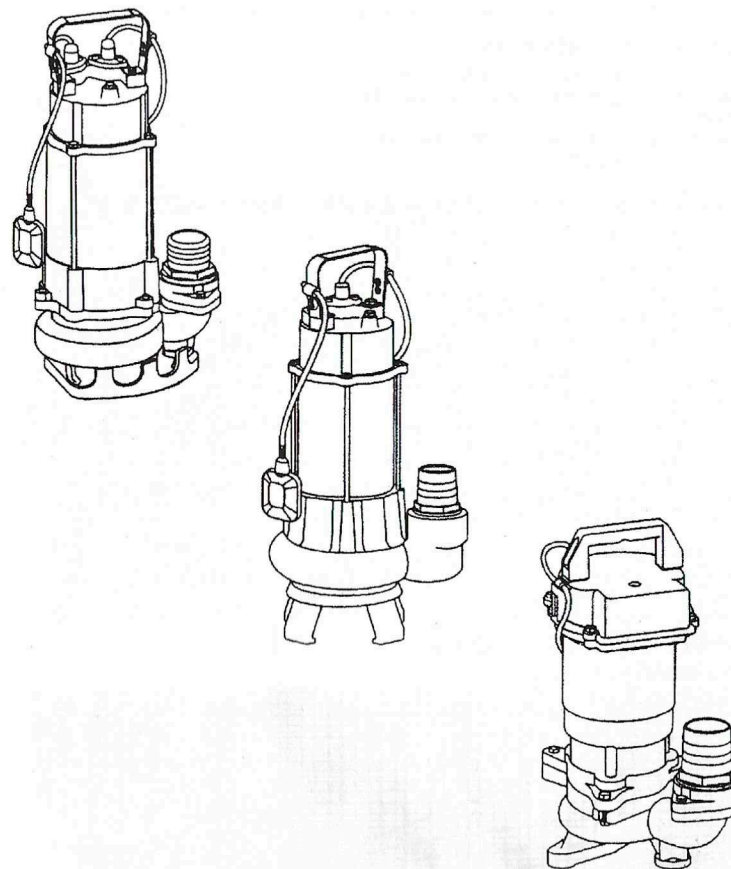




iNERGY

OPERATION MANUAL

FOR V-SERIES SEWAGE SUBMERSIBLE PUMPS



Be sure to keep this manual properly and please carefully read this manual before operation.

Part 1. Applications and features

V series are the most advanced and perfect sewage drainages at present time. Compared with traditional sewage submersible pumps, V-series is re-designed the passage of flow and enjoys wider high efficiency areas, can be used whole head without over-loading, and can safely run under large flow rate with high efficiency; anti-clogging impeller with big passage designed can transfer sewage with big suspend solid and long fibre; adopted vortex suction structure and particular casting technique, so with the better draining and anti-corrosiveness performance; widely used for transferring sewage in hotel, cloaca, construction industry, agriculture, family, etc. It can be automatically on-off if it is assembled with float switch. Thermal protector inside pump can automatically shut off the pump when overheating and overload, to guarantee safe and reliable operation under hard condition.

Model VN is a kind of standing stainless submersible pump which is found of ISO 11. The adoption of swirling flow style bottom suction structure and the unique flow passage Design provide it with wide efficient area of the lift and downright drainage, suitable for the transportation of mine enterprises, construction sites, breed aquatics industry, fluid drug, drink, seawater and solids whose diameter is no bigger than 15mm in the general caustic Mediums whose physics nature is similar to water. The protector in the motor can automatically cut off the power when it overheated or overcurrented, thus guarantee the security and reliability of pump's operation even in the atrocious environment.

