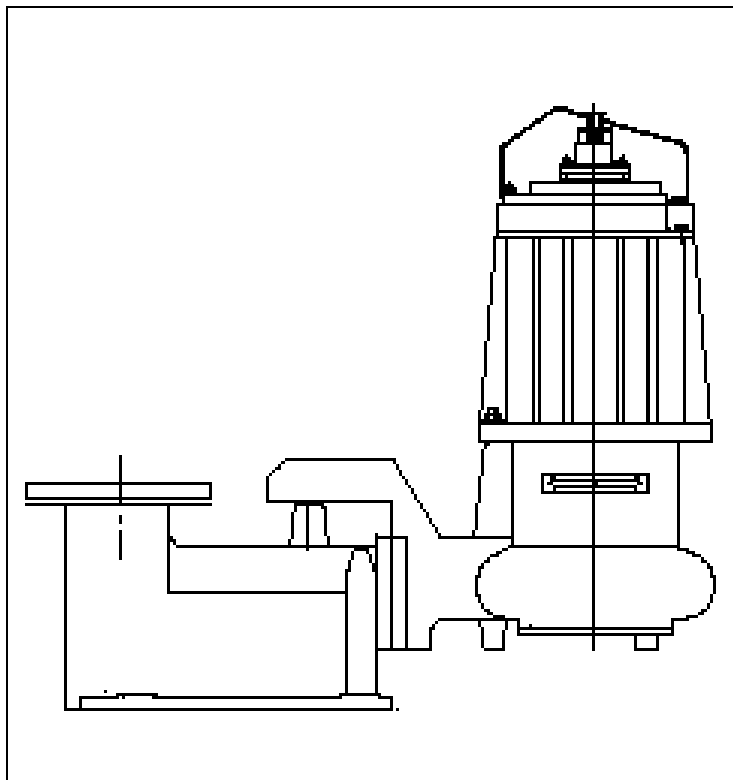




MODEL: MS 121

**OPERATING INSTRUCTIONS, INSTALLATION & MAINTENANCE
MANUAL INCLUDING SPARE PARTS LIST**



Mody Pumps Inc.

2166 Zeus Court

Bakersfield, CA 93308

Tel.: (661) 392-7600 FAX.: (661) 392-7601

E-Mail: sales@modypump.com

<http://www.modypump.com>



LIFE IS PRECIOUS - THINK SAFETY

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.
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 overload and short circuit protection.

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

GENERAL INFORMATION.

THE "MS" SERIES OF MODY'S SUBMERSIBLE SEWAGE PUMPS ARE PRIMARILY DESIGNED FOR HANDLING SEWAGE, SLUDGE, SLURRIES, WASTEWATER AND LIQUID MANURE. THEY CAN ALSO BE USED FOR HANDLING STORMWATER DRAINAGE WITH HIGH SOLIDS CONTENT.

THE SERVICE LIFE OF A SUBMERSIBLE PUMP PRIMARILY HINGES ON TWO ASPECTS: THE DEPENDABILITY OF THE SEALING SYSTEM AND THE WEAR RESISTANCE OF THE PUMP ITSELF.

THE "MS" SERIES OF PUMPS ARE AVAILABLE WITH A WIDE RANGE OF IMPELLERS TO SUIT PRACTICALLY EVERY PUMPING DUTY WITH HIGH EFFICIENCIES. THE **MS 121** SERIES HAS ONE MODELS CURRENTLY:

1. MS 211 SINGLE CHANNEL IMPELLER WITH 35MM/1.5" SOLID HANDLING CAPACITY.

THE SINGLE CHANNEL IMPELLERS ARE IN CAST IRON CONSTRUCTION. THE PUMP VOLUTES ARE ALSO IN CAST IRON WITH SMOOTH PROFILED GEOMETRY FOR CLOG FREE OPERATION AND HIGH EFFICIENCIES. ALL VOLUTES ARE FITTED WITH REPLACEABLE WEAR RINGS.

IT IS IN THE INTEREST OF THE USER THAT HE/SHE GO THROUGH THIS MANUAL IN DETAIL PRIOR TO USING THE PUMP.

TECHNICAL DESCRIPTION.

THE PUMPSET IS IN A MODULAR CONSTRUCTION ENSURING EASY AND SIMPLE SERVICEABILITY. THE MAJOR DESIGN FEATURES ARE AS UNDER:

A] THERMAL PROTECTION : SEE UNDER "MOTOR PROTECTION" .

B] THE MOTOR: A RUGGED ALUMINUM DIE CAST ROTOR, DYNAMICALLY BALANCED TO GRADE 2.5 ACCURACY OF ISO 942. A STAINLESS STEEL SHAFT RUNNING IN TWO DEEP GROOVE 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.

C] THE SEAL CHAMBER: THE HEART OF THE "MODY" PUMP. DUAL MECHANICAL SEALS, TUNGSTEN CARBIDE V/S TUNGSTEN CARBIDE SEAL FACES. SECONDARY SEALS OF NITRILE RUBBER AND METAL PARTS IN STAINLESS STEEL, RUNNING IN AN OIL BATH. THE SEALS HAVE BEEN SPECIFICALLY DESIGNED WITH EXTREMELY SHORT WORKING LENGTHS KEEPING IMPELLER OVERHANG TO THE MINIMUM. THIS ENSURES EXTENDED SEAL AND BEARING LIFE.

D] BEARINGS: DOUBLE ROW ANGULAR CONTACT LOWER BEARING, WITH SINGLE ROW DEEP GROOVE UPPER BALL BEARING GREASED FOR LIFE WITH A SPECIAL HIGH TEMPERATURE BEARING GREASE REQUIRING NO PERIODIC MAINTENANCE WHATSOEVER.

