# B600S series intelligent controller

## USER MANUAL

ISO 9001: 2001

ISO 14001: 2001

## Ⅰ. Perfect

Thank you for choice “Bedford” series products. To make our customer satisfy is our motto, we will supply you with cordial and well-around service as well as ever.

Hereby we make a detailed introduction about working principle and parameter of this water-supply equipment, Pls. read it carefully before use to make sure proper operation.

## Ⅱ. Summary

This equipment is a high-tech product which is special designed for many water-supply occasions of rural & urban such as production and living water-supply, heating & air condition system, steady pressure aberration cycle water-supply, which have the virtues of compact, easy operation, high automation and save energy, which have a good prospect of application and extension

**1.** Advantage

- Replace the high level water storage tank, weed out quadratic water pollution, TO make sure the safety and health of water-supply

- Efficient save energy. Comparing with other water-supply systems, B6ooS intelligent controller can superimpose pressure of water distribution system, which save energy rate is more 30 percent than that of traditional quadratic pressurizes water-supply system

- Automation controlling, constant water pressure, which can not cause water pressure & water temperature major fluctuation to improve the quality of water supply completely.

- With function of soft start & soft stop, this can prolong the use life of all equipment.

- Compact, Easy operation, single pump or double pumps Parallel-join running are available.

- Auto-detect running fault, Such as the faults of sensor broken or short circuit, Alarm of water pressure high or low, water level alarm and cable communications

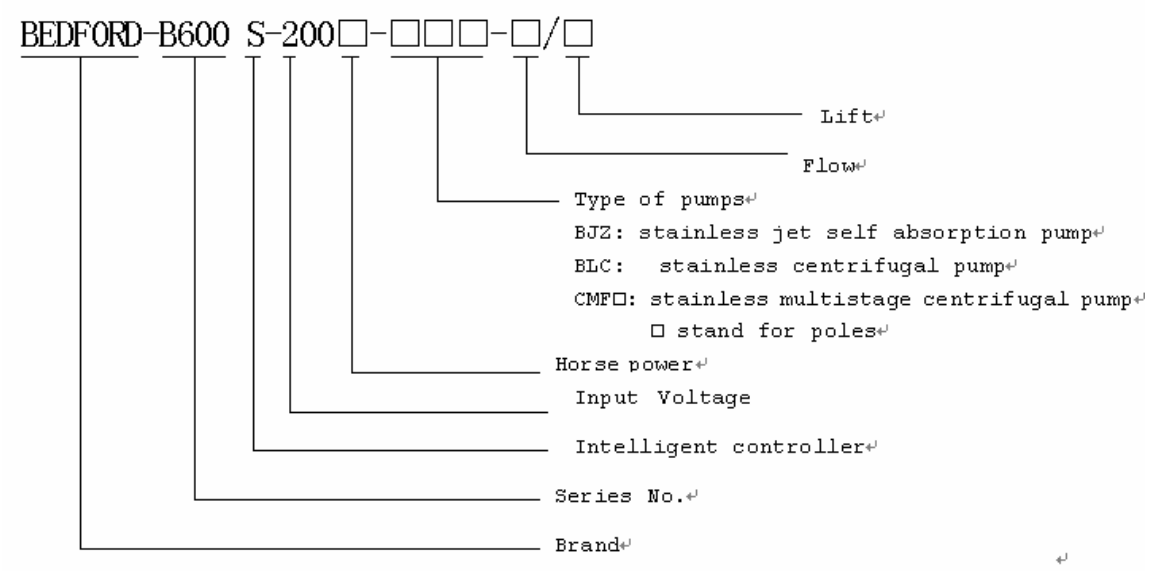
- Fault diagnosis and self-protection functions, such as overvoltage, undervoltage, overheat Short circuit protection etc.

- B600S series is an integration intelligent structure with Compact& rational size which can effect multi-pump joining controlling via RS-485/RS-232 communication terminal, its performance is more excellent than a completed set of constant water supply equipment as well as quality and price.

