

Dear Customer

Thank you to choose TECSON PUMPS.
We are welcoming you to a group of satisfied customer of PARIN PUMPS. We request you to read this Operator's Manual specially designed for you to make trouble free installation and use of pump set.

We are ready to serve you better, in case of any quarry please contact our service

help line 123456789

or you can log on to

www.parinpumps.com

INDEX

1. GENERAL
2. CHECK LIST PRIOR TO INSTALLATION.
3. PRECAUTIONS
4. INSTALLATION DIAGRAM.
5. TROUBLE SHOOTING
6. CABLE SELECTION CHARTS
7. TECHNICAL DETAILS.
8. WARRANTY CARD.

- Details of pump set are given in the name plate stamped on the pump set.
- Don't fill motor with any other liquid instead of clean cold water.
- Don't lift motor with help of cable.
- Start pumpset atleast ones in a week.
- Minimum interval between start and stop must be 1 minute.

Parameters to check for Selection of Submersible Pumpset

- Minimum inside diameter of bore
- Depth of bore/well
- Amount of water to be pumped
- Static water level
- Lift above ground
- Yield capacity of well/bore
- Pump output in head range
- Total length and size of cable
- Line Voltage and phase.

Check list prior installation

- Check the bore size and depth before installation.
- Ensure that the Pumpset is rested above 3 to 4 mtrs. from the bottom of bore.
- Ensure that NRV is at least 1 mtr. down from water level.
- Fill motor with clear cold water.
- Check vertical play after coupling (Not in case of openwell)
- Check voltage available at site
- Check cable size and length.
- Check relay settings in control
- Panel and join the cable.

PRECAUTIONS

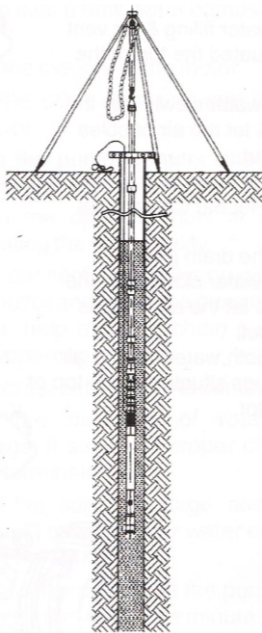
DO'S :-

1. Always rest the pump on NRV.
2. Check the water quality before filling in the motor.
3. Always suspend the pumpset at least 3 mtrs. above the bottom of the bore.
4. The pump must be installed 1mtrs. below the water level surface.
5. Always check the cable joints and vertical play after coupling the pumpset.
6. Run the pumpset until pure water comes out.
7. Always use a good quality control panel.
8. Bending of cable must be avoided.

DON'T'S :-

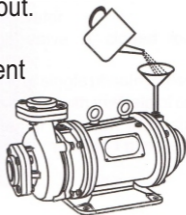
1. Don't run the pump if any of the following defects are observed.
 - Water is sandy or acidic.
 - If there is no water.
 - If discharge valve is closed for more than 4 minutes.
 - If the problem of single phasing arises.
2. Don't pull the motor with the help phasing arises.
3. Minimum interval between the start and stop of the motor must be 1 minute.

INSTALLATION



WATER FILING DIRECTION

1. Open water filling & air vent plug situated the top of the motor.
2. Fill the water slowly into the motor & let the air bubbles comes out.
3. Open the drain plug & flush the motor. Repeat the procescss again.
4. Close the drain plug.
5. Fill the water slowly into the motor & let the bubbles come out.
6. Close both water filling & air vent plugs situated at the top of the motor



WATER FILING DIRECTION

1. Keep motor in vertical position and fill water in inlet a until water comes out of the outlet b.
2. Check the megger of the motor.
3. Make the cable joint property to make it leak proof.
4. Couple the pump & motor after cleaning their face.
5. Tighten the opposite nuts in sequence after setting the vertical play.
6. First connect the delivery pipe to the pump outlet and lower the pumpset in bore with the help of tripod chain puiley block and supporting clamps.
7. Connect the cable leads to control panel.
8. Verify the direction of rotation and discharge.
If seems improper change the supply terminals.
9. Check the supply voltage and run the motor until clean & clear water comes out.
(approx: for 30 minutes.)
- 10 Do not switch on and off the pump without minimum interval of one minute.

