DAE Pumps
DAE Pumps

Bear VFD / FEATURES

Efficient transformation/

The PD ES retrofitting of existing pumping stations means that substantial energy savings can be achieved, especially when operating under partial loads. It can be efficiently transformed into any standard asynchronous pump motor suitable for variable speed drive operation.

Due to the unique IP65 protection level direct installation method of PD ES, it is quick, simple and low-cost to retrofit, with a power range of 0.75 to 900kW (1 to 1200 HP).

Efficient configuration/

The modular design of PD ES makes it fundamentally different from ordinary variable speed pump drives. You can efficiently configure almost any pump arrangement according to your needs. It can up to six pumps can be combined.

Efficient energy use/

PD ES's intelligent control system can precisely adapt to needs, so it will only use energy consumption on demand. No more, no less. This can not only reduce your energy expenditure to 70% of the original, but in many cases, it can also enable you to qualify for the national energy saving award in the field of its application. So these can make up for your transformation and daily operating costs.

ability	Power consumption according to the curve		Energy saving	Every 1/3 year (2.920 hours) Energy saving
	pump is running at a constant speed	pump is running at a variable speed		
25 %	5,8 kW	1,8 kW	4,0 kW	11.680 kWh
50 %	7,6 kW	3,2 kW	4,4 kW	12.848 kWh
75 %	9,2 kW	5,7 kW	3,5 kW	10.220 kWh
1 year (8.760 hours) energy saving				34.748 kWh

Economy/

The cost saving is not only reflected in the energy saving, which saves the customer's use cost! The pump operation and monitoring protection logic is built into the PD ES inverter, so that it does not require additional relays, contactors, PLC can realize the function of controlling and protecting the water pump and motor, the operation is simple, no professional electrical engineer is required. The installation can also be completed quickly, which greatly saves raw material and labor costs. PD ES contains a variety of innovative functions,Soft start and stop, extend the life of water pump, motor and pipeline to the greatest extent.

Easy to debug and operate/

The new start menu makes every step of the PD ES debugging operation flow clear at a glance, The LCD screen can display the parameters of the extended series on each page,Make parameter setting faster and more convenient. In addition, the start-up menu provides an extended series of pre-pro-grammed parameters for standard motors, You only need to select your motor size, The rest of the work is done by PD ES.

Easy to install/

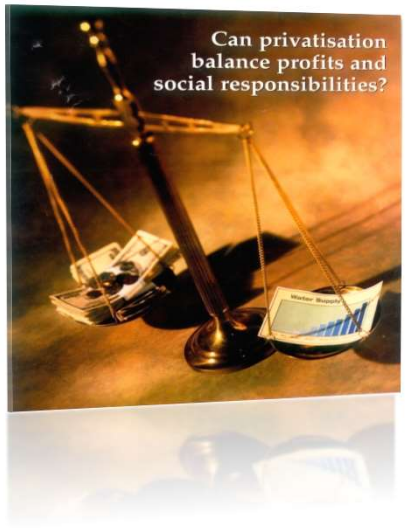
The design of PD ES can be easily adapted to any type of water pump. The newly added wiring method includes a separate mounting board and a set of IP65 protection class air switch device (optional). This is simple to install and use, and it can also be connected safely and conveniently, and it also protects the electronic components of the device. The back-to-back installation further simplifies the installation procedure for connecting the motor.

IP65 protection rating VFD

IP20protection rating VFD installed into control box

Bear VFD / COST ANALYSIS

Pump life cycle use cost analysis



Water pump purchase amount-- 5%

Spare parts

Installation and maintenance

Energy consumption

Loss caused by equipment failure

95%!

Under control

Not under control

How to decrease the not control cost by Bear VFD

- **Save Energy cost**

Constant presure, Reduce your energy expenditure up to 70% of the original.

- **Save maintaenance cost**

Reduce the general duty on mechnical and bearing, and the QTY of rotation,prolong the maintenace interval,substantially reduce the cost of Spare parts and work cost.

- **Special desgin for motor protection**

Over 90% motor broken is because of over heat; Internal build terminal read PTC , Protect demaging from overheat , motor lifetime increases 5~10years.

- **Dry run protection**

Dry running is big demage for mechnical seal , put a dry run sensor on the suction pipe then connect with our VFD will avoid it happen.

- **Pipe brusting protection**

How to avoild the pump room to be flooded becasue of the pipe brusting? Use a electric level sensor and connect VFD will help you solve it easily.

