation is that indicated on the rating plate.

2) Immerse the pump in clear water and push the "START" button.

3) If any priming problems should come up, stop the pump by pressing the "STOP" button and wait for about 30 seconds, leaving it immersed, until all the air has been eliminated.

4) Never operate the immersed pump without connecting the pipes, because not sensing the load loss foreseen, the electric motor could overshoot the maximum current absorption (and in the absence of the suitable safety devices be completely damaged). When only water is pumped, absorption should be 20% below that allowed.

If this is not the case, the load loss must be increased, in one of the following ways:

- by adding pipes
- by creating bottlenecks
- raising the discharge height

5) Slowly lower the pump until it comes into contact with the material.

6) Check the percentage of solid in order not to go over the maximum absorption limit.

7) When clean water is not available, but only mud and other mixtures, check that the pump does not go over the maximum absorption limit indicated on the rating plate (**Fig. 7**); however, if this does happen, create a further load loss, acting as indicated at the preceding point 4.

8) Before stopping the pump, it is always a good rule to pump water with very little solid in it, so that the pipes are washed.

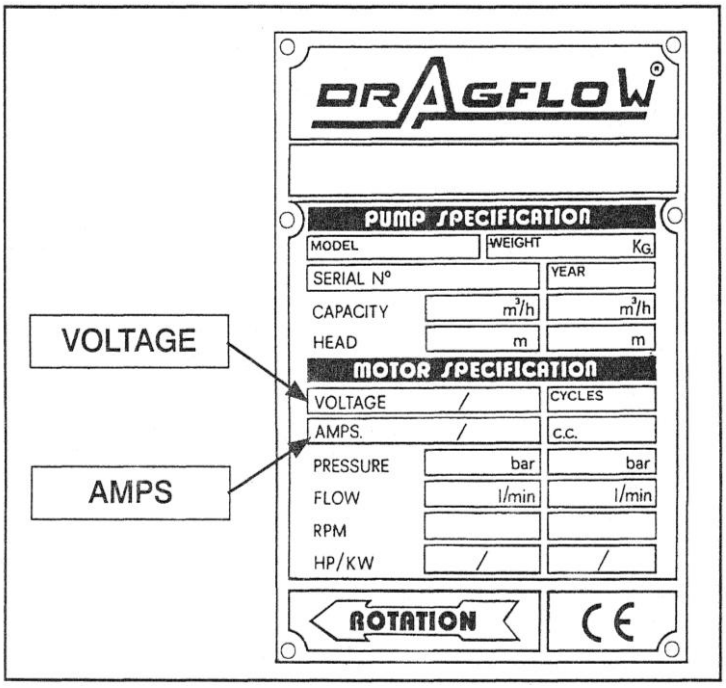


Fig. 7

EMERGENCY SITUATIONS

The correct use of the machine excludes the possibility of emergencies happening during operation or during cleaning and maintenance, unless the latter have not been done in compliance with this instructions manual.

a) In case of imminent danger of a mechanical origin, press, or have someone press, the emergency stop button, and immediately afterwards switch off the general cutout switch or disconnect the plug. An accurate search for the fault, or anomaly that caused the danger, must be carried out soon afterwards, and once detected, see to resetting the operation of the machine and of the protection set-up.
If necessary, have **DRAGFLOW S.r.l.** Service or competent personnel from another firm carry out any repairs or work.

b) If a current loss should be found, felt by touching metallic parts of the machine, switch off the general cutout switch and have an expert electrical technician come in, or contact **DRAGFLOW S.r.l.** Service for further details.

4.0 MAINTENANCE AND CLEANING

Warning: maintenance and cleaning of the machine must be done after having stopped the machine.

1) Check the tightness of the fastening screws every 50 hours of pump operation.

2) Remove the 2 (two) plugs marked by the labels GREASE, **Fig. 8**, and restore the grease with 50 grams of it for each greaser, using a hand grease gun. **Seals zone must be greased every 8 hours.**

3) **Every 150 hours** check the clearance between the impeller **47** and the lower wear plate **48** is as follows **(see Fig. 9)**.

- keep the pump in a vertical position;
- dismantle the side strainer **53** by removing the screws in position **21**;
- check that the clearance is not more than 1,5 mm, if it is wider proceed as follows:
- slacken of the fastening screws **52**;
- take the wear plate **48** at a distance of about 1,5 mm from the impeller **47**, by turning the adjustment screws **81** and locknuts **83**;
- check that it rotates freely;
- fasten both the locknuts **83**, the adjustment screws **81** and the fastening screws **52**;
- fit again the strainer **53** using the screws **21**;
  (tighten to about +/- 40N).

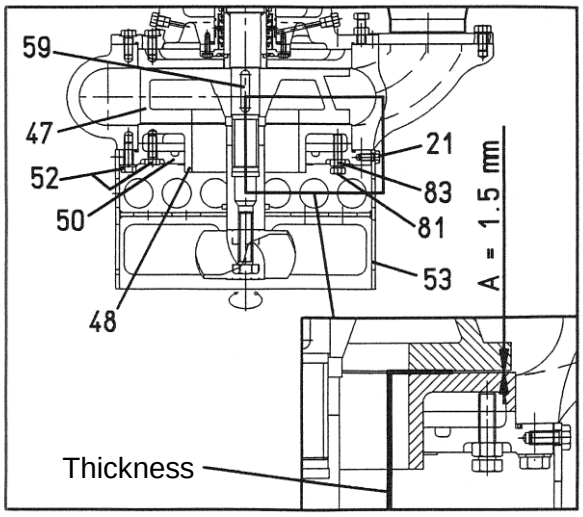
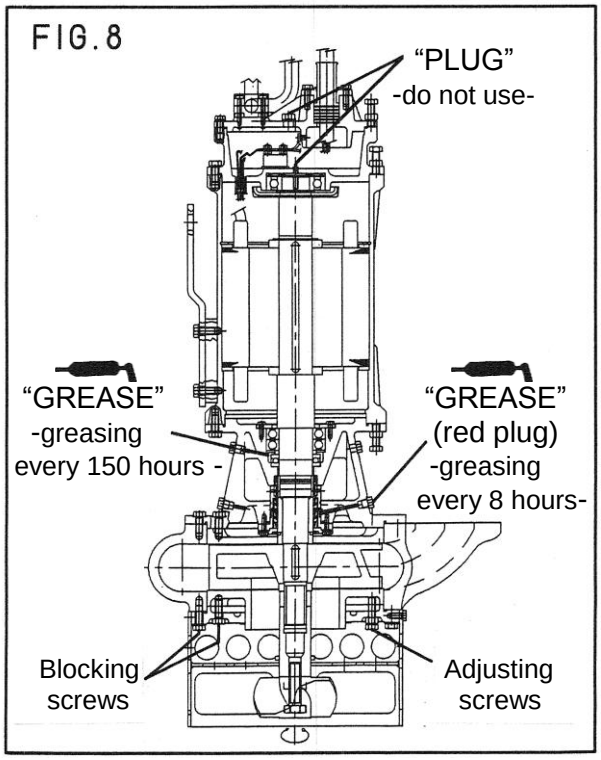


Fig. 9



4) For customers that work with particularly abrasive materials having a very fine particle size, we advise passing a jet of water under pressure, connecting it to the prepared threaded connector indicated with H_2O (Fig. 10). The pressure must be greater than that exerted by the pump to have continuous cleaning of the area of the seals and so less wear.
It is compulsory to grease the area of the seals at the end of each shift or every 8 working hours, use grease such as POLIMER 400 with LIQUILON.