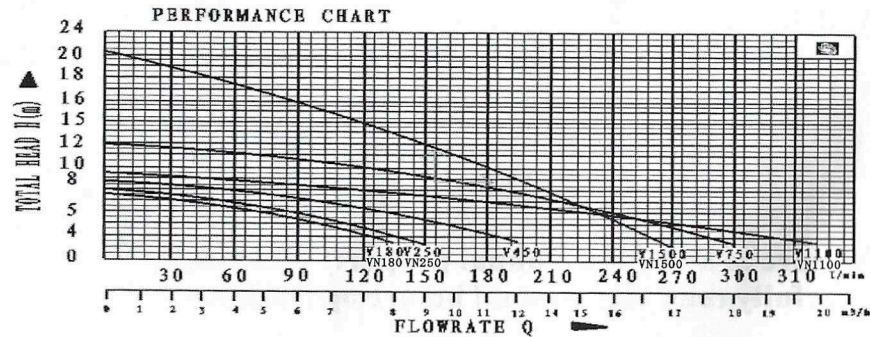
Part 2. Operating limits

1. maximum operating depth 5m below water level
2. continuous duty when fluid temperature under +40°C
3. value of PH in fluid 4~10
4. maximum kinematic viscosity: $7 \times 10^{-7} \sim 23 \times 10^{-4} \text{m}^2/\text{s}$
5. maximum density: $1.2 \times 10^3 \text{kg/m}^3$

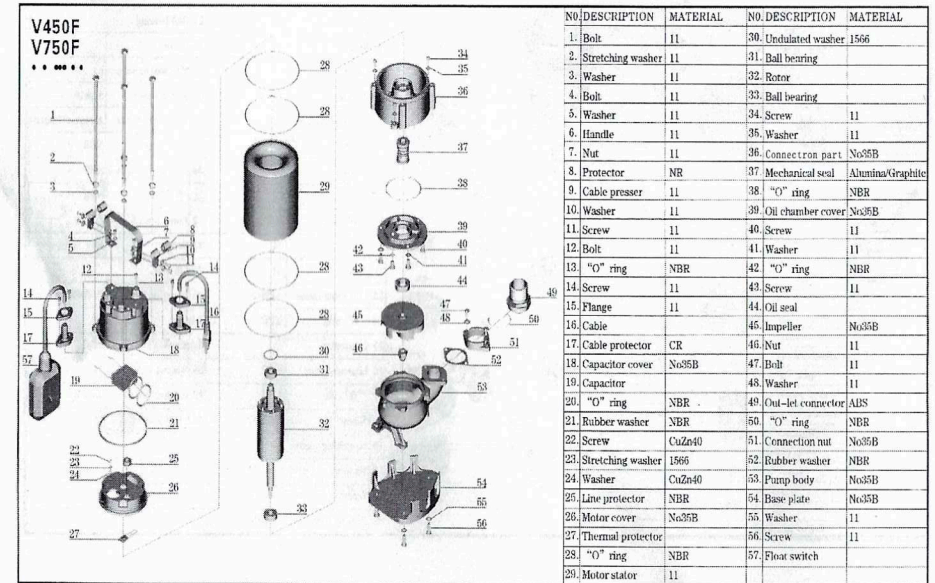
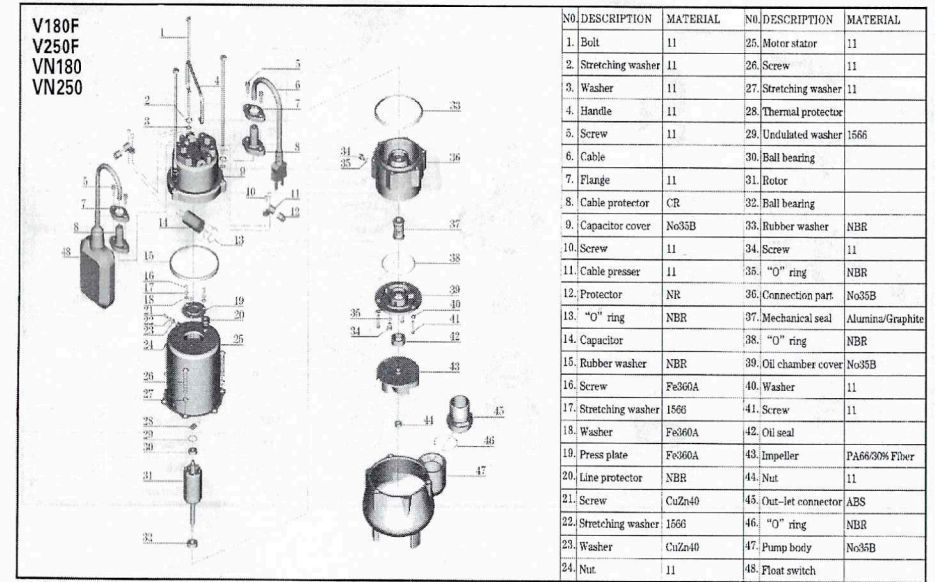
Part 3. Technical data (220~240V 380~400V)

