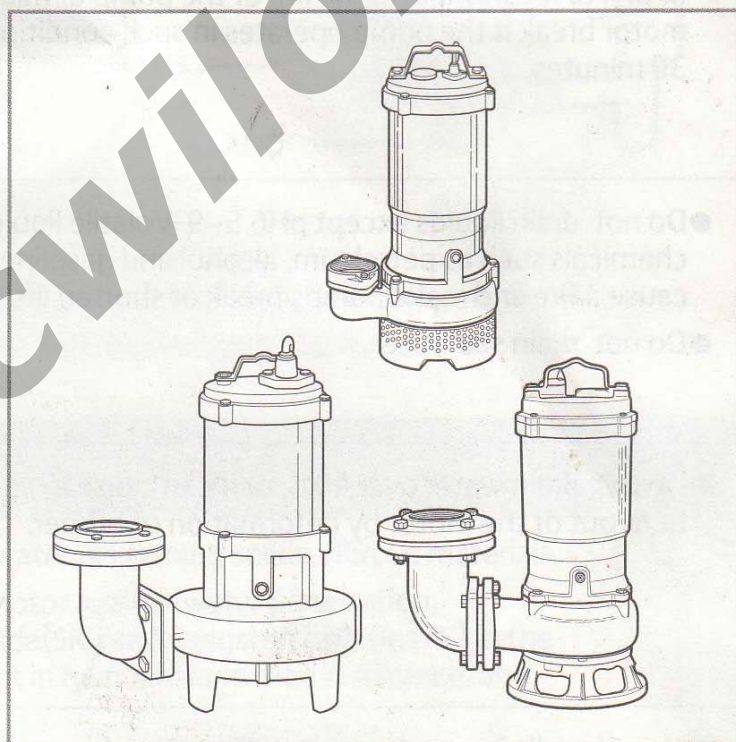


wilo

Submersible Drainage and Sewage Pumps Auto Guide Rail System Installation and Operating Instructions

MODEL

PDN-1500 Series	PD-5500 Series
PDN-2200 Series	PD-7500 Series
PDN-3700 Series	PD-11K Series
PDN-5500 Series	PD-15K Series
PDN-7500 Series	
PDC-1500 Series	ADAPTER
PDC-3700 Series	AD-50
PD-1500 Series	AD-65
PD-2200 Series	AD-80
PD-3700 Series	AD-100