5) Check the level and the deterioration of the oil every 8 hours of operation by removing the plug labelled “OIL” (Fig. 10). For a total oil change or topping up, the following steps have to be taken:

a) It is good practice to empty the pump completely of the remaining oil. The exhausted lubricant must be disposed of in conformity with the laws in force in the country where the machine is used, since its dispersal in the ground will pollute the water beds.

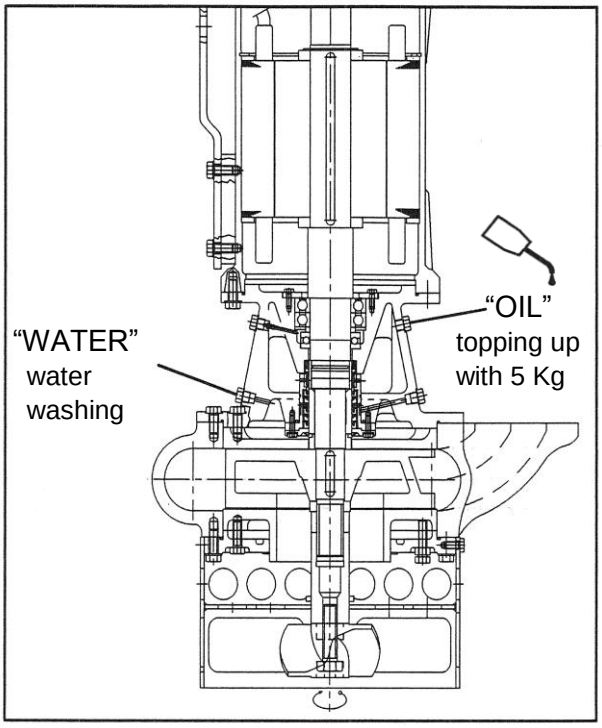


Fig. 10

This is not necessary if the oil is simply topped up.

b) The pump must be placed in a horizontal position, keeping the plug marked “OIL” pointing up (Fig. 11).

c) Remove the plug marked ”OIL”.

d) Top up until completely full or completely change the oil with about 5 Kg of oil having the characteristics as in the table following.

Oil type	ISO	Density at 15/4 °C	Cst 40°C	Viscosity Cst 100°C	E 50°C	I.V.	Flash point V.A. °C	Pour point °C
EP320	320	0,900	330	25,8	24,0	95	240	- 17

e) Before closing the plug change the copper washer to prevent leaks and water seeping in. If the oil is “milky” white color the seals must be replaced.

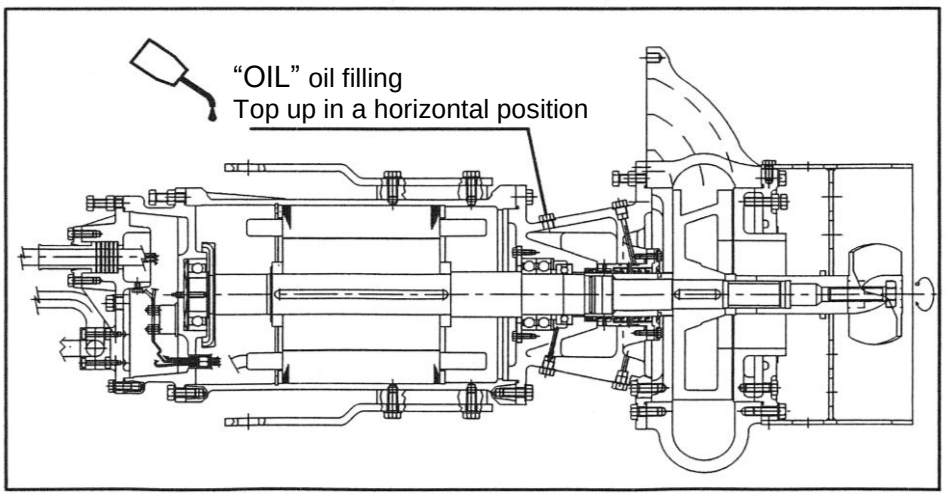


Fig. 11

REPLACING THE SEALS

- Completely empty the oil from the oil chamber.
- Remove the filter **53 (Fig. 12)** by unscrewing the screws **21**.
- Unscrew the cutter **54** by hitting it smartly in an anticlock-wise direction as shown in **Fig. 13**; make sure the impeller **47 (Fig. 12)** is blocked with an iron rod.
- Remove the connection **56 (Fig. 12a)**, then the nut **57** and the spacer **58**.
- Extract the flange on the suction side **50 (Fig. 12)** after having removed the screws **52**. With the flange pos. **50** the lower wear plate **48** also will come down.
- Remove the casing **45 (Fig. 12)** after having removed the screws **42**.
- Extract the impeller **47** using two levers **"A" (Fig. 12)**. If it sticks use an extractor, taking care not to damage the threaded part of the motor shaft.
- Remove the key **59 (Fig. 12)** and immediately after the sleeve **20 (Fig. 14).** To remove the upper wear plate **46** unscrew the screws **42a**.
- Remove the seals housing **67** and **65** after having removed the screws **78** with the ring **68**.
- Change the seals **27** (n° 1) and **34** (n° 1) with their wear sleeve **39** (n° 1) and the o-ring **40** (n° 1). Then change the seals **66** (n° 1), **41** (n° 3) and **36** (n° 2), the two lower shaft sleeve **31** and **20**, the three o-rings "OR" **28, 23** and **26** as shown in **Fig. 14** taking care not to damage any spare.

