ISO9001

CE

OPERATING&MAINTENANCE MANUAL

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⚠ Caution

1. Install after reading the instruction; limit the pump run without water.
2. Limit to pull the pump with cable wire.
3. Put the pump down vertically over 2m in the water, less than 30m. the electrical machinery must be over 4m above the bottom to void the dirty things. Electrode of the water control machine 1m above the pump. Keep the pump working with water above it.
4. The electrical machinery rerun no more than 1 minute.
5. New well or not used old well. Wash it first. Then put the pump down.
6. Install automatic control case (or protection for three-phase power)
7. Low voltage, small electric current. Pipe frozen, impeller don't run etc automatic safe protection. (condition: flow big or small now and then)
8. Cut the rest cable wire, wire must touch the ground.

Cable Selection

Cable f the diving work, the size must fit the certain temperature work and kept the electrical machinery enough voltage. It can be double leads. With or without case or flat cable.

A certain voltage cable's smallest square millimeter is based on the ampere in 25℃ (European VDE standard). Hick cable can be used if there is other standards to temperature demand.

The following list measure by square millimeters, the unit of length is metre, single-phase cable list is also for all three wire type. When need, control case can be used anywhere in the cable. Keep the start working well. The cable from the switch case behind the trans former to three-phase control machine is less than the 25% of the biggest length.

List1 Single-phase electrical machinery copper cable length reference

EM standard			Size of copper cable section(mm^2)						
Voltage	Power(kW)	Horse power(HP)	1	1.5	2.5	4	6	10	16
110V 50/60 Hz	0.37	0.5	--	29	49	78	116	192	
	0.55	0.75	--	23	38	60	91	149	238
	0.75	1	--	--	27	44	66	109	174
	1.1	1.5	--	--	--	22	40	67	107
220V 50/60 Hz	0.37	0.5	78	117	196	313	467	768	
	0.55	0.75	61	92	153	243	364	598	
	0.75	1	44	67	111	177	264	436	
	1.1	1.5	26	40	67	108	161	269	430
	1.5	2	--	33	55	89	133	222	355
	2.2	3	--	--	41	65	97	161	257

List2 Three-phase(three-wire)copper cable length reference

EM standard			Size of copper cable section(mm^2)						
Voltage	Power(kW)	Horse power(HP)	1	1.5	2.5	4	6	10	16
380V 50/60 Hz	0.37	0.5	408	612	1016				
	0.55	0.75	308	463	770	1223			
	0.75	1	206	310	515	820			
	1.1	1.5	151	227	377	601	894		
	1.5	2	112	169	282	449	669		
	2.2	3	71	107	178	283	422	697	
	3	4	--	87	145	230	344	566	890
	4	5.5	--	64	107	170	255	420	661
	5.5	7.5	--	--	82	130	197	320	504
	7.5	10	--	--	59	93	139	229	360
220V 50/60 Hz	0.37	0.5	136	204	338	540			
	0.55	0.75	102	154	256	407	610		
	0.75	1	68	103	171	273	409		
	1.1	1.5	50	75	125	200	298	496	
	1.5	2	37	56	94	149	223	371	593
	2.2	3	23	35	59	94	140	232	371
	3	4	--	29	48	76	114	188	296
	4	5.5	--	21	35	56	85	140	220
	5.5	7.5	--	--	27	43	65	106	168
	7.5	10	--	--	--	31	46	76	120

List3 Single-phase three wires. Distribution capacitor reference

Power		Volts	Capacitor	
kW	HP	v	μF	V
0.37	0.55	220	15	450
0.55	0 75		20	450
0.75	1		30	450
1.1	1.5		35	450
1.5	2.2		45	450
2.2	3		50	450
0.37	0.55	110	30	250
0.55	0.75		40	250
0.75	1		60	250
1.1	1.5		70	250

Note:

The wire of the diving pump and the wire of the capacity must be same color. (Or the EM will break or reverse)

Way of cable connect.(see Cable Wiring Diagram)

Take the case of the cable away, make the wire one long. One short. Cut down. Insure the pipe. (provide). Peel off the lead and EM guiding wire to get 40mm copper center. Insure 20mm. Tight with pincers (cover tin on the connection better). Encase in the pipe on the connector. Cover and make it hot and tighten. Cover the connection three to five layers with water-proof stuck rubberized tape. Tie the connections together. Then cover them three to five layers with the waterproof self-stuck rubberized tape. At last, cover 1 lager with plastic electrical rubberized tape to protect.

Notice for connect the joint.

