
Models DWP / DWPM

Submersible Dewatering Pump



Instruction and Operation Manual
100 DWP SS 6 7.5 100DWP SS 6 10



EBARA Fluid Handling

EBARA International Corporation

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SAFETY INFORMATION

Read this manual carefully to ensure proper and correct installation, operation, and maintenance.

1. Most accidents can be avoided by using COMMON SENSE.
2. Please read the operation and maintenance instruction manual supplied with the pump. If you did not receive one, please call your local distributor before pump installation.
3. Do not wear loose apparel that may become entangled in the impeller or other moving parts.
4. Always use appropriate safety equipment, such as safety glasses, when working on the pump or piping.
5. Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.
6. Only qualified service personnel should install, operate and repair pump.
7. Keep clear of suction and discharge openings. DO NOT insert fingers in pump with power connected.
8. Do not pump flammable or hazardous materials (gasoline, acids, alkalis, etc.)
9. Do not block or restrict discharge hose, as it may whip or burst catastrophically under pressure.
10. Make sure lifting handles/hooks are securely fastened each time before lifting.
11. Do not lift pump by the power cord under any circumstances.
12. Do not exceed manufacturer's recommendation for optimum performance, as this could cause the motor/pump to overheat and lead to premature wear or failure.
13. Secure the pump in its operating position so it does not tip over, fall or slide.
14. Keep away from impeller when power is connected.
15. Submersible Pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common.
16. Do not operate pump without adequate protection and safety devices in place.
17. Always replace safety devices that have been removed during service or repair.

Operating, Installation, and Maintenance

SAFETY INFORMATION (continued)

18. To reduce risk of electrical shock, pump must be properly grounded in accordance with the National Electric Code and all applicable state and local codes and ordinances.
19. To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing.
20. Any wiring of pumps should be performed by a qualified electrician.
21. Never operate a pump with a power cord that has frayed or brittle insulation.
22. Cable should be protected at all times to avoid punctures, cuts, and abrasions - inspect frequently.
23. Never handle connected - "hot" power cords with wet hands.
24. Never operate a pump with a plug-in type power cord without a ground fault circuit interrupter, adequate over load and short circuit protection.

IMPORTANT !

EBARA is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.

INTRODUCTION

THE EBARA MOTOR DRIVEN PORTABLE SUBMERSIBLE PUMPS HAVE BEEN DEVELOPED DUE TO A LONG FELT NEED OF HAVING A TRULY MAINTENANCE FREE PUMPSET FOR VARIOUS APPLICATIONS. THE PUMP IS A LIGHTWEIGHT, COMPACT UNIT ENABLING IT TO BE USED IN MOST SEA-CRAFT AND DIFFICULT LAND INSTALLATIONS. THE UNIT CONSISTS OF A VERTICAL CENTRIFUGAL PUMP WITH AN IN-BUILT SQUIRREL CAGE, INDUCTION ELECTRIC MOTOR WHICH IS AVAILABLE FOR VARIOUS ELECTRIC SUPPLY CONFIGURATIONS. THE PUMPED WATER IS USED AS A COOLING MEDIUM WHICH COOLS THE ELECTRIC MOTOR. THE PUMPSET CAN ALSO BE USED IN ANY POSITION THUS MAKING IT IDEAL FOR DEWATERING IN DIFFICULT LOCATIONS.

THE SERVICE LIFE OF A SUBMERSIBLE PUMP DEPENDS MAINLY ON TWO THINGS: THE DEPENDABILITY OF THE SEALING SYSTEM AND THE WEAR RESISTANCE OF THE PUMP WEAR PARTS.

ALL EBARA SUBMERSIBLE SUMP PUMPS INCORPORATE A UNIQUE SEALING SYSTEM. THE CONSTRUCTION CONSISTS OF TWO MECHANICAL SEALS, ARRANGED IN TANDEM, IMMERSSED IN AN OIL BATH. THE COMPLETE PACKAGE IS A PRESSURE COMPENSATED SEALING DEVICE WHICH ENSURES A MINIMAL PRESSURE DIFFERENTIAL ACROSS THE SEAL FACES, IRRESPECTIVE OF THE DEPTH SETTING OF THE PUMP OR THE HEAD AGAINST WHICH THE PUMP IS OPERATING.

IN EBARA SUBMERSIBLE SUMP PUMPS, ALL WEAR PARTS ARE RUBBER LINED/COVERED AND ARE READILY REPLACEABLE AS NEEDED OR IN CAST SS. BOTH WEAR AND ELECTRICITY CONSUMPTION ARE STILL FURTHER REDUCED WHEN THE PUMPS ARE FITTED WITH BUILT-IN LEVEL CONTROLS FOR AUTOMATIC STARTING AND STOPPING. **IT IS HOWEVER RECOMMENDED THAT IRRESPECTIVE OF TYPE OF PUMP, ADEQUATE MOTOR PROTECTION SWITCHGEAR SHOULD BE USED AT THE INSTALLATION. WE STRONGLY RECOMMEND THE USE OF SUITABLE CONTROL PANELS WHICH ARE AVAILABLE FROM US INCORPORATING ALL REQUIRED PROTECTION DEVICES.**



INTRODUCTION (continued)

IT IS IN THE INTEREST OF THE USER THAT HE GO THROUGH THIS MANUAL IN DETAIL PRIOR TO USING THE PUMP. THE MANUAL WILL HELP HIM UNDERSTAND THE CONSTRUCTIONAL FEATURES AND TO OBTAIN TROUBLE FREE SERVICE FROM THE PUMP.

PLEASE NOTE THAT ALL PART NOS. REFERRED TO IN DISMANTLING AND RE-ASSEMBLY ARE PERTAINING TO 100 DWP SS 6 10. NUMBERS FOR MODEL 100 DWP SS 6 7.5 ARE INDICATED IN THE DRAWINGS. THE CONSTRUCTION IS IDENTICAL.

PURPOSE:

THE PUMP HAS BASICALLY BEEN DESIGNED AS A DEWATERING UNIT TO PUMP OUT FLOODED INSTALLATIONS OR ANY CONDITIONS THAT NEED DEWATERING OF UNWANTED FLUIDS. THE PUMP HAS BEEN DESIGNED TO HANDLE WATER CONTAMINATED WITH OIL AS WELL AS ABRASIVE PARTICLES NORMALLY ASSOCIATED WITH RAW WATER. THE MAXIMUM SIZE OF PARTICLES THAT CAN BE HANDLED IS APPROX. 0.4" **THE MAXIMUM SPECIFIC GRAVITY OF THE PUMPED FLUID SHOULD NOT EXCEED 1.1. PH RANGE IS 2 - 10.**

OVERALL DIMENSIONS AND WEIGHT

	100 DWP SS 6 7.5	100 DWP SS 6 10
OVERALL HEIGHT	28" (APPROX.)	31" (APPROX.)
MAX. DIAMETER	10.75"	10.75"
MAX. WEIGHT (EXCL. CABLE)	150 lbs.	135 lbs.