**2.** Application scope

It’s widely used in production and living water supply and pressurized water supply system of air condition & heating, environmental water treatment of residential subdistricts, hotels, industrial enterprises and some water-supply occasions such as constant water pressure, variety flow etc. Especially, as rebuild of traditional water-supply system.

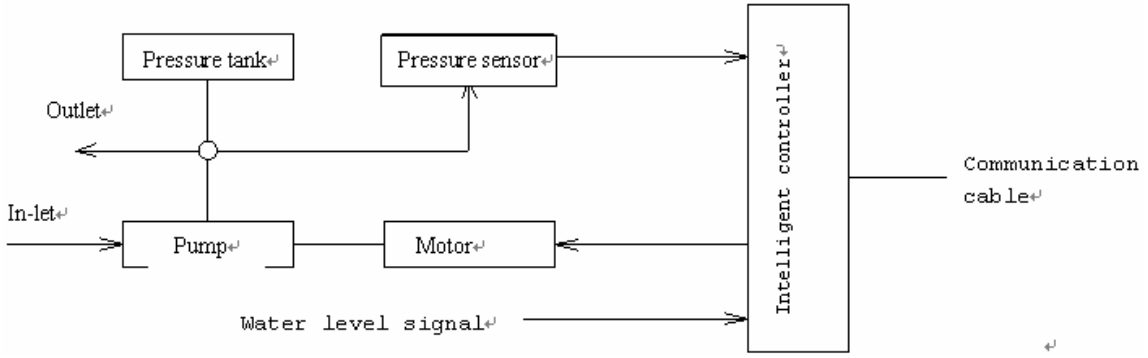
## Ⅲ. Model explanation



## Ⅳ. Working principle

1. B600S Series integration intelligent constant pressure variable flow water supply equipment is made up of pump, motor, pressure tank, pressure sensor & intelligent controller etc.

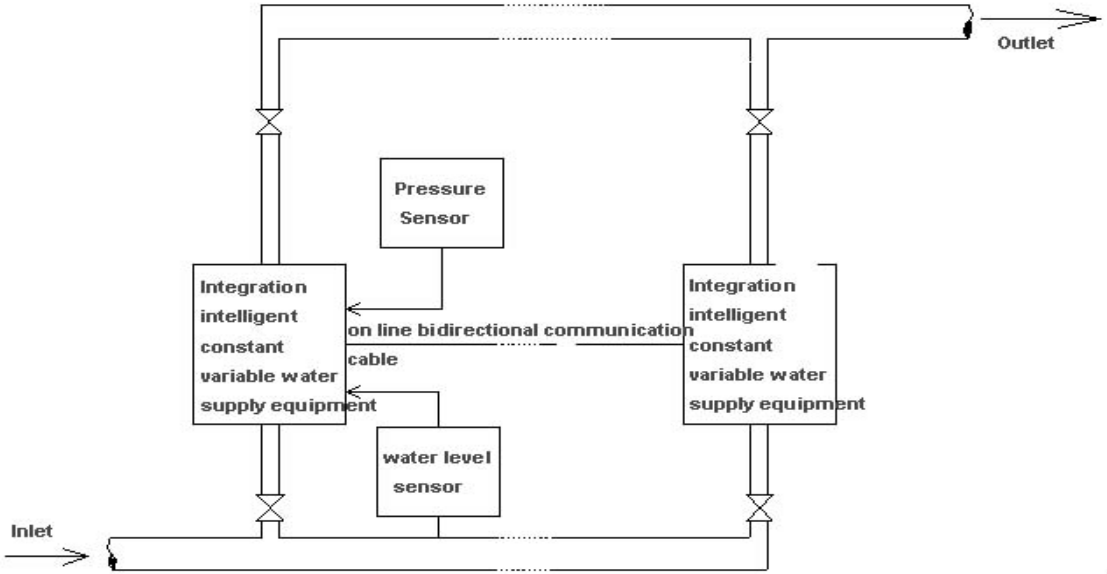
The diagram of B600S series (See pic.1)




（Pic.1）

According to the varying of water supply system, we can set the water pressure and related parameter on this intelligent controller, and then this equipment can make pump automation start or stop and keep the water pressure within the set value range, no manual intervention required

as running, when there is greater water-supply required, we can effect double pumps parallel-join to supply water, we can effect double pumps combine and run via setting the parameter of modbus communication address(see pic.2),when two pumps combine, we can set the water pressure onto either of intelligent controllers, which would run according to the actual request to satisfy the varying of water and keep water pressure constant.




