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KWIKFLO

DIAPHRAGM PUMP

TECHNICAL MANUAL

INSTALLATION AND MAINTENANCE PROCEDURES

2009 VERSION 1

MANUFACTURER

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CONTENTS

INSTALLATION INSTRUCTIONS FOR KWIKFLO DIAPHRAGM PUMPS & PIPEWORK

1. Install the pump, level and secure, using the holes in the baseplate.
2. For liquids other than water being pumped, viscosity, specific gravity and solids in suspension must also be taken into account and it may be necessary to go to a larger pipe or hose than specified.
3. Keep pipework as short and direct as possible.
4. Avoid the use of elbows and check valves.
5. Gate valves must not be installed in the suction or delivery pipework unless as isolation valves. Under no circumstances should the flow be attempted to be controlled by a gate valve.
6. It is recommended that unions are to be used on the suction and discharge sides of the pump to facilitate easy removal for servicing.
7. For suction and discharge pipework we recommend using PVC pressure pipe of minimum pressure rating Class 9, refer to table on the next page.
8. Suction and Delivery pipework should have their own support brackets.
9. At least 3 metres of reinforced flexible hose such as Heliflex or similar are to be used between the pump and any fixed pipework where practical.
10. Suction lines should not exceed 7.6 metres in length. When flexible hose is used it should be reinforced PVC or rubber suction hose such as Heliflex or similar.
11. A suction hose strainer should be fitted to screen out larger solids and to stop the hose sucking into the bottom or side of the pit or sump. When using PVC pressure pipe, the suction strainer should be left off.
12. We recommend reinforced PVC or rubber hose for delivery hose to avoid kinking and collapsing.
13. Where the pump is working against a vertical discharge head, pipework should rise from the pump and then fall away or run horizontally.
14. To minimise potential problems with air leaks only use heavy duty hose clamps.

ELECTRICAL

1. All electrical work to be carried out by licensed electrical contractors to AS3000.
2. Electric motors should be wired in accordance with the manufacturer's specifications
3. Three phase motors need overload protection wired into the circuit.
4. Single phase motors normally have built in overload protection but if not it should be wired into the circuit.
5. Electric motors fitted are totally enclosed fan cooled but do require protection from the weather and being hosed with water.
6. Always allow adequate ventilation for motor cooling and never restrict air flow to the cooling fan.

GEARBOX

1. Remove vent plug from oil filler cap before start up.
2. Check oil is visible in sight glass before start up.
3. Recommended oil - Shell Omala 320 or Castrol Alpha SP320.

RECOMMENDED LENGTHS AND DIAMETER OF PVC PIPE/HOSE FOR KWIKFLO DIAPHRAGM PUMPS

PUMP SIZE: 25 mm	
Suction Pipe Length	Pipe Internal Diameter
0 to 5 Mtrs	25 mm
5 to 10 Mtrs	32 mm
Discharge Pipe Length	Pipe Internal Diameter
0 to 10 Mtrs	32 mm
10 to 20 Mtrs	40 mm

PUMP SIZE: 32 mm	
Suction Pipe Length	Pipe Internal Diameter
0 to 5 Mtrs	32 mm
5 to 10 Mtrs	40 mm
Discharge Pipe Length	Pipe Internal Diameter
0 to 10 Mtrs	40 mm
10 to 20 Mtrs	50 mm

PUMP SIZE: 38 mm	
Suction Pipe Length	Pipe Internal Diameter
0 to 5 Mtrs	40 mm
5 to 10 Mtrs	50 mm
Discharge Pipe Length	Pipe Internal Diameter
0 to 10 Mtrs	50 mm
10 to 20 Mtrs	65 mm