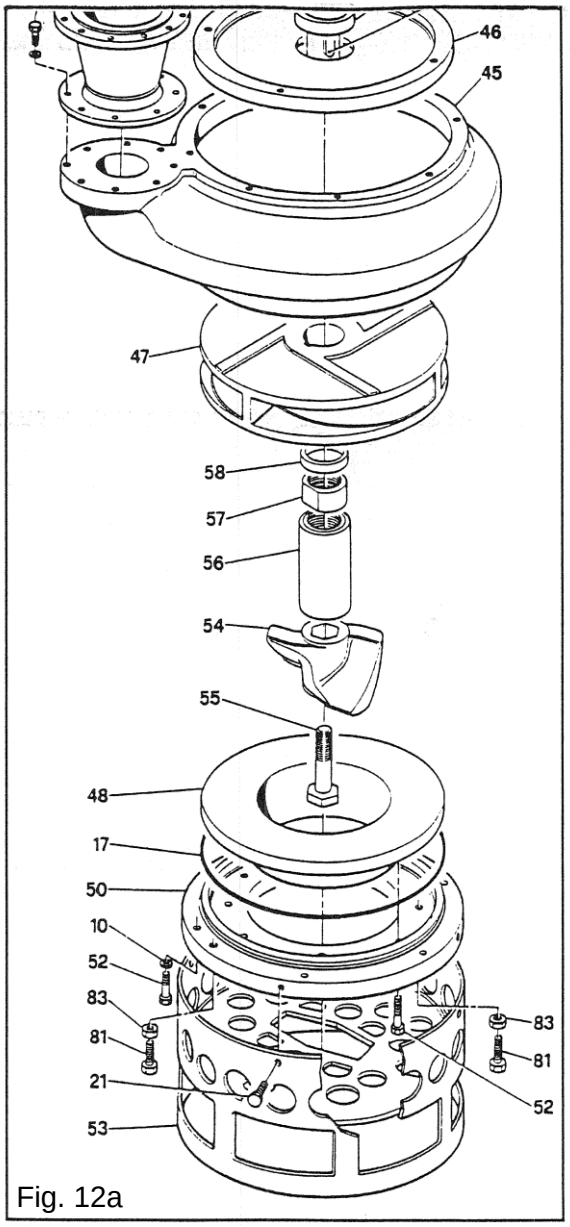


Fig. 12a

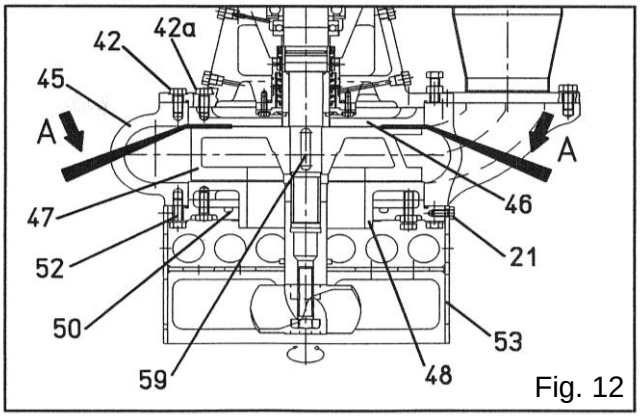


Fig. 12

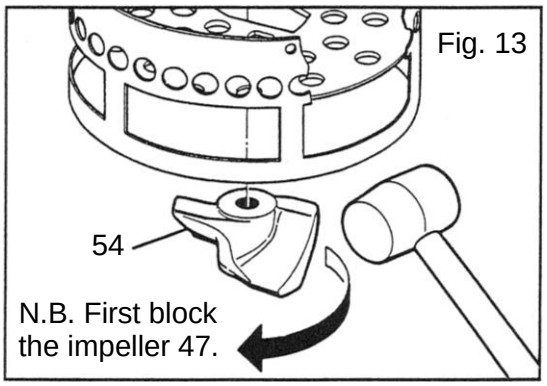


Fig. 13

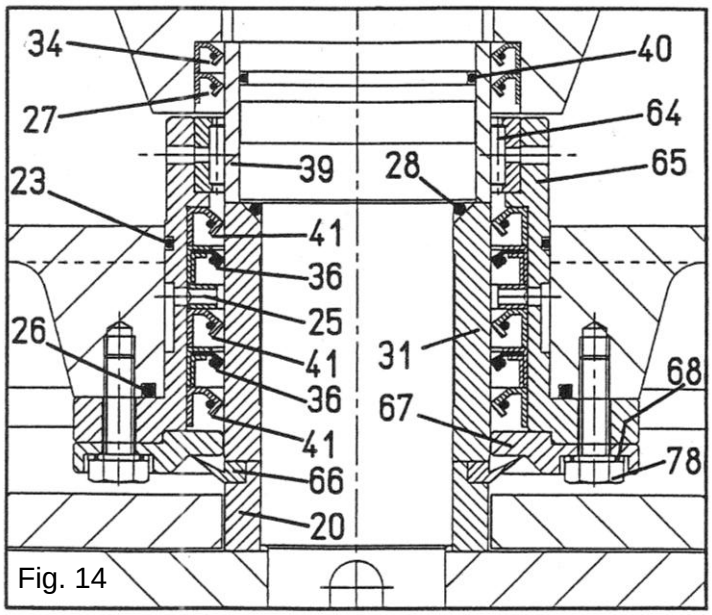


Fig. 14

- To reassemble follow the instructions in the reverse order **keeping the pump in vertical position.**

Remember to adjust the lower wear flange **48 (Fig. 9 pag. 9)** as indicated in paragraph **2)**, before closing the pump definitely.
Top up with new oil, according to the instructions of paragraph **5) pag. 10**.
Once a year, each time that repairs have been carried out, when extraordinary events have occurred, the user must check the state of the electrical, insulation and the continuity of the protection circuit.
When parts of the electrical equipment are replaced, components with electrical characteristics as similar as possible to the originals must be used.
The supply cable MUST be replaced as soon as damage to the external insulation is found.

PUTTING THE MACHINE OUT OF SERVICE

If for any reason whatsoever the machine should be temporarily placed out of service, it is important to disconnect the electricity supply, clean it and cover it to protect it from dust.
To put it back into service again follow the instructions for starting up.