(Pic.2)

Multi-pumps Parallel-Join water supply programming explanation:

(1) Connect with pump, tube, valve etc as usual.

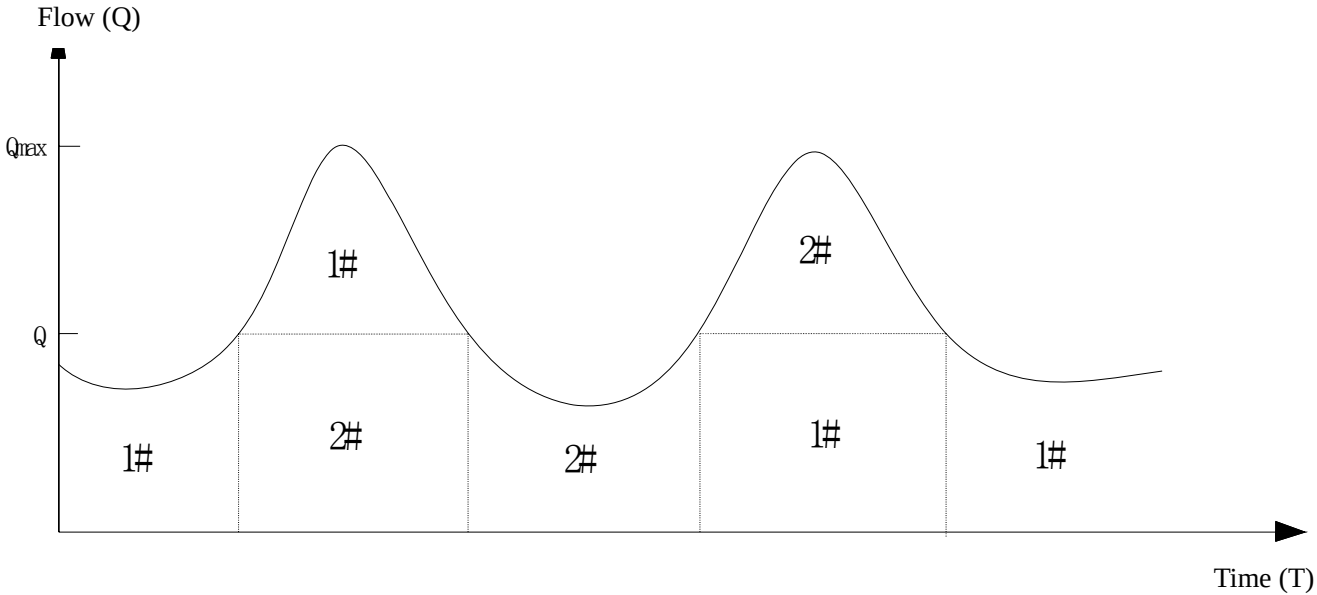
(2) Set the communication format & address on the intelligent controller

(3) Select either of them as main signal of pressure & water level

(4) When running, B600S controller would auto-control the pumps to stop or start as per actual requirement.(See Pic. 3)