E] THE HYDRAULIC ELEMENTS: SINGLE CHANNEL IMPELLERS WITH LARGE SOLID HANDLING CAPACITY. SMOOTH PROFILED VOLUTES FOR HIGH EFFICIENCIES.

F] CABLE GLAND ASSEMBLY: THE PUMP IS SUPPLIED WITH 50' CABLE AS STANDARD. THE CABLE IS AWG #14 SOOW 4 CORE WITH AN OPTION AVAILABLE FOR 6 CORE WHEN THERMAL OVERLOADS ARE REQUIRED OR SEVEN CORE WITH SEAL PROBE SENSOR. THE CABLE IS TERMINATED IN THE PUMP AT THE CABLE GLAND. THE GLAND ASSEMBLY SEALS THE CABLE ON THE OUTSIDE SHEATH. A WATER DAM ARRANGEMENT IS ALSO 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 TERMINAL CHAMBER IN THE EVENT OF A CUT CABLE. THE CABLE IS ALSO SHEATHED FOR THE 1ST ONE METRE LENGTH 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.

G| ELECTRICAL INFORMATION: MOTORS ARE DESIGNED TO OPERATE ON SINGLE VOLTAGE AND FREQUENCY. MAXIMUM DEVIATION IN VOLTAGE ALLOWED IS -/+ 6% AND FREQUENCY -/+ 3%. CHECK NAME PLATE FOR OPERATING VOLTAGE AND FREQUENCY. 230/460V DUAL WIRED MOTORS STANDARD IN NORTH AMERICA.

DESIGN PARAMETERS :

- **LOWEST LIQUID LEVEL SHOULD BE 0.2 MTRS (8") ABOVE PUMP CASING.**
- **THE MAXIMUM SUBMERGENCE RECCOMENDED IS 10 METRES. (35')**
- **THE SPECIFIC GRAVITY OF THE PUMPED FLUID SHOULD NOT EXCEED 1.1.**
- **MAXIMUM FLUID TEMPERATURE IS 40 DEG. CELSUIS.**
- **pH OF THE PUMPED FLUID : 6 - 11**

INSTALLATION.

PUMPS ARE AVAIABLE FOR THREE TYPES OF INSTALLATION:

P TYPE INSTALLATION: SEMI PERMANENT/WET. PUMPS ARE LOWERED DOWN GUIDE BARS TO AUTOMATICALLY CONNECT TO DISCHARGE PIPING. PLEASE SEE ILLUSTRATION AT END OF MANUAL FOR DETAIL DIMENSIONS AND INSTALLATION.

S TYPE INSTALLATION: PORTABLE/WET. VERSATILE, MULTIPURPOSE, EASY TO INSTALL AND MOVE FROM SUMP TO SUMP. PUMP IS AVAILABLE WITH HOSE/FLANGE TYPE OUTLET CONNECTION AND INDEPENDENT BASE STAND. SEE ILLUSTRATION AT END OF MANUAL.

D TYPE INSTALLATION: THIS IS A DRY WELL INSTALLATION OR IN LINE PUMPING SYSTEMS. FLANGED CONNECTION TO FIXED SUCTION AND DELIVERY PIPELINES. SUITABLE FOR HORIZONTAL OR VERTICAL MOUNTING FOR DRY INSTALLATIONS. POWER LIMITATIONS EXIST FOR CERTAIN MODELS AND EXTERNAL COOLING MAY BE NECESSARY. PLEASE CONTACT FACTORY/SALES IF PUMP IS TO BE USED WITH THIS TYPE OF INSTALLATION.

- CHECK THAT THE SITE VOLTAGE CORRESPONDS WITH THAT OF THE PUMP.
- CHECK THAT FUSES ARE INTACT.
- USE SHORTEST POSSIBLE HOSE OF RECOMMENDED DIMENSION. AVOID SHARP BENDS, CREASES AND CONTRACTIONS. FOR P TYPE AND D TYPE INSTALLATIONS ENSURE ALL ACCESSORIES ARE AVAILABLE BEFORE STARTING INSTALLATION.
- NEVER LIFT OR PULL THE PUMP BY MEANS OF THE CABLE. SUSPEND THE PUMP BY A ROPE/CHAIN OR PREFERABLY PLACE IT ON A SOLID BASE. FOR P TYPE INSTALLATIONS THE REQUISITE CHAIN & TACKLE EQUIPMENT MUST BE AVAILABLE. PLEASE READ OUR PUBLICATION REGARDING "P" TYPE INSTALLATION.
- WIRE THE PUMP TO THE MAINS CORRECTLY. ALWAYS USE A STARTER OR A PANEL BOARD. SEE INSTRUCTIONS UNDER "MOTOR PROTECTION" BELOW.
- WHEN THE PUMP IS ENERGIZED IT WILL KICK, WHICH IS OPPOSITE TO THE DIRECTION OF ROTATION OF THE IMPELLER. SHIFT TWO PHASES IN THE POWER CONNECTION IF THE KICK IS IN THE WRONG DIRECTION. THE CORRECT DIRECTION IS INDICATED ON THE PUMP COVER AT THE TOP OF THE PUMP.
- CHECK LEVEL AND CONDITION OF THE OIL AT SERVICE EVERY SIX MONTHS. IF THE OIL IS EMULSIFIED BY WATER THE SEALS MUST BE REMOVED FROM THE ROTOR SHAFT FOR FURTHER ACTION. THE SHAFT SEAL SHOULD BE CHECKED FOR WEAR EVERY 2500 HRS. OF OPERATION. IF SEAL FACES SHOW ANY SIGNS OF WEAR, THEY SHOULD BE REPLACED.