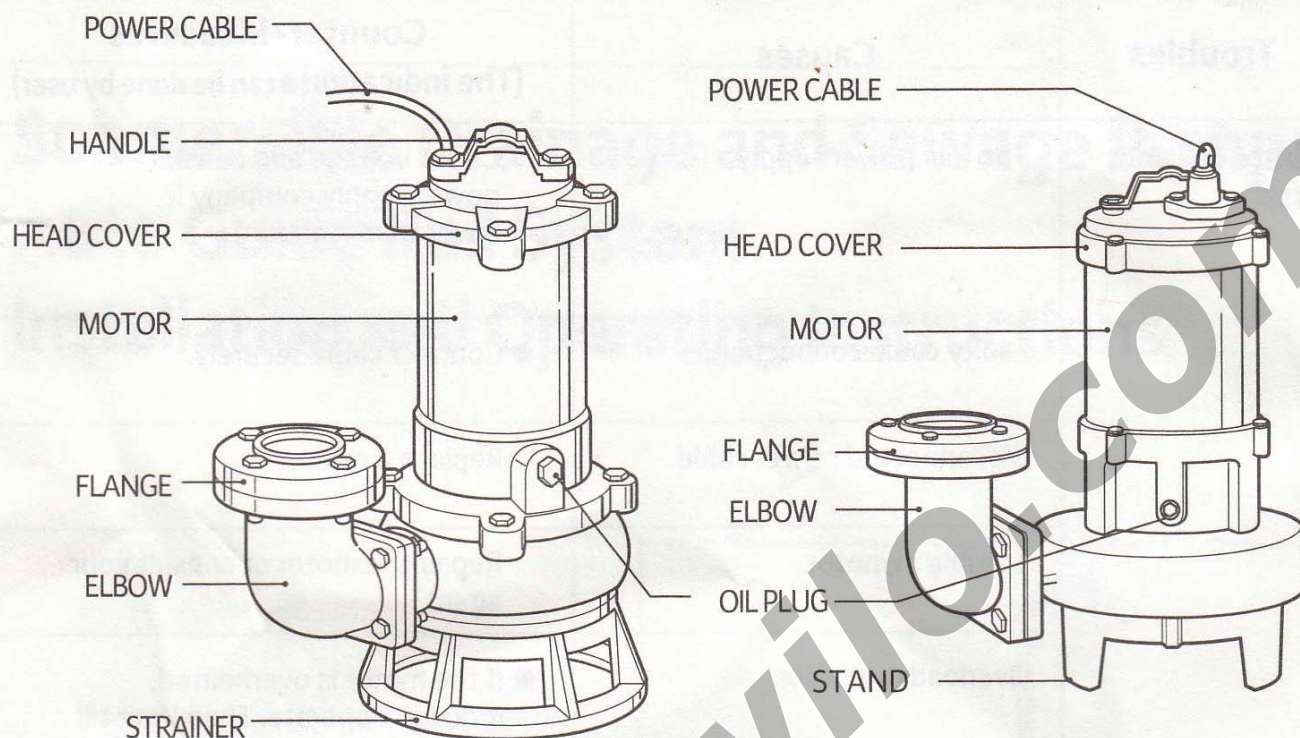


Please read your instruction manual carefully as it provides instructions on safe installation, use, and maintenance. The appearance and specifications may be varied without notice to raise the unit's quality.

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CHECK THE STATUS OF PRODUCTS

※ These pumps consist of like following figure.



Note

The above figure shows representative type. So it may have different outer appearance and interior structure depending on type.

FEATURES

- Designed for transfer of sewage and waste water containing solids, fibrous materials.
- Double faced mechanical seals protects the motor against water penetration. WILO has adopted the material of silicon carbide (SiC) and tungsten carbide (TC) in the mechanical seals. These materials are excellent in heat and corrosion resistance, and have a good characteristic for lubrication.
- A snap-action bi-metal device actuates when current of the motor surpasses the allowed current.
- Non-clog impeller has characteristic of preventing internal clogging by solids in the pumped liquid.

FIELDS OF APPLICATIONS

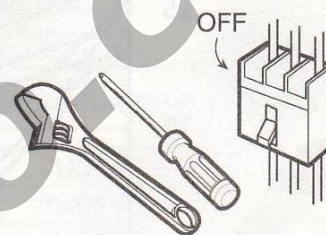
- Industrial wastewater treatment plans
- Factory and building sewage drainage
- Raw water supply from lakes or rivers

GUIDE FOR INSTALLATION

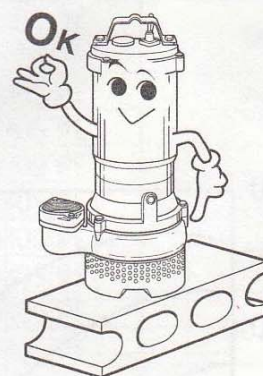
- The permitted voltage of this pump is $\pm 10\%$ of the rated voltage. Otherwise it will be the reason of shortening the service life of the pump.
- Don't use thinner power cable than standard(refer to the below table).

MODEL	PDN-1500, PD-1500, PDN-2200, PD-2200, PDC-1500	PD-3700 PDN-3700 PDC-3700	PD-5500	PDN-5500 PDN-7500 PD-7500	PD-11K PD-15K
Nominal sectional area (mm ²)	1.5	2.0	3.5	5.5	8.0

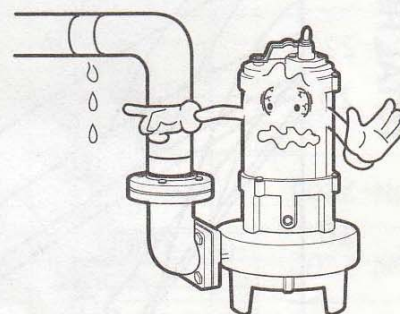
- Turn off the circuit breaker in connecting power cable to the pump.



- Install a Earth Leakage Breaker(ELB) to prevent earth shock.
- In case sands can bury pumps, place pumps on the brick
- Install electric overload protector suitable for rated current in installing pumps.

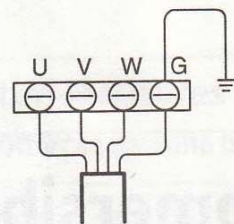


- Do not lift the bottom of pumps with a fork lift truck, or it can cause an injury by an accident fall.
- When carrying or installing the pump, consider the weight and center of gravity, or it can be cause an injury by a falling or breakage.
- Install piping to drain for sure, or it can be a cause of leakage and breakdown.