MAINTENANCE SERVICES REQUIRED

THE FOLLOWING CHECKS TO BE DONE AT INTERVALS INDICATED BELOW:

1. CONDITION OF SEALS TO BE CHECKED AT EVERY 2500 HOURS OF OPERATION BY ASCERTAINING THE CONDITION OF OIL IN THE SEAL CHAMBER.
2. MONTHLY RUNNING OF PUMP FOR AT LEAST 5/10 MINUTES AND CHECKING OF AMPERES DRAWN AND INSULATION RESISTANCE. (MIN. INSULATION RES. 1 MEG. OHM. AND MAX. CURRENT DRAWN AS PER NAME PLATE)

SAFETY PRECAUTIONS

1. ENSURE THAT THE INSULATION RESISTANCE OF THE MOTOR IS AT LEAST 1 MEG. OHM BEFORE ENERGIZING THE UNIT.
2. CHECK THAT THE AVAILABLE POWER SUPPLY (VOLTAGE, PHASE, FREQUENCY) MATCHES WITH THE DETAILS ON THE PUMP NAMEPLATE.
3. ENSURE THAT THE GROUND WIRE IN THE 4 CORE CABLE SUPPLIED WITH THE PUMP IS SECURELY EARTHED.

SAFETY PRECAUTIONS *(continued)*

4. ENSURE DISCHARGE CONNECTION IS CORRECTLY AND SECURELY FITTED
5. ENSURE DELIVERY HOSE IS FREE FROM KINKS AND SHARP BENDS.
6. **DO NOT LIFT OR PULL THE PUMP UNDER ANY CIRCUMSTANCES BY MEANS OF THE CABLE.** THE PUMP MUST BE LOWERED/LIFTED FROM THE AREA TO BE PUMPED BY USING A LIFTING ROPE ATTACHED TO THE HANDLE/EYEBOLT PROVIDED IN THE PUMP.
7. AT THE STARTING MOMENT THE PUMP SHALL MAKE A KICK WHICH IS OPPOSITE TO THE DIRECTION OF ROTATION OF THE IMPELLER. ENSURE THE KICK IS IN THE CORRECT DIRECTION (SEE THE ARROW CAST ON THE CONTACTOR COVER OF THE PUMP).SHIFT ANY TWO PHASES IN THE MALE PLUG IF THE KICK IS WRONG.
8. DRY RUNNING OF THE PUMP IS NOT DESIRABLE. HOWEVER THE PUMP WILL NOT BE DAMAGED OR SUFFER ANY ILL EFFECTS IF IT IS RUN DRY FOR SHORT PERIODS (UP TO APPROX. 30 MINUTES).
9. THE MAXIMUM PUMP SUBMURGENCE RECOMMENDED IS 50 FEET.
10. THE SPECIFIC GRAVITY OF PUMPED FLUID SHOULD NOT EXCEED 1.1 UNDER ANY CIRCUMSTANCES.
11. ENSURE CORRECT RATING H.R.C. BACK UP PROTECTION FUSES ARE INSTALLED IN POWER CIRCUIT BEFORE STARTING THE PUMP. (REFER TABLE BELOW)

VOLTAGE AT SITE	FULL LOAD AMPS
100 DWP SS 6 7.5 220 VOLTS / 3 PHASE 460 VOLTS / 3 PHASE	23 AMPERES 11.5 AMPERES
100 DWP SS 6 10 230 VOLTS / 3 PHASE 460 VOLTS / 3 PHASE	28 AMPERES 14 AMPERES

TROUBLE GUIDE

PROBLEM	CAUSE	REMEDY
PUMP DOES NOT START.	1. FUSES BLOWN. 2. CABLE DAMAGED 3 NO POWER. 4. BLOCKED IMPELLER. 5. STATOR WINDING BURNT.	1. REPLACE FUSES 2. SHORTEN/REPLACE CABLE 3. CHECK POWER SOURCE. 4. CLEAN BOTTOM PARTS. 5. REPLACE STATOR.
PUMP STARTS BUT STOPS.	1. BLOCKED IMPELLER. 2. IMPELLER ROT. WRONG 3. CONNECTED FOR WRONG VOLTAGE. 4. VOLTAGE LOW/HIGH. 5. CLOGGED STRAINER 6. PUMP RUNNING DRY 7. WATER TOO WARM (ABOVE 60 DEGREES C)	1. CLEAN BOTTOM PARTS. 2. SHIFT TWO PHASE CONN. 3. CHECK & RECONNECT. 4. CONTACT POWER CO. 5. CLEAN STRAINER 6. SWITCH OFF POWER 7. SWITCH OFF POWER
PUMP GIVES TOO LITTLE OUTPUT.	1. IMPELLER ROT.BACKWARD. 2. PUMP WORN DOWN. 3. LONG HOSE AND DIAMETER TOO SMALL. 4. PRESSURE HEAD TOO HIGH 5. DISCHARGE HOSE TORN 6. LEAKING/CRACKED OUTLET	1. SHIFT TWO PHASE CONN. 2. REPLACE WEAR PARTS. 3.CHECK PRESSURE LOSSES 4. USE PUMPS IN TANDEM. 5. USE NEW HOSE 6. REPLACE OUTLET/GASKET.

Operating, Installation, and Maintenance

TECHNICAL DESCRIPTION

THE EBARA SUBMERSIBLE PUMP IS IN ITSELF A COMPLETE PUMPING STATION. BESIDES A POWER SUPPLY, CONTROL BOX AND A DISCHARGE HOSE NO EXTRA EQUIPMENT IS REQUIRED. THE COMPLETE PUMPSET IS IN A MODULAR CONSTRUCTION ENSURING GOOD AND SIMPLE SERVICEABILITY. MAJOR DESIGN FEATURES ARE AS UNDER:

THE MOTOR

A RUGGED ALUMINUM DIE CAST/COPPER ROTOR DYNAMICALLY BALANCED TO GRADE 2.5 ACCURACY OF ISO 942. A STAINLESS STEEL SHAFT RUNNING IN TWO BALL BEARINGS. INSULATION CLASS "F" (155 DEGREES CELSIUS). END WINDINGS DULY EPOXY COATED TO PREVENT DETERIORATION OF INSULATION EVEN IN EXTREMELY HUMID CONDITIONS. WINDING WIRE IS DUAL COATED SUITABLE FOR "H" CLASS INSULATION.

THE SEAL CHAMBER

THE HEART OF THE EBARA PUMP. TANDEM MECHANICAL, TUNGSTEN CARBIDE V/S TUNGSTEN CARBIDE SEAL FACES (LOWER SEAL) AND TUNGSTEN CARBIDE V/S TUNGSTEN CARBIDE (UPPER SEAL), SECONDARY SEALS OF HNBR RUBBER AND METAL PARTS IN STAINLESS STEEL, RUNNING IN AN OIL BATH, ENCLOSED IN A PRESSURE COMPENSATING RUBBER OIL BAG – CREATES THE ULTIMATE SEAL SOLUTION. THE DESIGN OPTIMIZES SEAL LIFE AND ALLOWS FOR SIX MONTHLY (2500 HOURS) SERVICE INTERVALS. NOTE IN LOW PH APPLICATIONS SILICON CARBIDE V/S SILICON CARBIDE MECHANICAL SEALS ARE USED.

BEARINGS

SINGLE ROW DEEP GROOVE BALL BEARINGS SEALED FOR LIFE WITH A SPECIAL HIGH TEMPERATURE BEARING GREASE REQUIRING NO PERIODIC MAINTENANCE WHATSOEVER.

THE HYDRAULIC ELEMENTS

THE STAINLESS STEEL IMPELLER RUNNING AGAINST A RUBBER LINED DIFFUSER AND WEAR PLATE, CONSTITUTE THE HYDRAULIC ELEMENTS OF THE PUMP. THE IMPELLER/DIFFUSER CAN BE ADJUSTED TO MAINTAIN MAXIMUM OUTPUT AFTER USAGE WITHOUT PARTS REPLACEMENT. IT IS IMPORTANT, HOWEVER, TO MAINTAIN CLEARANCES BETWEEN THE WEAR PARTS.