- **Pump bearing monitoring**

The most obvious phenomenon of pump problems are virbation or bearing overheat, how to find the problem at the first time to avoild the pump be broken?

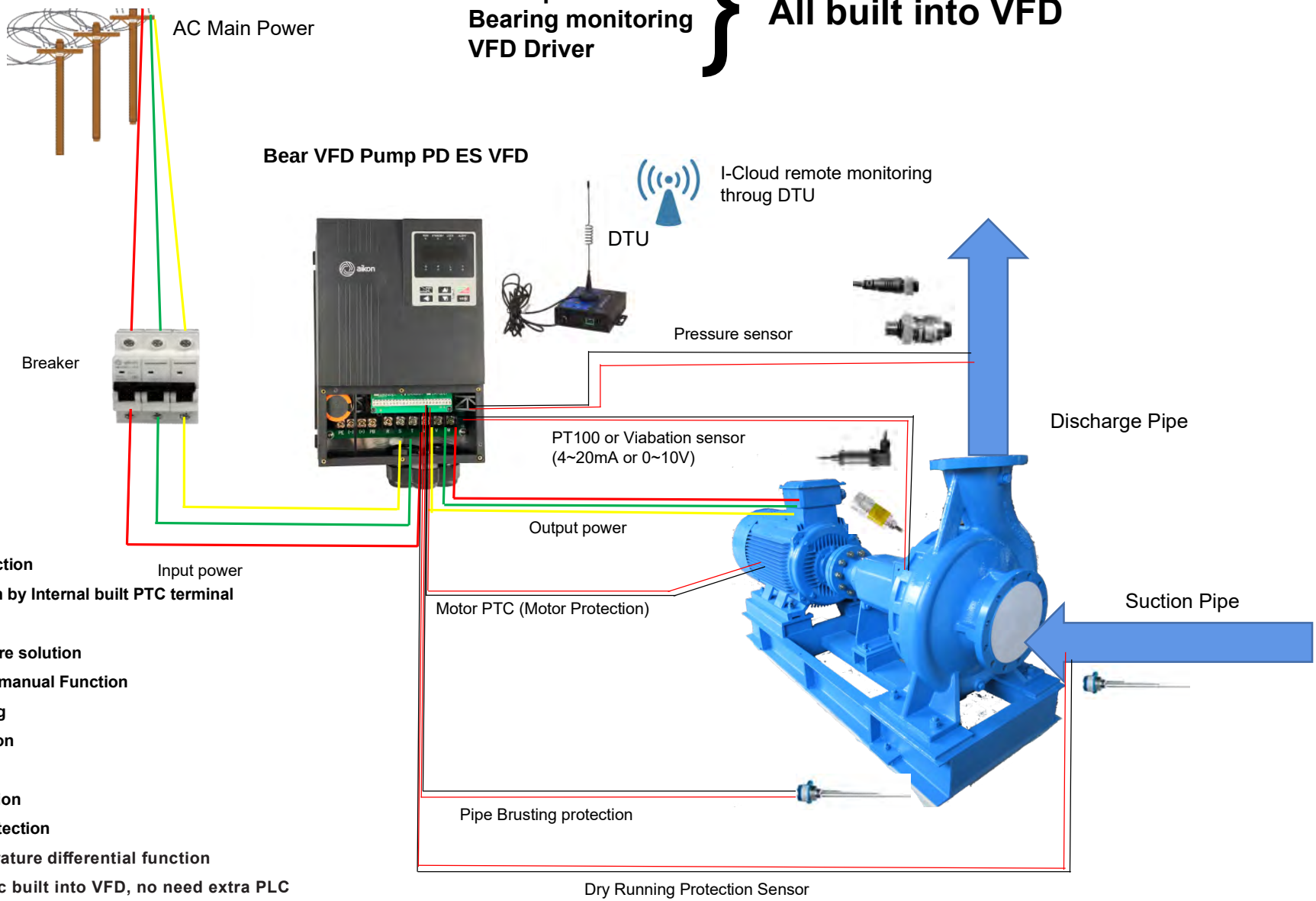
Use a PT100 or virbation sensor on the pump bearing, then connect with VFD will help you extand your pump life time.

- **Avoild water hammer**

No matter positive or negative water hammer, they all have big demage for pipe system and pumps, when you use VFD you will get a soft start and soft stop function, decrease the system demage because of water hammer.