1. Cable wire and EM guiding wire connect in safe way .
2. The tape pull 200% length before cover . half wide cover spirally. The rape will shrink tightenly and waterproof.
3. Keep the joint and tape clean without dirty oil.

Check and preparation before installation

1. Check the flow, lift. If it fit the lift and flow or not. (choose the little bigger pump for using)
2. Check the pump and case if they're broken. The cable guiding wire cut. Joint tighten to avoid stoppage.
3. Check power joints. Screw
4. Check axle run or not

   Make sure pump fit the following condition

   Power: single-phase. Voltage 110/220V, 50/60Hz . voltage range:110V±10%, 220V±10%.
   Three-phase. Voltage 220/380V,50/60Hz. voltage range: 220V±10%. 380V±10%.

The soild in the water is less than 0.020%(heavy proportion)
Water PH range:6.5~8.0
Water temperature: 0~35℃

Installation

1. Put pump and electrical machinery together. Make sure they run fluently. Or check the reason and clear the stoppage.
2. Consult and follow the installation diagram. Connect the well pipe and put into the well.
3. Every 2~3m. tight the cable to the pipe with cable clip (or rubberized tape)
4. Tight the tip hole of the pump with nylon or sted wire . for pull the pump down or up. The length of the wire depend on the well.
5. Install a pipe with the same bove with the pump to connect and clip a splint. Put into the well. Install another pipe like above until the pipe reach the needed depth. Tight the pump in the well. Connect the bend. Valve. Install manometer and water meter.

Three-phase Power Imbalance

Three-phase electrical machinery use the safe three-phase power. Three transformers.. or one three-phase trans formers. To offer power. Rate trans formers can offer total load of EM and other equipment. Get best run, power imbalance is no more than 5%. If change the joint of cable beside the starter. Can not correct the imbalance. Please contract the power supply company.

imbalance formula: power imbalance rate=biggest difference to the mean/meanX100%
Mode: wire 1-2 and 3. power is 80.79.81 (ampere)
Rate power=80+79+81/3=80
Rate power imbalance =81-8080X100%=1.25%

The Use of Check Valve

Suggest to use check valve in all pump equipment. If no check valve in the pump. Install the check valve in the drainage pipeline 7m away from the pump. For deeper place, suggest to install a wire check valve every 61m. don't use swing check valve in diving pump. Use spring pressure check valve.

The following can cause the stoppage of EM or pump o shorten its usage.

A. Reverse. No check valve or it can't work.
B. Upper thrust.
   Without check valve or it leaks water. It can cause the upper thrust again and again to wear and tear of bearing..
C. Water drop
   The lowest check is over 9m above the water. The water drop will make the pipe break or joint broken even pump and electrical machinery.

Start and Run

Put the pump down into the well with the control case. Put through the power. Start the electrical pump. Check the pressure and power. If all right. It can be use. If the pressure is high or flow is small. Shut power, start try-axle. Pump water to check the solid in the water. If the solid too much, stop a few minutes and pump again. Use the special washing well pump to wash if it is

too dirty. Then pump again. No washing or pump with the electrical pump.

Maintenance

The following condition, stop and check.

1. Correct voltage, but power is over the rate.
2. Certain lift but flow smaller.
3. Pump run, shaking and noisy.
4. The protect switch often trip.
5. The cable (connect with the electrical machinery)centre to case (ground). Insulator resistance is less than 0.5 mega ohm.
6. If mud and sand too much. After using half a year. Pull the pump to check and wash the impeller.

Introduction of Motor

Motor are designed with quality material and unique feature to assure years of dependable operation. Oil-filled motor keeps windings cool,permanently lubricated bearings to provide reliable pump service. Watertight double-insuated cable entry system prevents capillary action and protects against moisture.

A rubber diaphragm is provide to guard against pressure and volume variations due to thermal expansion of oil inside the motor.

Notice

Read instruction carefully before installation. Installation of power and pipe fit the local and international code. All metal pipe and electrical machinery must have ground wire. All ground wire not less than electrical cable's standard . The outside power wire must thicker than electrical machinery power guiding wire. The interface must be sealing airtight. Use the rate voltage. If the Voltage change, electrical machinery stop working. To reduce danger of power shock, don't connect power wire at work or in the water. No use pump in swimming area.

Transformer's capacity of Submersible Motor

Three-phase or single-phase.

Power distribution trans former must be just right for demands capacity (KVA) of diving electrical machinery, if the capacity is small, the voltage of the electrical machinery will be low. List 5 show the standard power (horse power) of the single-phase and three-phase need the total valid capacity (KVA). The smallest transformer for open or close type three-phase system. For use two transformer, the open system need bigger transformer. Other load, add the need for capacity of the transformer unit.