HRC FUSE RECOMMENDED

MAINS VOLTAGE AT SITE	MS 121	
220 VOLTS, 3 PHASE	15	AMPS
380 VOLTS, 3 PHASE	8	AMPS
415 VOLTS, 3 PHASE	7.5	AMPS
460 VOLTS, 3 PHASE	7	AMPS

TROUBLE GUIDE	CAUSE	REMEDY
<u>PUMP DOES NOT START</u>	1.FUSES BLOWN.	1.REPLACE FUSES
	2.CABLE DAMAGED	2.SHORTEN/REPLACE CABLE
	3.NO POWER.	3.CHECK POWER SUPPLY
	4.BLOCKED IMPELLER.	4.CLEAN BOTTOM PARTS.
	5.STATOR WINDING BURNT.	5.REPLACE STATOR.
<u>PUMP STARTS BUT STOPS.</u>	1.BLOCKED IMPELLER.	1.CLEAN BOTTOM PARTS.
	2.IMPELLER ROT.WRONG	2.SHIFT TWO PHASE CONN.
	3.CONNECTED FOR WRONG VOLTAGE.	3.CHECK & RECONNECT.
	4.VOLTAGE TOO LOW/HIGH.	4.APPROACH POWER CO.
	5.LIQUID DENSITY HIGH	5.HIGHER HP REQUIRED.
	6.BI-METAL TRIPS.	6.CHECK CURRENT.
<u>PUMP GIVES TOO LITTLE WATER.</u>	1.IMPELLER ROT.BACKWARD.	1.SHIFT TWO PHASE CONN.
	2.PUMP WORN DOWN.	2.REPLACE IMPELLER.
	3.LONG HOSE AND DIAMETER TOO SMALL.	3.CHECK PRESSURE LOSSES
	4.PRESSURE HEAD TOO HIGH	4.INSTALL BIGGER PUMP.
	5.WEARING RING WORN OUT.	5.REPLACE WEAR RING.

MOTOR PROTECTION

IT IS ESSENTIAL THAT THE PUMP BE USED WITH A STARTER AND PREFERABLY A PANEL BOARD. PANEL BOARDS INCORPORATING ALL PROTECTIVE DEVICES ARE AVAILABLE WITH US. THE FULL LOAD AMPERE RATINGS OF THE TWO MODELS ARE AS PER TABLE BELOW. THE OVERLOAD RELAY IN THE STARTER SHOULD BE CHOSEN ACCORDINGLY AND AMPERES SET AT THE FULL LOAD SETTING FOR THE PARTICULAR MODEL OF THE PUMP. (DETAILS BELOW ARE FOR 230/460 VOLT PUMPS. CHECK FULL LOAD AMPERES FOR DIFFERENT VOLTAGES ON PUMP NAME PLATE)

<u>MODEL</u>	<u>FULL LOAD AMPERES.</u>
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MS 121	3.4 AMPS @ 460V - 5.4 AMPS @ 220v
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POWER CABLE OPTIONS

A) FOUR CORE CABLE

THE PUMP IS SUPPLIED WITH A FOUR CORE CABLE AND THE FUNCTION OF THE SAME IS AS UNDER:

- RED/YELLOW(WHITE)/BLUE(BLACK) ARE THE POWER CORES.
- GREEN CORE IS FOR EARTHING.

B) SIX CORE CABLE

THE PUMP IS SUPPLIED WITH A SIX CORE CABLE AND THE FUNCTION OF THE SAME IS AS UNDER:

- RED/YELLOW(WHITE)/BLUE(BLACK) ARE THE POWER CORES.
- GREEN CORE IS FOR EARTHING.
- ORANGE AND BLUE ARE FOR THERMALS

THREE THERMAL SWITCHES ARE EMBEDDED IN THE MOTOR WINDING OF WHICH TWO ARE CONNECTED IN SERIES. THESE ARE CONNECTED TO THE WHITE CORES OF THE CABLE. THE WHITE CORES OF THE CABLE ARE TO BE CONNECTED IN SERIES WITH THE CONTACTOR COIL OF THE STARTER. THIS IS MOST IMPORTANT.

IN THE EVENT OF OVERHEATING OF THE STATOR WINDING FOR ANY REASON, THE EMBEDDED THERMAL SWITCHES WILL OPEN, CAUSING THE STARTER COIL TO DROP OUT AND ISOLATE THE PUMP UNIT FROM THE MAINS. THESE SWITCHES DO NOT PROVIDE ANY PROTECTION IN THE CASE OF A SHORT CIRCUIT, AND ADEQUATE H.R.C. FUSES SHOULD BE USED FOR SHORT CIRCUIT PROTECTION.

C) MODY CAB SEVEN CORE CABLE

THE PUMP IS SUPPLIED WITH A SEVEN CORE CABLE AND THE FUNCTION OF THE SAME IS AS UNDER:

- RED/WHITE/BLACK ARE THE POWER CORES.
- GREEN CORE IS FOR EARTHING.
- TWO # 16 AWG WHITE CORES ARE FOR THERMALS
- ONE # 16 AWG BLACK CORE IS THE SEAL PROBE SENSOR

THE SEAL PROBE SENSOR NEEDS TO BE WIRED TO AN ABB LLC4 LIQUID LEVEL PROBE SENSOR THAT DETECTS MINUTE AMOUNTS OF FLUID IN THE OIL CHAMBER INSIDE THE CONTROL PANEL. SEE FOLLOWING DIAGRAM.

GENERAL OVERHAUL AND OIL CHECK.