TROUBLE SHOOTING

Sr. No.	Problem	Cause	Suggested Remedy
1.	Pump does not start.	<ol style="list-style-type: none">1. Starting panel defective2. Overload protection out3. Fuse blown off.4. Low line voltage.	<ol style="list-style-type: none">1. Replace by new starter and check for continuity1. Set relay property1. Replace with correct rating1. Use adequate size cable 2. Wait till voltage recovers or contact electricity board.
2.	Fuse blows when motor is running	<ol style="list-style-type: none">1. Incorrect voltage or inadequate power supply	<ol style="list-style-type: none">1. Stabilise the voltage to rated and wait for adequate power supply

TROUBLE SHOOTING

Sr. No.	Problem	Cause	Suggested Remedy
		<p>2. Overheated overload protection box.</p> <p>3. Defective control panel components.</p> <p>4. Damaged motor cable or winding.</p> <p>5. Pump becomes and locked.</p>	<p>1. Overload relay to be replaced or adjusted to higher value.</p> <p>2. Replace starter it trips repetitively.</p> <p>1. Defective electrical components to be replaced.</p> <p>1. Check continuity in cable and wiring. Replace the motor if required.</p> <p>1. Remove dismantle and clean water passages inside the motor. Change motor thrust pad if required.</p>

TROUBLE SHOOTING

Sr. No.	Problem	Cause	Suggested Remedy
3.	Pump operates but delivers little water	<p>1. Motor running lower than rated speed.</p> <p>2. Strainer / impeller/ stage casing may be clogged.</p> <p>3. Defective rising main (leakage)</p> <p>4. System resistance of the pumpset is higher than estimated.</p>	<p>1. Check voltage frequency Replace cable with higher size if necessary.</p> <p>1. Dismantles the pump and clean strainer and water passage of impeller and stage casing if necessary replace them.</p> <p>1. Check the piping joints for leakage/ choking.</p> <p>1. Replace pipes with higher size.</p> <p>1. Replace the pumpset with higher size.</p>

TROUBLE SHOOTING

Sr. No.	Problem	Cause	Suggested Remedy
		5. Yield of the bore is not sufficient.	1. Lower the unit further if possible or throttle the sluice valve adjusting to flow rate.
		6. Damaged Pumps parts.	1. Replace correct components e.g. Impeller / Diffuser /Bushes /Sleeves /Necking etc. 2. Check slit / Sand content of water to avoid premature wear.
4.	Pump does not deliver any water.	1. Water level in borewell may have gone below level of pump.	1. If possible lower the unit further. 2. Stop the unit until water level rises sufficiently. 3. Operate the pumpset with throttle valve.

TROUBLE SHOOTING

Sr. No.	Problem	Cause	Suggested Remedy
		<p>2. Total head of the system is higher than designed head of pumpset.</p> <p>3. NRV sand blocked /Wrongly connected NRV on delivery pipe.</p> <p>4. Motor does not start.</p>	<p>1. Replace with suitable pumpset for higher head. 2. Ensure that flow is not obstructed due to foreign bodies in valve or interior quality of valve.</p> <p>1. Check the flow direction arrow on the NRV body connect correctly. 2 Check for sand blockage clean and replace.</p> <p>1. Check cable connection 2. Check for correctness of incoming power supply. 3. Check for backup protection</p>

TROUBLE SHOOTING

Sr. No.	Problem	Cause	Suggested Remedy
		5. Motor starts but doesn't pickup the rated speed	1. Check voltage / frequency Replace cable with higher size if necessary.
5.	Fuse blow off or circuit breaker trips when motor is started.	1. Defective control panel. a) Defective wiring b) Incorrect fuse component. 2. Defective relay. 3. Damaged motor winding or cable 4. Pump is sand locked.	1. Repair / replace as per instruction. 1. Replace and reset the starter only for checking the current drawn. Make sure that abnormal current is not drawn. 1. Rewind motor/ replace cable. 1. Remove, dismantle and clean water passages inside the pump and reassemble.