List 4

EM power		Total valid Capacity (KVA)	Smallest capacity of Each transformer(KVA)	
kW	HP		open star or triangle 2trans former	star or triangle 3trans former
1.1	1.5	3	2	1
1.5	2	4	2	1.5
2.2	3	5	3	2
3	4	6	4	2.5
4	5.5	8	5.5	3.5
5.5	7.5	10	7.5	5
7.5	10	15	10	5

Overload protection of three-phase Submersible Moter

EM protection: 1 thermal over-load relay's choice.

The diving electrical machinery need special protection compare with the standard electrical machinery. For efficient over-load protection and locked rotor protection and locked rotor protection. Relay has the following function.

1. Shat time in 500% in less than 10 second (cold double metal relay).
2. Every phase connect protection.
3. Automatic tripping in 120% rate power.
4. Install temperature compensate equipment to void wrong tripping.

Tight cable tip and lock nut

If take the cable apart form the electrical machinery. Suggest to use new cable instead. Don't use old cable on the new electrical machinery. For bad sealing airtight.

Start frequency

When choose pump and the size of the water case and control equipment, make the start fewest times every day for long usage. List 6 show the most start times every 24 hours. After 1 minute, the heat from the start power can lift.

List 5

Power		Times for 24h	
kW	HP	Single-phase	Three-phase
⩽0.55	⩽0.75	300	300
0.75-3.7	1-5	100	100
5.5-22	7.5-30	50	100

Operating conditions

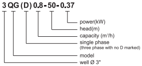
Maxiumum fluid temperature up to +40°C.
Maximum sand content : 3%.
Maximum immersion : 50m.
Minimum well diameter : 2 " / 3".

Motor and pump

Rewindable motor
Single-phase : 220V- 240V /50HZ
Three-phase : 380V - 415V /50HZ
Single phase motor with built-in capacitor
Curve tolerance according to ISO 9906

Options on request

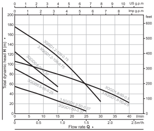
Special mechanical seal
Other voltages or frequency 60 HZ



Components	Material
Delivery casing	AISI 304 SS
Strainer	AISI 304 SS
Motor external casing	AISI 304 SS
Top chock	Cast-iron ASTM NO.30
Bottom support	AISI 304 SS
Mechanical seal	Graphite-Ceramic
Shaft	AISI 304 SS-ASTM 5140
Seal lubricant oil	Oil for food machinery and pharmaceutic use.

PERFORMANCE DATA

MODEL		P_2		
1~ 220 - 240V	3~ 380 - 415V	kW	HP	Q
2QGD1-50-0.37	-	0.37	0.5	H(
3QGD0.5-50-0.25	3QG0.5-50-0.25	0.25	0.37	
3QGD0.8-50-0.37	3QG0.8-50-0.37	0.37	0.5	
3QGD1.8-50-0.5	3QG1.8-50-0.5	0.5	0.7	
3QGD1.2-100-0.75	3QG1.2-100-0.75	0.75	1	
3.5QGD1.2-50-0.37	3.5QG1.2-50-0.37	0.37	0.5	
3.5QGD1.8-50-0.5	3.5QG1.8-50-0.5	0.5	0.7	
3.5QGD1.2-100-0.75	3.5QG1.2-100-0.75	0.75	1	



50HZ n≈2850 r/min

	DELIVERY								
m³/h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4
l/min	0	5	10	15	20	25	30	35	40
m)	55	45	35	25	15	5	-	-	-
	90	80	70	45	-	-	-	-	-
	125	101	76	52	-	-	-	-	-
	107	95	86	81	71	61	50	36	23
	175	154	138	115	90	56	25	-	-
	55	45	35	25	15	5	-	-	-
	107	95	86	81	71	61	50	36	23
	175	154	138	115	90	56	25	-	-

Operating conditions

Maxiumum fluid temperature up to +40°C.
Maximum sand content : 3%.
Maximum immersion : 50m.
Minimum well diameter : 4 " .

Motor and pump

Rewindable motor
Single-phase : 220V- 240V /50HZ
Three-phase : 380V - 415V /50HZ
Single phase motor with built-in capacitor
Curve tolerance according to ISO 9906

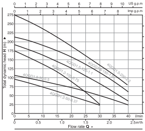
Options on request

Special mechanical seal
Other voltages or frequency 60 HZ

4 QG (D) 1.8 - 50 - 0.5

- power(kW)
- head(m)
- capacity (m³/h)
- single phase
  (three phase with no D marked)
- model
- well Ø 3"

Components	Material
Delivery casing	AISI 304 SS
Strainer	AISI 304 SS
Motor external casing	AISI 304 SS
Top chock	Cast-iron ASTM NO.30
Bottom support	AISI 304 SS
Mechanical seal	Graphite-Ceramic
Shaft	AISI 304 SS-ASTM 5140
Seal lubricant oil	Oil for food machinery and pharmaceutic use.