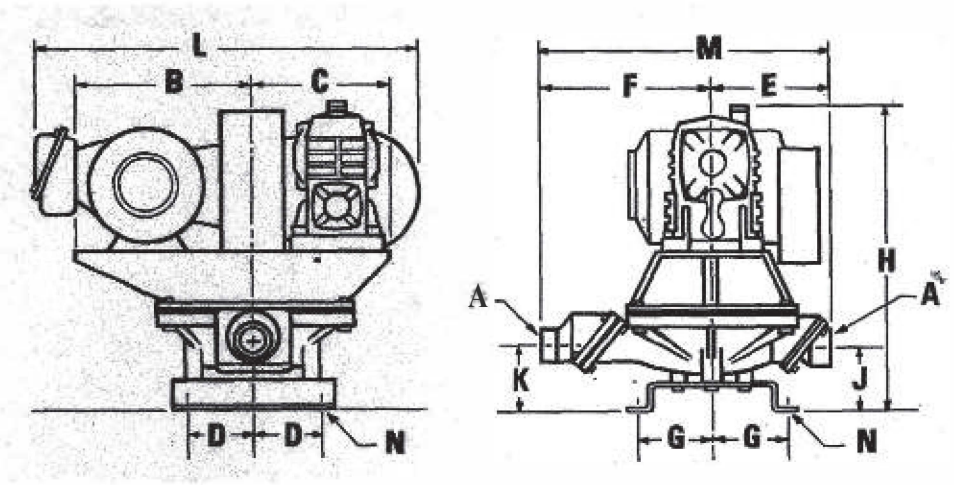
PUMP SIZE: 50 mm	
Suction Pipe Length	Pipe Internal Diameter
0 to 5 Mtrs	50 mm
5 to 10 Mtrs	65 mm
Discharge Pipe Length	Pipe Internal Diameter
0 to 10 Mtrs	65 mm
10 to 20 Mtrs	80 mm

PUMP SIZE: 76 mm	
Suction Pipe Length	Pipe Internal Diameter
0 to 5 Mtrs	80mm
5 to 10 Mtrs	80mm
Discharge Pipe Length	Pipe Internal Diameter
0 to 10 Mtrs	100mm
10 to 20 Mtrs	100mm

PLEASE NOTE

Correct rotation is clockwise viewed from the non drive end of the motor. Incorrect rotation will cause damage to the pump and void pump warranty. Refer to motor manufacturer's wiring instructions before running the pump. This is especially important with three phase motors.

DIMENSIONS AND SPECIFICATIONS



DIMENSIONS (mm)

Size	A	B	C	D	E	F	G	H	J	K	L	M	N
25	25	275	155	100	110	205	125	389	95	100	430	315	12
32	32	275	175	100	140	220	125	410	105	105	450	380	12
38	38	270	175	100	170	240	125	480	110	110	465	410	12
50	50	275	200	100	195	280	125	530	115	115	475	475	12
76	76	375	230	100	230	350	125	590	115	115	605	580	12

SPECIFICATIONS

Model	Size mm	Capacity Clean Water LPM	Suction Lift m	Discharge Head m	Solids mm	Weight kg
KDS25	25	16-25	7.5	6	15	25
KDS32	32	33	7.5	6	20	30
KDS38	38	50	7.5	6	25	42
KDS50	50	100	7.5	6	35	55
KDS76	76	210	7.5	6	50	72

CLEANING FREQUENCY

Installation conditions will determine the regularity of maintenance intervals, ie the quality of the influent that is being treated. It is recommended that initially maintenance be carried out as described. However, it may need more regular servicing where there is excessive silt, debris and sludge entering the system.

MAINTENANCE OF THE DIAPHRAGM PUMP

Replacement of Diaphragm

As the diapragm is a wearing part it will need to be replaced as often as individual conditions dictate. The diaphragm must be replaced if it is torn, split or leaking.

Replacement diaphragms are available from All Pumps in a "Wet Service Kit" which also contains flap valves, vee-belt and gaskets.

1. Disconnect power at supply.
2. Remove all four casing M8 x 40 bolts.
3. Lift drive support housing (No.12) complete with motor (No. 24) and gearbox (No.13) to one side. N.B TAKE CARE TO AVOID DAMAGE TO ELECTRICAL CONNECTION.
4. With access now available to diaphragm (No.3) remove lower bolt (No.9) washer (No.10) and diaphragm plate (No.2). N.B BE SURE UPPER BOLT (No.2) STAYS IN ORIGINAL POSITION.
5. Remove and replace diaphragm (No.3) with writing on new diaphragm (No.3) facing upwards. Re-fit lower diaphragm plate (No.2) making sure the inner lip edge on the diaphragm (No.3) is located in the corresponding grooves in the diaphragm plate (No.2). Then re-fit lower washer (No.10) and bolt (No.9) and tighten.
6. Reposition drive support housing (No.12) onto bowl (No.1) and locate outer lip edge of diaphragm in corresponding grooves in bowl and drive support housing.
7. Re-fit all four casing bolts and tighten evenly. N.B DO NOT OVERTIGHTEN THESE BOLTS. (To be tightened to 12 N.m).
8. Re-connect power supply and check operation.
9. The diaphragm pump must be drained every 3 months and inspected for wear and tear of diaphragm, flap valves and gaskets.