NO	Model	Power (kW)	Max. flow (L/min)	Max. head (m)	diameter (mm)	G. w (Kg)	Dimensions (cm)
1	V180	0.18	133	7	32	8.5	18.5x18.0x36.0
2	V250	0.25	150	7.5	32	9.5	18.5x18.0x38.0
3	V450F-A	0.45	290	8.5	50	18.5	26.0x19.5x50.0
4	V450F-B	0.45	290	8.5	50	18.5	26.0x19.5x50.0
5	V450F-C	0.45	290	8.5	50	18.5	26.0x19.5x50.5
6	V750	0.75	300	12	50	22	25.5x19.5x53.5
7	V1100	1.1	333	9	50	23.5	27.5x22.5x55.5
8	V1500	1.5	270	22	40	27	58.5x35.5x24.5
9	V2200	2.2	700	17	75	35	58.5x35.0x24.5
10	VN180	0.18	133	7	32	8.5	18.5x18.0x36.0
11	VN250	0.25	150	7.5	32	9.5	18.5x18.0x38.0
12	VN750	0.75	300	12	50	22	25.5x19.5x53.5
13	VN1500	1.5	270	22	40	27	28.5x35.5x24.5
14	SPA6-28/2-1.1AF	1.1	250	30	50	23.5	63.0x29.5x21.5
15	SPA6-39/3-1.5AF	1.5	240	40	50	27.6	63.0x29.5x21.5
16	SPA6-50/4-1.8AF	1.8	240	52	50	31.5	68.0x29.5x21.5
17	SPA3-70/5-2.2AF	2.2	150	78	32	36	59.0x35.0x25.0
18	SPA3-100/4-3.0AF	3.0	150	100	32	42	68.0x35.0x25.0

Part 4. Performance curve



Part 5. Part view



V1100F

NO	DESCRIPTION	MATERIAL	NO	DESCRIPTION	MATERIAL
1	Bolt	11	24	Washer	CuZn40
2	Stretching washer	11	25	Line protector	NBR
3	Washer	11	26	Upper cover	No35B
4	Bolt	11	27	Thermal protector	
5	Washer	11	28	"O" ring	NBR
6	Handle	11	29	Motor stator	11
7	Nut	11	30	Undulated washer	1566
8	Protector	NR	31	Ball bearing	
9	Cable presser	11	32	Rotor	
10	Washer	11	33	Ball bearing	
11	Screw	11	34	Lower cover	No35B
12	Bolt	11	35	Mechanical seal	Alumina/Graphite
13	"O" ring	NBR	36	Out-let connector	ABS
14	Screw	11	37	"O" ring	NBR
15	Flange	11	38	Pump body	No35B
16	Cable		39	Oil seal	
17	Cable protector	CR	40	Impeller	No35B
18	Capacitor cover	No35B	41	Nut	11
19	Capacitor		42	Pump cover	11
20	"O" ring	NBR	43	Base plate	11
21	Rubber washer	NBR	44	Washer	11
22	Screw	CuZn40	45	Bolt	11
23	Stretching washer	1566	46	Float switch	

