CNP

State High-tech Enterprise

SJ

Stainless Steel Multistage Deep–Well Submersible Pump

Operation Manual

CNP

Nanfang Pump Industry Co., Ltd.

E090504
subject to amendments

Contents

Read this manual carefully before install, start the pump.

I. Applications

SJ stainless steel multistage deep-well submersible pump (abbreviate as pump in the following) is a new type of water-pumping machine. It is made by mature and advanced technology. It works with submersible motor. It can submerge in some depth and take place of traditional long shaft connected deep-well pump. The advantage of the pump is compact structure, good performance, high efficiency, energy saving, small volume, light weight. It runs stably and easy to install and operate. There is a built-in spring ball non-return valve in the pump lest water hammer impacts pump when the pump stops and water returns.

1.Applications

· The pumps are designed for pumping thin, neutral, non-flammable, non-explosive liquid, without solid particles or fibers. The pumping liquid should not corrupt material of pump;

· Deep-well pumping, farmland irrigating, farmland spraying;

· Water supply for homes, schools, high buildings;

· Well, vault and other water saving facilities;

· As part of irrigating system or irrigating;

· Boosting in water supply system;

· Cleaning system, food, drinking system;

· Agriculture, nursery, all kinds of gym and all kinds of water facilities.

2.Operating conditions

· Max liquid temperature: +35℃ ;

· Flow: 0.2～ 120m^3/h

· Max working pressure: 38 Bar

· Liquid PH range: pH6.5～ 8.5;

· Max submerged depth: 50m.

Note: When pumping liquids with density and/or viscosity higher than that of water, motors with correspondingly higher outputs must be used.

II. Definition of model

SJ 3 – 12 S W S F 4 S

- S:S: Water filling motor; Y: Oil filling motor
- 4: 4” motor; 6: 6” motor; 8: 8” motor
- F: Stainless steel motor, P: Normal motor
- S: SS304, L: SS316.
- W:50Hz， L:60Hz
- S: Three phase, 380V;
  D: One phase, 220V; B: Pump body
- Stage
- Nominal flow in m^3/h
- Stainless steel multistage deep-well submersible pump

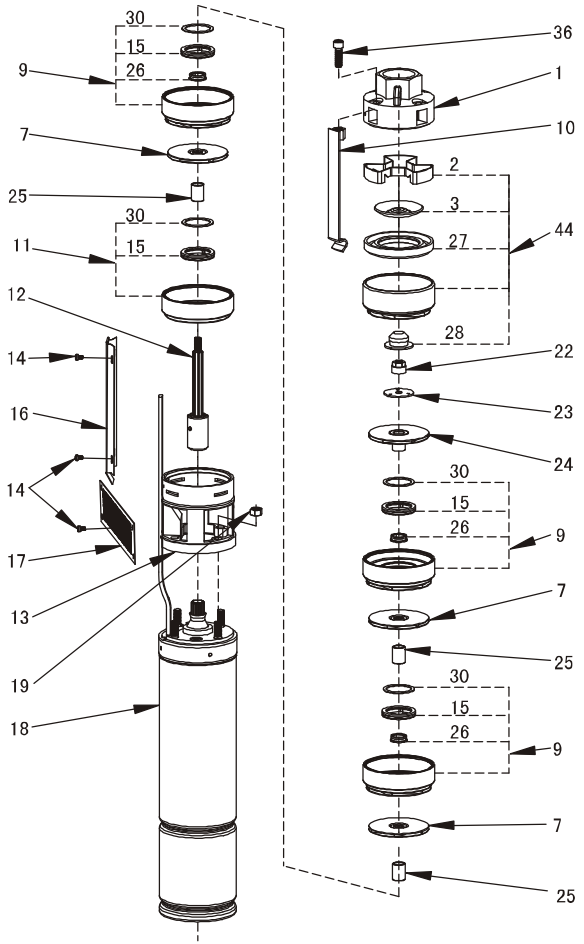
SJ 60 – 9 – 2 S W S F 4 S

- S:S: Water filling motor; Y: Oil filling motor
- 4: 4” motor; 6: 6” motor; 8: 8” motor
- F: Stainless steel motor, P: Normal motor
- S: SS304, L: SS316.
- W:50Hz， L:60Hz
- S: Three phase, 380V;
  D: One phase, 220V; B: Pump body
- Quantity of small impellers
- Stage
- Nominal flow in m^3/h
- Stainless steel multistage deep-well submersible pump

III. Construction

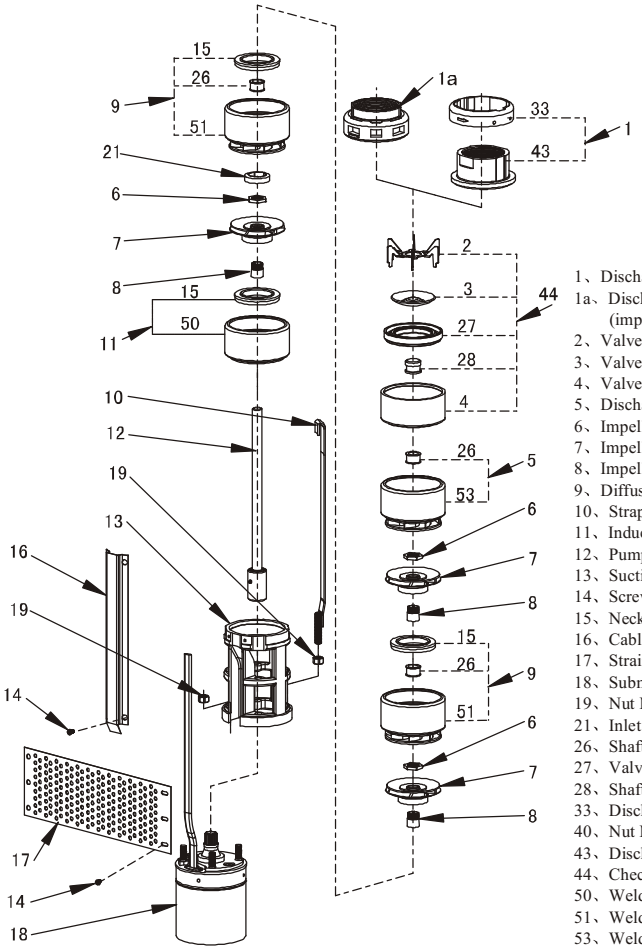
· Pump is composed of submersible motor and pump body.

· Pump key parts, such as diffuser, impeller, pump shaft are made of stainless steel. Suction interconnector and discharger head are precision casting parts.