REPLACEMENT OF FLAP VALVES

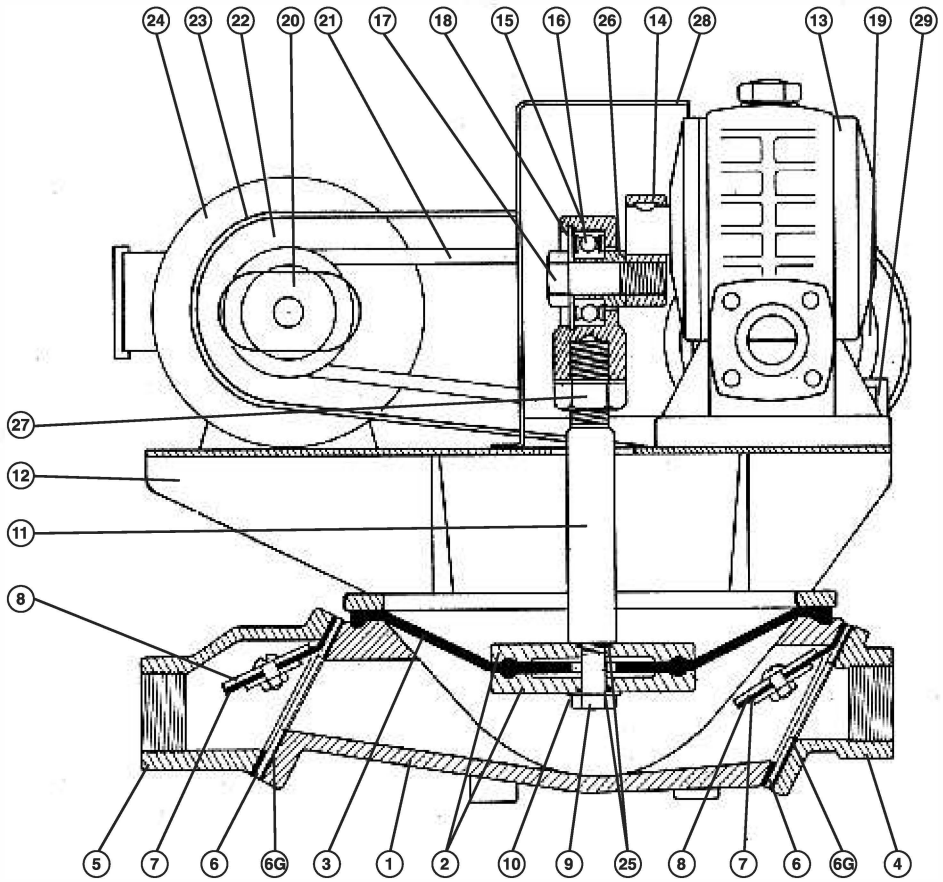
Before attempting to replace the flap valves it should be noted that the flap valve assemblies (No. 7) for the suction and discharge ports are identical. Assembly order should be as per diagram No. 9b page 24. When the flap valve assembly (No.7) is fitted to the suction of the pump the flap valve assembly (No.7) will be adjacent to pump casing (No.1) however when flap valve assembly (No.7) is fitted to the discharge of the pump the flap valve (No.7) will be adjacent to the discharge chamber (No.5).