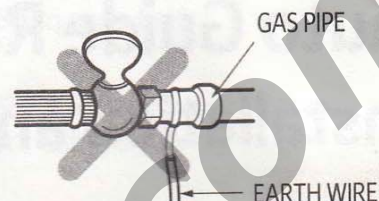


PRECAUTION BEFORE USING THE PUMP

- Connect the earth wire before use. This enables you to prevent an accident caused by an electric shock when the electric insulation is not in order.
- For your safety from the danger of electric shock, please avoid getting end of cable wet in.



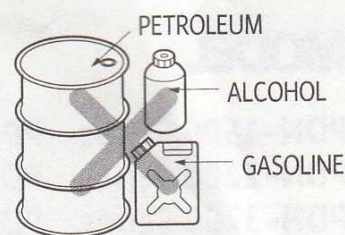
- Connect the earth wire before turning on the electric power.
- Do not connect the earth with gas pipes, otherwise it can be the cause of explosion.
- Do not connect the earth wire with water pipes, lightning rods and earthing conductors of telephone.



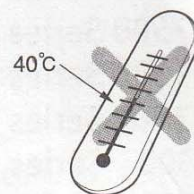
- Do not operate the pump below the operation water level or dry, or it can shorten the life of the pump or make the motor break if the pump operates in such conditions over 30 minutes.



- Do not drain liquids except pH6.5~9. Volatile liquids and chemicals such as petroleum, alcohol and gasoline can cause a fire and make pumps break or shorten life the pump.
- Do not drain sea water.



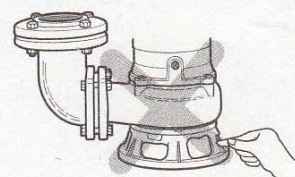
- Do not drain water over 40°C, or it can cause a burn out of the motor by deformation of rubber.



- Use a handle in carrying or installing the pump. And when installing on the place unreachable by hands, bind a wire rope or chain with a handle firmly to have pumps placed and never hold cable only to carry or install pumps.

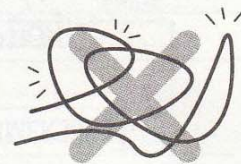


- Do not put a finger or the rod in to the suction part, or it can cause an injury, electric shock or fire.



PRECAUTION BEFORE USING THE PUMP

- Do not fold, pull or twist a cable excessively, or it can cause an electric leakage, shock or fire.



- Do not operate the pump at the place where people are nearby, or it can cause an electric shock by an electric leakage.



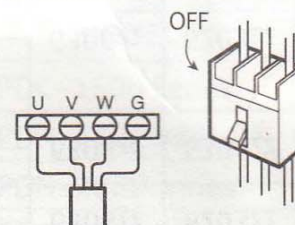
- Do not touch the pump by hands in operation or right after operation because the motor is hot, or it can cause an injury, electric shock.



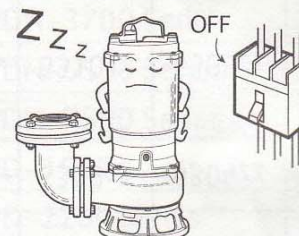
- Do not operate the pump hanging at the air, or it can cause an injury.



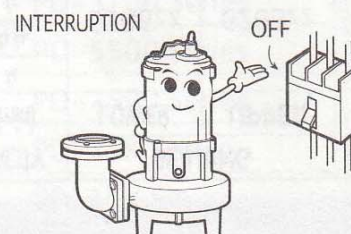
- In case of reverse rotation, change the connection after turning off the power and impeller stops completely, or it can cause an electric shock or injury.



- Turn off the power when do not use for a long time, or it can cause electric leakage, shock or fire by the worn-out insulation.

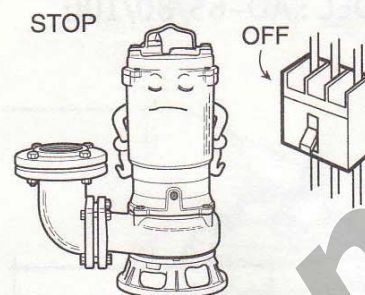


- Turn off the power in case of interruption of electric power, or sudden start can be dangerous to people around.



GUIDE FOR USING

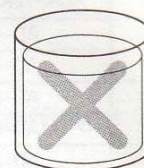
- Do not operate the pump below operation water level or with strainer clogged, or it can cause a breakdown, electric shock or fire.
- Turning off the power and impeller stops completely when uninstal or repair the pump, or it can cause a breakdown, electric leakage or fire.