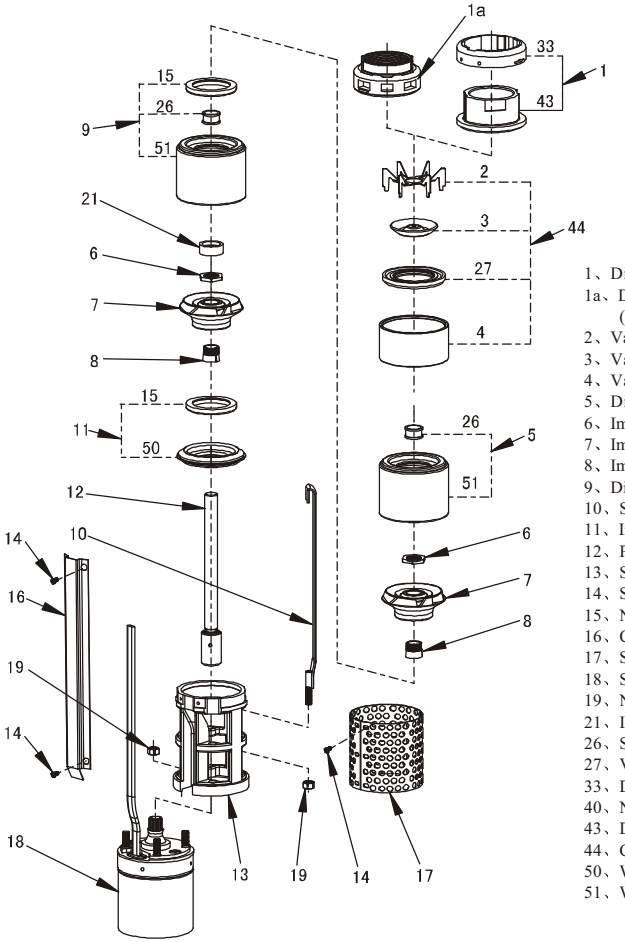
1、Discharge head
2、Valve cover retainer
3、Valve cap
7、Impeller
9、Diffuser
10、Straps
11、Inducer
12、Pump shaft
13、Suction interconnector
14、Screw M4*8
15、Neck ring
16、Cable guard
17、Strainer
18、Submersible motor
19、Nut M8
22、Shaft lock nut
23、Wearing plate
24、Outlet impeller
25、Impeller sleeve
26、Shaft ring
27、Valve bottom
28、Shaft supporter
30、Floating seal ring
36、Bolt M8*20
44、Check valve

SJ1，3，5-080701



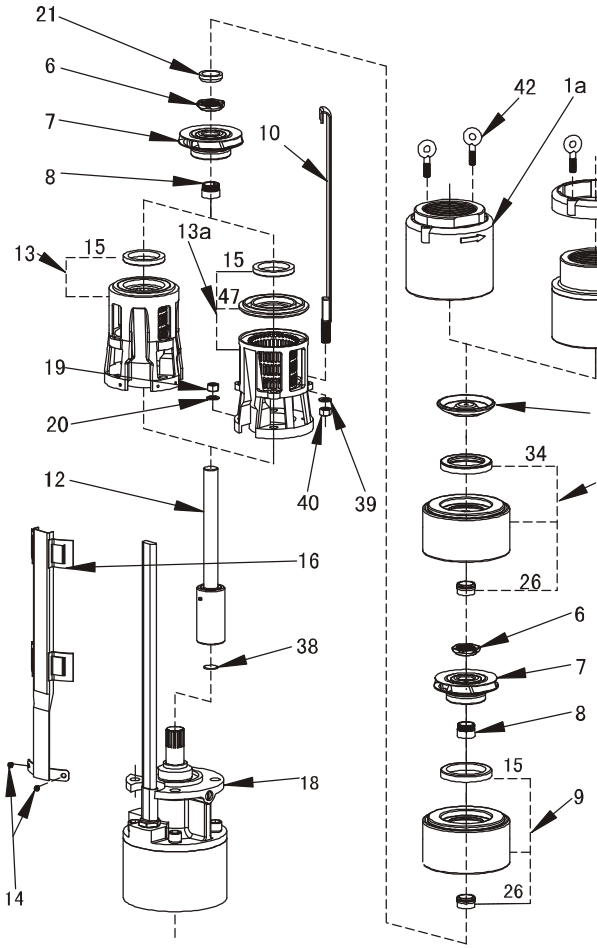
1、Discharge head
1a、Discharge head (improved)
2、Valve cover retainer
3、Valve cap
4、Valve body
5、Discharge diffuser
6、Impeller nut
7、Impeller
8、Impelle cone
9、Diffuser
10、Straps
11、Inducer
12、Pump shaft
13、Suction interconnector
14、Screw M4*8
15、Neck ring
16、Cable guard
17、Strainer
18、Submersible motor
19、Nut M8
21、Inlet spacer
26、Shaft ring
27、Valve bottom
28、Shaft supporter
33、Discharge head ring
40、Nut M8
43、Discharge
44、Check valve
50、Welding part of inducer
51、Welding part of diffuser
53、Welding part of discharge diffuser

SJ 8-080701



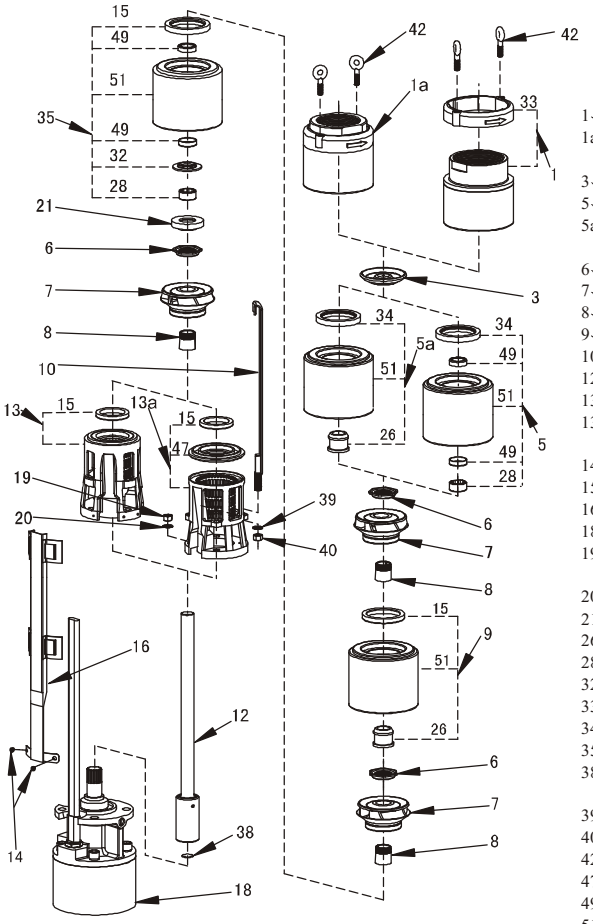
1、Discharge head
1a、Discharge head (improved)
2、Valve cover retainer
3、Valve cap
4、Valve body
5、Discharge diffuser
6、Impeller nut
7、Impeller
8、Impeller cone
9、Diffuser
10、Straps
11、Inducer
12、Pump shaft
13、Suction interconnector
14、Screw M4*8
15、Neck ring
16、Cable guard
17、Strainer
18、Submersible motor
19、Nut M8
21、Inlet spacer
26、Shaft ring
27、Valve bottom
33、Discharge head ring
40、Nut M8
43、Discharge
44、Check valve
50、Welding part of inducer
51、Welding part of diffuser