DIS-ASSEMBLY (REFER DRG.NO.MS/860/00 AT END OF MANUAL)

- IT IS MANDATORY THAT ALL "O" RINGS BE REPLACED WHENEVER A PUMP IS OVERHAULED OR DISMANTLED. UNDER NO CIRCUMSTANCES SHOULD OLD "O" RINGS BE USED, EVEN IF THEY SEEM O.K. BE CAREFUL NOT TO SCRATCH SEALING SURFACES. ALWAYS GREASE NEW "O" RINGS BEFORE INSTALLATION.
- ALWAYS ISOLATE THE UNIT FROM ELECTRICAL POWER BEFORE ATTEMPTING ANY OVERHAUL.
- THE TRANSPORTABLE VERSION IS SUPPLIED WITH A PUMP BASE (63). REMOVE BASE BEFORE ANY FURTHER DIS - ASSEMBLY. THE PERMANENT INSTALLATION VERSION IS SUPPLIED WITH A SLIDING BRACKET FIXED ON THE VOLUTE OF THE PUMP. LAY THE PUMP ON IT'S SIDE ON A BENCH OR OVER TWO SUPPORTS. TURN THE PUMP SO THAT THE OIL HOLE FACES DOWNWARDS. USING AN ALLEN KEY UNSCREW OIL PLUG (33) TO DRAIN OIL FROM THE SEAL CHAMBER. IT IS EASIER TO DRAIN THE OIL IF THE OTHER OIL HOLE CAP SCREW IS ALSO REMOVED. **BE CAREFUL.** IF THE SEAL HAS LEAKED, THE OIL CASING MAY BE UNDER PRESSURE. HOLD A RAG OVER THE OIL PLUG TO PREVENT SPLATTER.
- UNSCREW CAP SCREW (26) AND REMOVE PUMP IMPELLER (24) FROM VOLUTE (22). REMOVE LOCKING SPACER (25) AND SLIDE IMPELLER OF THE MOTOR SHAFT. IF THE IMPELLER IS SLIGHTLY TIGHT USE A WOODEN MALLET TO TAP THE SAME OFF THE SHAFT. REMOVE KEY (29) AND KEEP ASIDE CAREFULLY.
- THE LOWER MECHANICAL SEAL IS NOW IN VIEW. REMOVE TRIMMING SPACER (S) (30). USING A NOSE/CIRCLIP PLIER REMOVE CIRCLIP (31). THE MECH. SEAL ASSEMBLY CAN NOW BE REMOVED FROM THE SHAFT BY HAND. BE VERY CAREFUL WITH THE SEALING SURFACES SO THAT THEY DO NOT SUFFER DAMAGE OR GET SCRATCHED IN ANY WAY. LEAVE THE SEAL SEAT IN THE SEAL HOUSING.
- UNSCREW NUTS (16) HOLDING THE VOLUTE AGAINST THE STATOR CASING AND REMOVE VOLUTE USING A WOODEN MALLET TO TAP OFF THE SAME. THE UPPER MECH. SEAL IS NOW IN VIEW. REMOVE THE SEAL IN EXACTLY THE SAME MANNER AS THE LOWER MECH. SEAL.
- UNSCREW HEX HD BOLTS (21) HOLDING THE LOWER BEARING BRACKET (20) AGAINST THE STATOR CASING. THE COMPLETE ROTOR ASSEMBLY WITH LOWER BEARING BRACKET AND LOWER BEARINGS CAN BE PULLED OUT FROM THE STATOR ASSEMBLY. THE LOWER BEARING BRACKET CAN BE REMOVED FROM THE ROTOR BY REMOVING THE BEARING COVER. THE BEARING CAN NOW BE EXAMINED.
- UNSCREW HEX NUT (4) HOLDING THE PUMP COVER (1) AND PRY OUT THE SAME. REMOVE THE WIRE CONNECTORS (45 & 49) TO SEPARATE THE POWER CABLE FROM THE MOTOR LEADS. THE WIRE CONNECTORS CAN BE UNSCREWED COUNTER CLOCKWISE TO RELEASE THE SAME. UNSCREW NUT FOR GROMMET (42) AND REMOVE RUBBER GROMMET (41). REMOVE HEX HD BOLT (44) AND PRY OUT UPPER BEARING BRACKET(7).
- THE STATOR IS NOW AVAILABLE FOR ELECTRICAL CHECKS, IF ANY ARE REQUIRED. WE RECOMMEND MEASURING LINE TO LINE RESISTANCE BETWEEN THE THREE POWER LEGS, A MEGGING TEST AND IF AVAILABLE A HIGH POT.
- REMOVE THE CABLE GLAND ASSEMBLY (50) BY TAKING OFF THE HEX NUTS (4). USING TWO SCREWDRIVERS GENTLY PLY OUT THE CABLE GLAND BASE (53). EXAMINE THE CABLE LEAD GROMMET (54) AND THE CABLE GROMMET (51). REMOVE THE WIRE NUTS (45) AND UNSCREW THE EARTHING SCREW (49).

RE- ASSEMBLY OF THE PUMPSET.