TROUBLE SHOOTING

Sr. No.	Problem	Cause	Suggested Remedy
6.	Fluctuating Motor Current.	5. Pumpset might have blocked in crossed well.	1. Move the unit and put straight and then start otherwise shaft would have bend.
		6. Pump and motor not coupled property.	1. Check and realign coupling and see freeness
		1. Check water level or system leakage.	1. Replace damaged pipe or repair leaks. Lower down the pump to get water.
		2. Foreign object between casing ring and impeller or bearing parts inside pump.	1. Take out the pump and repair.
		3. Abrasion of thrust and bush bearing inside motor.	1. Take out and replace the worn out components.

CABLE SELECTION CHART

Sr. No.	H.P.	Max. Current in Amp.	Cable Size in Sq.mm	1.5	2.5	4.0	6.0	10.0
1.	1.00	3.00	TOTAL CABLE LENGTH IN METER	160	230			
2.	1.50	3.75		160	230	290		
3.	2.00	4.50		160	270	450		
4.	3.00	5.50		110	180	280		
5.	4.00	7.50		85	135	210		
6.	5.00	9.00		70	110	170		
7.	7.50	11.00		50	90	150		
8.	10.0	15.0			70	130		
9.	12.5	20.0			50	100		
10	15.0	25.0				80		
11	17.5	30.0				60		
12	20.0	35.0				40		

NOTE:- The cable length given here are from Electricity Pole to the electric motor.

CABLE SELECTION CHART

Sr. No.	H.P.	Max. Current in Amp.	Cable Size in Sq.mm	1.5	2.5	4.0	6.0	10.0
1.	0.50	4.50	TOTAL	75	125			
2.	0.75	6.00	CABLE	60	100	150	275	475
3.	1.00	7.00		50	80	150	250	440
4.	1.50	9.00	LENGTH	40	70	110	150	290
5.	2.00	12.00	IN	30	60	90	120	150
6.	3.00	18.00			50	80	100	130
7.	4.00	24.00	METER			70	80	100

NOTE:- The cable length given here are from Electricity Pole to the electric motor.

TECHNICAL DETAILS

FRICTION LOSSES PER 100M OF ORDINARY WATER PIPES

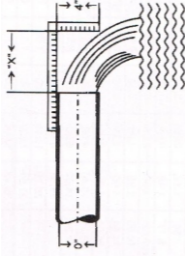
CAPACITY		DIAMETER MM AND INCHES													
		1/2"	2/4"	1 "	1 1/8"	1 1/4"	1 1/2"	2 "	2 1/2"	3"	4"	5"	6"		
m ³ /h	1/min	16	20	25	32	40	50	65	80	100	125	150			
0.6	10	9.91	2.41	0.78											
0.9	15	20.11	4.86	1.57	0.42	0.34									
1.2	20	33.53	8.04	2.59	0.66	0.51									
1.5	25	49.93	11.91	3.83	1.00	0.70									
1.8	30	69.34	16.50	5.27	1.37	0.92	0.22								
2.1	35	91.54	21.76	6.94	1.81	1.16	0.29								
2.4	40		27.65	8.82	2.29	1.72	0.37								
3.0	50		41.40	13.14	3.40	2.37	0.64	0.16							
3.6	60		57.74	18.28	4.71	3.13	0.75	0.21							
4.2	70		76.49	24.18	5.23	3.98	0.98	0.28	0.13						
4.8	80			90.97	7.94	4.92	1.25	0.35	0.16						
5.4	90			38.30	9.82	5.97	1.55	0.44	0.20						
6.0	100			46.49	11.90	8.96	1.87	0.54	0.24						
7.5	125			70.41	17.93	12.52	2.80	0.60	0.36	0.10					
9.0	150				25.11	16.65	3.00	1.12	0.50	0.14					
10.5	175				33.32	21.36	5.17	1.48	0.67	0.18					
12.0	200				42.75	32.32	6.62	1.90	0.85	0.23	0.08				
15.0	250				64.86	45.52	10.03	2.86	1.25	0.35	0.12				
18.0	300				78.17	14.04	4.00	1.79	0.48	0.17	0.07				
24	400					24.04	6.82	2.05	0.82	0.29	0.12				
30	500					30.71	10.40	4.62	1.25	0.44	0.18				
36	600					51.84	14.62	6.50	1.75	0.62	0.26				
42	700						19.52	8.69	2.34	0.83	0.34				
48	800						25.20	11.18	3.00	1.06	0.44				
54	900						31.51	13.97	3.76	1.32	0.55				
60	1000						38.43	17.06	4.69	1.61	0.67				
76	1250							26.10	7.01	2.45	1.02				
90	1500								36.97	9.89	3.46	1.44			