SJ 12-080701



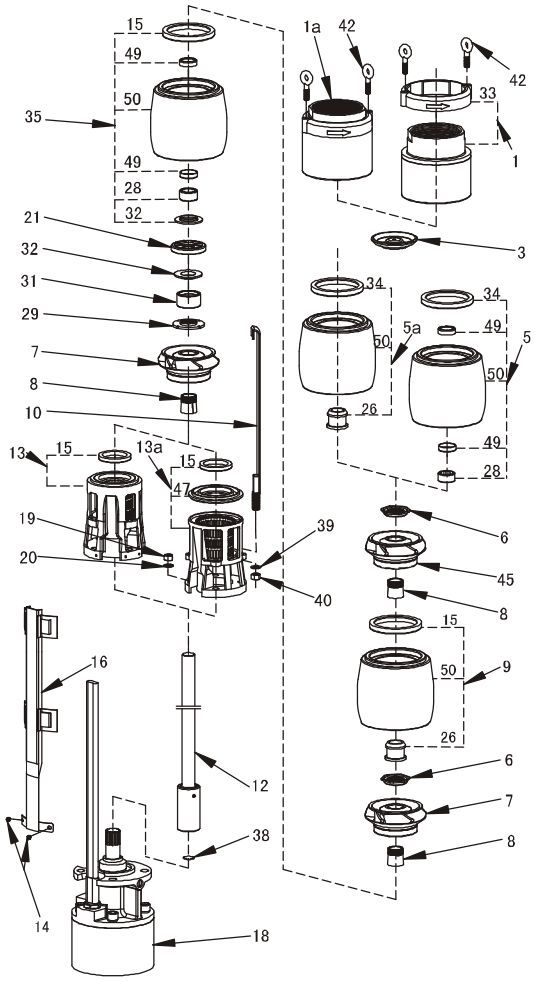
1、Discharge head
1a、Discharge head (improved)
3、Valve cap
5、Discharge diffuser
6、Impeller nut
7、Impeller
8、Impeller cone
9、Diffuser
10、Straps A(B)
12、Pump shaft A(B)
13、Suction interconnector A(B)
13a、Suction interconnector A(B) (improved)
14、Screw M5*8
15、Neck ring
16、Cable guard A(B)
18、Submersible motor
19、Nut M8(M12; Screw 1/2-20UNF)
20、Washer
21、Inlet spacer
26、Shaft ring
33、Discharge head ring
34、Discharge ring
38、O ring 25.4*3 (Special for shaft B)
39、Washer
40、Nut
42、Lifting eye bolt M8
47、Interconnector ring

SJ 17-080701



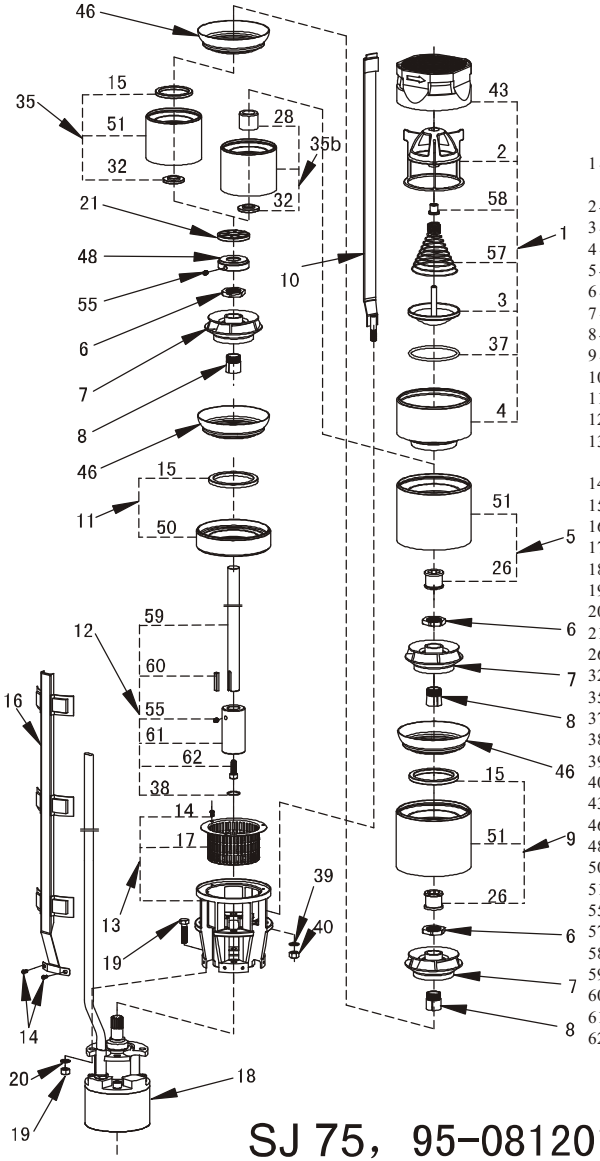
1、Discharge head
1a、Discharge head (improved)
3、Valve cap
5、Discharge diffuser
5a、Discharge diffuser (improved)
6、Impeller nut
7、Impellet
8、Impeller cone
9、Diffuser
10、Straps A(B)
12、Pump shaft A(B)
13、Suction interconnector A(B)
13a、Suction interconnector A(B) (improved)
14、Screw M5*8
15、Neck ring
16、Cable guard A(B)
18、Submersible motor
19、Nut M8(M12; Screw 1/2-20UNF)
20、Washer
21、Inlet spacer
26、Shaft ring
28、Inlet shaft ring
32、Inlet wearing plate
33、Discharge head ring
34、Discharge ring
35、Suction diffuser
38、O ring 25.4*3 (Special for shaft B)
39、Washer
40、Nut
42、Lifting eye bolt M8
47、Interconnector ring
49、Ring for diffuser
51、Diffuser part

SJ 30-090102



1、Discharge head
1a、Discharge head (SJ42 improved)
3、Valve cap
5、Discharge diffuser
5a、Discharge diffuser (improved)
6、Impeller nut
7、Impeller
8、Impeller cone
9、Diffuser
10、Straps A(B)
12、Pump shaft A(B)
13、Suction Interconnector A(B)
13a、Suction Interconnector A (B)(improved)
14、Screw M5*8
15、Neck ring
16、Cable guard A(B)
18、Submersible motor
19、Nut M8(M12；Screw 1/2-20UNF)
20、Washer
21、Inlet shaft
26、Shaft ring
28、Inlet shaft ring
29、Inlet impeller nut
31、Connecting sleeve
32、Inlet wearing plate
33、Discharge head ring (Only for SJ42)
34、Discharge ring
35、Suction diffuser
38、O ring 25.4*3 (Special for shaft B)
39、Washer
40、Nut
42、Lifting eye bolt M8
45、Small impeller (Only SJ60 has it)
47、Interconnector ring
49、Ring for diffuser
50、Inducer part

SJ 42,60-090102



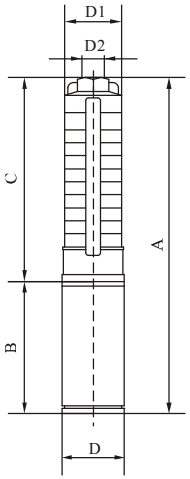
1、Discharge head (Complete)
2、Valve cap retainer
3、Valve cap
4、Valve body
5、Discharge diffuser
6、Impeller nut
7、Impeller
8、Impeller cone
9、Diffuser (Complete)
10、Straps A(B)
11、Inducer (Complete)
12、Pump shaft A(B)
13、Suction interconnector A(B)
14、Screw M5*8
15、Neck ring
16、Cable guard A(B)
17、Strainer A(B)
18、Submersible motor
19、Nut M12 (M16)
20、Washer12 (16)
21、Inlet spacer
26、Shaft ring
32、Inlet wearing plate
35、Suction diffuser
37、O ring
38、Small O ring
39、Washer
40、Nut
43、Discharge
46、Diffuser cover
48、Sleeve washer
50、Inducer
51、Diffuser
55、Fastening screw
57、Spring
58、Sleeve
59、Pump shaft A(B)
60、Key8*7*40
61、Coupling A(B)
62、Hexagon socket head screw M10*30