5.0 NOISE

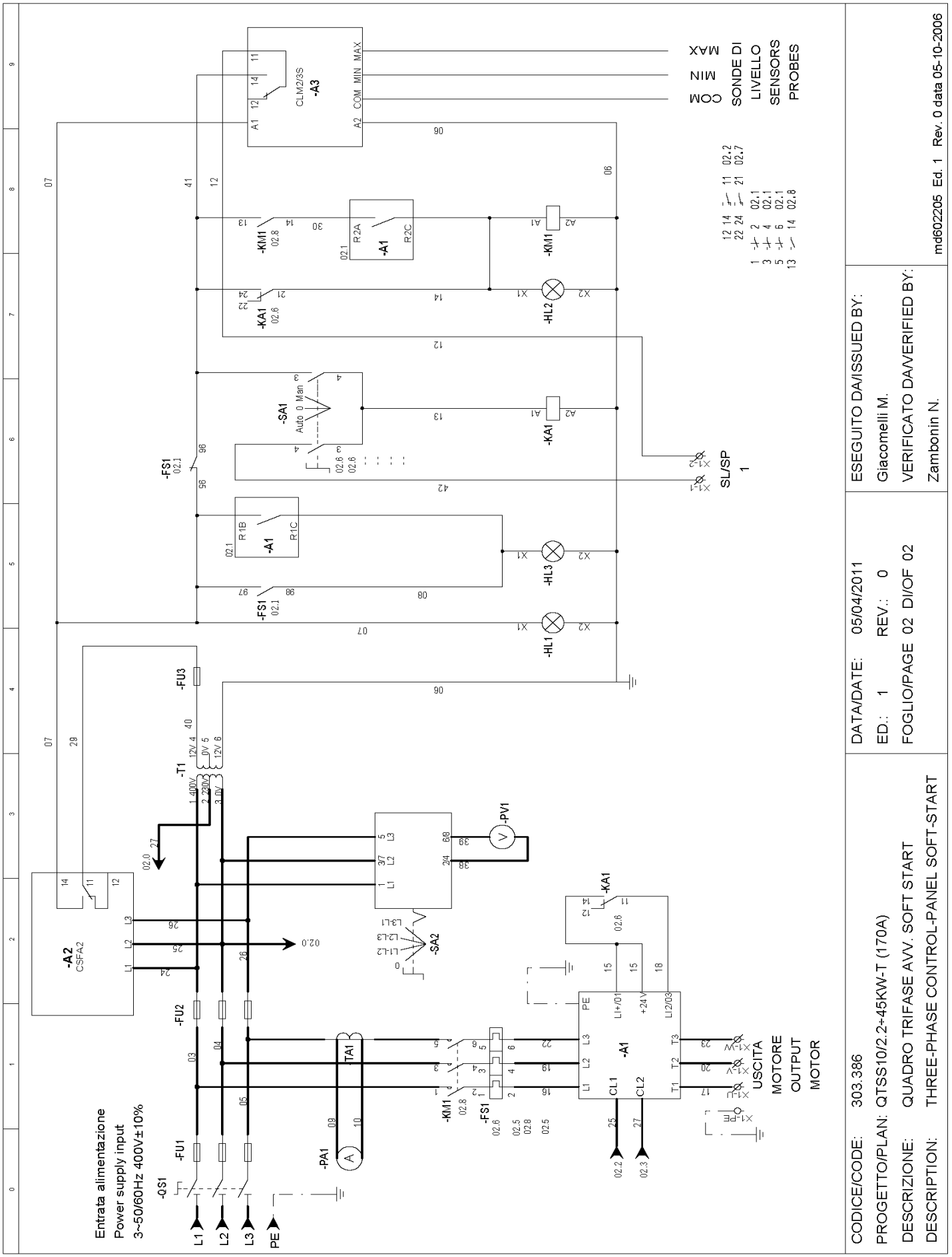
The machine was designed and manufactured while at the same time keeping in due consideration air noise hazards. The construction techniques used allow to limit the noise level within tolerable limits in compliance with the Machine Directives 89/392, point 1.7.4.f:

- The pondered equivalent continuous acoustic pressure level is 56 dBA.
- The maximum pondered instantaneous acoustic pressure “C” is never above 63 Pa (130dB compared to 20mPa).

Air noise detection was effected by placing the probe two meters from the machine, along the whole perimeter and at a meter from the floor. The noise was measured under vacuum. This because the machine itself does not require any specific operation position fixed by the operator since it is normally immersed in water and therefore the values are non-influencing.
The observations were done with a model HD9020K1 DELTA OHM PRECISION INTEGRATOR NOISE METER in conformity with the: IEC651 class 1 standard
IEC804 class 1
IEC225 filters 1/3 octave
The instrument was calibrated with a DELTA OHM HH9101 calibrator conforming to the IEC942-1986 class 1.

WIRING DIAGRAMS EL 1204 A/B

The following wiring diagram is specified for standard installation and excludes any type of control signal or accessories.



CODICE/CODE: 303.386
PROGETTO/PLAN: QTSS10/2.2÷45KW-T (170A)
DESCRIZIONE: QUADRO TRIFASE AVV. SOFT START
DESCRIPTION: THREE-PHASE CONTROL-PANEL SOFT-START

DATA/DATE: 05/04/2011
ED.: 1 REV.: 0
FOGLIO/PAGE 02 DI/OF 02

ESEGUITO DA/ISSUED BY:
Giacomelli M.
VERIFICATO DA/VERIFIED BY:
Zambonin N.

md602205 Ed. 1 Rev. 0 data 05-10-2006

LEGENDA DEI COMPONENTI

Simboli	Descrizione
A1	Soft-Starter
A2	Modulo controllo livello a sonde o galleggianti
FS1	Relè termico
FU1	Fusibile motore
FU2	Fusibile circuiti ausiliari
FU3	Fusibile circuiti ausiliari
QS1	Sezionatore con bloccoporta
HL1	Luce spia "RETE"
HL2	Luce spia "MARCIA"
HL3	Luce spia "PROTEZIONE"
KA1	Relè comando 24Vac
KM1	Contattore
PA1	Amperometro
TA1	Trasformatore di corrente (amperometrico)
PV1	Voltmetro
T1	Trasformatore
SA1	Selettore funzionamento motore AUTO-0-MAN
SA2	Selettore voltmetrico (se presente)

LEGEND OF COMPONENTS

Symbols	Descriptions
A1	Soft-Starter
A2	Control level relay for dry running protection
FS1	Thermal relay
FU1	Motor fuse
FU2	Auxiliary circuits fuse
FU3	Auxiliary circuits fuse
QS1	Main disconnecting switch with door lock
HL1	MAINS" indicator light
HL2	"RUN" indicator light
HL3	"PROTECTION" indicator light
KA1	Relay 24Vac
KM1	Contattore
PA1	Ammeter
TA1	Motor current transformer (amperometric, if present)
PV1	Voltmeter
T1	Transformer
SA1	Motor operation selector (automatic-OFF-manual)
SA2	Voltage selector