THE PUMP CAN BE RE- ASSEMBLED BY REVERSING THE ABOVE PROCEDURE. PLEASE HOWEVER NOTE THE FOLLOWING:

- **ALWAYS REPLACE ELASTOMER ELEMENTS.**
- **REPLACE LOCKING SPACER IF REQUIRED DURING RE-ASSEMBLY.**

OIL SPECIFICATIONS

- A) EXXON UNIVOLT 61
- B) SHELL TELLUS 29.
- C) CHEVRON SUPERLA 10 FDA APPROVED

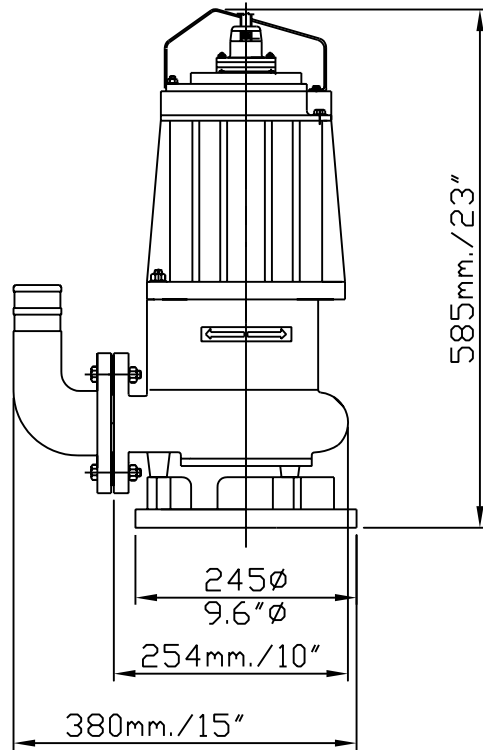
USE NON-CONDUCTING, NON-FOAMING, NON-DETERGENT FDA APPROVED OIL ONLY

PLEASE NOTE THE SEAL CHAMBER CONTAINS APPROX. 0.7 LITRES OF OIL.

RECOMMENDED SPARES FOR TWO YEARS OPERATION:

<u>SR. NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	535-031-00	MECHANICAL SEAL	2
2	535-024-66	“O” RING SET	1
3	260-034-66	CABLE GROMMET	1
4	260-016-66	CABLE LEAD GROMMET	1
5	020-002-07	UPPER BEARING	1
6	020-021-07	LOWER BEARING	1
7a	300-116-01	IMPELLER (60Hz)	1
7b	300-114-01	IMPELLER (50Hz)	1
8	720-015-80	WEAR RING	1