SJ 75，95-081201

IV. Installation and connecting

1. Pump installation

Installation size and dimensions are shown in drawing 1 and table 1



Drawing 1 Pump installation and dimensions

Table 1 SJ 1 Pump size and dimensions 50Hz

Model	Size (mm)					D2	Weight (kg)
	A	B	C	D	D1		
SJ1-6	667	370	297	96	100	Rp1¼	12
SJ1-9	730	370	360				13
SJ1-13	824	380	444				15
SJ1-17	928	400	528				17
SJ1-21	1052	440	612				19
SJ1-25	1136	440	696				20
SJ1-28	1229	470	759				23
SJ1-32	1313	470	843				24
SJ1-36	1397	470	927				25
SJ1-39	1500	510	990				29
SJ1-42	1563	510	1053				30
SJ1-46	1647	510	1137				31
SJ1-50	1731	510	1221				32

Table 1 SJ 3 Pump size and dimensions 50Hz

Model	Size (mm)					D2	Weight (kg)
	A	B	C	D	D1		
SJ3-6	667	370	297	96	100	Rp1¼	12
SJ3-9	740	380	360				13
SJ3-12	823	400	423				16
SJ3-15	926	440	486				18
SJ3-18	999	440	549				19
SJ3-22	1103	470	633				22
SJ3-27	1248	510	738				27
SJ3-32	1353	510	843				28
SJ3-38	1589	620	969				31
SJ3-43	1694	620	1074				32

Table 1 SJ 5 Pump size and dimensions 50Hz

Model	Size (mm)					D2	Weight (kg)
	A	B	C	D	D1		
SJ5-4	625	370	255	96	100	Rp1½	12
SJ5-6	677	380	297				13
SJ5-8	739	400	339				15
SJ5-12	863	440	423				17
SJ5-17	998	470	528				21
SJ5-21	1122	510	612				26
SJ5-25	1206	510	696				27
SJ5-29	1400	620	780				29
SJ5-33	1484	620	864				30
SJ5-38	1719	750	969				33
SJ5-43	1824	750	1074				35

Table 1 SJ 8 Pump size and dimensions 50Hz

Model	Size（mm）					D2	Weight (kg)
	A	B	C	D	D1		
SJ8-5	853	400	453	96	100	Rp2	16
SJ8-7	977	440	537				19
SJ8-10	1133	470	663				22
SJ8-12	1257	510	747				27
SJ8-15	1383	510	873				29
SJ8-18	1619	620	999				32
SJ8-21	1875	750	1125				35
SJ8-25	2043	750	1293				37
SJ8-30	2343	840	1503				43
SJ8-37	2637	840	1797				46
SJ8-44	3011	920	2091				55
SJ8-50	3263	920	2343				58

Table 1 SJ 12 Pump size and dimensions 50Hz

Model	Size（mm）					D2	Weight (kg)
	A	B	C	D	D1		
SJ12-5	1005	470	535	96	100	Rp2	21
SJ12-7	1175	510	665				26
SJ12-10	1480	620	860				30
SJ12-13	1805	750	1055				34
SJ12-15	2025	840	1185				38
SJ12-18	2220	840	1380				40
SJ12-21	2495	920	1575				47
SJ12-25	2755	920	1835				50

Table 1 SJ 17 Pump size and dimensions 50Hz

Model	Size（mm）						D2	Weight（kg）	
	A	B	C	D		D1		With 4" motor	With 6" motor
				With 4" motor	With 6" motor				
SJ17-1	708	380	328	96	/	133	Rp2½	17	
SJ17-2	828	440	388					21	
SJ17-3	959	510	449					28	
SJ17-4	1019	510	509					29	
SJ17-5	1190	620	570					32	
SJ17-6	1380	750	630		143			35	41
SJ17-7	1441	750	691					36	42
SJ17-8	1591	840	751					41	49
SJ17-9	1652	840	812					42	50
SJ17-10	1712	840	872					43	51
SJ17-11	1853	920	933					49	60
SJ17-12	1913	920	993					50	61
SJ17-13	1974	920	1054					51	62
SJ17-14	2000	870	1130	/					75
SJ17-15	2061	870	1191						76
SJ17-16	2121	870	1251						77
SJ17-17	2182	870	1312						78
SJ17-18	2292	920	1372						85
SJ17-19	2353	920	1433						86
SJ17-20	2413	920	1493						87
SJ17-21	2534	980	1554						95
SJ17-22	2594	980	1614						96
SJ17-23	2655	980	1675						98
SJ17-24	2715	980	1735						99
SJ17-25	2826	1030	1796						106
SJ17-26	2886	1030	1856						107

Table 1 SJ 30 Pump size and dimensions 50Hz

Model	Size（mm）							Weight（kg）	
	A	B	C	D		D1	D2	With 4" motor	With 6" motor
				With 4" motor	With 6" motor				
SJ30-1	802	440	362	96	/	133	Rp3	20	
SJ30-2	968	510	458					28	
SJ30-3	1174	620	554					31	
SJ30-4	1400	750	650		143			35	41
SJ30-5	1586	840	746					40	48
SJ30-6	1682	840	842					42	50
SJ30-7	1858	920	938					49	60
SJ30-8	1954	920	1034					51	62
SJ30-9	2016	870	1146	/					75
SJ30-10	2112	870	1242						77
SJ30-11	2208	870	1338						79
SJ30-12	2354	920	1434						85
SJ30-13	2450	920	1530						87
SJ30-14	2606	980	1626						96
SJ30-15	2702	980	1722						98
SJ30-16	2848	1030	1818						106
SJ30-17	2944	1030	1914						108
SJ30-18	3100	1090	2010						117
SJ30-19	3196	1090	2106						119
SJ30-20	3292	1090	2202						120
SJ30-21	3388	1090	2298						122
SJ30-22	3554	1160	2394						138
SJ30-23	3650	1160	2490						140
SJ30-24	3746	1160	2586						142
SJ30-25	3842	1160	2682						144

Table 1 SJ 42 Pump size and dimensions 50Hz

Model	Size（mm）							Weight（kg）	
	A	B	C	D		D1	D2	With 4" motor	With 6" motor
				With 4" motor	With 6" motor				
SJ42-1	888	510	378	96	/	150	Rp3	29	
SJ42-2	1111	620	491					33	
SJ42-3	1444	870	604		143			40	48
SJ42-4	1637	920	717					47	58
SJ42-5	1750	920	830					49	60
SJ42-6	1829	870	959	/					73
SJ42-7	1992	920	1072						80
SJ42-8	2165	980	1185						89
SJ42-9	2328	1030	1298						97
SJ42-10	2441	1030	1411						100
SJ42-11	2614	1090	1524						109
SJ42-12	2727	1090	1637						111
SJ42-13	2910	1160	1750						127
SJ42-14	3023	1160	1863						129
SJ42-15	3136	1160	1976						131
SJ42-16	3319	1230	2089						145
SJ42-17	3432	1230	2202						147
SJ42-18	3645	1330	2315						162
SJ42-19	3758	1330	2428						164
SJ42-20	3871	1330	2541						167
SJ42-21	4224	1570	2654						192
SJ42-22	4337	1570	2767						194