CODICE/CODE: 303.386	DATA/DATE: 05/04/2011	ESEGUITO DA/ISSUED BY:	
PROGETTO/PLAN: QTSS10/2.2÷45KW-T (170A)	ED.: 1 REV.: 0	Giacomelli M.	
DESCRIZIONE: QUADRO TRIFASE AVV. SOFT START	FOGLIO/PAGE 01 DI/OF 02	VERIFICATO DA/VERIFIED BY:	
DESCRIPTION: THREE-PHASE CONTROL-PANEL SOFT-START		Zambonin N.	md602205 Ed. 1 Rev. 0 data 05-10-2006

6.0 SAFETY

Introduction

Dragflow srl has designed and built the machine keeping in mind the results of a preventive and accurate analysis of the risks connected to the use of the machine.
The protections and devices applied, therefore, represent the profuse commitment by the **Dragflow S.r.l.** technicians to achieve the aim of safety sanctioned by the specific directives issued by the EEC. The protections and devices are illustrated below with drawings.
Other instructions and information on the safety of the machine are contained in the paragraphs which deal with the use, maintenance and repair.

All the organs in movement are segregated inside the pump structure.
The only rotating mechanical part is the agitator **54 (Fig. 16)**, that for functional reasons cannot be protected in any way.
In fact its specific function is that of cleaning the strainer **53** and stirring the solid bodies present in order to set them in suspension in the liquid to be pumped **(Fig. 16)**.
On the pump there is a warning plate **(Fig. 15)** to remind us of this danger.

When about to operate the pump, keep clear of this rotating part in order to avoid accidents.

The strainer **53 (Fig. 16)** is made according to the suction capacity of the pump, and does not allow the passage of particles of over **60 mm** diameter.
It is a good rule not to come close to the pump when it is immersed in water to avoid dangerous situations.

Do not open without having first switched off.

On the pump there is a warning plate to remind us of this danger **(Fig. 15)**. The upper part of the pump contains the electrical terminal box of the motor.

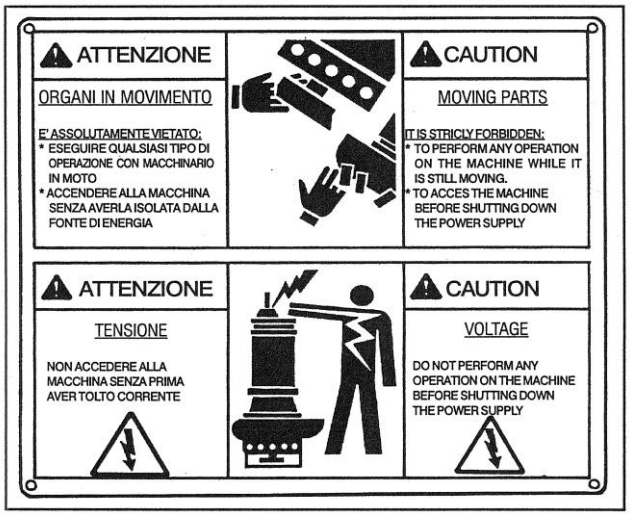


Fig. 15

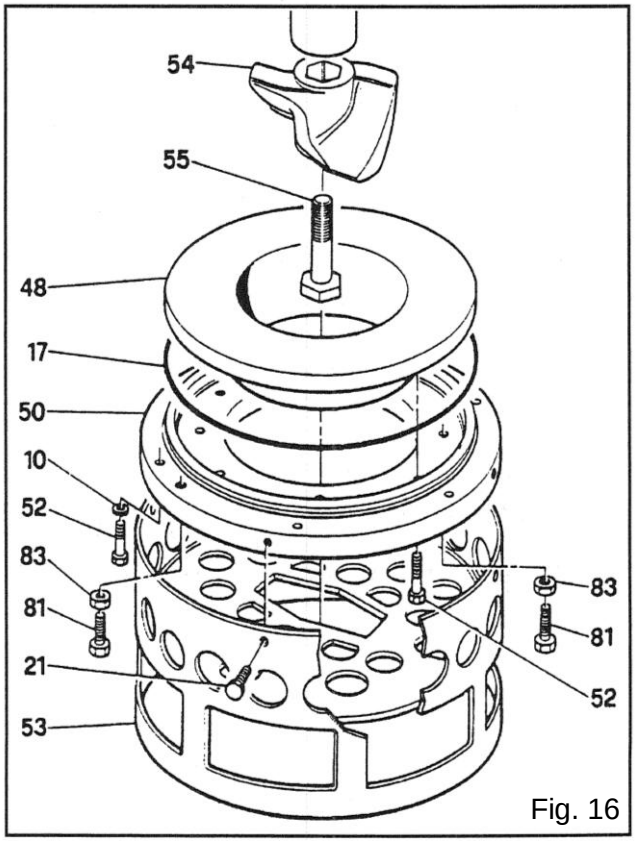


Fig. 16

It is protected in a sealed chamber by means of a series of seals, that avoid water leakage.
The rated voltage present is that expressed on the rating plate **(Fig. 17).**
When starting check:

- the correct connection of the phases;
- the correct direction of rotation of the motor;