- Make pumps stand in use.



- Do not use for the drinking water, or it can damage to human body.

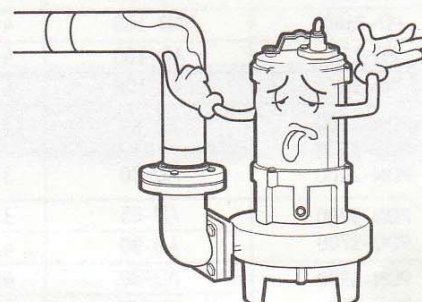


DRINKING WATER

- Check the rotation direction on the ground. Reverse rotation under water can cause a breakdown, electric leakage, shock or fire.
- Turn off the power immediately and consult your agent if there are unusual vibration, noise or smell at first operation.



- Take out air and re-operate pump if water dose not come out by the air in the discharge pipe.



MAINTENANCE

- Turn off the power and plug before repair or check, or it can cause an injury by the unexpected starting.

CHECK AND EXCHANGE OF OIL

- Oil should be checked every 3-6 months and exchanged every one year.
- Oil can be substitutable for TURBINE OIL #32.
- Inject 80~85% volume (the below oil quantity) of oil room.

MODEL	PDN-1500 PDN-2200 PDC-1500	PD-1500 PD-2200	PD-3700 PDN-3700 PDC-3700	PD-5500	PDN-5500 PDN-7500	PD-7500 PD-11K PD-15K
Oil Quantity (cc)	700~745		1,100~1,200	896~952	1,040~1,100	640~680

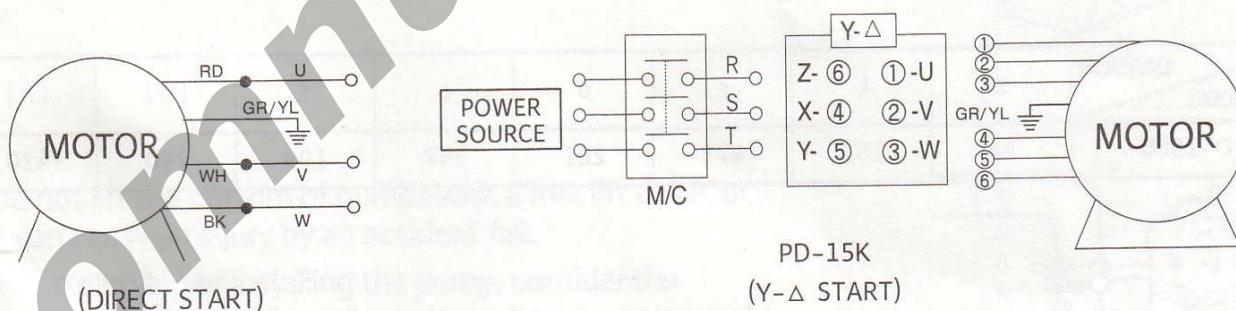
- Store inside the pump when do not use long time.

MEASUREMENT FOR INSULATION RESISTANCE

- Insulation resistance should be measured every month by the DC500V insulation measurement instrument. As insulation resistance below 1MΩ means that water leaked into a motor, pump need to be repaired.