V550AF

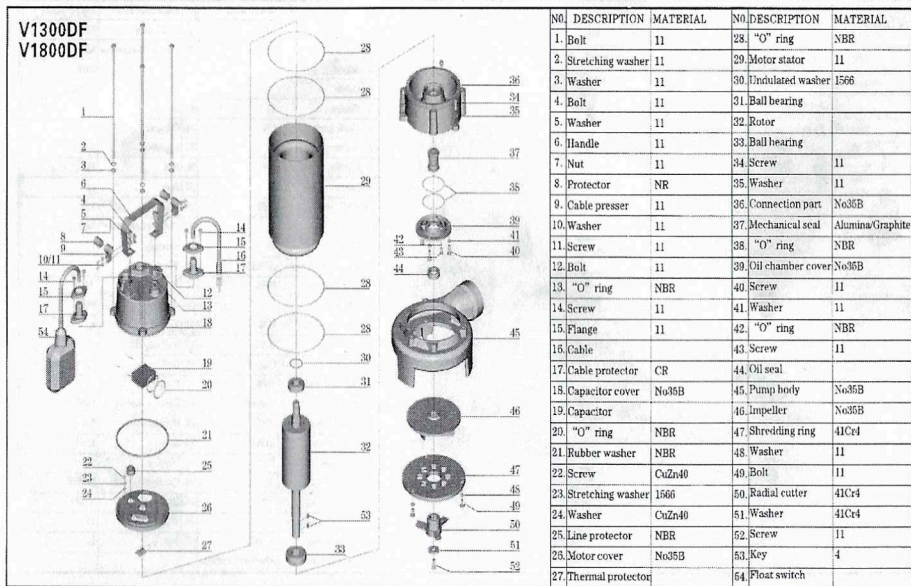
NO	DESCRIPTION	MATERIAL	NO	DESCRIPTION	MATERIAL
1	Protector	NR	29	"O" ring	NBR
2	Cable presser	11	30	Out-let connector	ABS
3	Screw	11	31	"O" ring	NBR
4	Cable		32	Pump body	No35B
5	Flange	11	33	Screw	11
6	Cable protector	CR	34	Oil seal	
7	Screw	11	35	Impeller	No35B
8	Handle	ABS	36	Nut	11
9	Screw	11	37	Bolt	11
10	"O" ring	NBR	38	Washer	11
11	Bolt	11	39	Connection part	No35B
12	Washer	11	40	Screw	11
13	Capacitor cover	AlSi12	41	Float switch	
14	"O" ring	NBR	42	Tees	PA66
15	Capacitor		43	Rubber washer	NBR
16	Line protector	NBR	44	Key	4
17	"O" ring	NBR	45	Ball bearing	
18	Screw	CuZn40	46	Bolt	11
19	Stretching washer	1566	47	Washer	11
20	Washer	CuZn40	48	Rubber washer	NBR
21	Rubber washer	NBR	49	Rubber nut	NR
22	Motor cover	AlSi12	50	Bolt	11
23	Undulated washer	1566	51	Washer	11
24	Ball bearing		52	Connection nut	No35B
25	Rotor		53	Rubber washer	NBR
26	Thermal protector		54	Washer	11
27	Motor stator	AlSi12	55	Nut	11
28	Mechanical seal	Alumina/Graphite			

V250AF

NO	DESCRIPTION	MATERIAL	NO	DESCRIPTION	MATERIAL
1	Protector	NR	23	Undulated washer	1566
2	Cable presser	11	24	Ball bearing	
3	Screw	11	25	Rotor	
4	Cable		26	Thermal protector	
5	Flange	11	27	Motor stator	AlSi12
6	Cable protector	CR	28	Mechanical seal	Alumina/Graphite
7	Screw	11	29	"O" ring	NBR
8	Handle	ABS	30	Out-let connector	ABS
9	Bolt	11	31	"O" ring	NBR
10	"O" ring	NBR	32	Pump body	No35B
11	Screw	11	33	Screw	11
12	Washer	11	34	Oil seal	
13	Capacitor cover	AlSi12	35	Impeller	PA66/30% Fiber
14	"O" ring	NBR	36	Nut	11
15	Capacitor		37	Screw	11
16	Line protector	NBR	38	Washer	11
17	"O" ring	NBR	39	Connection part	No35B
18	Screw	CuZn40	40	Float switch	
19	Stretching washer	1566			
20	Washer	CuZn40			
21	Screw	Fv366A			
22	Motor cover	AlSi12			