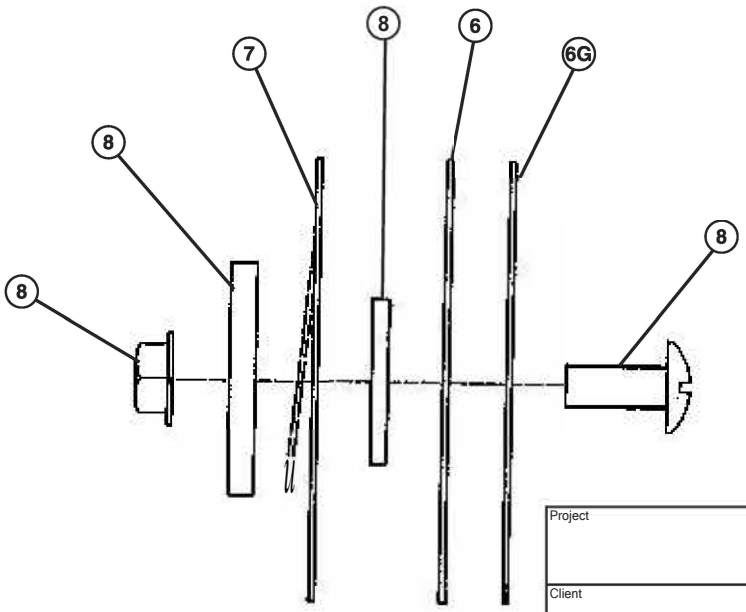
1. Disconnect power at supply.
2. Disconnect pipework adjacent to faulty flap valve and corresponding chamber bolts.
3. Remove valve chamber (No.4-5).
4. Remove flap valve assembly (No.7) and check components for wear and replace accordingly.
5. Re-assemble flap valve assembly (No.7) as per diagram No. 9b page 24. N.B WARNING: DO NOT OVERTIGHTEN. Flap valve bolt to be wound in hand tight to weight. Locking nut to be tightened to 14 N.m.
6. Re-fit flap valve assembly (No.7) and check flow directions. Suction valve should push into pump whilst discharge valve should lift up and both flap valves should re-seal automatically.
7. Re-fit corresponding valve chamber (No.4-5) and chamber bolts and tighten.
8. Re-connect pipework to valve chamber (No.4-5).
9. Re-connect power supply and check operation.

MAINTENANCE OF THE GEARBOX

1. Check that gearbox runs smoothly.
2. Make sure drive shafts are not loose in housing.
3. Drain gearbox oil.
4. Fill until oil is visible in sight glass with Shell Omala 320 or Castrol Alpha SP320.