PERFORMANCE DATA

50HZ n≈2850 r/min

MODEL		P_2		DELIVERY										
1~ 220 - 240V	3~ 380 - 415V	kW	HP	Q	m³/h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4
					l/min	0	5	10	15	20	25	30	35	40
4QGD1.2-50-0.37	4QG1.2-50-0.37	0.37	0.5	H(m)		95	83	72	60	48	35	22	-	-
4QGD1.8-50-0.5	4QG1.8-50-0.5	0.5	0.7			107	95	86	81	71	61	50	36	23
4QGD1.2-100-0.75	4QG1.2-100-0.75	0.75	1			175	154	138	115	90	56	25	-	-
4QGD1.5-120-1.1	4QG1.5-120-1.1	1.1	1.5			190	177	163	147	128	107	84	58	30
4QGD1.5-150-1.5	4QG1.5-150-1.5	1.5	2			210	207	193	177	158	137	114	88	60
4QGD1.5-200-2.2	4QG1.5-200-2.2	2.2	3			280	267	223	207	178	157	134	108	80

Operating conditions

Maxiumum fluid temperature up to +40°C.
Maximum sand content : 0.15%.
Maximum immersion : 50m.
3NK Minimum well diameter : 3 " .
4NK Minimum well diameter : 4 " .

Motor and pump

Rewindable motor or Hermetically-Sealed motor
Single-phase : 220V- 240V /50HZ
Three-phase : 380V - 415V /50HZ
Equip with start control box or digital auto-control box
Curve tolerance according to ISO 9906

Options on request

Special mechanical seal
Other voltages or frequency 60 HZ

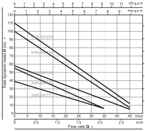
3/4NK

3/4SK

3NK/SK(M)75

- power code
- single phase
  (three phase with no M marked)
- model
- well Ø 3"

Components	Material	
Delivery casing	NK: AISI 304 SS	SK: Cast-Cu ASTM C85500
Suction lantern	NK: AISI 420 SS	SK: ① Cast-Cu ASTM C85500 ② AISI 420 SS
Diffuser		
Impeller	Cast-Cu ASTM 85500	
Strainer	AISI 304 SS	
Motor external casing	AISI 304 SS	
Top chock	① Cast-Cu ASTM C85500 ② AISI 420 SS	
	③ Cast-iron ASTM NO.30	
Bottom support	AISI 304 SS	
Mechanical seal	Graphite-Ceramic	
Shaft	AISI 304 SS-ASTM 5140	
Seal lubricant oil	Oil for food machinery and pharmaceutic use.	



PERFORMANCE DATA 50Hz

MODEL		P_2		DELIVERY n≈2850 r/min											
1~ 220-240V	3~ 380-415V	kW	HP	Q	m³/h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7
					l/min	0	5	10	15	20	25	30	35	40	45
3NKM/SKM75	3NK/SK75	0.55	0.75	H(m)		39	34	30	25	20	15	11	6	-	-
3NKM/SKM100	3NK/SK100	0.75	1			55	48	41	34	27	20	13	6	-	-
4NKM/SKM100	4NK/SK100	0.75	1			58	52	46	40	34	28	22	16	10	5
4NKM/SKM150	4NK/SK150	1.1	1.5			100	89	79	69	59	48	38	28	17	7
4NKM/SKM200	4NK/SK200	1.5	2			110	99	88	78	67	56	45	34	23	12

Operating conditions

Maxiumum fluid temperature up to +35°C.
Maximum sand content : 0.15%.
Maximum immersion : 50m.
Minimum well diameter : 4 " .