Discharge Rate(Gallons per Minute)

Horizontal Distance 'x' in Inches	Normal Pipe diameter "D"										
	1"	1½"	2"	2½"	3"	4"	5"	6"			
4	5.7	9.6	13.3	22	31	49	83	130	190		
5	7.1	12.2	16.6	28	39	61	104	165	240		
6	8.5	14.7	20.0	33	47	73	125	195	286		
7	10.0	17.1	23.2	39	55	85	146	230	335		
8	11.3	19.6	26.5	44	62	98	166	260	380		
9	12.5	21.2	29.6	50	70	110	187	295	430		
10	14.2	24.5	33.2	58	76	122	208	325	475		
11	15.6	26.0	36.5	61	86	134	229	360	525		
12	17.0	29.0	39.0	66	94	147	250	390	570		
13	18.5	31.0	43.0	72	101	150	270	425	620		
14	20.0	34.0	46.5	83	117	183	321	490	710		
15	21.3	36.3	49.6	88	125	195	333	520	760		
16	22.7	39.0	53.0	94	133	208	353	555	810		
17	24.1	41.5	56.3	99	140	220	374	590	855		
18	25.5	43.7	59.6	105	148	232	395	620	905		
19	27.0	46.2	62.9	111	156	244	416	650	960		
20	28.4	48.8	66.2	116	164	255	437	685	1000		
21	29.8	51.0	79.5	122	172	269	457	720	1050		
22	31.2	59.6	72.8	127	179	281	476	750	1095		
23	33.7	55.9	78.1	133	187	293	499	780	1140		
24	34.1	56.3	79.4	138	195	306	520	815	1190		
25	35.5	60.7	82.7	144	203	318	541	845	1235		
26	36.9	63.2	86.0	149	211	330	561	880	1285		
27	38.3	35.5	89.3	155	218	342	592				
28	39.8	68.0	92.7	160	226	394	603				
29	41.2	70.5	96.0	166	234	367	624				
30	42.6	72.9	99.3	171	242	379					
31		100.3	171	242	379						
32		106.0	177	250	391						
33		109.0	182	257	403						
34		113.0	188	265	415						
35		116.0	194	273	426						
36		119.0	199	281	440						

Discharge Output Details

Discharge output Diagram



Example:-

Horizontal Distance "X" = 20"

Normal Pipe Diameter "d" = 2"

Discharge Q = 111 GPM

For Conversion of Gallons per Minute
To Litres per Seconds

$$111 \text{ GPM} = \frac{111 \times 4.54}{60} = 8.40 \text{ LPS}$$

WARRANTY

1. This pump set is guaranteed to be free from damage.
2. Warranty exist only for the motor filed with pure water free from impurities like sand.
3. Warranty exist only for 12 months from the date of purchase.
4. This card should be filed and returned to us within 12 days from pump is installed.
5. Serial number must be written on card when purchase from us or from our dealers.
6. Warranty ceases if the pump set is opened by any person other than our authorised person.
7. Warranty is subject to proper handling. Working maintenance and installation. It does not favour any claim arising out of fire, accident or willful damage.



The Power of Technology

CUSTOMER DETAILS

Sr. No. _____

Model No. _____

H.P./St./PH _____

Pump Model _____

CUSTOMER NAME & ADDRESS

Purchase Date _____

Signature _____

DEALER'S STAMP

Bill No _____

Dealer Signature

Packing Details

Motor Sr. No. _____

Pump Sr. No. _____

H. P. _____

Stage _____

Strainer _____

Cablejoint Kit _____

Drain Plugs _____

Motor and Pump Cap _____

Remarks: _____

Authorised Signature.:-