DIAGRAM OF KWIKFLO DIAPHRAGM PUMP



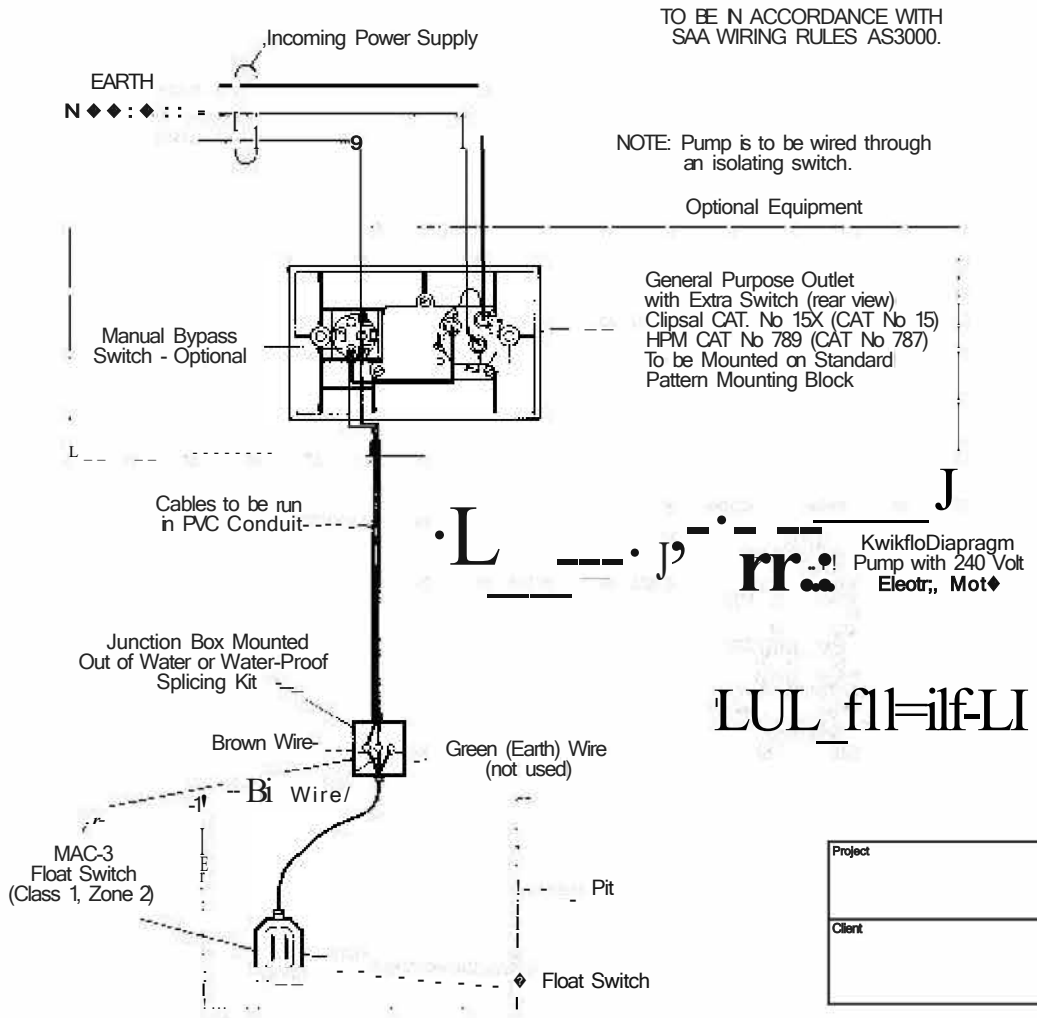


Project	Drawing Title: Kwikflo Diaphragm Pump Numbered Parts			
Client	Scales: NTS	Authorised	Client Project No.	
		Dwg. No: KCPS-0009a-9b	Sheet: of	Revision

KWIKFLO DIAPHRAGM PUMP

ITEM	DESCRIPTION	QUANTITY
1	Aluminium Bowl	1
2	Stainless Steel Diaphragm Plate	2
3	Buna-n Diaphragm	1
4	Aluminium Suction Port	1
5	Aluminium Discharge Port	1
6	Stainless Steel Valve Seat	2
6G	Buna-n Valve Seat Gasket	2
7	Buna-n Flap Valve	2
8	Stainless Steel Flap Valve Weight Set	2
9	Stainless Steel Diaphragm Plate Bolt	1
10	Stainless Steel Washer	1
11	Zinc Plated Connecting Rod	1
12	Zinc Plated Drive Support Housing	1
13	Cast Iron Gear Box	1
14	Zinc Plated Eccentric Block	1
15	Aluminium Eccentric Bearing Housing	1
16	Eccentric Bearing	1
17	High Tensile Eccentric Bolt & Washer	1
18	High Tensile Circlip	1
19	Aluminium Gear Box Pulley	1
20	Aluminium Motor Pulley	1
21	Vee Belt	1
22	Stainless Steel Guard Back Plate	1
23	Plastic Pulley Guard	1
24	Electric Motor	1
25	Buna-n Diaphragm Plate 'O' Rings	2
26	Zinc Plated Eccentric Bolt Spacer	1
27	Zinc Plated Connecting Rod Nut	1
28	Plastic Eccentric Guard	1
29	Stainless Steel Guard Bracket	1