Motor and pump

Rewindable motor
Single-phase : 220V- 240V /50HZ
Three-phase : 380V - 415V /50HZ
Equip with start control box or digital auto-control box
Pumps are designed by casing stressed
Curve tolerance according to ISO 9906

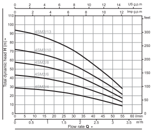
Options on request

Special mechanical seal
Other voltages or frequency 60 HZ

4 SM (M)2/4(N)(A)

with floating switch
built-in capacitor
(outboard capacitor with no N marked)
impeller's number
capacity (m^3/h)
single phase
(three phase with no M marked)
model
well Ø 4"

Components	Material
Delivery casing	AISI 304 SS
Suction lantern	AISI 304 SS
Pump external casing	AISI 304 SS
Diffuser	Plastic.PC
Impeller	Plastic.POM
Motor external casing	AISI 304 SS
Top chock	Cast-iron ASTM NO.30
Bottom support	AISI 304 SS
Mechanical seal	Graphite-Ceramic
Shaft	AISI 304 SS-ASTM 5140
Seal lubricant oil	Oil for food machinery and pharmaceutic use.



PERFORMANCE DATA 50Hz

MODEL		P_2		DELIVERY													n≈2850 1/min
1 ~ 220 - 240V	3 ~ 380 - 415V	kW	HP	Q	m^3/h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3
					l/min	0	5	10	15	20	25	30	35	40	45	50	55
4SMM2/4	4SM2/4	0.25	0.33	H(m)		29	28	27	26	25	24	22	19	17	14	12	9
4SMM2/6	4SM2/6	0.37	0.5			43	42	41	40	37	36	33	29	25	22	18	13
4SMM2/8	4SM2/8	0.55	0.75			58	57	55	53	50	47	44	39	34	29	23	17
4SMM2/10	4SM2/10	0.75	1			72	71	68	66	62	59	55	48	42	36	29	22
4SMM2/13	4SM2/13	1.1	1.5			94	92	89	86	81	77	71	63	55	47	38	28

Operating conditions

Maxiumum fluid temperature up to +35℃.
Maximum sand content : 0.25%.
Maximum immersion : 80m.
Minimum well diameter : 4 " .

Motor and pump

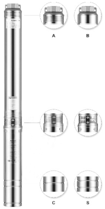
Rewindable motor
Single-phase : 220V- 240V /50HZ
Three-phase : 380V - 415V /50HZ
Equip with start control box or digital auto-control box
Pumps are designed by casing stressed
NEMA dimension standards
Curve tolerance according to ISO 9906

Options on request

Special mechanical seal
Other voltages or frequency 60 HZ
Single phase motor with built-in capacitor

Warranty : 2 years

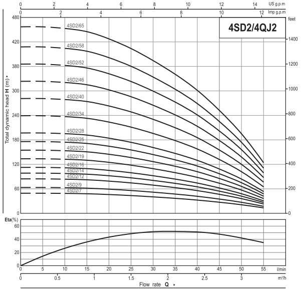
(according to our general sales conditions).



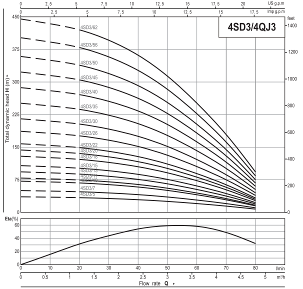
4 SD (M) 3 / 5 A C (N)

built-in capacitor
(outboard capacitor with no N marked)
motor type
pump type
impeller's number
capacity (m^3/h)
single phase
(three phase with no M marked)
pump name
well Ø 4"

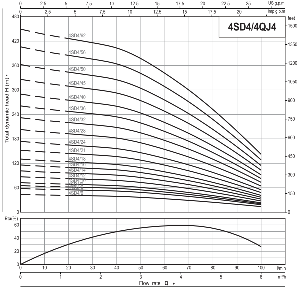
Components	Material
Pump external casing	AISI 304 SS
Delivery casing	Cast-Cu ASTM C85500
Suction lantern	Cast-Cu ASTM C85500
Diffuser	Plastic.PC
Impeller	Plastic.POM
Shaft	AISI 304 SS
Shaft coupling	AISI 304 SS
Wear ring	AISI 304 SS
Motor external casing	AISI 304 SS
Top chock	① Cast-Cu ASTM C85500 ② AISI 420 SS
	③ Cast-iron ASTM NO.30
Bottom support	AISI 304 SS
Mechanical seal	Special seal for deep well(Graphite-Ceramic)
Shaft	AISI 304 SS-ASTM 5140
Bearing	NSK
Seal lubricant oil	Oil for food machinery and pharmaceutic use.