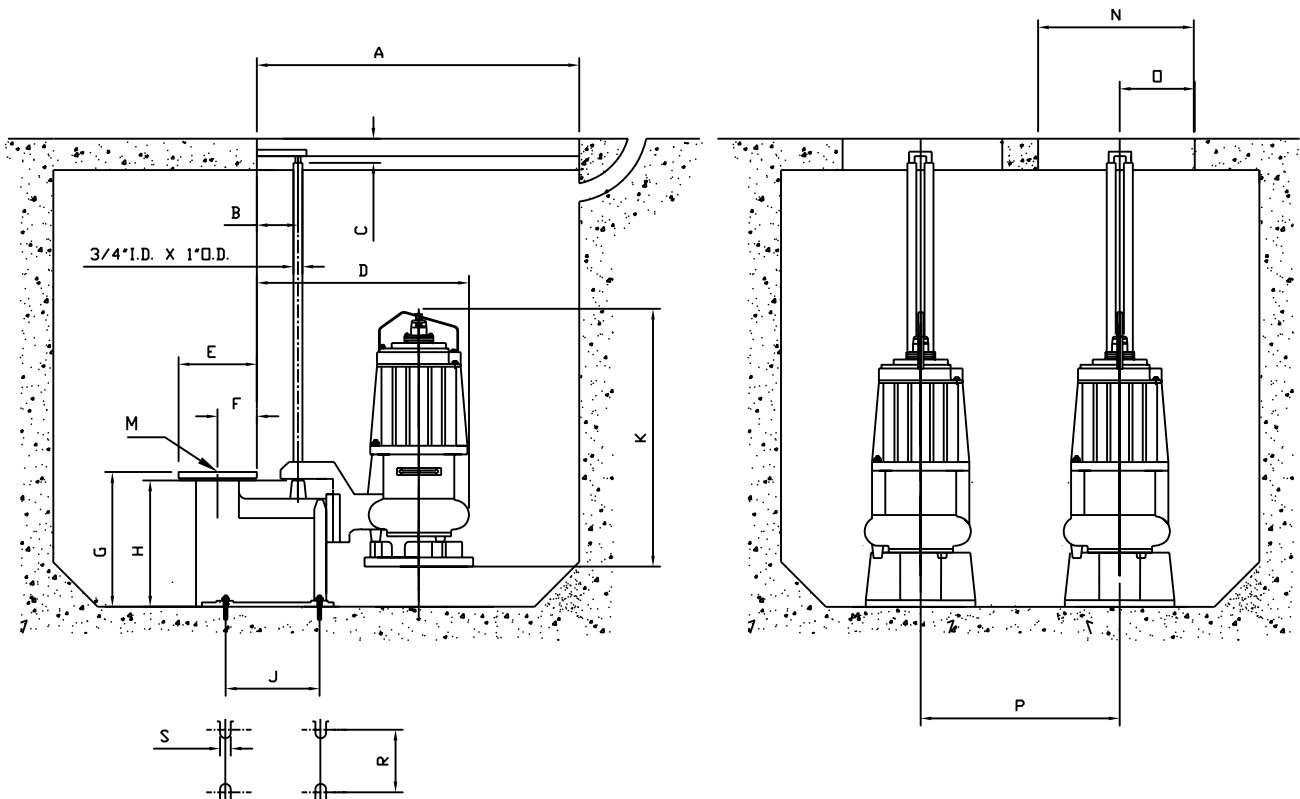
PORTABLE INSTALLATION

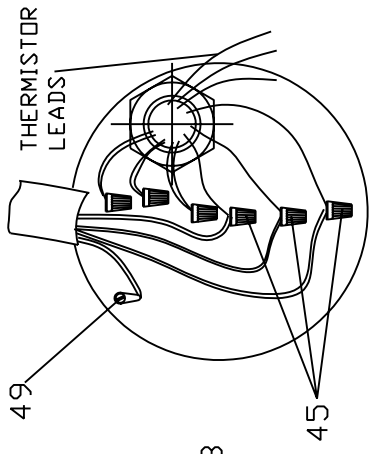
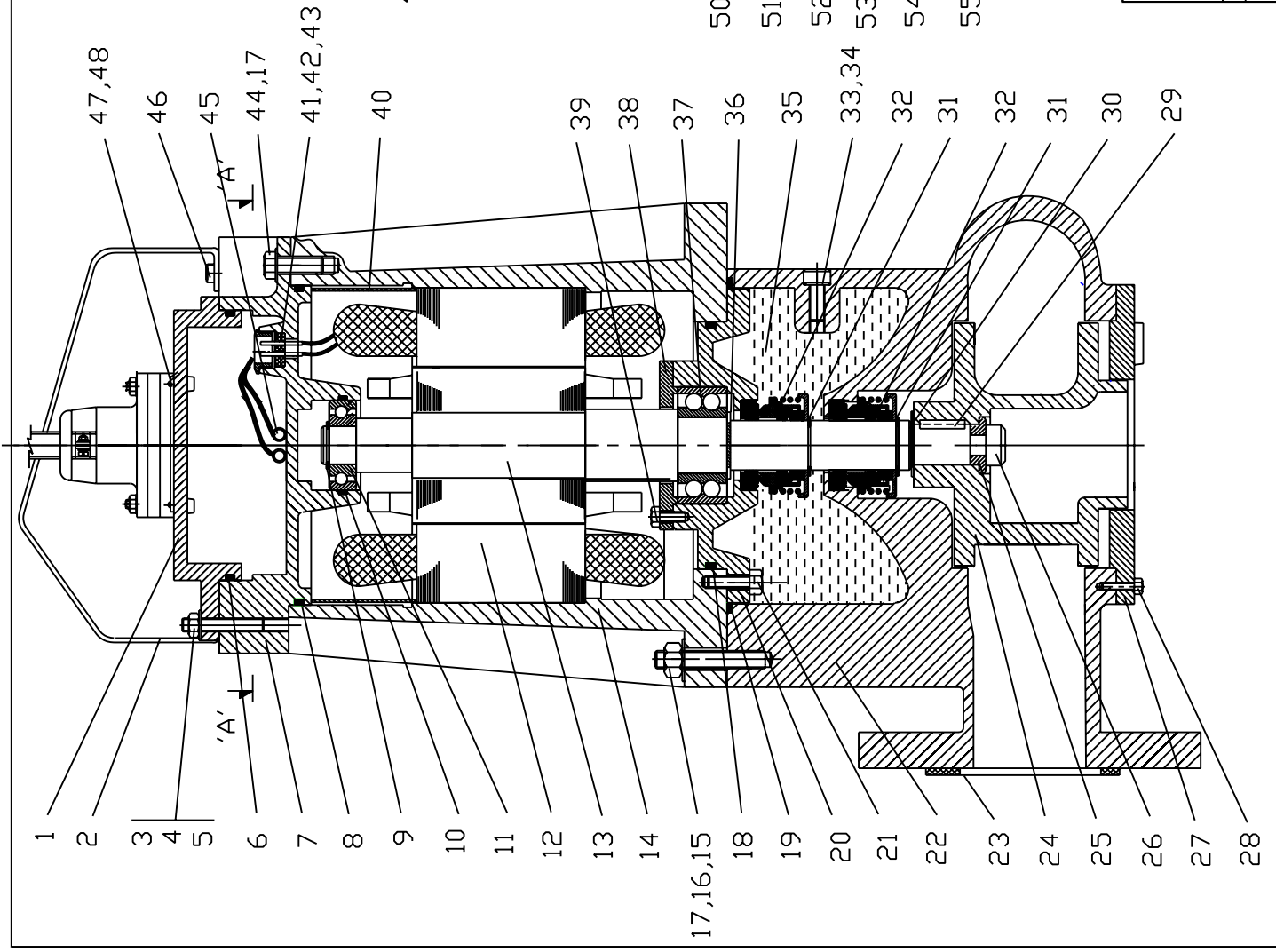


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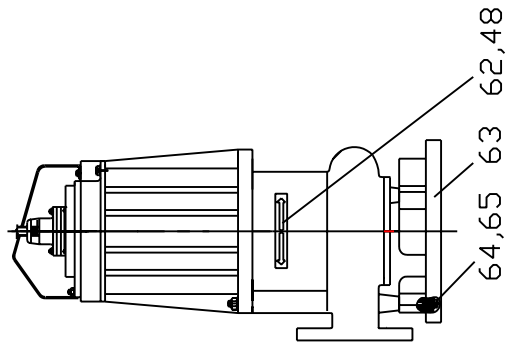
STATIONARY (SEMI PERMANENT) WET PIT INSTALLATION

	A	B	C	D	E	F	G	H	J	K	MØ	N	□	P	R	S
MS121	780	85	70	393	150	75	175	163	140	540	52	570	262	670	115	15



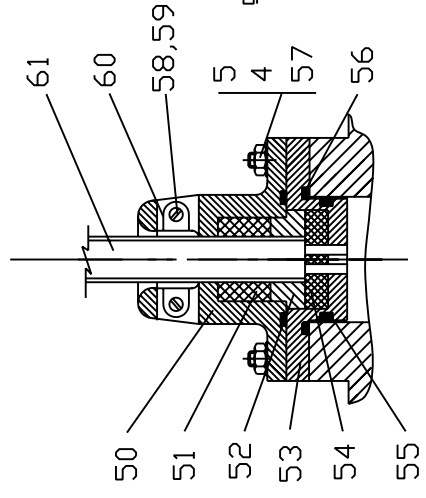


VIEW AT ARROW 'A-A'