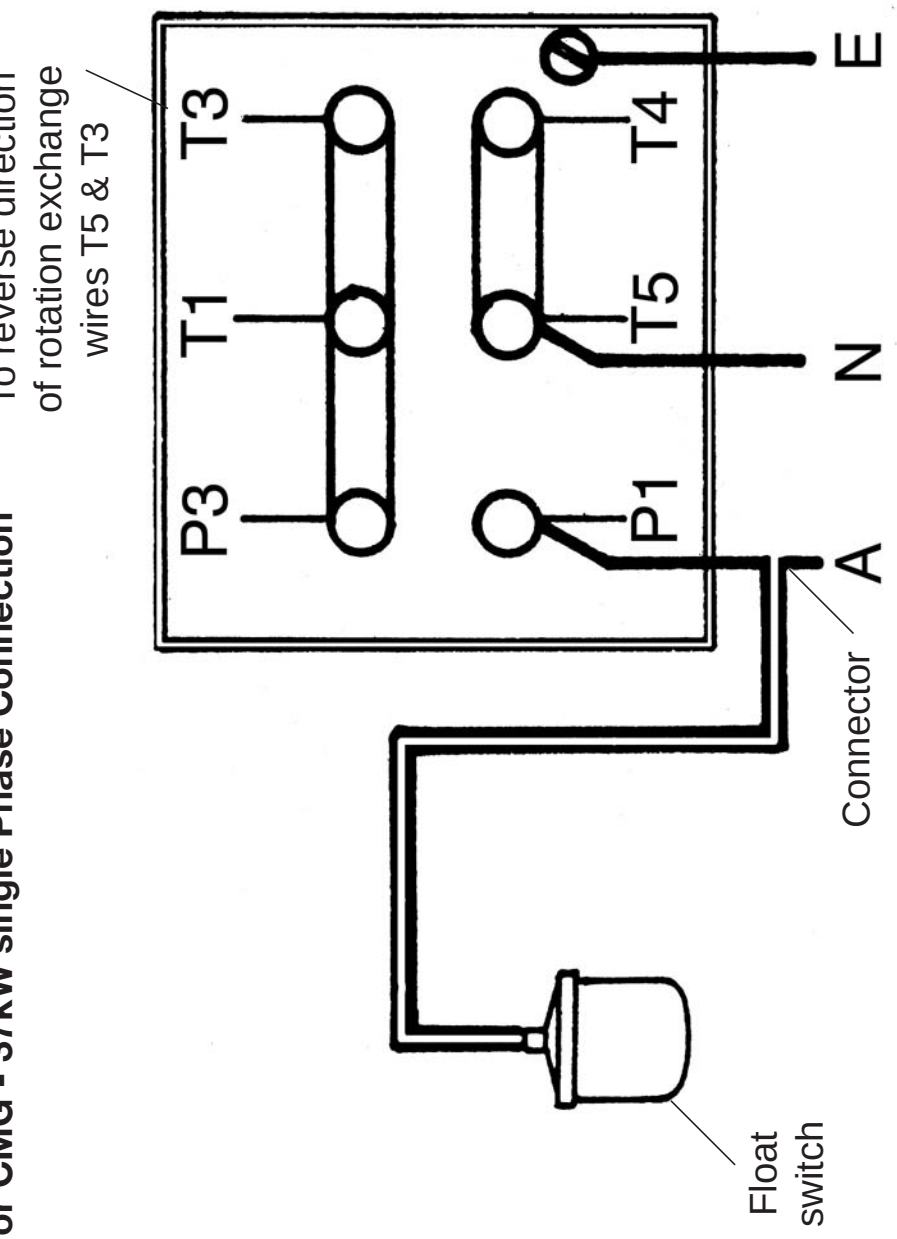
ELECTRICAL INSTALLATION DIAGRAM FOR 240V KWIKFLO DIAPHRAGM PUMP & FLOAT SWITCH WITH MANUAL BYPASS SWITCH OPERATION



Project	Drawing Title		
	Electrical - 240V - Kwikflo Diaphragm Pump		
Client	Scales	Authorised	Client Project No.
	NTS		
		Dwg. No	Sheet / Revision
		KCPS-0010	of