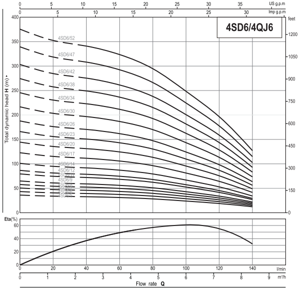
MODEL		P_2		DELIVERY													
1~ 220-240V	3~ 380-415V	kW	HP	Q	m^3/h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3
					l/min	0	5	10	15	20	25	30	35	40	45	50	55
4SDM2/4	4SD2/4	0.18	0.18	H(m)		30	29	28	27	26	25	24	22	20	17	13	10
4SDM2/7	4SD2/7	0.25	0.33			51	50	49	48	46	44	40	37	32	27	21	13
4SDM2/9	4SD2/9	0.37	0.5			65	64	63	62	59	56	52	47	42	35	27	17
4SDM2/12	4SD2/12	0.55	0.75			86	85	84	82	79	75	69	63	56	47	36	23
4SDM2/14	4SD2/14	0.75	1			99	98	97	96	92	87	81	73	65	54	42	27
4SDM2/16	4SD2/16	0.75	1			113	112	111	110	105	99	92	84	74	62	48	31
4SDM2/19	4SD2/19	1.1	1.5			134	133	131	130	125	118	109	100	88	74	57	36
4SDM2/22	4SD2/22	1.1	1.5			155	154	153	151	145	137	127	115	102	85	66	42
4SDM2/25	4SD2/25	1.5	2			176	175	174	171	164	155	144	131	116	97	75	48
4SDM2/28	4SD2/28	1.5	2			197	196	195	192	184	174	161	147	130	109	84	53
4SDM2/34	4SD2/34	2.2	3			239	238	237	233	223	211	196	178	157	132	102	65
4SDM2/40	4SD2/40	2.2	3			281	280	279	274	263	249	230	210	185	155	120	76
4SDM2/46	4SD2/46	3	4			323	322	321	315	302	286	265	241	213	178	138	88
-	4SD2/52	3	4			366	365	362	356	342	323	299	273	241	202	156	99
-	4SD2/58	4	5.5			408	405	404	397	381	360	334	304	269	225	174	111
-	4SD2/65	4	5.5			457	455	453	445	427	404	374	341	301	252	195	124



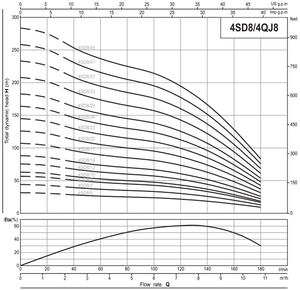
MODEL		P₂		DELIVERY									
1~ 220-240V	3~ 380-415V	kW	HP	Q m³/h	0	0.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8
				l/min	0	10	20	30	40	50	60	70	80
4SDM3/5	4SD3/5	0.25	0.33	H(m)	36	35	34	32	29	25	20	14	7
4SDM3/7	4SD3/7	0.37	0.5		50	49	47	45	41	35	28	20	10
4SDM3/9	4SD3/9	0.55	0.75		72	70	68	64	58	50	40	29	15
4SDM3/11	4SD3/11	0.75	1		79	77	75	70	64	56	45	32	16
4SDM3/12	4SD3/12	0.75	1		93	91	88	83	76	66	53	38	19
4SDM3/15	4SD3/15	1.1	1.5		108	105	102	96	88	76	61	43	22
4SDM3/17	4SD3/17	1.1	1.5		129	126	122	115	105	91	73	52	27
4SDM3/20	4SD3/20	1.5	2		144	140	135	128	117	101	81	58	30
4SDM3/22	4SD3/22	1.5	2		158	154	149	141	128	111	89	64	33
4SDM3/26	4SD3/26	2.2	3		187	182	176	166	152	131	105	75	39
4SDM3/30	4SD3/30	2.2	3		215	210	203	192	175	151	121	87	45
4SDM3/35	4SD3/35	3	4		251	245	237	224	204	177	142	101	52
-	4SD3/40	3	4		287	280	271	255	234	202	162	115	60
-	4SD3/45	4	5.5		323	315	305	287	263	227	182	130	67
-	4SD3/50	4	5.5		359	350	339	319	292	252	202	144	75
-	4SD3/56	5.5	7.5		402	392	379	358	327	283	227	162	84
-	4SD3/62	5.5	7.5		445	434	420	396	362	313	251	179	93