CABLE GLAND ASSEMBLY (REFER TO DRAWING)

THE PUMP IS SUPPLIED WITH 50 FEET CABLE AS STANDARD. THE CABLE IS A 4 CORE EPR SHEATHED AND INSULATED CABLE CONFORMING TO INTERNATIONAL STANDARDS. THE CABLE IS WATERPROOF AND CAN BE COMPLETELY SUBMERGED IN WATER. THE CABLE IS TERMINATED IN THE PUMP AT THE CABLE GLAND. THE GLAND ASSEMBLY SEALS THE CABLE ON THE OUTSIDE SHEATH AS WELL AS A WATER DAM ARRANGEMENT IS PROVIDED WHICH SEALS THE INDIVIDUAL CORES OF THE CABLE. THIS FEATURE IS UNIQUE AND IS ESSENTIAL TO PREVENT WATER SEEPING THROUGH THE CORES OF THE CABLE INTO THE MOTOR CHAMBER IN THE EVENT OF A CUT CABLE. THE CABLE IS ALSO SHEATHED FOR THE FIRST ONE METER BY MEANS OF A CABLE GRIP MADE OF STAINLESS STEEL. THIS IS ESSENTIAL TO ENSURE THAT THERE IS NO UNDUE STRAIN ON THE CABLE IF THE PUMP IS PULLED OR LOWERED INADVERTENTLY BY MEANS OF THE CABLE. COMPLETE DETAILS OF THE CABLE GLAND ASSEMBLY ARE SHOWN IN THE DRAWING.



Operating, Installation, and Maintenance

NON-REPAIRABLE ITEMS

1. ALL "O" RINGS TO BE REPLACED WHENEVER PUMPS ARE DISMANTLED.
2. SEAL ELASTOMER PARTS SHOULD NEVER BE RE USED AFTER DIS ASSEMBLY.
3. DO NOT REFILL BEARING GREASE. ALWAYS REPLACE COMPLETE NEW BEARING WITH SPECIAL HIGH TEMPERATURE GREASE.

ELECTRICAL INFORMATION

MOTORS ARE DESIGNED TO OPERATE ON SINGLE VOLTAGE AND FREQUENCY. MAXIMUM DEVIATION IN VOLTAGE ALLOWED IS $\pm 6\%$ AND FREQUENCY $\pm 3\%$. CHECK NAME PLATE FOR OPERATING VOLTAGE AND FREQUENCY.

DISMANTLING AND OVERHAULING

GENERAL OVERHAUL AND OIL CHECK. (REF. DRGS. NO. DW/203/00 DW/205/00 SHEETS 1 & 2)

1. ALWAYS REPLACE O-RINGS WITH NEW ONES WHENEVER DISMANTLING AND RE-ASSEMBLING A PUMP. NEVER RE-USE OLD O-RINGS.
2. REMOVE BASE PLATE (73), STRAINER (72), NUT (18), HEX HD. BOLTS (75), DIFFUSER HOLDER (71), AND DIFFUSER (69). THE DRAWING SHOWS THESE DETAILS. CHECK BY HAND THAT THE ROTOR SHAFT IS NOT BLOCKED.
3. PLACE THE PUMP ON THE BOTTOM STUDS (60). TAP THE OUTER CASING (67) WITH NYLON TIPPED HAMMERS TILL IT LOOSENS FROM THE TOP BRACKET (22). SEPARATE THE OUTER CASING FROM THE TOP BRACKET BY EMPLOYING TWO SCREW DRIVERS AS LEVERS AND PUSH THE OUTER CASING DOWNWARDS TILL IT STANDS ON THE FLOOR. LIFT THE UNIT BY THE EYE BOLTS (29) CLEAR OFF THE OUTER CASING.
4. THE SEAL CHAMBER CONTAINS APPROX. 1.5 LITERS OF OIL. THE LEVEL AND CONDITION OF THE OIL SHOULD BE CHECKED EVERY SIX MONTHS. UNSCREW THE OIL PLUGS (43) AND POUR OUT SOME OIL. NOTE THAT THE OIL GETS A SLIGHTLY DARKER SHADE, BUT THIS IS NORMAL AND IS NO CAUSE FOR WORRY. IF THE OIL IS EMULSIFIED BY WATER, THE SEALS HAVE WORN OUT AND MUST BE REMOVED FROM THE ROTOR FOR FURTHER ACTION.
5. LAY DOWN THE PUMP AND REMOVE THE REMAINING PARTS. UNSCREW NUT (65) AND REMOVE LOCK WASHER (64) (USE IMPELLER SPANNER (T7005) TO HOLD IMPELLER WHILE UNSCREWING NUTS) AND SLIDE OFF IMPELLER (63) FROM SHAFT. THEN REMOVE TRIMMING SPACERS (61). UNSCREW THE FOUR PHILLIPS HEAD SCREWS (58) AND REMOVE THE SAND GUARD (57) FROM THE SEAL HOUSING (47).
6. UNSCREW NUTS (18) AND FOUR STUDS (60) AND REMOVE WEAR PLATE (59). THIS CAN BE EASILY DONE BY INSERTING TWO SCREWDRIVERS BETWEEN WEAR PLATE AND LOWER BRACKET (41) AND PRYING THE WEAR PLATE LOOSE. ALL THE PUMP PARTS HAVE BEEN DISMANTLED. REPLACE WORN PARTS.
7. THE OIL DIAPHRAGM (52) IS NOW IN VIEW. UNSCREW BOTH THE OIL PLUGS (43) AND DRAIN OUT THE OIL FROM THE OIL CHAMBER. LOOSEN SCREWS AND NUTS (53/54) FROM THE BIG OIL CLAMP (56) AND REMOVE CLAMP. TURN OIL DIAPHRAGM INSIDE OUT AND REMOVE SMALL OIL CLAMP IN THE SAME FASHION. REMOVE OIL DIAPHRAGM. SLIDE OFF OUTER RETAINING SNAP RING/CIRCLIP (46)



DISMANTLING AND OVERHAULING (continued)

FROM ROTOR SHAFT AND REMOVE LOWER MECHANICAL SEAL FROM ROTOR SHAFT. BE VERY CAREFUL IN HANDLING THE TUNGSTEN CARBIDE/SILICON CARBIDE SEAL FACE. LEAVE STATIONARY TUNGSTEN CARBIDE/SILICON CARBIDE SEAT IN THE SEAL HOUSING (47). UNSCREW FOUR NUTS (50) AND PULL OUT SEAL HOUSING (47). THE STATIONARY TC SEAL FACE WILL COME OUT WITH THE SEAL HOUSING. HANDLE THE FACE CAREFULLY. THE UPPER MECHANICAL SEAL IS NOW IN VIEW. REMOVE THE UPPER SEAL IN THE SAME WAY AS THE LOWER SEAL.