WIRING INSTRUCTIONS FOR KWIKFLO KDS25-150 DIAPHRAGM PUMP TERMINAL BOX CONNECTION WITH FLOATSWITCH

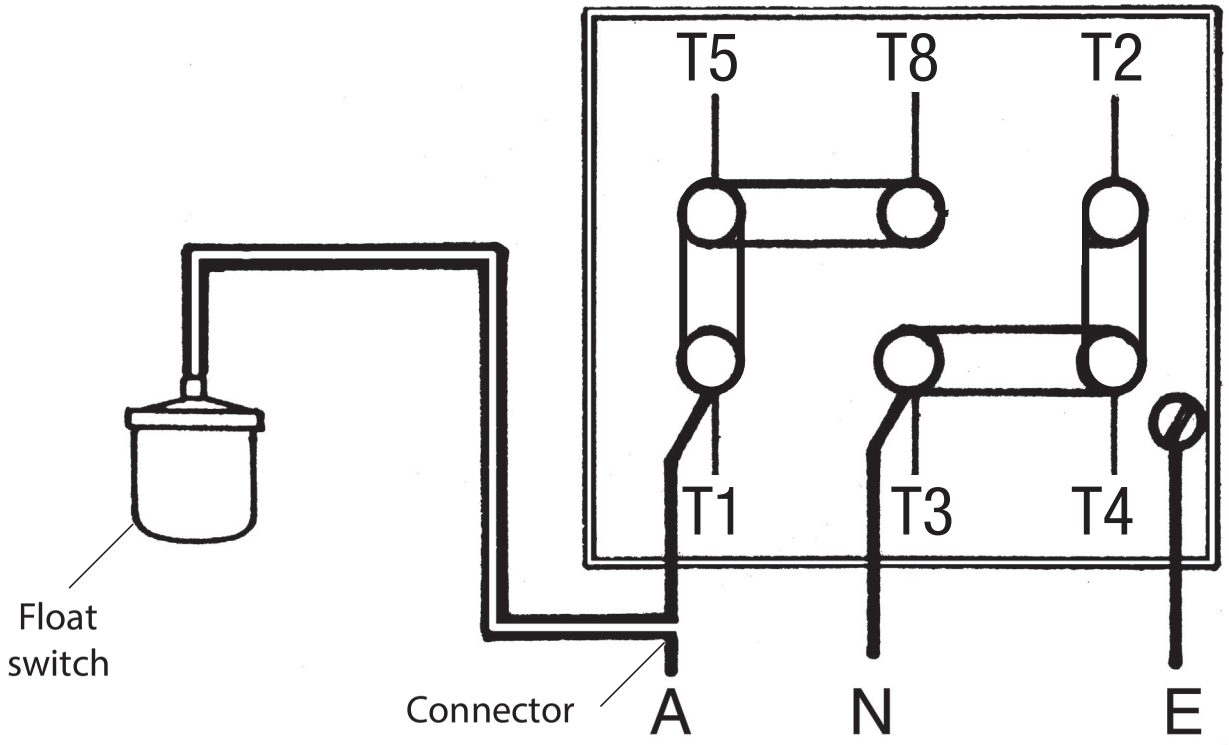
for CMG - 37kW single Phase Connection



Project	Drawing Title: Terminal Box Wiring - Kwikflo Diaphragm Pump			
Client	Scales: NTS	Authorised	Client Project No.	
		Dwg. No: KCPS-0025	Sheet: of	Revision

WIRING INSTRUCTIONS FOR KWIKFLO KDS25-100 DIAPHRAGM PUMP TERMINAL BOX CONNECTION WITH FLOATSWITCH

for WEG - 37kW single Phase Connection



Project	Drawing Title: Terminal Box Wiring - Kwikflo Diaphragm Pump		
Client	Scale: NTS	Check:	Client Project No.
		Dwg. No: KCPS-0011	Sheet: of / Revision

WARRANTY

The Kwikflo Diaphragm Pump is guaranteed to be free from defects in material or workmanship for one year from the date of shipment from factory in Parramatta. The pump's electric motor is per manufacturer's given warranty (twelvemonths).

No claim will be recognised for any allied defects in the collection tank that may have been apparent prior to installation, whether due to faults in manufacture or faults caused by transport and handling.

All Pumps accept no responsibility for consequential damages or actions arising out of units not operated, installed or maintained in strict accordance with written instructions.

The obligation of this warranty, statutory or otherwise, is limited to replacement or repair at Parramatta factory, or at a point designated by All Pumps, of such part as shall appear to us, upon inspection to have been defective in material or workmanship.

The warranty does not obligate All Pumps to bear the sot of labour or transportation charges in connection with replacement or repair of defective parts; nor shall it apply to a pump upon which reparis or alterations have been made unless authorised by All Pumps Sales & Service in writing.

No warranty is made in respect to electrical control panels, motors or trade accessories, such being subject to warranties of their respective manufacturers. Diaphragms and other consumables such as flap valves and gaskets are not included in the warranty.

In no even shall All Pumps Sales & Service be liable for consequential damages or contingent liabilities for consequential damages or contingent liabilities arising out of the failure of any Kwikflo Diaphragm Pump or parts thereof to operate properly.

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