WIRING DIAGRAM

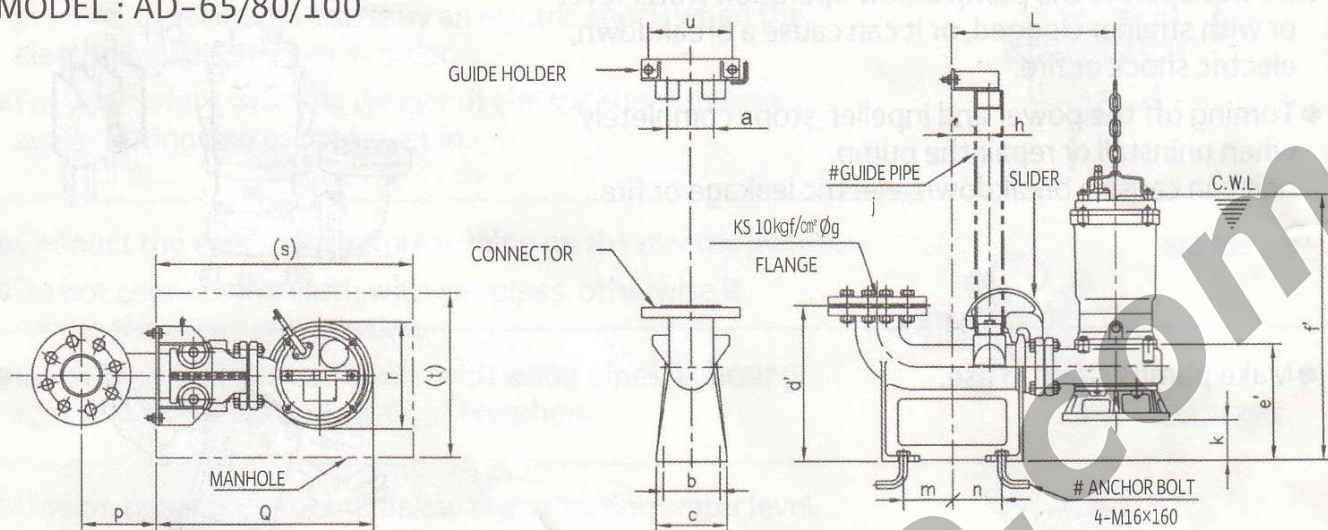
7 CORES CABLE - RD : RED(1,6) WH : WHITE(2,4) BK:BLACK(3,5) GR(GR/YL) : GREEN/YELLOW(EARTH)
 4 CORES CABLE - RD : RED(1) WH : WHITE(2) BK:BLACK(3) GR(GR/YL) : GREEN/YELLOW(EARTH)



- Refer to the specification table for kind of power by models.
- Check the rotation direction before installation.
 Rotation direction is C.W. from the driver side(C.C.W from the suction side)
 In case of reverse rotation, change 2 lines among 3 lines.
 In case of Y-Δ start, change 2 phase among 3phase.

THE OUTLINE DIMENSION AND INSTALLMENT DIAGRAM FOR THE ADAPTER

MODEL : AD-65/80/100



: Not supplied

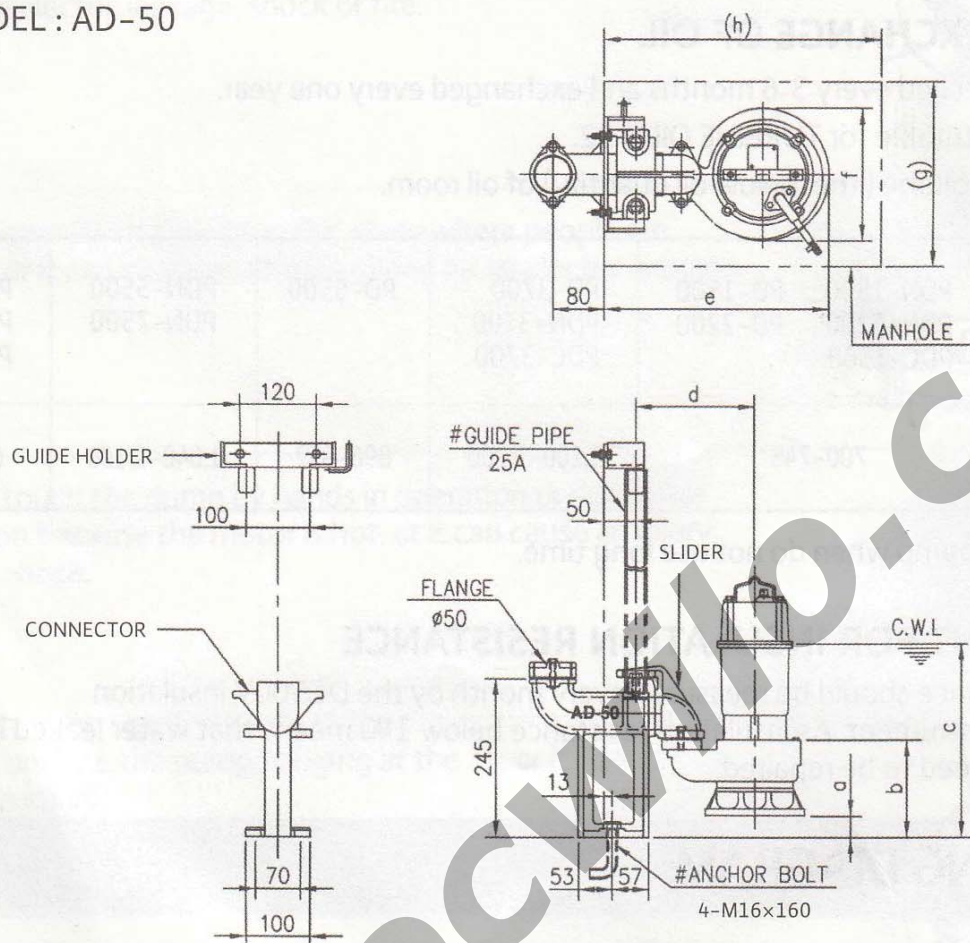
※ This diagram is an example for installing the adapter, and the outline dimension may vary with different pump.