The direction of rotation is expressed on the rating plate **(Fig. 17).**

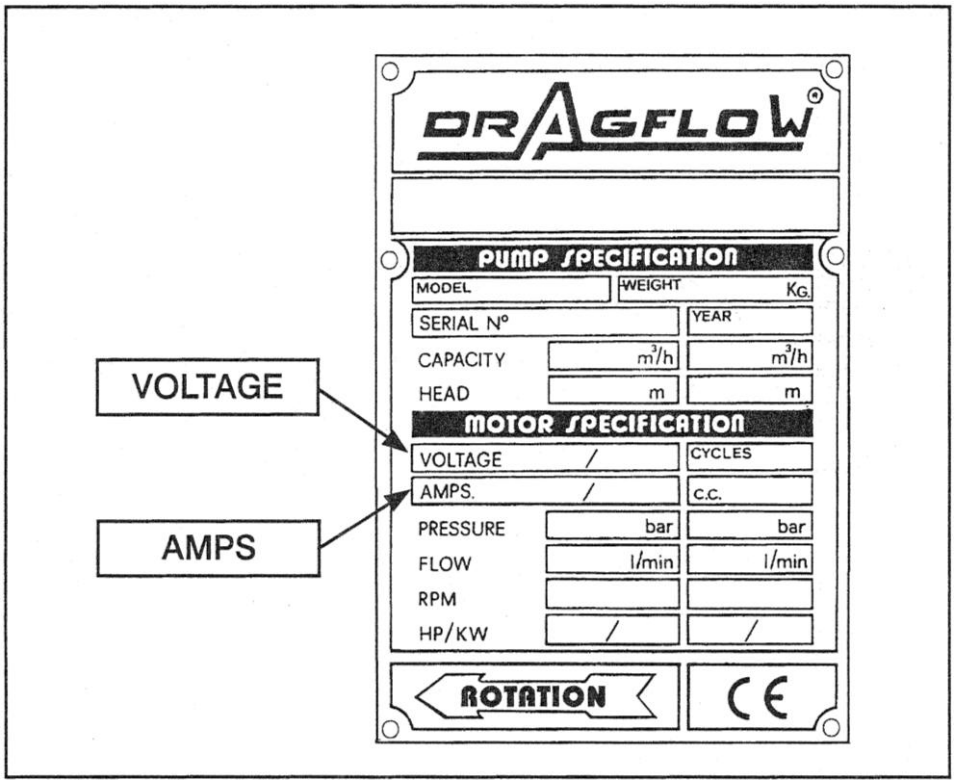


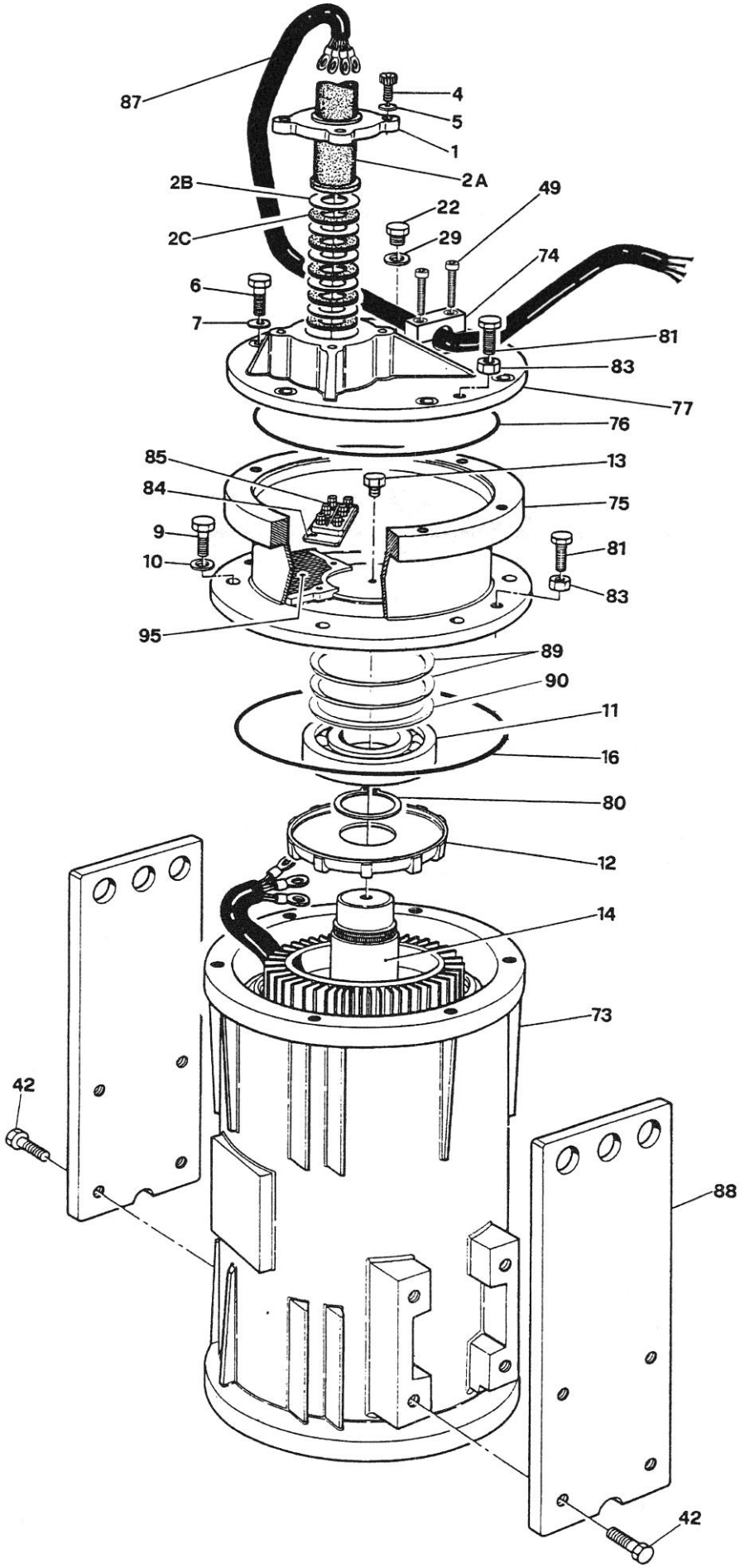
Fig. 17

INDIRECT CONTACT PROTECTION

All the metal masses are grounded with a yellow/green wire.
The user MUST GUARANTEE the electrical conductivity between the machine and the main grounding system of the plant.

- The machine has an overall protection rating of IP68.
- The electrical tests carried out on the machine, in conformity with what is provided for by the EN 60204-1/1992, point 20.1 and following, have had a positive outcome.