8. REMOVE THE FOUR NOS. DEEP SEATED CAP SCREWS (42) THAT HOLD THE LOWER BEARING BRACKET AGAINST THE INNER CASING. BY MEANS OF TWO NOS. SCREW DRIVERS REMOVE THE LOWER BEARING BRACKET FROM THE STATOR CASING (25). THE COMPLETE ROTOR (36) WITH BEARING (39), BEARING COVER (38) AND TUNGSTEN CARBIDE/SILICON CARBIDE SEAT WILL COME OUT WITH THE LOWER BEARING BRACKET. REMOVE BOLTS (37) AND REMOVE BEARING COVER. PULL OUT ROTOR WITH BEARING FROM LOWER BEARING BRACKET. (IF THIS IS DIFFICULT USE A HAND PRESS TO REMOVE ROTOR FROM BEARING BRACKET. ENSURE NO DAMAGE TO THE TUNGSTEN CARBIDE/SILICON CARBIDE SEAT IN BEARING BRACKET). THE TC/SC SEAT WITH CUP SEAL HOLDER CAN NOW BE PUSHED OUT FROM THE BEARING SIDE BY GENTLY TAPPING THE SAME. (USE FINGERS OR A NYLON TIPPED LIGHT HAMMER ONLY).
9. CHECK BOTH UPPER AND LOWER BEARINGS (35 & 39) FOR ANY RADIAL OR AXIAL PLAY OR ANY ABNORMAL NOISE WHILE SPINNING THE SAME. CHECK FOR ANY LEAKAGE OF GREASE THROUGH THE SHIELD OF THE BEARING. IF BEARING SEEMS WORN OUT OR ANY GREASE LEAKAGE IS OBSERVED, REPLACE BEARING. (DO NOT USE ANY STANDARD BEARING PROCURED FROM THE MARKET. THE PUMPS USE A SPECIAL BEARING WHICH IS PRE-FILLED WITH A SPECIAL HIGH TEMPERATURE GREASE WHICH ARE AVAILABLE FROM US READILY).
10. REMOVE THE CABLE GLAND ASSEMBLY (2) BY TAKING OFF THE HEX NUTS (6). USING TWO SCREW-DRIVERS GENTLY PLY OUT THE CABLE GLAND BASE (12). EXAMINE THE CABLE LEAD GROMMET (11) AND THE CABLE GROMMET (9). REMOVE THE WIRE NUTS (15,16) AND UNSCREW THE EARTHING SCREW (17).
11. THE TOP BRACKET (22) IS HELD IN POSITION BY FOUR BOLTS (31) ON THE STATOR CASING. UNSCREW THE BOLTS AND REMOVE THE STATOR CASING WITH THE HELP OF PULLER FOR STATOR (T8003). ALTERNATIVELY TWO SCREW DRIVERS MAY BE USED TO PRY THE TOP BRACKET FROM THE STATOR.
12. THE STATOR IS SHRINK-FITTED IN THE INNER CASING. THE STATOR CAN NOW BE CHECKED FOR ANY ELECTRICAL FAULTS. MEASURE LINE TO LINE RESISTANCE AND PERFORM A MEG OHM TEST. IF THE STATOR IS WET BAKE FOR THREE HOURS AT 250F AND PERFORM A HIGH POT TEST.



RE-ASSEMBLY OF THE PUMPSET

THE PUMP CAN BE RE-ASSEMBLED AS PER PROCEDURE GIVEN BELOW. PLEASE HOWEVER NOTE THE FOLLOWING:

- A) ALWAYS REPLACE NEW O-RINGS AND DISCARD OLD ONES.
 - B) REPLACE NEW LOCK WASHER WHEN RE_ASSEMBLING.
1. THE CHECKED/REPAIRED STATOR IS KEPT UPRIGHT AND THE TOP BRACKET IS FIT USING THE FOUR BOLTS (31).
 2. SLIDE BEARING COVER (38) ON ROTOR SHAFT.
 3. FIT BEARINGS (IF REMOVED OR REPLACED) ON ROTOR SHAFT (USE EITHER A HAND PRESS OR SHRINK THE SAME -- DO NOT HAMMER THE BEARINGS ON THE SHAFT-- YOU MAY BEND THE SHAFT AND ALSO DAMAGE THE BEARINGS) AND FIT CIRCLIPS ON TOP AND BOTTOM GROOVES ON SHAFT.(IF THE BEARINGS ARE SHRINK FITTED ON THE SHAFT, HEAT THE BEARINGS IN OIL TO A MAXIMUM TEMPERATURE OF 120 DEGREES CELSIUS AS A HIGHER TEMPERATURE WILL LIQUEFY THE GREASE IN THE BEARING AND RENDER THE SAME UNUSABLE).
 4. SLIDE LOWER BEARING BRACKET (41) ON TO LOWER BEARING AND ALIGN FOUR NOS. HOLES ON BEARING COVER WITH THE TAPPED HOLES ON LOWER BEARING BRACKET. FIT THE BOLTS (37) AND TIGHTEN BEARING COVER.
 5. FIT COMPLETE ROTOR ASSEMBLY IN STATOR HOUSING GUIDING UPPER BEARING IN TOP BRACKET BEARING SEAT. TIGHTEN FOUR CAP SCREWS (42). FIT UPPER TC/SC SEAT IN LOWER BEARING BRACKET (LIGHTLY OIL THE RUBBER SEAT CUP --ENSURE THE SEAT SITS SQUARE IN THE BRACKET) AND SLIDE ON UPPER SEAL ASSEMBLY ON ROTOR SHAFT. (USE SEAL ASSEMBLY MANDREL(T9006) TO ASSIST IN SLIDING BELLOWS ON TO THE SHAFT). LIGHTLY OIL THE ROTOR SHAFT BEFORE PUSHING BELLOWS ON SHAFT. USE EXTREME CARE SO THAT THE SEAL FACES ARE NOT DAMAGED. SLIDE ON CIRCLIP (46) AND FIT IN GROOVE ON SHAFT.
 6. PRESS HOME BY HAND LOWER TUNGSTEN CARBIDE/SILICON CARBIDE SEAT INTO SEAL HOUSING (47). LIGHTLY OIL RUBBER SEAT CUP BEFORE PRESSING IN CAVITY. THE SEAT MUST SIT SQUARE IN THE HOUSING.
 7. FIT SEAL HOUSING (47) INTO LOWER BRACKET AND TIGHTEN NUTS (50).
 8. SLIDE ON LOWER SEAL ASSEMBLY ON SHAFT. APPLY LIGHT COAT OF OIL ON SHAFT BEFORE SLIDING BELLOWS ON THE SAME. (USE SAME SEAL MANDREL AS USED FOR THE UPPER SEAL TO SLIDE BELLOWS ON SHAFT). FIT RETAINER SPRING AS FOR THE UPPER SEAL ASSEMBLY
 9. FIT SAND GUARD (57) INTO SEAL HOUSING AND SCREW THE FOUR PHILLIPS HEAD SCREWS INTO THE SEAL HOUSING. (58)
 10. TURN OIL BAG INSIDE OUT AND FIT OIL BAG "VEE" SECTION INTO GROOVE IN SEAL HOUSING (48). USING SMALL OIL BAG CLAMPS AND SCREWS & NUTS CLAMP THE OIL BAG TO THE SEAL HOLDER. TURN OIL BAG TO CLAMP THE LARGER SIDE "VEE" SECTION TO THE GROOVE IN THE LOWER BEARING BRACKET IN THE SAME WAY.
 11. FIT ONE DRAIN PLUG WITH "O" RING IN LOWER BEARING BRACKET AND FILL OIL IN THE OIL BAG. PERIODICALLY PRESS THE OIL BAG TO LET AIR ESCAPE SO THAT FILLING IS PROPER AND NO AIR IS ENTRAPPED IN THE OIL BAG. (A SMALL AMOUNT OF AIR IN THE OIL BAG WILL NOT BE DETRIMENTAL IN ANY WAY). REPLACE PLUG WITH "O" RING.