Table 1 SJ 60 Pump size and dimensions 50Hz

Model	Size（mm）							Weight（kg）	
	A	B	C	D		D1	D2	With 4" motor	With 6" motor
				With 4" motor	With 6" motor				
SJ60-1	878	510	368	96	/	150	Rp4	30	
SJ60-2-2	1101	620	481					33	
SJ60-2	1231	750	481		143			35	41
SJ60-3	1434	840	594					41	49
SJ60-4	1627	920	707					48	59
SJ60-5	1690	870	820	/					72
SJ60-6	1869	920	949						78
SJ60-7	2042	980	1062						87
SJ60-8-2	2155	980	1175						88
SJ60-8	2205	1030	1175						96
SJ60-9-2	2318	1030	1288						97
SJ60-9	2378	1090	1288						105
SJ60-10	2491	1090	1401						107
SJ60-11	2674	1160	1514						123
SJ60-12	2787	1160	1627						125
SJ60-13	2900	1160	1740						127
SJ60-14	3083	1230	1853						141
SJ60-15	3196	1230	1966						143
SJ60-16	3409	1330	2079						158
SJ60-17	3522	1330	2192						160
SJ60-18	3635	1330	2305						162
SJ60-19	3988	1570	2418						188
SJ60-20	4101	1570	2531						190
SJ60-21	4214	1570	2644						191

Table 1 SJ 75 Pump size and dimensions 50Hz

Model	Size（mm）										D1	D2	Weight(kg)	
	A		B		C		D							
	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor					With 6" motor	With 8" motor
SJ75-1	1268		780		488		143				197	Rp5	56	
SJ75-2	1424	1411	810	780	614	631	143	184					78	97
SJ75-3	1660	1577	920	820	740	757							92	116
SJ75-4	1896	1743	1030	860	866	883							110	134
SJ75-5	2082	1899	1090	890	992	1009							122	152
SJ75-6	2278	2075	1160	940	1118	1135							141	178
SJ75-7	2574	2311	1330	1050	1244	1261							171	211
SJ75-8	2700	2437	1330	1050	1370	1387							176	216
SJ75-9	3066	2663	1570	1150	1496	1513							204	233
SJ75-10	3192	2789	1570	1150	1622	1639							209	238
SJ75-11		3005		1240		1765	/	192						256
SJ75-12		3131		1240		1891								261
SJ75-13		3387		1370		2017								279
SJ75-14		3513		1370		2143								285
SJ75-15		3639		1370		2269								290
SJ75-16		3885		1490		2395								309
SJ75-17		4011		1490		2521								315
SJ75-18		4187		1540		2647								341
SJ75-19		4313		1540		2773								346
SJ75-20		4439		1540		2899								351

Table 1 SJ 95 Pump size and dimensions 50Hz

Model	Size（mm）								D1	D2	Weight(kg)	
	A		B		C		D					
	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor			With 6" motor	With 8" motor
SJ95-1	1268		780		488		143				57	
SJ95-2	1484	1431	870	800	614	631	143	184	197	Rp5	83	105
SJ95-3	1720	1617	980	860	740	757					100	129
SJ95-4	1956	1773	1090	890	866	883					119	148
SJ95-5	2152	1949	1160	940	992	1009					138	175
SJ95-6	2348	2125	1230	990	1118	1135					155	188
SJ95-7	2574	2311	1330	1050	1244	1261					174	213
SJ95-8	2940	2537	1570	1150	1370	1387					202	231
SJ95-9	3066	2663	1570	1150	1496	1513					208	237
SJ95-10		2879		1240		1639	/					254
SJ95-11		3005		1240		1765						260
SJ95-12		3261		1370		1891						279
SJ95-13		3387		1370		2017						284
SJ95-14		3513		1370		2143						290
SJ95-15		3759		1490		2269		192				310
SJ95-16		3885		1490		2395						316
SJ95-17		4061		1540		2521						342
SJ95-18		4187		1540		2647						348

Table 2 SJ 1 Pump size and dimensions 60Hz

Model	Size（mm）					D2	Weight (kg)
	A	B	C	D	D1		
SJ1-4	625	370	255	96	100	Rp1¼	12
SJ1-7	698	380	318				14
SJ1-10	781	400	381				16
SJ1-15	926	440	486				18
SJ1-20	1061	470	591				22
SJ1-25	1206	510	696				27
SJ1-29	1290	510	780				28
SJ1-35	1526	620	906				30

Table 2 SJ 3 Pump size and dimensions 60Hz

Model	Size（mm）					D2	Weight (kg)
	A	B	C	D	D1		
SJ3-3	604	370	234	96	100	Rp1¼	12
SJ3-5	656	380	276				13
SJ3-7	718	400	318				15
SJ3-10	821	440	381				17
SJ3-14	935	470	465				20
SJ3-19	1080	510	570				25
SJ3-23	1274	620	654				28
SJ3-27	1358	620	738				29
SJ3-33	1614	750	864				32

Table 2 SJ 5 Pump size and dimensions 60Hz

Model	Size（mm）					D2	Weight (kg)
	A	B	C	D	D1		
SJ5-3	614	380	234	96	100	Rp1½	12
SJ5-5	676	400	276				14
SJ5-7	758	440	318				16
SJ5-10	851	470	381				19
SJ5-14	975	510	465				24
SJ5-19	1190	620	570				27
SJ5-22	1383	750	633				29
SJ5-26	1467	750	717				30
SJ5-34	1725	840	885				35

Table 2 SJ 8 Pump size and dimensions 60Hz

Model	Size（mm）					D2	Weight (kg)
	A	B	C	D	D1		
SJ8-3	809	440	369	96	100	G2	17
SJ8-4	851	440	411				18
SJ8-5	923	470	453				22
SJ8-7	1047	510	537				25
SJ8-8	1089	510	579				26
SJ8-9	1241	620	621				28
SJ8-11	1325	620	705				29
SJ8-12	1497	750	747				31
SJ8-15	1623	750	873				32
SJ8-18	1839	840	999				37
SJ8-21	1965	840	1125				39
SJ8-25	2213	920	1293				46
SJ8-28	2339	920	1419				47

Table 2 SJ 12 Pump size and dimensions 60Hz

Model	Size（mm）					D2	Weight (kg)
	A	B	C	D	D1		
SJ12-3	915	510	405	96	100	G2	24
SJ12-4	980	510	470				25
SJ12-5	1155	620	535				28
SJ12-7	1415	750	665				29
SJ12-8	1570	840	730				35
SJ12-10	1700	840	860				36
SJ12-12	1910	920	990				42
SJ12-14	2040	920	1120				43