SPARE PARTS
EL 1204 A/B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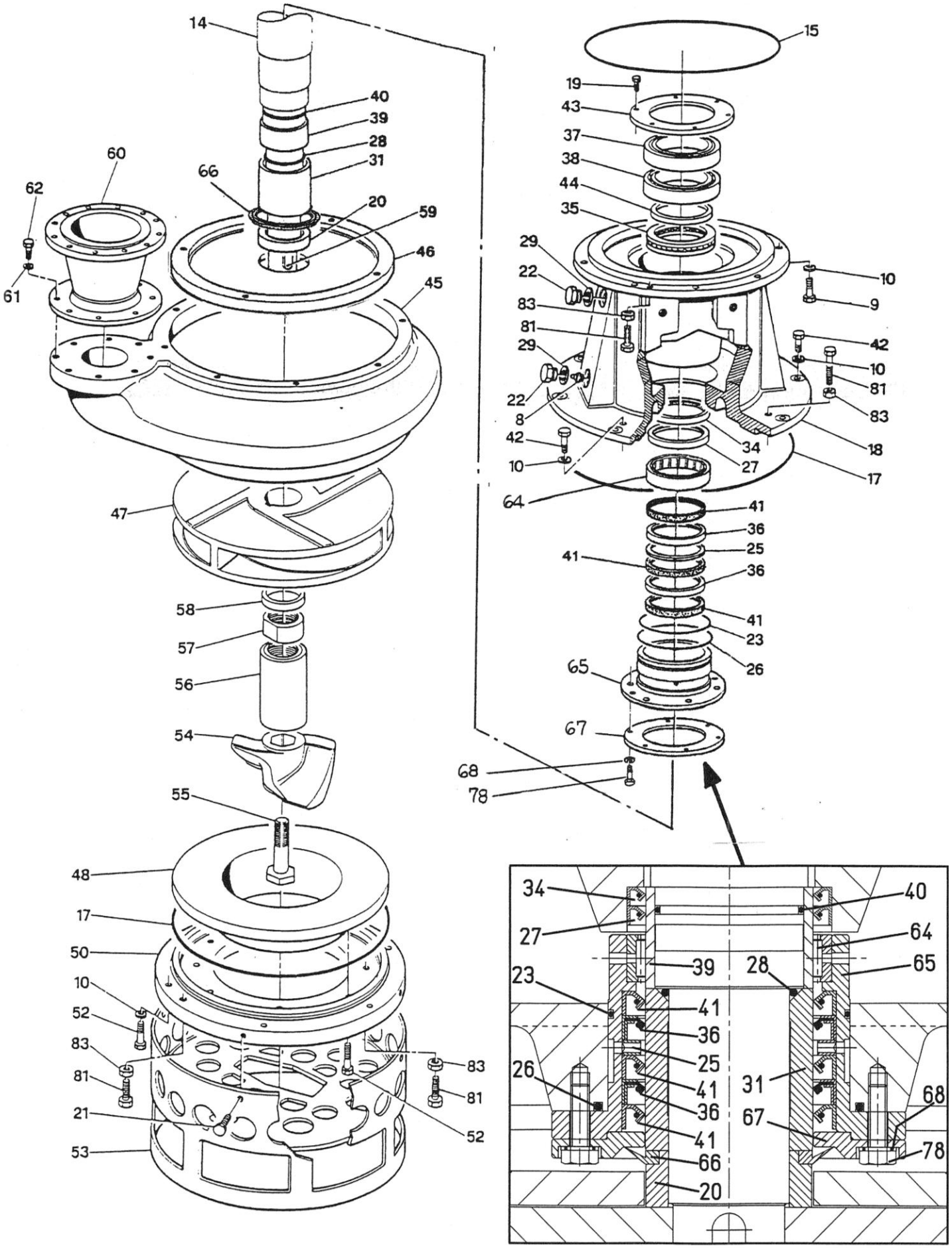
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POS.	Q.	PART NUMBER	DESCRIPTION
1	1	F19806	CABLE GLAND
2A	1	A2087101	CABLE RUBBER SLEEVE
2B	6	A2527002	STEEL WASHER
2C	5	A1503130	RUBBER WASHER
4	4	A2501061	SCREW
5	4	A2527003	SEAL WASHER
6	6	A2501066	SCREW
7	6	A2527004	SEAL WASHER
8	2	A6502018	GREASE NIPPLE
9	14	A2501071	SCREW
10	22	A2527005	SEAL WASHER
11	1	A1001086	BALL BEARING
12	1	F19801	MOTOR FAN
13	1	A6504069	PLUG
14	1	RR0001155	MAIN SHAFT + ROTOR
15	1	A1501125	O-RING
16	1	A1501094	O-RING
17	2	A1501126	O-RING
18	1	F21168	OIL CHAMBER
19	6	A2501006	SCREW
20	1	F42939	WEARING SPACER
21	4	A2501076	SCREW
22	5	A6504065	PLUG
23	1	A1501096	O-RING
25	1	F23171	GREASE SPACER
26	1	A1501097	O-RING
27	1	A6503044	SEAL
28	1	A1501108	O-RING
29	5	A1504019	WASHER
31	1	F42936-1	LOWER SHAFT SLEEVE
34	1	A6503044	SEAL
35	1	A1003010	THRUST BEARING
36	2	A6503011	SEAL
37	1	A1001097	BALL BEARING
38	1	A1001098	BALL BEARING
39	1	A6503005	UPPER SHAFT SLEEVE
40	1	A1501098	O-RING
41	3	A1502114	SEAL
42	32	A2501022	SCREW
43	1	F20637	BEARINGS FLANGE
44	1	F20636	SPACER
45	1	F19789/S6	CASING
46	1	F19790	UPPER WEAR PLATE
47	1	F24194	IMPELLER 50 HZ
47	1	ON REQUEST	IMPELLER 60 HZ
48	1	F19792	LOWER WEAR PLATE
49	2	A2502401	SCREW
50	1	F19791	SUCTION COVER

POS.	Q.	PART NUMBER	DESCRIPTION
52	6	A2501072	SCREW
53	1	G24193	STRAINER STAND
54	1	F19802	AGITATOR
55	1	A2501048	AGITATOR SCREW
56	1	F19798/1	AGITATOR CONNECTIVE
57	1	F19800/1	AGITATOR NUT
58	1	F19805/1	AGITATOR SPACER
59	1	A2518110	KEY
60	1	F24191/G	DISCHARGE ADAPTER Ø200
61	8	A2510006	WASHER
62	8	A2501105	SCREW
64	1	A1002085	ROLLER BEARING
65	1	F42937	SEALS HOUSING
66	1	A6503048	SEAL
67	1	F42938	LOWER SEALS FLANGE
68	6	A2527018	SEAL WASHER
73	1	RR0001156	MOTOR HOUSING + STATOR
74	1	A6038044	CABLE CLIP
75	1	F18920	ELECTRIC MOTOR COVER
76	1	A1501100	O-RING
77	1	F19793	STUFFING BOX
78	6	A2501003	SCREW
80	1	A2519080	SEEGER RING
81	16	A2501023	SCREW
83	14	A2508025	NUT
84	1	F42985	TERMINAL BOARD PLATE
85	1	A3012060	TERMINAL BOARD
87	20	A3004061	ELECTRIC CABLE
88	2	F20444/2	LIFTING PLATE
89	2	A2019025	SPRING WASHER
90	1	F24509	SPACER
95	3	A9031014	CABLE RESIN CASTING

SAFETY SPARE PARTS

DRAGFLOW S.r.l. produces **dredging pumps**, they're equipment for abrasive and heavy job. These kinds of applications naturally wear the consumable parts of the machine. The wearing of the consumable parts will get the performances of the machine lower such as the pumped solid materials little by little will be less.
To avoid to stop the equipment and lost time, **DRAGFLOW S.r.l.** qualified as your expert witness suggests to keep ready at site or placed in your workshop the following spare parts :