RE-ASSEMBLY OF THE PUMPSET (*continued*)

12. SLIDE ON WEAR PLATE AGAINST LOWER BEARING BRACKET AND TIGHTEN THE SAME. FIT KEY (62) ON THE SHAFT AND SLIDE ON IMPELLER. CLEARANCES BETWEEN IMPELLER AND WEAR PLATE CAN BE ADJUSTED BY MEANS OF THE TRIMMING SPACERS (61). TIGHTEN NUT (65) AND SEE THAT ROTOR SHAFT IS FREE.
13. FIT OUTER CASING ON TOP BRACKET WITH "O" RING. FIT DIFFUSER AND ADJUST CLEARANCES. SLIDE ON DIFFUSER WASHERS (70) AND FIT DIFFUSER HOLDER (71) AGAINST THE OUTER CASING (67). TIGHTEN BY MEANS OF NUTS (18). FIX STRAINER, BASE PLATE AND TIGHTEN BOLTS (75)

OIL SPECIFICATIONS

- A) H.P. ENKLO OIL 46/48
- B) SHELL TELLUS 29.
- C) CHEVRON SUPERLA WHITE # 9



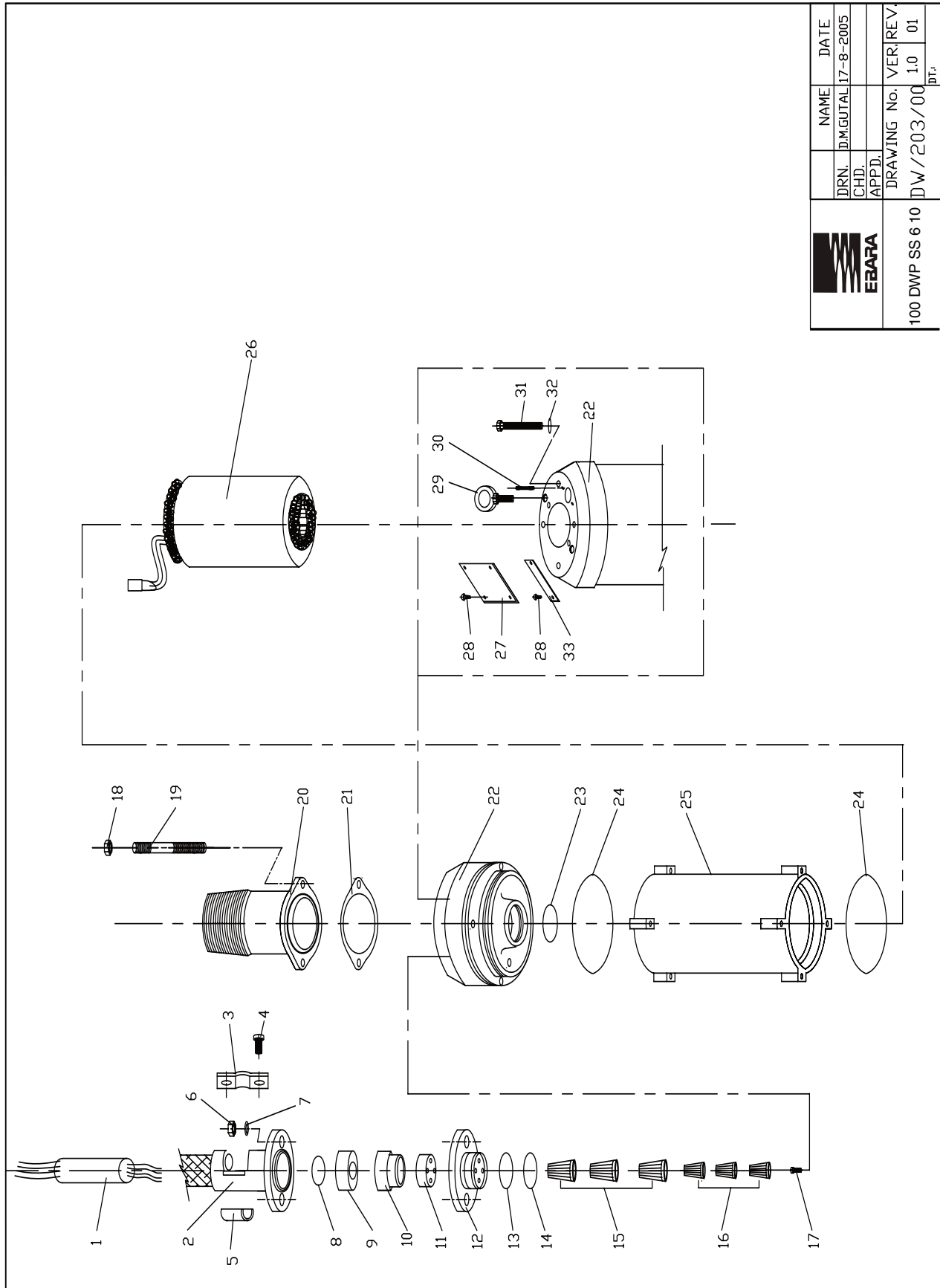
1. COMPONENTS LIST : AS PER DRAWING NO. DW/203/205 (SHEET 1 & 2).

DRAWINGS :

1. SECTIONAL ASSEMBLY (DW/203/00)(SHEET 1, 2)
2. SEALING ARRANGEMENT (DW/205/00)(SHEET 1, 2)

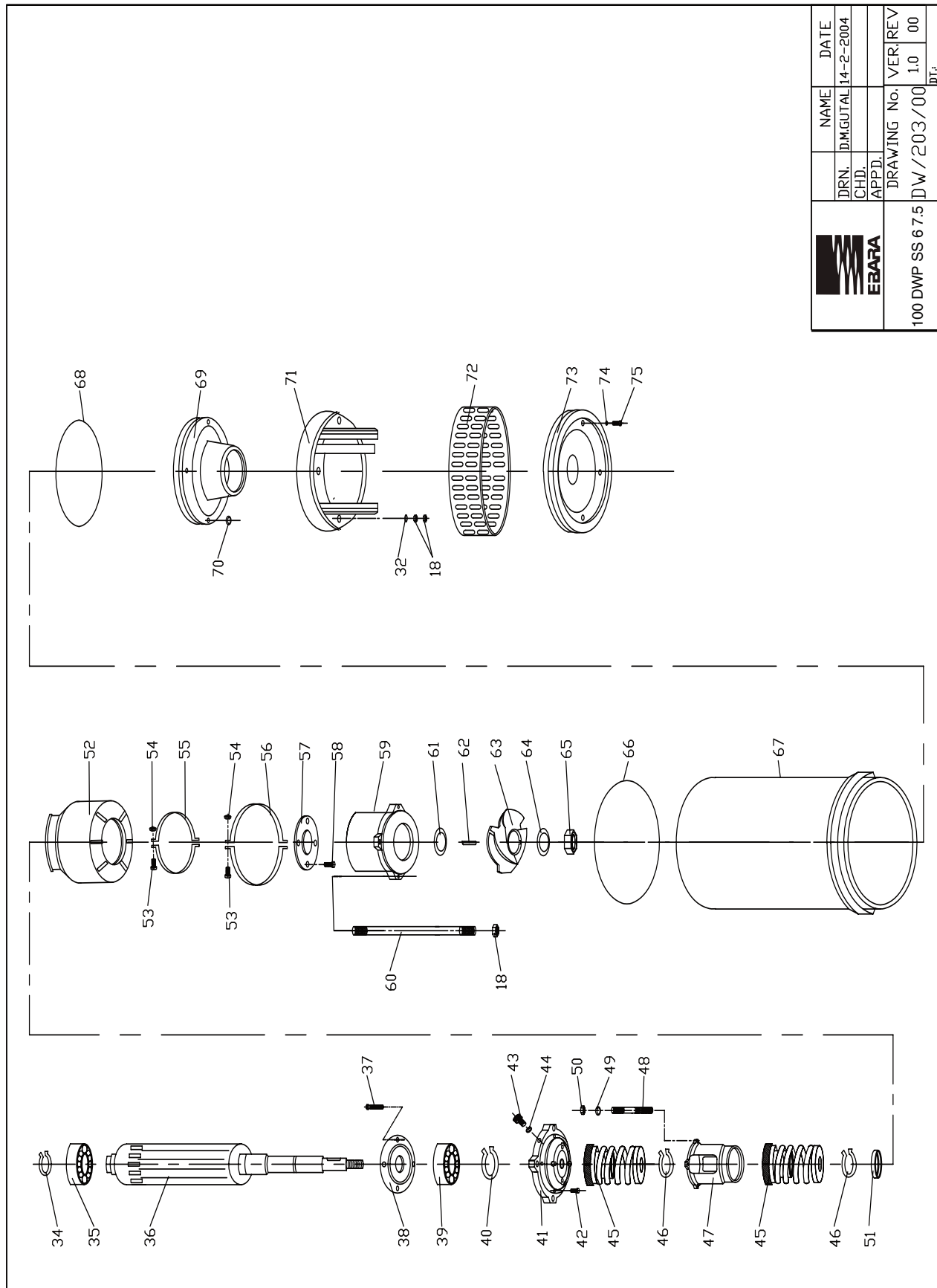
R: RECOMMENDED SPARES FOR TWO YEARS OPERATION