Table 2 SJ 17 Pump size and dimensions 60Hz

Model	Size（mm）					D2	Weight (kg)	
	A	B	C	D	D1			
				With 4" motor	With 6" motor		With 4" motor	With 6" motor
SJ17-1	767	440	327	96	/	133	Rp2½	20	
SJ17-2	898	510	388					27	
SJ17-3	1068	620	448					30	
SJ17-4	1259	750	509		143			33	39
SJ17-5	1409	840	569					37	45
SJ17-6	1550	920	630					43	54
SJ17-7	1610	920	690					44	55
SJ17-8	1621	870	751	/					62
SJ17-9	1681	870	811						63
SJ17-10	1808	920	888						77
SJ17-11	1868	920	948						78
SJ17-12	1989	980	1009						87
SJ17-13	2049	980	1069						88
SJ17-14	2160	1030	1130						95
SJ17-15	2230	1030	1190						96
SJ17-16	2341	1090	1251						104
SJ17-17	2401	1090	1311						105
SJ17-18	2462	1090	1372						106

Table 2 SJ 30 Pump size and dimensions 60Hz

Model	Size（mm）					D1	D2	Weight（kg）	
	A	B	C	D					
				With 4" motor	With 6" motor			With 4" motor	With 6" motor
SJ30-1	832	470	362	96	/	133	Rp3	22	
SJ30-2	1078	620	458					29	
SJ30-3	1394	840	554		143			37	45
SJ30-4	1570	920	650					44	55
SJ30-5	1666	920	746					45	56
SJ30-6	1728	870	858	/					69
SJ30-7	1874	920	954						77
SJ30-8	2030	980	1050						86
SJ30-9	2176	1030	1146						93
SJ30-10	2272	1030	1242						95
SJ30-11	2428	1090	1338						103
SJ30-12	2524	1090	1434						105
SJ30-13	2690	1160	1530						121
SJ30-14	2786	1160	1626						123
SJ30-15	2952	1230	1722						135
SJ30-16	3048	1230	1818						137
SJ30-17	2144	1230	1914						139

Table 2 SJ 42 Pump size and dimensions 60Hz

Model	Size（mm）					D1	D2	Weight（kg）	
	A	B	C	D					
				With 4" motor	With 6" motor			With 4" motor	With 6" motor
SJ42-1	998	620	378	96	/	150	Rp3	31	
SJ42-2	1331	840	491		143			38	46
SJ42-3	1474	870	604	/					67
SJ42-4	1653	920	733						75
SJ42-5	1826	980	846						83
SJ42-6	2049	1090	959						98
SJ42-7	2162	1090	1072						100
SJ42-8	2345	1160	1185						117
SJ42-9	2528	1230	1298						125
SJ42-10	2741	1330	1411						141
SJ42-11	2854	1330	1524						143
SJ42-12	3207	1570	1637						173
SJ42-13	3320	1570	1750						175
SJ42-14	3433	1570	1863						177

Table 2 SJ 60 Pump size and dimensions 60Hz

Model	Size（mm）						D2	Weight（kg）	
	A	B	C	D		D1		With 4" motor	With 6" motor
				With 4" motor	With 6" motor				
SJ60-1	1108	750	358	96	143	150	Rp4	36	44
SJ60-2	1381	920	471					44	62
SJ60-3-2	1404	920	584					45	63
SJ60-3	1480	870	610	/					67
SJ60-4	1703	980	723						81
SJ60-5	1866	1030	836						89
SJ60-6	2039	1090	949						98
SJ60-7	2222	1160	1062						114
SJ60-8-2	2335	1160	1175						116
SJ60-8	2405	1230	1175						128
SJ60-9-2	2518	1230	1288						130
SJ60-9	2618	1330	1288						144
SJ60-10	2787	1330	1401						146
SJ60-11	3084	1570	1514						171
SJ60-12	3197	1570	1627						173

Table 2 SJ 75 Pump size and dimensions 60Hz

Model	Size（mm）								D1	D2	Weight(kg)	
	A		B		C		D					
	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor			With 6" motor	With 8" motor
SJ75-1	1298	1285	810	780	488	505	143	184	197	Rp5	70	79
SJ75-2	1594	1491	980	860	614	631					94	123
SJ75-3	1900	1697	1160	940	740	757					126	162
SJ75-4	2196	1933	1330	1050	866	883					156	195
SJ75-5	2562	2159	1570	1150	992	1009					184	212
SJ75-6		2375		1240		1135	/	192				229
SJ75-7		2501		1240		1261						235
SJ75-8		2757		1370		1387						253
SJ75-9		3003		14990		1513						272
SJ75-10		3179		1540		1639						298
SJ75-11		3305		1540		1765						304

Table 2 SJ 95 Pump size and dimensions 60Hz

Model	Size（mm）								D1	D2	Weight(kg)	
	A		B		C		D					
	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor	With 6" motor	With 8" motor			With 6" motor	With 8" motor
SJ95-1	1298	1285	810	780	488	505	143	184	197	Rp5	71	80
SJ95-2	1644	1491	1030	860	614	631					101	124
SJ95-3	1900	1697	1160	940	740	757					127	163
SJ95-4	2196	1933	1330	1050	866	883					158	196
SJ95-5	2562	2159	1570	1150	992	1009					186	214
SJ95-6		2375		1240		1135	/	192				232
SJ95-7		2631		1370		1261						250
SJ95-8		2877		1490		1387						270
SJ95-9		3003		1490		1513						276
SJ95-10		3179		1540		1639						302

Caution: The size B is changed with different motors supplied by different factories.

· SJ pump is installed by lifting and put it into water. Discharger head is connected by screw thread pipe. Raiser pipe is connected with discharger head. The strainer in the suction should be dipped into liquid;

· If pump and motor are supplied separately, when installation, place motor in vertical position, dismantle cable guard and strainer, (SJ 17 to SJ95need not to dismantle strainer), clean the face of pump and motor, clamp pump part with clamper for lifting . Aim motor cable to the groove of suction interconnector, fit the pump unit on motor, be careful that the motor shaft extender is fit with the pump unit coupling, tighten the motor nuts, draw the cable from groove of suction inter connector, fixed it with the cable guard, fix the strainer.

· Fit cable guard for SJ 1 to SJ 12. Dismantle strainer, release a strap near the suction interconnector, take it out. Place the cable on the pump part. Put on cable guard.(If there is aclip on the cable guard, use one shape screw driver to tenderly open the strap on the pump. Clip the footof cable guard on the strap). Put on the strap, tighten it. Tighten the 2 screws on the 2 ends of cable guard.

· Fit cable guard for SJ 17 to SJ 95. Release a strap near the suction inter connector, (if there are double cable guards, release the strap on the middle of the 2 grooves.) take it out. Follow the orders as above.

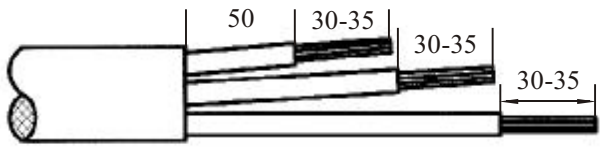
· According to the model of the screw thread of the water outjoint, use suitable pipe joint and pipe. Suggest using galvanized pipe or seamless steel tube or stretchy plastic pipe). According to the depth of the well and installation position, make the pipe with suitable length. Tighten the screw thread joint. Seal the jointing by polytetrafluoroethylene sticky strap or similar sealing things.

· To lift pump, do not lift the pump by the cable or cable guard. Recommend to tie two galvanized low carbon steel wire on the hanging ear on the two sides of discharger head. Or clamp the motor head with two semicircular steel plates. Use steel strings to lift it.User proper steel strings according to the weight of the pump. Clamp the cable on the steel string. Note the cable should be looser than the steel string in order not to let the weight force the cable when lifting pump.