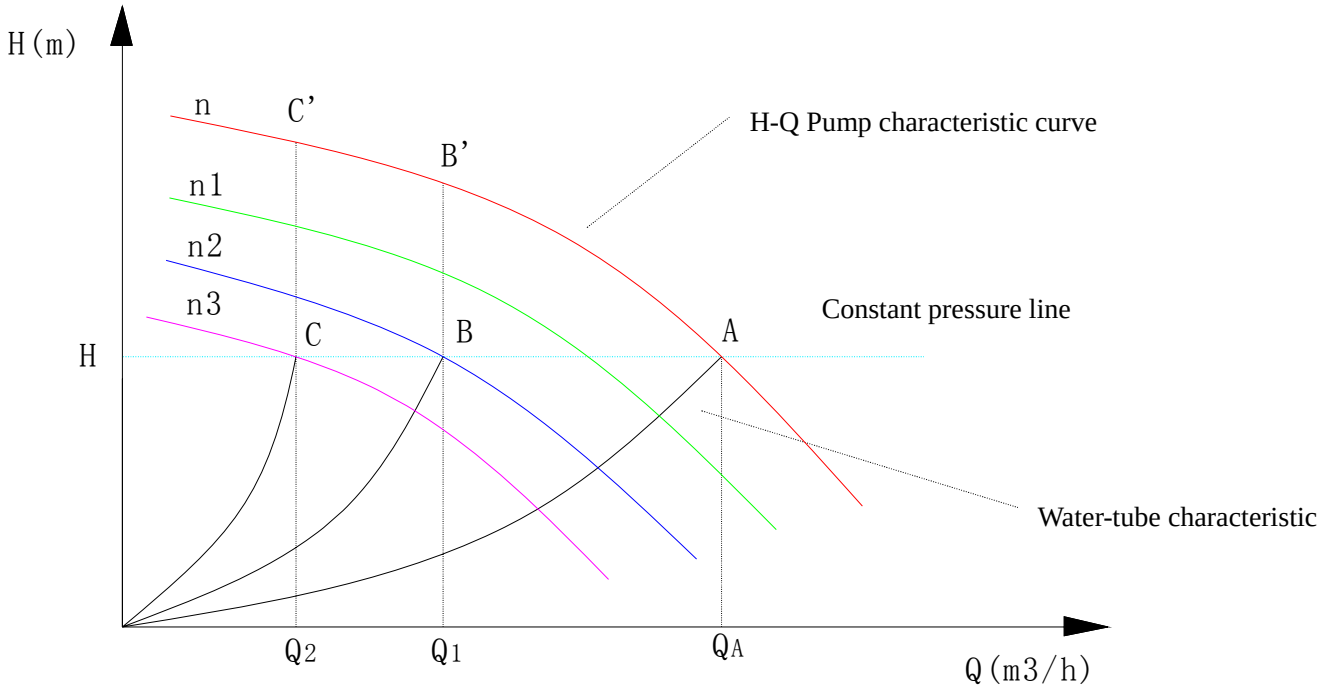
(5) Soft start & Soft stop without any impact to make the performance of pumps better than frequency inverter constant water supply equipment.

(6) The fault rate is far less than that of traditional water supply system.




water variable & pumps auto-controlling diagram (Pic.3)

2. the characteristic of constant pressure variable flow for B600S (H-Q characteristic Curve, see Pic.4)




（Pic. 4）

The above diagram show in case that we constant the water-supply pressure at H-A, when the water flow descend from QA to Q1, the water pressure should increase to B', when pressure sensor were given the signal from the water level sensor. The RPM of pump will descend to N2 via intelligent controller to keep the water pressure at B Point which is located in H-A constant pressure Line. Meanwhile, when the water flow descend to Q2, the water pressure would increase to C' Point, the RPM of pump descend to N3 according to keep the water pressure at C point which also is located in H-A constant pressure line.

We can observe from picture 4 that we can reduce the B-B' C-C' water pressure which is belonging to the unnecessary energy consumption.