SR. NO.	DESCRIPTION	QUANTITY.
1	MECHANICAL SEAL	1 NO.
2	MECHANICAL SEAL	1 NO.
3	"O" RING SET	2 SETS
4	CABLE GROMMET	2 NOS.
5	CABLE LEAD GROMMET	2 NOS.
6	UPPER BEARING	1 NO.
7	LOWER BEARING	1 NO.
8	STRAINER	1 NO.
9	IMPELLER (100 DWP SS 6 7.5)	1 NO.
10	IMPELLER (100 DWP SS 6 10)	1 NO.
11	DIFFUSER (NEW)	1 NO.
12	WEAR PLATE	1 NO.
13	LOCK WASHER	2 NOS.
14	TOOL KIT	1 SET
ALTERNATE SC/SC MECHANICAL SEAL 535-015-00V		2 NOS.



		NAME	DATE
DRN.	DM.GUTAL	17-8-2005	
CHD.			
APPD.			
DRAWING No.		VER.	REV.
DW / 203/00		1.0	01
100 DWP SS 6 10		DPT.	

SHEET No. 1 OF 2



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	CHD.		
	APPD.		
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			PT.

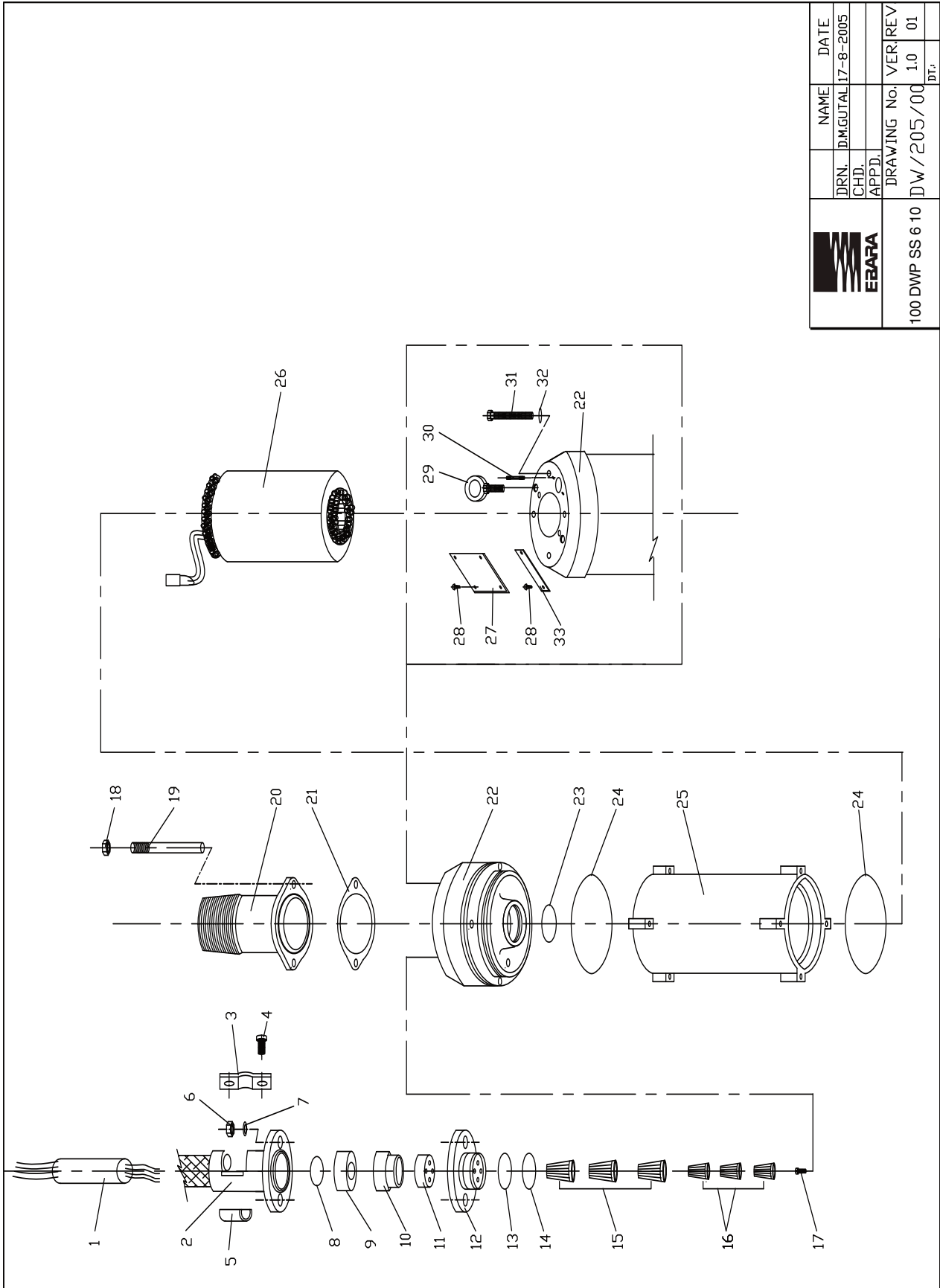
SHEET No. 2 OF 2

100DWP SS 6 7.5

D.NO.	DESCRIPTION	QTY
1	CABLE AWG 10/4 SOOW	50'
2	CABLE GLAND	1
3	CABLE CLAMP	1
4	PH.PAN HD.SCREW	2
5	CABLE SUPPORT	1
6	HEX NUT	2
7	WASHER	2
8	"O" RING	1
9	CABLE GROMMET	1
10	CABLE GLAND SPACER	1
11	CABLE LEAD GROMMET	1
12	CABLE GLAND BASE	1
13	"O" RING	1
14	"O" RING	1
15	WIRE NUT CONNECTOR	3
16	WIRE NUT CONNECTOR	3
17	EARTHING SCREW	1
18	HEX NUT	14
19	STUD	2
20	OUTLET (4"NPT)	1
21	GASKET (OUTLET)	1
22	TOP BRACKET	1
23	"O" RING	1
24	"O" RING	2
25	STATOR CASING	1
26	BARE STATOR	1
27	NAME PLATE	1
28	RIVET	6
29	LIFTING HOOK	2
30	STUD	2
31	HEX HD.BOLT	4
32	WASHER	8
33	ROTATION ARROW	1
34	CIRCLIP	1
35	UPPER BEARING	1
36	ROTOR COMPLETE	1
37	HEX HD.BOLT	4
38	BEARING COVER	1
39	LOWER BEARING	1
40	CIRCLIP	1
41	LOWER BEARING BRACKET	1
42	SOCKET HEAD SCREW	4
43	OIL PLUG	2
44	"O" RING	2
45	MECHANICAL SEAL	2
46	CIRCLIP	2
47	SEAL HOUSING	1
48	STUD	4
49	WASHER	4