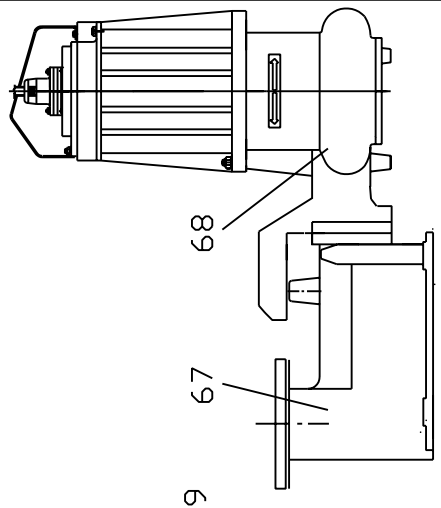


TRANSPORTABLE VERSION

(WT.: 55 KG.)



CABLE GLAND ASSLY.



PERMANENT INSTALLATION

(WT.: 58 KG.)



Moody Pumps Inc.
2166 Zeus Court
Bakersfield, CA 93308 USA
Tel.: 661-392-7600 Fax: 661-392-7601
www.moodypump.com

TYPE MS-121E	TITLE: SECTIONAL ASSY. DRG. OF MODDY SEWAGE PUMP		DRAWING No. MS/860/00	VER/REV. 1.0 00	
	DRN.	NAME			DATE
	CHD.	D.M.GUTAL			12-8-2004
		APPD.		DT.:	

PUMP MODEL MS-121E VER - 1.0

28-01-2005

D.NO.	PART NO.	DESCRIPTION	QTY
1	105-011-01	PUMP COVER	1
2	270-016-21	HANDLE	1
3	650-003-21	STUD	2
4	370-005-21	HEX NUT	4
5	700-002-21	WASHER	4
6	380-075-66	O RING	1
7	035-070-01	UPPER BEARING BRACKET	1
8	380-025-66	O RING	1
9	080-003-08	CIRCLIP	1
10	380-012-66	O RING	1
11	020-002-07	UPPER BEARING	1
12	619-008-00	BARE STATOR	1
13	480-070-00	ROTOR COMPLETE	1
14	625-043-01	STATOR CASING	1
15	650-012-21	STUD	3
16	370-006-21	HEX. NUT	3
17	700-004-21	WASHER	6
18	380-076-66	O RING	1
19	380-077-66	O RING	1
20	035-071-01	LOWER BEARING BRACKET	1
21	045-045-21	HEX. HD. BOLT	4
22a	050-032-01	PUMP VOLUTE ANSI	1
22b	050-030-01	PUMP VOLUTE BS	1
23	220-030-68	GASKET	1
24a	300-116-01	IMPELLER ,60 Hz	1
24b	300-114-01	IMPELLER, 50 Hz	1
25	600-064-21	LOCKING SPACER	1
26	520-003-21	CAP SCREW	1
27	720-015-80	WEAR RING	1
28	045-004-21	HEX. HD. BOLT	3
29	320-036-22	KEY	1
30	600-067-21	TRIMMING SPACER	AS REQD
31	080-019-21	CIRCLIP	2
32	535-031-00	MECHANICAL SEAL	2
33	520-002-21	OIL PLUG	2
34	380-001-66	O RING	2
35	395-005-93	OIL	0.7L
36	080-005-08	CIRCLIP	1
37	020-021-07	LOWER BEARING	1
38	037-012-01	BEARING COVER	1
39	045-004-21	HEX HD BOLT	4
40	600-065-04	SPACER FOR STATOR	1
41	260-069-66	LEAD GROMMET	1
42	365-034-40	NUT FOR GROMMET	1
43	710-029-40	WASHER FOR LEAD GROMMET	1
44	045-009-21	HEX HD BOLT	3
45	365-025-00	WIRE NUT CONNECTOR	6
46	520-013-21	CAP SCREW	2