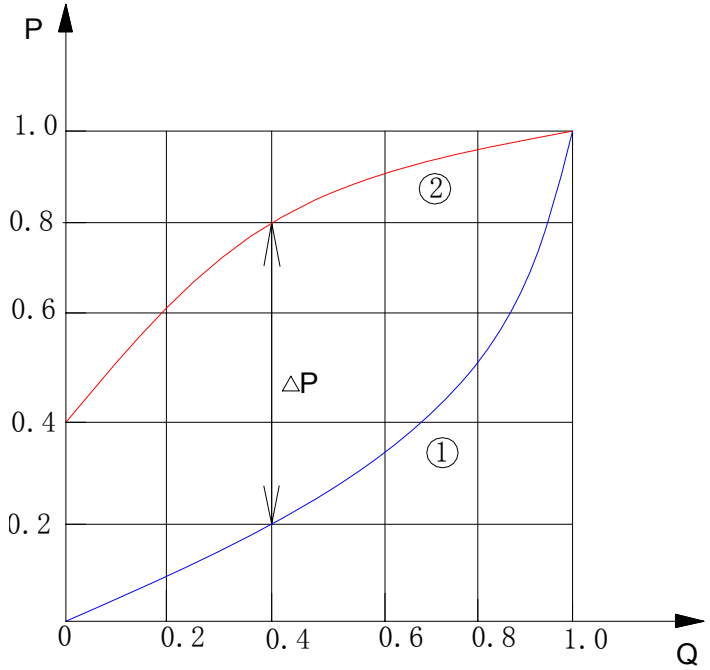
**3.** Energy-save rationale

As per fluid mechanics principle & pump similarity theorem, we get the relation among flow (Q), lift (H), Power (P), RPM (n) as below

$$\frac{Q}{Q1}=\frac{n}{n1} \qquad \frac{H}{H1}=\left(\frac{n}{n1}\right)^2 \qquad \frac{P}{P1}=\left(\frac{n}{n1}\right)^3$$

Water flow is proportional to RPM(n), Lift is proportional to RPM square ($n^2$),Shaft-power is proportional to RPM cube ($n^3$), Comparing with the water flow of pump which is controlling by valve and RPM, the

relation between shaft power and energy-save as below picture (Pic.5)




（Pic.5）

Curve ①: Relation between shaft power and flow when RPM change

Curve ②: Relation between shaft power and flow when controlling by valve.

As per Picture 5: △P=P2-P1

As per above principle, we can get the formula regarding energy

save as below:

$$P=PH\{(0.4+0.6Q)-Q^3\}$$

According to above formula, we can get the result as below

| Q or n | △P | Average Saving |
|---|---|---|
| 0% | 0.4 PH | 0.41 PH |
| 10% | 0.459 PH | |
| 20% | 0.512 PH | |
| 30% | 0.577 PH | |
| 40% | 0.576 PH | |
| 50% | 0.575 PH | |
| 60% | 0.544 PH | |
| 70% | 0.477 PH | |
| 80% | 0.368 PH | |
| 90% | 0.211 PH | |
| 100% | 0 | |

So, we can judge from the above that there is a good energy save result using our B600S series integration intelligent constant pressure variable flow water supply equipment.

## Ⅴ. Design reference status for using B600S water supply equipment

1. The minimum value of water pressure for building

| Stories | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mini Lift（m） | 6～10 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 | 64 |

2. The standard of living water volume per person

| Item No. | Living equipment | Standard (L/person/day) |
|---|---|---|
| 1 | Water supply sanitation ware is available<br>Shower equipment is not available. | 85L～130L |
| 2 | Water supply sanitation ware is available<br>Shower equipment is available. | 130L～170L |
| 3 | Water supply sanitation ware is available<br>Shower equipment is available.<br>Centralized water supply equipment is available | 170L～250L |

3.Water flow reference with difference numbers of household

| Numbers of household | 10 | 15 | 20 | 30 | 40 | 50 | 75 | 100 |
|---|---|---|---|---|---|---|---|---|
| Water supply flow （$m^3$/h） | 7 | 8.5 | 10 | 13 | 15 | 18 | 21 | 24 |

# Ⅵ. B600S series integration intelligent constant pressure variable flow water-supply equipment user instruction

## B600S Series trial running checking

### 1. Rotating direction

The pump is designed with given rotating direction. So before use, the rotating direction of the pump must be confirmed.

If the rotating direction is reverse, the motor will be over-loaded, power deficient, vibrating or noisy.

※ Confirming process

Connect B600S Pressure Regulator to power supply, then confirm the rotating direction of FAN in the rear end of the pump.

**2. Pumping out air**

Before starting, pump air out of the pump CASING and fill appropriate water in. Otherwise the mechanical portion will be damaged.

※ Confirming process

Connect B600S Pressure Regulator to power supply, then switch on power supply and start the pump.

Now, the pressure on the pressure gauge should be rising. If the pressure is not rising, pump air out of the pump CASING again.