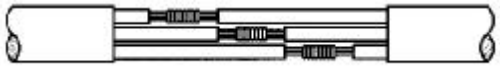
2. Electrical connection

If the cable of submersible motor is not long enough, extending cable should be connected. Cable should be connected by authorized electrician. The length of the cable depends on the depth of well and the location of electronic control cabinet. The cross section area depends on the installation length, motor power, starting way. The connector of motor cable and the extending cable should be secured sealed, insulated and stronger. The connection requirement is simplified as follows.

1)Bare the copper cable of motor cable for 30-35 mm as following figure. Clean the copper cable with emery cloth till brightened. Bare the other three cables like this and clean them by emery cloth.

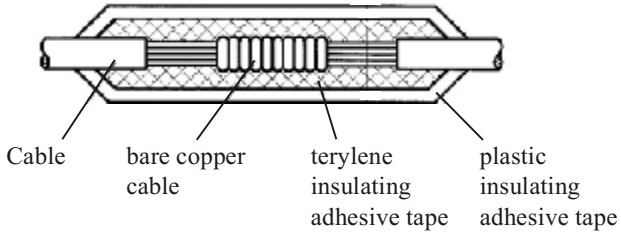


2) Connect the motor cable with extending cable as the figure shows. Cross the cables one pair by one pair. Then bind them tightly and separately like the following figure by a thin cooper string. Cut off the remains cooper string. Flat them by scissors until you do not feel pricked by hand. Three cables should bound like this.

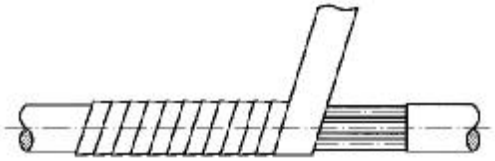


3)Prepare a small iron box or small iron pot which can be dipped by three connectors. Put soldering tin on the pot and heat it until it is melt. Daub the three connectors with some soldering tin and put it into the pot and weld them tightly. It is required that the cover of welded connector should be smooth. There should be no burr and connectors should be welded tightly in fact. If they are not welded tightly or they are not smooth, it should be done again until it is done as required.

4)As the following drawing, wrap the connectors with terylene insulating adhesive tape and make sure it press the half of the first round.(It is half terrace packing method.) Wrap it for 8 to 12 rounds. After wrapping, wrap it twice with plastic adhesive tape to protect it safely.



5) Wrap the three connectors with plastic insulating adhesive tape as fig. shows. Wrap it two layers.



Plastic insulating adhesive tape: 2 layers wrapping

6)After wrapping them, dip them into cool water. After 12 hours, test insulation with 500M ohmmeter and it should not lower than 50M ohm. Or wrap it again until it is done as required.

· Before pump installation, you should connect power supply cables and electrical meters cables correctly and check power voltage and frequency.

· Motor shall be connected with a fast and effective motor starter, to ensure that the motor will not be damaged by lack of phase, unstable voltage or overload.

V. Notes for pump before starting

· Sand and dust should be less than 50g/m^3 when pumping water. In order to cool the motor and keep the flowing unblocked and let the pump work longer.

· Before running, inner part of 6",8" water-filling motor should be filled with water fully. Refer to the motor warning plate or refer to the requirement of motor operation manual.

· The amount of hydrochloric in water should not more than 1.5mg/l; Amount of chlorine should less than 400mg/l.

· Amount of flowing out water should be enough as running pump required.

Warning: Pump is prohibited to run without water.

VI. Start–up and operation

1.After pump is connected correctly and submerged, when started, outlet valve should be opened 1/3 of nominal flow.

2.Check the rotating direction

· The arrow on the outlet indicates the correct direction of pump. That is, from the outlet, pump shall run counter-clockwisely. Before submerged, put the pump vertically and put it on a iron cradle, switch on and off(Note that switch on and off instantly) to check the direction of coupling. Or it can be checked as follows.

· Start pump, check flow and speed of flowing or pressure of outlet;

· Stop pump, exchange the two cables of power supply;

· Start pump, check flow and speed of flowing or pressure of outlet;

· Stop pump, compare the results before and after exchange the cables. The result of bigger flow and higher speed and higher press is the correct way of cable connecting.

3.Read the current meter, adjusting outlet valve, ensure the current will not exceed the motor nominal current when running.

4.When stopping, it is suggested that adjust the flow at 0.1 times of nominal flow and switch off. Shut off the connecting meters and monitor devices be fore shut off.

VII. Frequency of pump starts

In order to run pump well, it is suggested pump shall not be started more than 30 times per hour if the motor power is less than or equal to 3kW. Pump shall not be started more than 20 times per hour if the motor power is big than 3kW. If the pump is not used for years, it should be run at least 0.5 hours twice a year.

VIII. Maintenance and service

When pump is defect for some reasons, it will be repaired as follows.

1.General checking

· Switch off power, lift the pump by hand chain block and lever or by electric hoist.

· Check inlet of pump, to check if pump is blocked by fibers or not, to check if the strainer is cracked or not.

· Check the pump appearance to find if it is mechanically damaged or not. Check the housing of pump and motor to find if it is badly corrupted. Check the connectors of cables are disconnected or not.

· Loosen the bolts on the strainer, dismantle the strainer. (For SJ17 or bigger pump, it is not necessary to dismantle the strainer.) Move pump shaft or coupling by hand or clamp, to make sure it turns freely and there is no noise due to blocking.

2.Motor checking

· Before ex-work, 4" submersible motor is filled with lubricator called MARCOL82 or similar non-polluting, anti-corrosive lubricator, which cools and lubricate motor. If the surface of running motor is too hot or the sensor shows the temperature rise quickly, it is necessary to replace motor or repair pump part.

· Cabinet of 6" or 8" water cooling motor is filled with clean neutral water. If the surface of running motor is too hot or the sensor shows the temperature rise quickly, it is necessary to check the cooling liquid in motor. When filling, loose the filling screw on the top of the motor.(If there is air vent screw opposite, the air vent screw should be loosened too.) Filling with injector until it is full. Then tighten liquid closing screw. Test motor without load. When testing, man should not approach it. Be careful the extended shaft of motor（When necessary, do a formal test for motor）.

3.Assemble and dismantle pump

Dismantle and check and repair the pump as follows.

· Loosen the fixing bolts of cable guard. Dismantle the cable guard.

· Loosen the socket hexagon cap screw, dismantle 4 straps, take out discharger head, non-return valve, check if there is silt in the cabinet. Check if non-return valve cap can move freely.

· Take out the discharge diffuser, loosen the shaft lock nut, take out the wearing plate. Take out impeller, impeller sleeve, diffuser in return. Check the parts if they are cleaned or not. Check the parts if they are badly twisted or not.

· Take out the pump shaft, align it if it is bended.

Clean all parts before assemble, especially clean the interface. Reverse the process above can disassemble a pump. To be simplified as follows.

For SJ 1,3,5 pumps

· Position motor vertically, put suction interconnector on the motor, tighten nuts, socket the pump shaft on the extended pump shaft.