POS.	Q.	PART NUMBER	DESCRIPTION
2A	1	A2087101	CABLE RUBBER SLEEVE
2B	6	A2527002	STEEL WASHER
2C	5	A1503130	RUBBER WASHER
11	1	A1001086	BALL BEARING
15	1	A1501125	O-RING
16	1	A1501094	O-RING
17	2	A1501126	O-RING
20	1	F42939	WEARING SPACER
23	1	A1501096	O-RING
25	1	F23171	GREASE SPACER
26	1	A1501097	O-RING
27	1	A6503044	SEAL
28	1	A1501108	O-RING
31	1	F42936-1	LOWER SHAFT SLEEVE
34	1	A6503044	SEAL
35	1	A1003010	THRUST BEARING
36	2	A6503011	SEAL
37	1	A1001097	BALL BEARING
38	1	A1001098	BALL BEARING
39	1	A6503005	UPPER SHAFT SLEEVE
40	1	A1501098	O-RING
41	3	A1502114	SEAL
47	1	F24194	IMPELLER 50 HZ
47	1	ON REQUEST	IMPELLER 60 HZ
48	1	F19792	LOWER WEAR PLATE
54	1	F19802	AGITATOR
55	1	A2501048	AGITATOR SCREW
56	1	F19798/1	AGITATOR CONNECTIVE
57	1	F19800/1	AGITATOR NUT
58	1	F19805/1	AGITATOR SPACER
60	1	F24191/G	DISCHARGE ADAPTER Ø200
64	1	A1002085	ROLLER BEARING
66	1	A6503048	SEAL
67	1	F42938	LOWER SEALS FLANGE
76	1	A1501100	O-RING

Electric pump EL 1204 A/B

Technical specifications:		
Model:	A	B
Capacity:	200 m3/h	500 m3/h
Head:	47 m	32 m
Voltage/Current:	400 V / 158 A	400 V / 158 A
Weight:	1070 Kg	1085 Kg
Cross section:	∅ 60 mm	∅ 60 mm
Impeller:	3 vanes closed /∅ 400 mm	3 vanes closed /∅ 400 mm
Bore:	∅ 150 mm	∅ 200 mm

Electric motor:		
Phases/poles/frequency:	3 / 4 / 50Hz	3 / 4 / 50Hz
Motor output:	90 Kw (120 HP)	90 Kw (120 HP)
Speed:	1450 r.p.m.	1450 r.p.m.
Motor insulation:	class H	class H

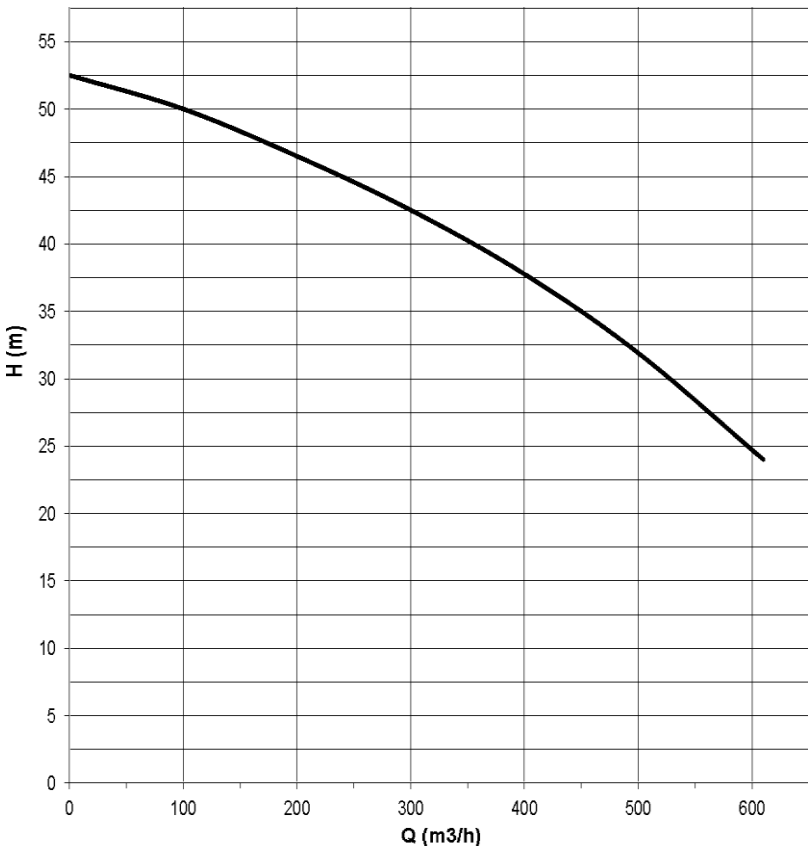
Materials:

Main body: spheroidal cast iron S6.
Motor housing: cast iron GS5.
Wearing parts: high chrome
Main shaft: austempering NiCrMo4 steel.

Seals:

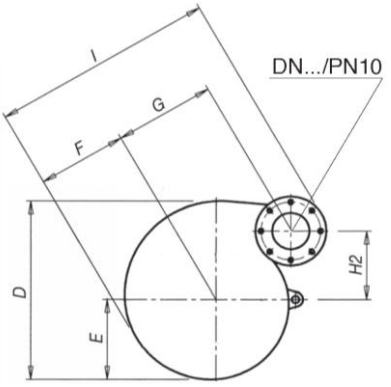
Seals motor zone: n° 2 rubber lip seals.
Seals impeller zone: n° 1 polyurethane V-RING, n° 3 rubber lip seals, n° 2 PTFE lip seals with stainless steel spring (alternate).

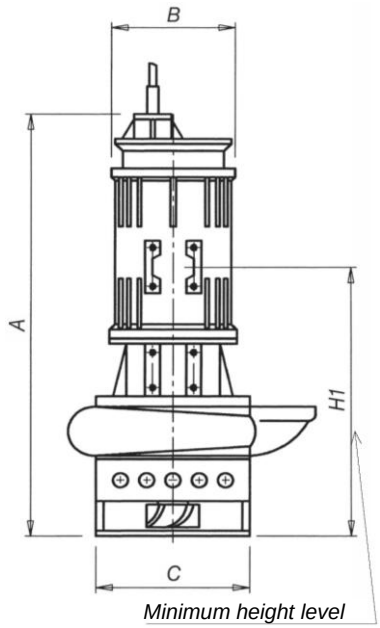
Performance curve:



Dimensions:

A (mm)	1610
B (mm)	450
C (mm)	548
D (mm)	747
E (mm)	334
F (mm)	362
G (mm)	428
H1 (mm)	930
H2 (mm)	197
I (mm)	933





Minimum height level

DRAGFLOW
DREDGING • MINING • INDUSTRY

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