PUMP MODEL	ADAPTER MODEL	a	b	c	d'	e'	f'	Øg	h	j	k
PD-2200	AD-65	80	120	150	220	183	502	65	50	32	65
	AD-80	100	120	150	330	223	542	80	80	50	104
PD-3700	AD-65	80	120	150	220	203	553	65	50	32	25
	AD-80	100	120	150	330	330	592	80	80	50	64
PD-5500	AD-80	100	120	150	330	246	615	80	80	50	65
PD-7500	AD-100	100	200	238	330	299	660	100	80	50	43
PD-11K	AD-100	100	200	238	330	299	700	100	80	50	42
PD-15K	AD-100	100	200	238	330	299	750	100	80	50	42
PDN-1500 PDC-1500 PDN-2200	AD-65	80	120	150	220	207	526	65	50	32	47
	AD-80	100	120	150	330	246	565	80	80	50	86
PDN-3700 PDC-3700	AD-65	80	120	150	220	217	564	65	80	32	30
	AD-80	100	120	150	330	256	603	80	80	50	70
PDN-5500 PDN-7500	AD-80	100	120	150	330	258	723	80	80	50	69
	AD-100	100	200	238	330	258	723	100	80	50	69

PUMP MODEL	ADAPTER MODEL	L	m	n	p	Q	r	(s)	(t)	u
PD-2200	AD-65	307	95	65	145	413	212	510	350	140
	AD-80	350	105	105	160	456	212	550	350	180
PD-3700	AD-65	374	95	65	145	506	262	560	450	140
	AD-80	417	105	105	160	548	262	600	450	180
PD-5500	AD-80	422	105	105	160	548	262	600	450	180
PD-7500	AD-100	446	114	115	160	592	314	670	500	180
PD-11K	AD-100	441	114	115	160	610	330	700	570	180
PD-15K	AD-100	441	114	115	160	610	330	700	570	180
PDN-1500 PDC-1500 PDN-2200	AD-65	307	95	65	145	421	228	510	350	140
	AD-80	350	105	105	160	464	228	550	350	180
PDN-3700 PDC-3700	AD-65	375	95	65	145	541	332	630	500	140
	AD-80	418	105	105	160	584	332	670	500	180
PDN-5500 PDN-7500	AD-80	468	105	105	160	661	388	710	570	180
	AD-100	468	114	115	160	661	388	710	570	180