**Notice: please do not use this product without water filled.**

## 3. Controller Structure and operation


**Controller Structure of B600S intelligent - controller**

**1. FAN DISPLAY**

· Display the pressure regulator running states, setting values, parameters, fault states and so on.

**2. LAMP**

· RUN: Normally on when the pressure regulator runs.

· STOP: Normally on when the pressure regulator stops.

· FAULT: Normally on when the pump and the unit are abnormal.

**3. KEY**

· MODE: For setting the pressure regulator parameters.

· SET: For displaying setting pressure values and running frequency.

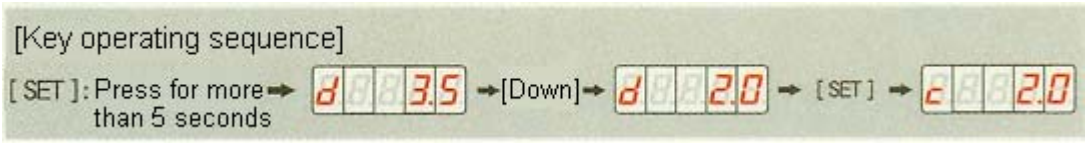
· UP, DOWN: For changing setting values.

# 5. Input and Change of Setting Values

- **B600S Pressure setting/changing method**

If change pressure 3.5Bar to 2.0Bar, operate as follows:

Press the SET key for 5 seconds and enter the pressure setting mode. Adjust the pressure value by an up/down key. After setting, return to running input mode by the SET key.

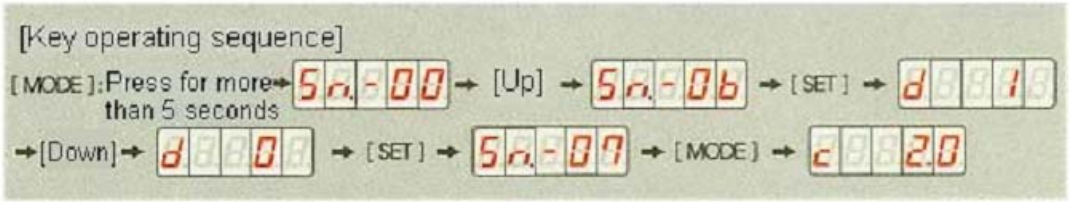



- **B600S intelligent controller parameters input/adjusting method**

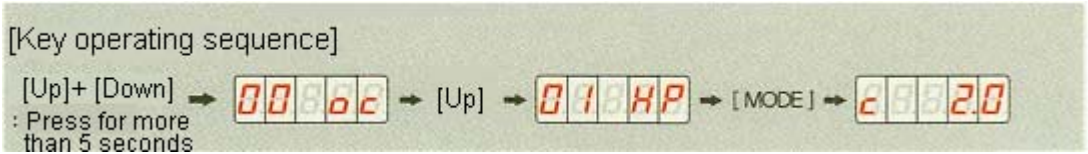
If change the rotating direction of the pump (SN-06), operate as follows:

Press the MODE key for 5 seconds. ”SN-00” appears on the screen. This means entering to setting mode. Required parameters can be set or changed.

Notice: please do not use this product without water filled.




- **Fault list confirmation**




※ When confirm the fault list, press the SET key for 5 seconds and the list can be deleted.

※ Altogether 20 lists, 00~19, can be stored. One the nearest to 00 is the last failure logging.

## 5. Double pumps parallel-Join running in use

- Confirm if the parameter setting SN-15 of the intelligent controller is correct.
- Set the parameters SN-16 of the intelligent controller for 0.
- At input status bar, press the SET key and confirm communication status.

  Now, ”nocon” appears in the status bar. This means the status is abnormal. Please confirm the parameters and linking line. If the status is normal, ”np1”, ”S p2” will appear in the status bar.
- If the pump joins running, pressure setting can be done at either of end controllers.

  Now, the pressure values of both intelligent controllers keep the same.
- During joint running, high pressure alarm, low pressure alarm, pressure setting, alternating time and other values will share in each other.