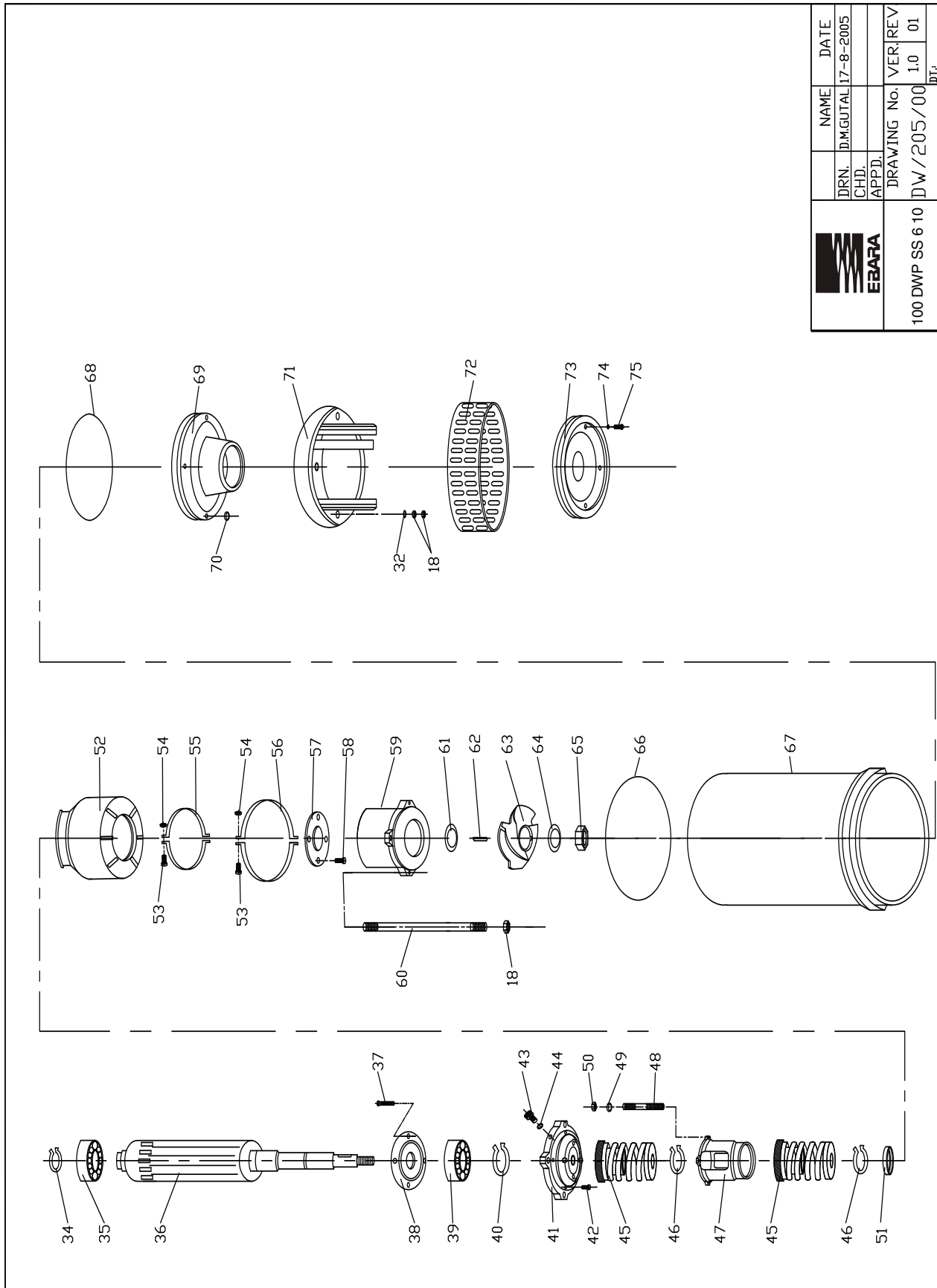
100DWP SS 6 7.5

D.NO.	DESCRIPTION	QTY
50	HEX NUT	4
51	CAP FOR CIRCLIP	1
52	OIL DIAPHRAGM	1
53	PH.PAN HD.SCREW	4
54	HEX NUT	8
55	OIL BAG CLAMP SMALL	1
56	OIL BAG CLAMP BIG	1
57	SAND GUARD	1
58	PH.PAN HD.SCREW	4
59	WEAR PLATE	1
60	STUD	4
61	TRIMMING SPACER	8
62	KEY	1
63	IMPELLER	1
64	LOCK WASHER	1
65	LOCK NUT	1
66	"O" RING	1
67	OUTER CASING	1
68	"O" RING	1
69	DIFFUSOR	1
70	DIFFUSER WASHER	4
71	DIFFUSER HOLDER	1
72	STRAINER	1
73	BASE PLATE	1
74	SPRING WASHER	4
75	HEX HD.BOLT	4
76	"O" RING SET	1



	NAME	DATE
	DRN. DM.GUTAL	17-8-2005
	CHD.	
	APPD.	
100 DWP SS 6 10	DRAWING No. DW / 205 / 00	VER. REV. 1.0 01
		DT.

SHEET No. 1 OF 2



	DRN.	NAME	DATE
	CHD.	DMIGUTAL	17-8-2005
	APPD.		
	DRAWING No.		VER.
100 DWP SS 6 10		DW / 205 / 00	1.0 01
		BT.	