THE OUTLINE DIMENSION AND INSTALLMENT DIAGRAM FOR THE ADAPTER

MODEL : AD-50



: Not supplied

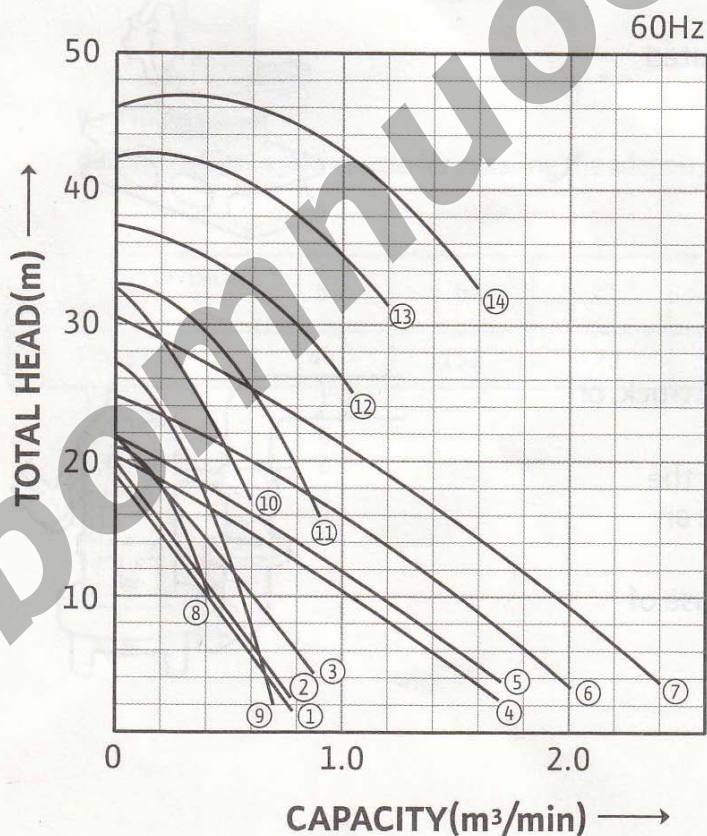
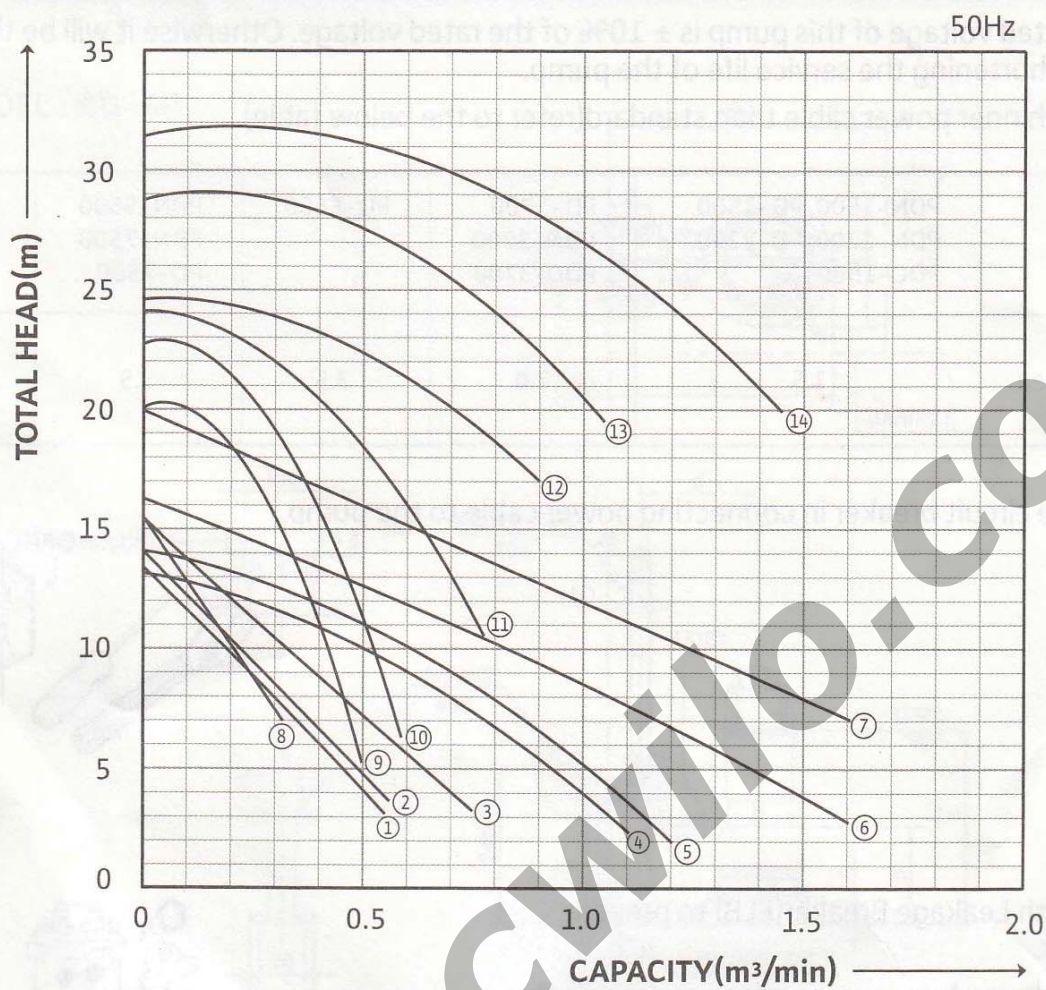
※ This diagram is an example for installing the adapter, and the outline dimension may vary with different pump.