· Put a sleeve on the shaft, be careful, put on the gaskets, put as much as the dismantled gaskets. Put the inducer on the suction inter connector, put on the impeller, sleeve, diffuser. Then put on impeller, sleeve, diffuser. Continue the assemble order as above till the outlet impeller.

· Put on axial wearing plate, tighten lock nut. Fit non-return valve, discharger head, fit straps. Tighten nuts. Place cables flat, tighten cable guard, fit strainer.

For SJ 8,12 pumps

· Position motor vertically, put a 3.5mm thickness gasket on the outlet of motor. (Note that the OD of the gasket should be not bigger than the OD 87.3 of suction inter connector.)Put on suction interconnector, socket the pump shaft on the extended pump shaft. Tighten nuts between suction inter connector and the motor. Make 2 simple clamps. Insert them from the rectangle hole to clamp the pump shaft. Fix it with the footer to make the pump shaft touch the face of extended motor shaft tightly.

· Combine screw thread cones with impellers. Then screw impeller nut. This part is named impeller in the following.

· Put inlet diffuser(for SJ12, it was inducer) on pump shaft, put on impellers home, press impellers, tighten impeller nut, put on inlet sleeve, put on diffuser. Continue the assemble order as above till the last impeller.

· Loosen suction interconnector and motor nut, take out gasket, take out two clamps. Put the pump part on the motor. Tighten motor nuts.

· Put on discharge diffuser, non-return valve, discharger head, fit straps. Tighten nuts. Place cables flat, tighten cable guard, fit strainer.

For SJ17 to SJ60 pumps

· Position motor vertically, put a 3.5mm thickness gasket on the outlet of motor. (Be careful, for 4" motor, the OD of the gasket should be not bigger than the OD 87.3 of suction interconnector; for 6" motor, ID should be bigger than the diameter 76.2), Put on suction interconnector, socket the pump shaft on the extended pump shaft. Tighten nuts between suction inter connector and the motor.

· Combine screw thread cones with impellers. Then screw impeller nut. This part is named impeller in the following.(For SJ42 and SJ60 pump, the-

re is a nut assemble with wearing plate, which is used with inlet impeller). Put impeller(for SJ42, SJ60, it was inlet impeller) on pump shaft home. C-lamp the pump shaft with two simple clamps. Strain it with two steel strings.(To make the pump shaft touch the face of extended motor shaft tightly.) Then press impeller with hand hardly, tighten nuts.(For SJ 42,SJ60 make a special wrench). (Note not bend the pump shaft). Then put on inlet sleeve.

· Put on inlet diffuser(For SJ17, it is diffuser), put diffusers down to bottom. Tighten nuts as the way above. Put on diffuser. Continue the assemble order as above till the last impeller.

· Loosen suction interconnector and motor nut, take out gasket. Put the pump part on the motor. Tighten motor nuts.

· Put on discharge diffuser, non-return valve, discharge head, fit straps. Screw nuts. Place cables flat, fit cable guard, tighten nuts of straps.

For SJ75 ,SJ95 pumps

· Position motor vertically, put a 1.5mm thickness gasket on the outlet of motor. (Be careful, for 6" motor, ID should be bigger than the diameter 76.2; for 8" motor, ID should be bigger than the diameter 127), Put on suction interconnector, socket the pump shaft on the extended pump shaft. Tighten nuts between suction interconnector and the motor.

· Combine screw thread cones with impellers. Then screw impeller nut. This part is named impeller in the following.

· Put impeller on pump shaft home. Clamp the pump shaft with two simple clamps. Strain it with two steel strings.(To make the pump shaft touch the face of extended motor shaft tightly.) Then press impeller with hand hardly, tighten nuts. Note not bend the pump shaft). Then put on inlet sleeve.

· Put on inlet diffuser, put diffusers down to bottom. Tighten nuts as the way above. Put on diffuser. Continue the assemble order as above till the last impeller.

· Loosen suction interconnector and motor nut, take out gasket. Put the pump part on the motor. Tighten motor nuts.

· Put on discharge diffuser, valve body, valve cap, valve cap retainer, discharger head. Attention: Paint seal glue between discharge head and valve body.

IX. Trouble shooting guide

Caution: Before dismantle pump, make sure that the power supply has been switched off.

Phenomena	Cause	Solution	Remarks
The pump does not run	1.Power supply is disconnected.	1.Check cables.	
	2.The fuses are blown.	2.Replace the blown fuses. If the new ones blow too, the electric installation and the submersible drop cable should be checked.	
	3.The motor starter overload has tripped out.	3.Reset the motor starter overload. If it trips out again, check the voltage.	
	4.The control circuit has been interrupted or is defective.	4.Check the electric installation.	
	5.The dry-running protection has cut off the electricity supply to the pump, due to low water level.	5.Check the water level. If it is OK, check the water level electrodes/ level switch.	
Device trips out or switched off.	1. Fuses are blown.	1. Replace the blown fuses.	In the case of 4) and 5), users shall not disassemble and repair the pump by themselves.
	2. Something wrong with contacts of overload device.	2. Check starter.	
	3. Cable connection is loose or there is something wrong with power supply.	3. Check cable connection and power supply.	
	4. Motor coil is defective.	4. Replace motor.	
	5. Mechanical part of pump is blocked.	5. Check and repair pump.	
Overload device of motor starter trips out occasionally.	1. The setting of overload is too low.	1. Reset overload setting.	
	2. Periodic power supply fault.	2. Check power supply.	
	3. Low voltage at peak time.	3. Add regulator.	

Phenomena	Cause	Solution	Remarks
Abnormal vibration or noise from pump	1. Inlet strainer is blocked.	1. Change water source and clean strainer.	In the case of 3, users shall not disassemble the pump by themselves.
	2. Pump rotates reversely.	2. Check rotation of pump.	
	3. Mechanical part of pump is rubbed.	3. Check pump.	
Pumps no water	1. The discharge valve is closed.	1. Open the valve.	In the case of 5, Users shall not disassemble the pump by themselves.
	2. No water or too low water level in borehole.	2. Increase the installation depth of the pump.	
	3. The non-return valve is stuck in its shut position.	3. Pull out the pump and clean or replace the valve.	
	4. The inlet strainer is choked up.	4. Pull out the pump and clean the strainer.	
	5. The pump is defective.	5. Repair/replace the pump.	
The pumped water is not constant	1. There is not sufficient water in pump inlet.	1. Improve system and increase water.	
	2. Liquid level is low.	2. Try to lift liquid level.	
	3. Inlet is partly blocked by impurities.	3. Check and clear impurities.	
There is a little water pumped.	1.Inlet liquid level is too low.	1.Let pump submerge more deeply.	
	2.Pump turns reversely.	2.Check the direction of pump turning.	
	3.Strainer is blocked.	3.Clean inlet.	
	4.Pipes jammed or leak.	4.Repair pipes.	
	5.Chose the wrong model.	5.Choose a new model.	
Pump runs but gives no water.	1.Strainer is jammed by impurities.	1.Check and clean strain.	
	2.Disharge valve is closed.	2.Open valve.	
	3.Part of raiser pipe leaked.	3.Check pipes.	

X. Important notice

1.Customers will not be advised if this manual is updated.

2.Pump will be guaranteed for one year under normal operation with the correct model. Wearing parts are not included.

3.Users shall be responsible for the damage if they disassemble the pumps by themselves in guaranteed period.