MODEL		P₂		DELIVERY											
1~ 220-240V	3~ 380-415V	kW	HP	Q m³/h	0	0.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0
				l/min	0	10	20	30	40	50	60	70	80	90	100
4SDM4/6	4SD4/6	0.37	0.5	H(m)	44	42	41	40	39	36	33	29	24	19	14
4SDM4/8	4SD4/8	0.55	0.75		58	56	55	54	52	49	44	39	33	26	18
4SDM4/9	4SD4/9	0.75	1		65	63	62	60	58	55	49	44	37	29	21
4SDM4/10	4SD4/10	0.75	1		73	70	69	67	65	61	55	48	41	32	23
4SDM4/12	4SD4/12	1.1	1.5		87	84	82	81	78	73	66	58	49	39	27
4SDM4/14	4SD4/14	1.1	1.5		102	98	96	94	91	85	77	68	57	45	32
4SDM4/16	4SD4/16	1.5	2		116	113	110	107	104	97	88	77	65	51	37
4SDM4/18	4SD4/18	1.5	2		131	127	124	121	117	109	99	87	73	58	41
4SDM4/21	4SD4/21	2.2	3		152	148	144	141	136	128	115	102	85	67	48
4SDM4/22	4SD4/22	2.2	3		159	153	148	143	137	128	116	110	81	59	34
4SDM4/24	4SD4/24	2.2	3		174	169	165	161	156	146	132	116	98	77	55
4SDM4/25	4SD4/25	2.2	2		181	174	168	162	156	146	132	114	92	67	39
4SDM4/28	4SD4/28	3	4		203	197	192	188	182	170	154	135	114	90	64
-	4SD4/32	3	4		232	225	220	215	208	195	176	155	130	103	73
-	4SD4/36	4	5.5		261	253	247	242	234	219	198	174	146	116	82
-	4SD4/40	4	5.5		290	281	275	268	260	243	220	194	163	128	92
-	4SD4/45	5.5	7.5		327	316	309	302	293	274	248	218	183	144	103
-	4SD4/50	5.5	7.5		363	352	344	335	325	304	275	242	203	160	115
-	4SD4/56	7.5	10		406	394	385	376	364	341	308	271	228	180	128
-	4SD4/62	7.5	10		450	436	426	416	403	377	341	300	252	199	142



MODEL		P₂		DELIVERY								
1~ 220-240V	3~ 380-415V	kW	HP	Q m³/h	0	1.2	2.4	3.6	4.8	6.0	7.2	8.4
				l/min	0	20	40	60	80	100	120	140
4SDM6/5	4SD6/5	0.37	0.5	H(m)	36	34	33	31	28	24	19	12
4SDM6/6	4SD6/6	0.55	0.75		43	41	39	37	34	29	23	15
4SDM6/7	4SD6/7	0.75	1		51	47	46	44	40	33	26	17
4SDM6/8	4SD6/8	0.75	1		58	54	52	50	45	38	30	20
4SDM6/9	4SD6/9	1.1	1.5		65	61	59	56	51	43	34	22
4SDM6/11	4SD6/11	1.1	1.5		80	74	72	69	62	52	41	27
4SDM6/12	4SD6/12	1.5	2		87	81	79	75	68	57	45	29
4SDM6/14	4SD6/14	1.5	2		101	95	92	87	79	67	53	34
4SDM6/17	4SD6/17	2.2	3		123	115	111	106	96	81	64	42
4SDM6/20	4SD6/20	2.2	3		145	135	131	125	113	95	75	49
4SDM6/23	4SD6/23	3	4		166	156	151	143	130	110	87	56
-	4SD6/26	3	4		188	176	171	162	147	124	98	63
-	4SD6/30	4	5.5		217	203	197	187	170	143	113	73
-	4SD6/34	4	5.5		246	230	223	212	193	162	128	83
-	4SD6/38	5.5	7.5		275	257	249	237	216	181	143	93
-	4SD6/42	5.5	7.5		304	284	275	262	238	200	158	103
-	4SD6/47	7.5	10		340	318	308	293	267	224	177	115
-	4SD6/52	7.5	10		376	352	341	324	295	248	196	127