V1500F

NO	DESCRIPTION	MATERIAL	NO	DESCRIPTION	MATERIAL
1	Bolt	11	30	Undulated washer	1566
2	Stretching washer	11	31	Ball bearing	
3	Washer	11	32	Rotor	
4	Bolt	11	33	Ball bearing	
5	Washer	11	34	Screw	11
6	Handle	11	35	Washer	11
7	Nut	11	36	Connection part	No35B
8	Protector	NR	37	Mechanical seal	Alumina/Graphite
9	Cable presser	11	38	"O" ring	NBR
10	Washer	11	39	Oil chamber cover	No35B
11	Screw	11	40	Screw	11
12	Bolt	11	41	Washer	11
13	"O" ring	NBR	42	"O" ring	NBR
14	Screw	11	43	Screw	11
15	Flange	11	44	Oil seal	
16	Cable		45	Impeller	No35B
17	Cable protector	CR	46	Nut	11
18	Capacitor cover	No35B	47	Bolt	11
19	Capacitor		48	Washer	11
20	"O" ring	NBR	49	Out-let connector	ABS
21	Rubber washer	NBR	50	"O" ring	NBR
22	Screw	CuZn40	51	Connection nut	No35B
23	Stretching washer	1566	52	Rubber washer	NBR
24	Washer	CuZn40	53	Pump body	No35B
25	Line protector	NBR	54	Base plate	No35B
26	Motor cover	No35B	55	Washer	11
27	Thermal protector		56	Screw	11
28	"O" ring	NBR	57	Key	4
29	Motor stator	11	58	Float switch	



Part 6. Installation and remark:

- Before installation, must carefully check whether there are some parts damaged during transport and stock. For example whether the cable and plug are in good condition, and the insulated resistance is above $2M\Omega$, otherwise must check the fault.
- Check whether the power supply is conformed to the stipulation of nameplate before installation. Pump must connect with earth to keep safe.
- Before installation, must check whether the cable and plug is fractured, scratched, broken, etc. If they are faulty, must consult dealer or technician qualified to replace them.
- Using iron thread or hoop to make the outlet and discharge pipe tight, and then tie a rope on the handle as sling so as to move the pump up and down.
- Impacting and pressing the cable is absolutely prohibited. Cable cannot be used for sling. Don't discretionarily drag the cable while the pump is running, to avoid creepage.
- The power supply connected with the pump must be assembled with Electricity-leaking circuit breaker, and the voltage must be controlled within $\pm 15\%$ of the rated to avoid destroying the motor.
- Don't touch and move the pump before cut-off the power to keep safe.
- Be sure that the connection part between plug and cable is far from the water.
- Be sure that the plug and cable are far from the heat, oil and the sharp.

Part 7. Maintenance

- Often check cable and duly replace the cable if it is found with fault of fractured, broken etc.
- After running 2000hrs, please maintenance the pump as per the following steps:
Disassemble pump: carefully check the spare parts easily worn, for example bearing, mechanical seal, oil seal, "O" ring, impeller etc. And duly replace the spare parts damaged.
Chang oil: take the charge plug of oil chamber out, and inject 10# oil to 70%-80% of the capacity of chamber (edible earthnut oil is available if no 10# oil).
Air testing: After maintenance, the pump must be tested by air. Inject high-pressure air into the pump and keep the pressure at 0.2Mpa, it proved to be reliable if no leakage within 5 minutes.
- Don't submerge the pump into the water if it isn't started during a long period. Must take the pump out of the water and clean it and then make anti-rust processing.

Part 8. Fault and solution

Fault	Possible cause	Remedy
Pump does not start	<ol style="list-style-type: none"> Too low voltage. Impeller blocked Stator winding burn up Capacitor damaged Absent phase (3 phase) Too large resistance of cable. 	<ol style="list-style-type: none"> Adjust voltage to $\pm 15\%$ of the rated Remove obstacles Repair Replace capacitor Check switch and cable connection etc. Use the proper cable (Item 3 and 4 must be operated under the guidance of dealer or technician qualified.)
Pump delivers reduced water	<ol style="list-style-type: none"> High delivery head Filter mesh clogged Impeller worn off Too shallow submersible depth Wrong rotation (3 phase) 	<ol style="list-style-type: none"> Lower the head Clean the filter mesh Replace impeller Adjust the submersible depth above 0.5m Inverse two phase
Pump stops suddenly	<ol style="list-style-type: none"> Switch cut off or blowout Impeller blocked Stator winding burn up 	<ol style="list-style-type: none"> Check power supply, replace fuse Shut off power, clean obstacles Repair (must consult the dealer and technician qualified).