PLC
Motor protection
Bearing monitoring
VFD Driver

All built into VFD



- **Pump Dry Running protection**
- **Motor overheat protection by Internal built PTC terminal**
- **Pipe brusting protection**
- **Pressure transmitter failure solution**
- **Emergency water supply manual Function**
- **I-Cloud remote monitoring**
- **Constant pressure function**
- **Multi-pump Cut in/off**
- **Over load/current protection**
- **Under / lower voltage protection**
- **Built-in pressure/temperature differential function**
- **All pump operation logic built into VFD, no need extra PLC**
- **No water hammer**

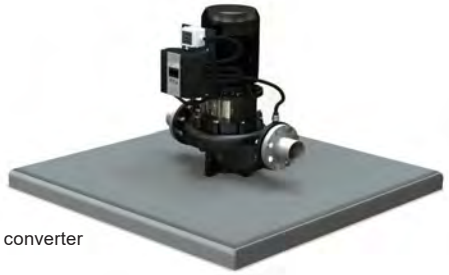
Bear VFD / TECHNICAL PARAMETER

Model	Instruction
Power	0.75kW~1000Kw
Input rated voltage and frequency	1PH/3PH AC 220V 50/60Hz;3PH AC380V 50/60Hz； 3PH AC 500V 50/60HZ
Allowable/Working voltage range	220V:170~220V; 380V: 330V~440V ； 500V：425~575V
Output voltage	220V:0~220V;380V: 330V-440V ； 500V：425~575V
Analog input signal	0~10v; 4~20mA
Analog output signal	0~10v; 4~20mA
Output frequency / accuracy	0.1~400.0 Hz / 0.1Hz
Control command source	0: keyboard operation, 1: I / O terminal, 2: RS communication, 3: automatic start; 4: Z communication control, channel 1 and 2 are main
Built in PID controller	Used for closed-loop control with feedback.
Acceleration / deceleration time	0 ~ 999.9s, acceleration / deceleration time can be set respectively
RS485 and Can	1-way standard RS485 communication function (Modbus); 1-way internal pump station communication
Protection mechanism	Overload protection, over-voltage protection can be set, under voltage protection can be set, short circuit protection, over-current protection, parameter locking
Overload capacity	150% rated current / 60s, 180% rated current / 3S
Protection class	IP65 / IP20
Ambient temperature / humidity	-10℃to 40℃(no ice) / below 95% (no condensation)
Display	4 digit nixie tube display, indicator light display, display setting frequency, output frequency, output current, DC bus, etc
Installation mode	Back mounted / Wall mounted

01

Single pump operation

Soft start/stop function uses a frequency converter



02

Multi pump operation
(Cascade controller-relay)

Use a frequency converter
(including additional advanced cards)
to control up to 6 full-speed slave pumps

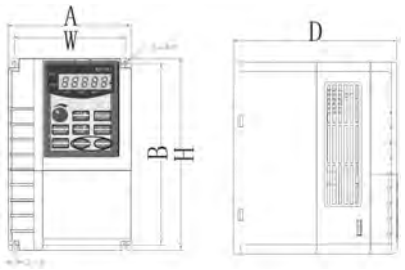
03

Multi-pump operation

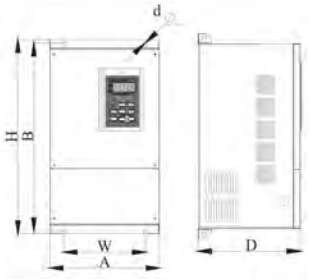
(Multi-pump communication by RS485)
Use multiple inverters in combination
(up to 6 pumps can be combined)