MODEL		P₂		DELIVERY										
1~ 220-240V	3~ 380-415V	kW	HP	Q m³/h	0	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8
				l/min	0	20	40	60	80	100	120	140	160	180
4SDM8/5	4SD8/5	0.55	0.75	H(m)	32	31	28	26	25	24	22	18	14	9
4SDM8/6	4SD8/6	0.75	1		38	37	34	32	30	29	26	22	17	11
4SDM8/7	4SD8/7	0.75	1		44	43	39	37	35	33	30	26	20	13
4SDM8/8	4SD8/8	1.1	1.5		50	49	45	42	40	38	35	30	23	15
4SDM8/9	4SD8/9	1.1	1.5		57	55	51	47	45	43	39	33	26	17
4SDM8/10	4SD8/10	1.5	2		63	61	56	53	50	48	43	37	28	18
4SDM8/12	4SD8/12	1.5	2		76	73	67	63	60	57	52	44	34	22
4SDM8/14	4SD8/14	2.2	3		88	86	79	74	70	67	61	52	40	26
4SDM8/17	4SD8/17	2.2	3		107	104	96	90	85	81	74	63	48	31
4SDM8/20	4SD8/20	3	4		126	122	112	105	100	95	87	74	57	37
-	4SD8/23	3	4		145	141	129	121	115	109	100	85	65	42
-	4SD8/26	4	5.5		164	159	146	137	130	124	113	96	74	48
-	4SD8/29	4	5.5		183	177	163	153	145	138	126	107	82	53
-	4SD8/33	5.5	7.5		208	202	186	174	165	157	143	122	94	61
-	4SD8/37	5.5	7.5		234	226	208	195	185	176	160	136	105	68
-	4SD8/41	7.5	10		259	251	231	216	205	195	178	151	117	76
-	4SD8/45	7.5	10		284	275	253	237	225	214	195	166	128	83

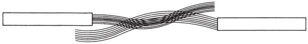
Troubleshooting

List 9

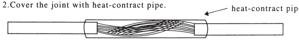
Problem	Possible Cause	Remedy
Start or run big power or trip	1. No power or absent phase 2. Wire too long and thin. Quick falling pressure or low voltage. 3. Contract set break or hot relay trip (red light on). 4. Power wire as EM wire wire bead or loose or absent phase 5. Electrical machinery break 6. Something is in the impeller of the pump	1. Check power rule out the absent phase. 2. Offer big cable and high voltage. 3. Check or change contract set after the hot relay cooler. Remove with hand. 4. Check the wire and connect it. 5. Fix electrical machinery or change it. 6. Clear dirty things.
No water or flow Power big or small	1. Reverse. 2. High lift than the fact. 3. The mouth is blocked up no water. 4. Pipe block up or break. 5. Impeller wear and tear. 6. Connect-bearing set broken. or loose. 7. No-back valve choke.	1. Change power or the joint of the cable two-phase. 2. Readjust the lift. 3. Clear block things. 4. Clear block things. Fix the break. 5. Change the impeller. 6. Change connect-bearing set. 7. Change no-back valve.
Flow big or small sometimes (right power)	1. Big flow, no enough water. 2. Pump is not put down enough. No enough water. 3. Water level is too low to reach the pump mouth.	1. Change the right flow pump. 2. Put the pump down enough. 3. Limit flow or readjust the depth of the pump.
Automatic gear shift is in order but hand gearshift is not	1. Automatic water level electrode bad tough or break. Ground-wire is wrong or bad-tough. 2. Automatic electrode break.	1. Check water level electrode change wire. 2. Fix or change control-case.
Start but too often	1. Well, tower's electrode's wire break or loose. 2. The distance between up and down water level electrode is near. 3. Install opposite the up and down water level electrode.	1. Check and fix. 2. Make the distance long. 3. Readjust the electrode wire.
Hot relay in order but trip when it touch	1. Power absent-phase (near the control case). 2. The EM wire bad touch or break..	1. Check and rule out absent phase. 2. Check and fix the cable.
Pump work in order but no voltage and pilot lamp show	1. Voltmeter's wire bad touch or break. 2. Pilot lamp's wire bad touch or break.	1. Check and tight the joint or change the voltmeter. 2. Check and fix or change.

Please rip the transparent protective film of the water-proof tape before

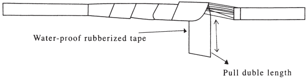
1.Joint lead link.



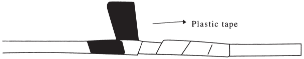
2.Cover the joint with heat-contract pipe.



3.Tie three of five with the water-proof tape.



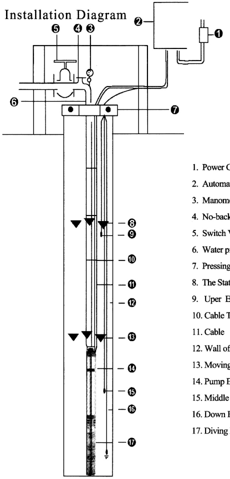
4.Tie two or three with plastic tape again.



use.

e.

Installation Diagram



1. Power General Switch
2. Automatic Control Case
3. Manometre
4. No-back Valve
5. Switch Valve
6. Water pipe
7. Pressing Board
8. The Static Water Level
9. Uper Eletrode
10. Cable Tip
11. Cable
12. Wall of Well
13. Moving Water Level
14. Pump Body
15. Middle Electrode
16. Down Electrode
17. Diving Electrical Machinery