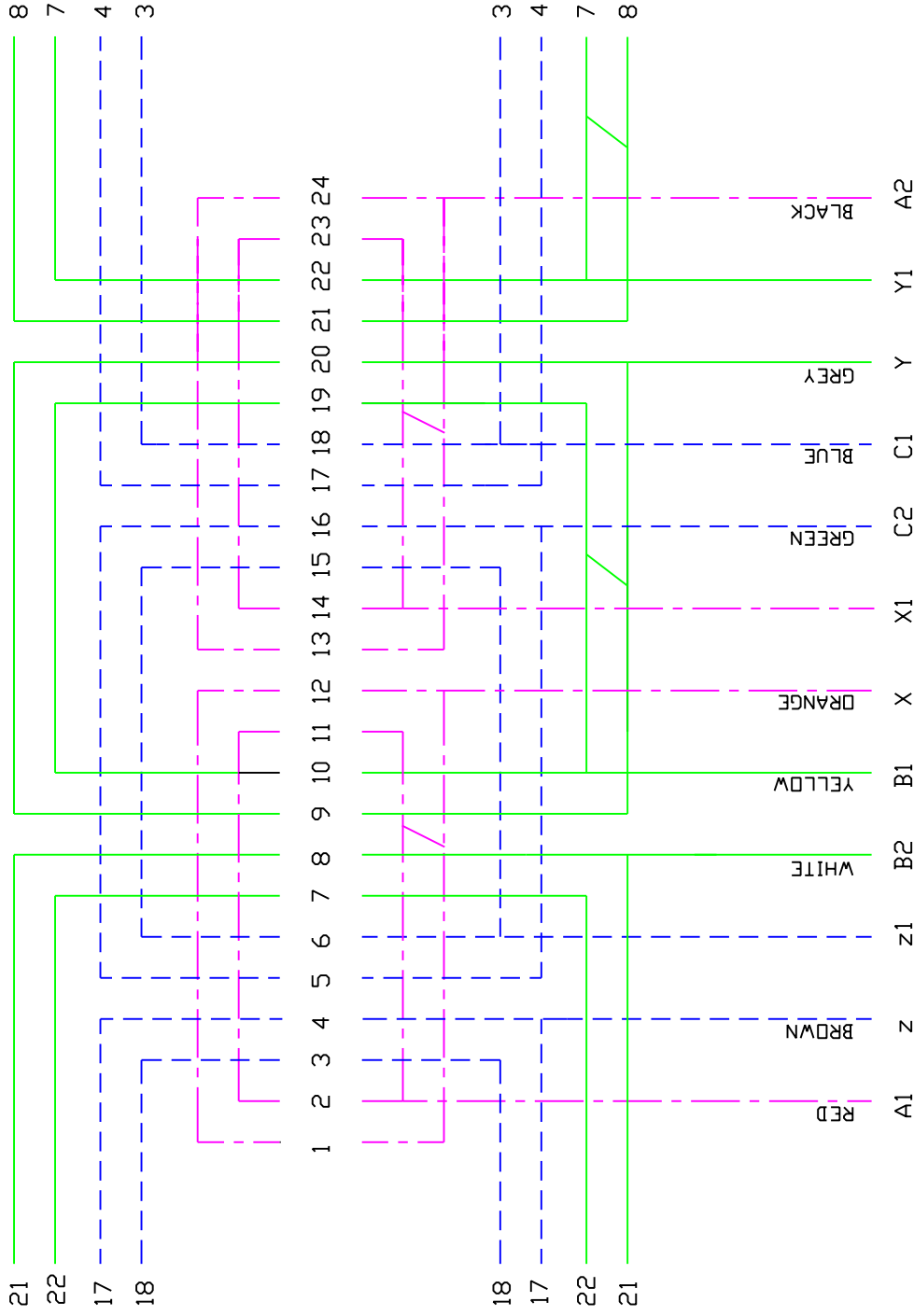
PUMP MODEL MS-121E VER - 1.0

D.NO.	PART NO.	DESCRIPTION	QTY
47	350-033-21	NAME PLATE	1
48	465-006-11	RIVET	6
49	525-007-40	EARTHING SCREW	1
50	230-001-21	CABLE GLAND	1
51	260-034-66	CABLE GROMMET	1
52	600-011-40	GLAND SPACER	1
53	235-001-49	CABLE GLAND BASE	1
54	260-016-66	CABLE LEAD GROMMET	1
55	380-005-66	O RING	2
56	380-007-66	O RING	1
57	650-004-21	STUD	2
58	370-001-21	HEX NUT	2
59	525-005-21	CH. HD. SCREW	2
60	085-003-21	CABLE CLAMP	2
61	065-014-79	CABLE 14/4 SOOW	50'
62	635-009-21	ROTATION ARROW	1
63	030-030-01	PUMP BASE	1
64	045-036-21	HEX HD BOLT	3
65	700-006-21	WASHER	3
66	375-024-66	O RING SET	1

PERMANENT INSTALLATION

67	095-025-01	DISCHARGE CONNECTION	1
68	050-033-01	PUMP VOLUTE	1

MODY DUAL VOLTAGE, 3Ph-230/460v 9 LEAD WINDING DIAGRAM



460 VOLT CONNECTION

- JOIN A2 X - BLACK AND ORANGE
- A2 Y - WHITE AND GREY
- C2 Z - GREEN AND BROWN

POWER TO A1(RED), B1(YELLOW), C1(BLUE)

230 VOLT CONNECTION

- SHORT XYZ
- JOIN A1 A2 - RED AND BLACK-POWER
- B1 B2 - YELLOW AND WHITE-POWER
- C1 C2 - BLUE AND GREEN-POWER

POINTS X1 Y1 Z1 ARE PERMANENTLY SHORT CIRCUITED



LIMITED WARRANTY

On Behalf of *Mody Industries Pvt. Ltd.* (manufacturer) we warrant to our immediate customer and to the ultimate consumer that products of our manufacture will be free of defects in material and workmanship under normal use and service for the following time periods, when installed and maintained in accordance with our instructions.

PUMPS: One (1) year from date of installation or (18) months from date of shipment, whichever occurs first. As used herein, "the ultimate consumer" is defined as the purchaser who first uses the product after its initial installation or, in the case for product designed for non-permanent installation, the first owner who uses the product. It is the purchaser's or any sub-vendor's obligation to make known to the ultimate consumer the terms and conditions of this warranty. This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our facility or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, FOB POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.**

Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by *Mody Industries Pvt. Ltd.*, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. Components or accessories supplied by us but manufactured by others are warranted only to the extent of and by the terms and conditions of the original manufacturer's warranty. **RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT, WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.**

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage, (c) lightning, (d) sand or other abrasive materials, (e) scale or corrosion build-up due to excessive chemical content. Any modification of the equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval. This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL, AND/OR WORKMANSHIP AND/OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any person, whether by operation or otherwise, without our prior written approval.