Bear VFD / Dimensions

0.75~30KW



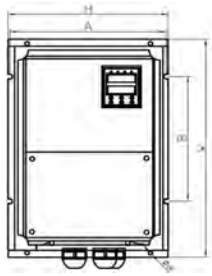
37~560KW

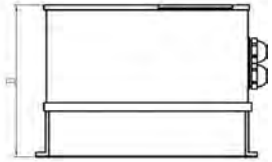


PD ES IP 20 protection levle dimensions

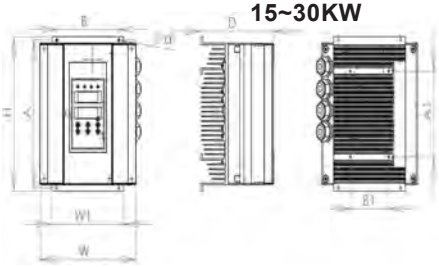
3PH 380V±15% 47PH～63H										
Model	Power (KW)	Input Current	output Cuttent	Dimensions (mm)			Installatio (mm)			Weight (Kg)
		(A)	(A)	A	H	D	W	B	d	
PD ES01D5K	1.5	5	3.7	118	185	157	106	175	4.5	1.7
PD ES02D2K	2.2	5.8	5							1.7
PD ES04D0K	3.7	10.5	8.5							1.8
PD ES05D5K	5.5	14.6	13							1.8
PD ES07D5K	7.5	20.5	18	160	247	177	148	235	5,5	3.2
PD ES0011D	11	26	24							3.4
PD ES0015D	15	35	30							3.65
PD ES0018D	18.5	38.5	37	220	321	198	205	305	5,5	5.65
PD ES0022D	22	46.5	46							6.45
PD ES0030D	30	62	58							6.5
PD ES0037D	37	76	75	220	411	238	160	395	7	12
PD ES0045D	45	92	90							12
PD ES0055D	55	113	110	255	453	237	190	440	7	16.5
PD ES0075D	75	157	150	280	582	295	200	563	9	26.2
PD ES0090D	93	180	170							26.2
PD ES0110D	110	214	210	300	685	323	200	667	11	41
PD ES0132D	132	256	250							40
PD ES0160D	160	307	300	360	690	330	260	660	11	46.9
PD ES0185D	187	345	340	420	840	334	150*150	815	11	72
PD ES0200D	200	385	380							72
PD ES0220D	220	430	430	540	934	390	200*200	893	13	106
PD ES0250D	250	468	465							106
PD ES0280D	280	525	520							106.3
PD ES0315D	315	590	585	640	1035	390	250*250	1003	11	140
PD ES0350D	350	665	650							140
PD ES0400D	400	785	754	860	1200	400	350*350	1164	15	205
PD ES0450D	450	870	850							205
PD ES0500D	500	965	930							210
PD ES0560D	560	1070	1050							210

0.75~11KW





15~30KW



PD ES IP 65 protection levle dimensions

PDR 3PH AC380V±15%	POWER (kW)	INPUT CURRENT (A)	OUTPUT CURRENT (A)	Dimension (mm)				Installation Dimension (mm)					Weight (kg)
				W	H	D	W1	A	B	Φd	A1	B1	
PD ES0D75K	0.75	3.80	2.50	200	215	151	149	225	129	Φ4	130	80	1.3
PD ES01D5K	1.5	5.00	3.70										2.5
PD ES02D2K	2.2	5.80	5.00										2.5
PD ES03D7K	3.7	10.00	9.00										3
PD ES05D5K	5.5	14.60	13.00										3
PD ES07D5K	7.5	20.00	17.00										3
PD ES0011D	11	26.00	25.00										3
PD ES0015D	15	35.00	32.00	192	280	178		200	180	Φ5.5			3
PD ES0018D5K	18.5	38.00	37.00										5
PD ES0022D	22	46.00	45.00	236	300	204		250	225	Φ7			8
PD ES0030D	30	62.00	60.00										8

Bear VFD / COMPARATIVE ADVANTAGE

Perfect / software and hardware solutions

01

Dual-core processor : increases the speed of data processing,intelligent control mode

02

Two kinds motor for choice : Equipment control with both asynchronous motors and synchronous motors.

03

Special industrial grade fiberglass material PCB board-The assemble of the microcircuit is basedon Samsung technology. And Protective paint Acid and alkali resistance aging resistance.

04

Control Board: Low frequency ,high torque Automatic voltage regulation

05

Excellent IGBT MODULE

06

Cooling fan: Low noise,dust-proof

PDES/ Advantages of the solution in the current market

Contrasting items	Diffculty of relization / effect		
	Bear VFD smart pump controller PDES	**PLC+multi-pump controller PDE+PDP**	**PLC+Single VFD**
Customization	Complex	High flexibility	Need rework on programming
Parameter setting	Editable text screen	Easy	Difficult
Emergency failure recovery mode	switch to hand mode	Easy	Repaired by Professional engineers
Engineer	No requirement	No requirement	Need specialist
Speed regulation energy saving control	Easy	Easy	Medium
Expansion capability	Easy	Medium	Difficult
Installation&debugging	Convenient,Compatible with all motors	Easy	Difficult
Anti-interference, long term reliability	Good effect	Good effect	Poor effect
Maintenance costs	Low	High	medium
Wiring of electrical control	Easy	Easy	Difficult
Composition	Brief	Complicated	Complicated
Warranty	2 Years	2Year	1Year
Total cost	$	$$	$$$
pic			