DIVISION	a	b	c	d	e	f	(g)	(h)
PUMP MODEL								
PD-1500	44	152	471	201	347	199	290	420

TROUBLES AND COUNTER-MEASURES

Troubles	Causes	Counter-Measures (The indication ● can be done by user)
Motor does not start.	Too low power supply.	Check voltage and consult power supply company if lower than standard.
	Faulty cable connection.	● Connect cable securely.
	Disconnected power cable.	Replace a cable.
	Trouble in motor.	Repair the motor or consult your agent.
	Overload protector.	● If the motor is overheated, it doesn't operate. Then Wait till getting cold. (20~30minutes)
	Operation for a long time with a strainer clogged.	● Remove dirt out of a strainer.
Water is little pumped out although the motor runs.	Air absorption due to the low water level of well.	● Heighten the water level.
	Folded hose.	● Get hose straight.
	Reverse rotation(3Ø).	● Exchange 2 lines among 3 lines or 2 phase among 3 phase.
	Too high discharge.	● Re-select an appropriate pump.
	Clogged strainer.	● Remove dirt from the strainer and put the pump on a brick not to suck sands in.
Pump runs roughly and noisily.	Impeller with dirt.	Disassemble and clean the pump.
	Damaged bearing of motor.	Consult your agent and exchange bearings.

TOTAL HEAD-CAPACITY CURVE



NO.	MODEL
1	PDC-1500 Series
2	PDN-1500 Series
3	PDN-2200 Series
4	PDC-3700 Series
5	PDN-3700 Series
6	PDN-5500 Series
7	PDN-7500 Series
8	PD-1500 Series
9	PD-2200 Series
10	PD-3700 Series
11	PD-5500 Series
12	PD-7500 Series
13	PD-11K Series
14	PD-15K Series

SPECIFICATIONS

MODEL	POWER SOURCE	POLE	OUTPUT (kW)	BORE(mm)	TOTAL HEAD(m)	CAPACITY (m³/min)	BEARING		C.W.L (mm)		
							LOWER	UPPER			
PDN-1500	3ø,50Hz	2	1.5	80	6.5	0.4	6306zz	6203zz	468		
	3ø,60Hz				10	0.44					
PDN-2200	3ø,50Hz		2.2		9	0.4					
	3ø,60Hz				10	0.6					
PDN-3700	3ø,50Hz	4	3.7	100	8	0.8	6308zz	6304zz	534		
	3ø,60Hz				12	0.9					
PDN-5500	3ø,50Hz		5.5		10	0.8	6310zz	6305zz	654		
	3ø,60Hz					16				1.0	
PDN-7500	3ø,50Hz	7.5		13.5		0.8					
	3ø,60Hz			17		1.4					
PDC-1500	3ø,50Hz	2	1.5	80	6	0.4	6306zz	6203zz	468		
	3ø,60Hz				10	0.4					
PDC-3700	3ø,50Hz	4	3.7		7	0.8	6308zz	6304zz	534		
	3ø,60Hz				11	0.9					
PD-1500	3ø,50Hz	2	1.5	50	8	0.25	6306zz	6203zz	427		
	3ø,60Hz				17	0.25					
PD-2200	3ø,50Hz		2.2	80	15	0.3			6307zz	6304zz	438
	3ø,60Hz				21	0.3					
PD-3700	3ø,50Hz		3.7		15	0.4	6308zz	6305zz	528		
	3ø,60Hz				21	0.5					
PD-5500	3ø,50Hz		5.5	18	0.5	6309zz	6306zz		549		
	3ø,60Hz			25	0.6						
PD-7500	3ø,50Hz			7.5	20	0.7	6310zz		616		
	3ø,60Hz				30	0.8					
PD-11K	3ø,50Hz		11	100	24	0.9	6310zz		657		
	3ø,60Hz				35	1.0					
PD-15K	3ø,50Hz				15	29		1.0		707	
	3ø,60Hz					40		1.2			

Note C.W.L : Continuous Running Water Level

MODEL		PD-1500 PD-2200 PDN-1500 PDN-2200	PD-3700 PD-5500	PDN-3700 PD-7500 PD-11K	PDN-5500 PDN-7500 PD-15K	PDC-1500	PDC-3700
WATER		DRAINAGE WATER, 40°C					
PUMP	IMPELLER	SEMI OPEN				SEMI OPEN (CUTTER)	
	SEALING	DOUBLE MECHANICAL SEAL					
	(SIZE)	Ø20	Ø25	Ø30	Ø35	Ø20	Ø30
MOTOR	SEAL COOLER	TURBINE OIL #32					
	TYPE	THREE PHASE INDUCTION MOTOR (SUBMERSIBLE)					
	INSULATION CLASS	F CLASS					
	PROTECTOR	OVER LOAD PROTECTOR (OLP)-OPTION					
CONNECTION		FLANGE(PF TAP)					

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