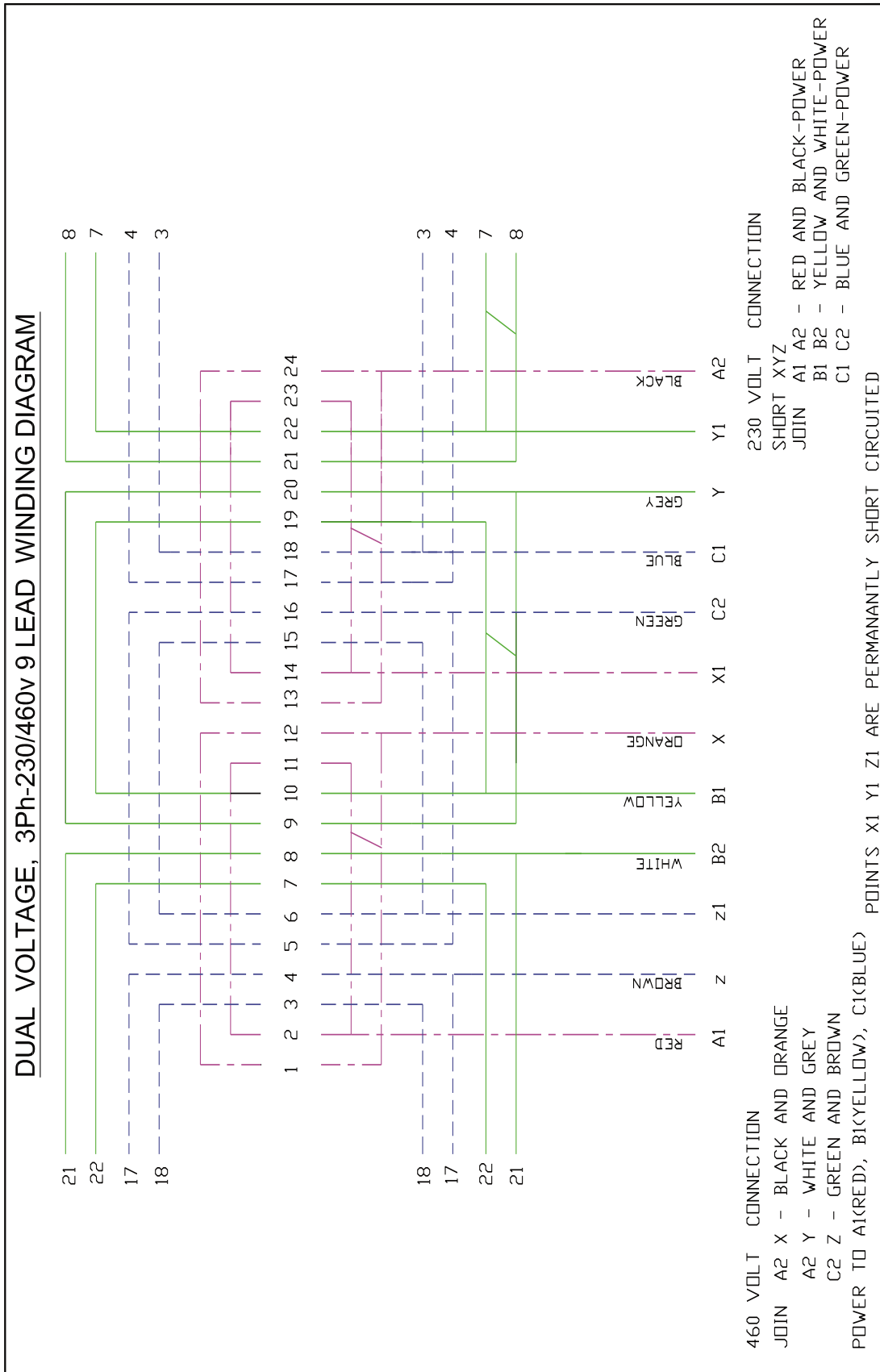
SHEET No. 2 OF 2

100 DWP SS 6 10

D.NO.	DESCRIPTION	QTY
1	CABLE AWG 10/4 SOOW	50'
2	CABLE GLAND	1
3	CABLE CLAMP	1
4	PH.PAN HD.SCREW	2
5	CABLE SUPPORT	1
6	HEX NUT	2
7	WASHER	2
8	"O" RING	1
9	CABLE GROMMET	1
10	CABLE GLAND SPACER	1
11	CABLE LEAD GROMMET	1
12	CABLE GLAND BASE	1
13	"O" RING	1
14	"O" RING	1
15	WIRE NUT CONNECTOR	3
16	WIRE NUT CONNECTOR	3
17	EARTHING SCREW	1
18	HEX NUT	14
19	STUD	2
20	OUTLET (4"NPT)	1
21	GASKET (OUTLET)	1
22	TOP BRACKET	1
23	"O" RING	1
24	"O" RING	2
25	STATOR CASING	1
26	BARE STATOR	1
27	NAME PLATE	1
28	RIVET	6
29	LIFTING HOOK	2
30	STUD	2
31	HEX HD.BOLT	4
32	WASHER	8
33	ROTATION ARROW	1
34	CIRCLIP	1
35	UPPER BEARING	1
36	ROTOR COMPLETE	1
37	HEX HD.BOLT	4
38	BEARING COVER	1
39	LOWER BEARING	1
40	CIRCLIP	1
41	LOWER BEARING BRACKET	1
42	SOCKET HEAD SCREW	4
43	OIL PLUG	2
44	"O" RING	2
45	MECHANICAL SEAL	2
46	CIRCLIP	2
47	SEAL HOUSING	1
48	STUD	4
49	WASHER	4

100 DWP SS 6 10

D.NO.	DESCRIPTION	QTY
50	HEX NUT	4
51	CAP FOR CIRCLIP	1
52	OIL DIAPHRAGM	1
53	PH.PAN HD.SCREW	4
54	HEX NUT	8
55	OIL BAG CLAMP SMALL	1
56	OIL BAG CLAMP BIG	1
57	SAND GUARD	1
58	PH.PAN HD.SCREW	4
59	WEAR PLATE	1
60	STUD	4
61	TRIMMING SPACER	8
62	KEY	1
63	IMPELLER 50 Hz	1
63	IMPELLER 60 Hz	1
64	LOCK WASHER	1
65	LOCK NUT	1
66	"O" RING	1
67	OUTER CASING	1
68	"O" RING	1
69	DIFFUSOR	1
70	DIFFUSER WASHER	4
71	DIFFUSER HOLDER	1
72	STRAINER	1
73	BASE PLATE	1
74	SPRING WASHER	4
75	HEX HD.BOLT	4
76	"O" RING SET	1



Operating, Installation, and Maintenance

COMMERCIAL PUMP/ PRODUCTS LIMITED WARRANTY

Ebara International Corporation, Rock Hill, SC (“EIC-RH”) warrants to the original purchaser only (“Customer”) that the EIC-RH Commercial Pump/Product (“Pump”) will be free of defects in workmanship and material for a period of twelve (12) months from the date of installation or eighteen (18) months from the date of shipment by EIC-RH, whichever comes first, provided that notification of any such defect is promptly given in writing to EIC-RH.

Customer may be required at EIC-RH’s request to verify that it is the Customer of the Pump and that the Pump was installed and operated in accordance with EIC-RH’s instructions.

EIC-RH’s sole obligation under this warranty will be to repair or replace with a new or reconditioned Pump, such Pump as has failed or has been found to be defective during the warranty period, or at EIC-RH’s sole option, to refund to the customer an equitable part of the purchase price. In no event shall EIC-RH’s cost responsibility exceed the initial purchase price paid by the Customer for the Pump.

EIC-RH shall be liable only for the cost of the Pump, or the cost of repair or replacement of any defective Pump. Customer shall be responsible for labor, cost of removal and installation at Customer’s premises, transportation and insurance costs to EIC-RH and any other incidental costs.

This warranty is void and does not apply if damage is caused by improper installation, improper maintenance, accident, alteration, abuse, misuse or if the Pump has been disassembled prior to warranty evaluation without written authorization from EIC-RH.

Warranty service and information for return procedures will be provided by EIC-RH upon receipt of written notice describing the defect or problem to:

Ebara International Corporation
Warranty/Claims
1651 Cedar Line Drive
Rock Hill, SC 29730
803-327-5005 (Phone) • 803-327-5097 (Fax)

THE FOREGOING WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY ON THIS PUMP, AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED AND EXCLUDED FROM THE TERMS OF THIS WARRANTY. EIC-RH’S SOLE OBLIGATION IN CASE OF ANY DEFECT WILL BE TO PROVIDE THE WARRANTY SERVICE SPECIFIED ABOVE. THE FOREGOING IS CUSTOMER’S SOLE AND EXCLUSIVE REMEDY, WHETHER IN CONTRACT, TORT OR OTHERWISE AND EIC-RH SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND WHATSOEVER.



***Contact your dealer or supplier
for more information about other Ebara products:***



EBARA Fluid Handling

1651 Cedar Line Drive • Rock Hill, SC 29730
(t) 803 327 5005 • (f) 803 327 5097
info@pumpsebara.com • www.pumpsebara.com
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