## 6. Modes and Parameters

**B600S intelligent controller parameter modes**

| NO | Description | Min. | Max. | Default | Remark |
|---|---|---|---|---|---|
| SN-00 | High pressure alarm | 0 | 10 | 7.5 | |
| SN-01 | Low pressure alarm | 0 | 10 | 0.5 | |
| SN-02 | Proportional constant | 0 | 100 | 30 | |
| SN-03 | Accumulating constant | 0 | 100 | 80 | |
| SN-04 | Differential constant | 0 | 100 | 70 | |
| SN-05 | Controlling period | 1 | 200 | 10 | |
| SN-06 | Rotating direction | 0 | 1 | 0 | 0: Positive direction<br>1: Negative direction |
| SN-07 | Moving wave prevention function | 0 | 1 | 0 | 0: No using<br>1: Using |
| SN-08 | Inductor variety | 0 | 16 | 10 | |
| SN-09 | Inductor correction | -5 | 5 | 0 | |
| SN-10 | Low pressure running time | 0 | 100 | 30 | |
| SN-11 | Deviation | 0 | 2 | 0.3 | |
| SN-12 | PID stopping time | 0 | 200 | 5 | |
| SN-13 | PID min. output ratio | 0 | 100 | 50 | |

| | | | | | |
|---|---|---|---|---|---|
| SN-14 | Automatic tuning function | 0 | 1 | 1 | 0: No using AUTO<br>1: Using |
| SN-15 | Baud rate ratio | 0 | 3 | 1 | 0: 4800, 1: 9600,<br>2: 19200, 3: 38400 |
| SN-16 | Communication address | 0 | 32 | 1 | 0: Joint running<br>1~31: Outer interface |
| SN-17 | Alternating time | 0 | 99 | 10 | During joint running, alternating the main pump |
| SN-18 | Preparation 1 | 0 | 99 | 0 | |
| SN-19 | Preparation 2 | 0 | 99 | 0 | |
| SN-20 | Pressure regulator initialization | 0 | 10 | 0 | 0~9: No using<br>10: Initialization |
| SN-21 | Software version | | | 1.8.1 | |

## 7. Failure Logging Identifiers

**B600S series intelligent controller failure identifiers**

| Failure symbol | Description | Cause | Solution |
|---|---|---|---|
| ER-SO | SENSOR OPEN | Sensor is not connected. | Confirm disconnecting part. |
| ER-SS | SENSOR SHORT | Sensor is short. | Sensor runs abnormally.<br>Replace the sensor. |
| ER-HP | HIGH PRESSURE | High pressure alarm. | Check the system. |
| ER-LP | LOW PRESSURE | Low pressure alarm. | Check the system. |
| ER-LL | LEVEL ALARM | Low water level alarm. | Check water supply piping. |
| ER-CE | COMMUNICATION | There is failure in the communication cables. | Check the communication cable connection.<br>Please confirm the communication setting. |

**B600S series intelligent controller failure identifiers**

| Failure symbol | Description | Cause | Solution |
|---|---|---|---|
| ER-OC | OVER CURRENT | Abnormal current increase in the overload current TRIP circuit. | Check motor output for coincidence with pole changer. |
| | | | Check connecting wires between pole changer and motor for normality. |
| | | | Increase the accelerating time. Check if the pump motor is running overloaded. |
| ER-OL | OVERLOAD | Output current of pole changer is over high. The pole changer max. undergoing time for 150 % rated current is up to 60 sec. | Check motor running for overloading. |
| | | | Set torque compensating parameter. |
| | | | Increase output capacity of the pole changer. |
| ER-OV | OVER VOLTAGE | The pole changer is over max. permitting value of DC BUS voltage. | Check input voltage for within rated input voltage and eliminate possibility of overload voltage. |
| | | | Consider motor counter current. |
| | | | Increase decelerating time, or add outer selective impedance. |
| | | | Check for within given power limit. |

| | | | |
|---|---|---|---|
| ER-BC | CONNECTION ERROR | There is fault in cables. | Check cable connection. |
| ER-OH | OVER HEAT | The temperature inductor detects over hot temperature. | Check room temperature for within given temperature range. |
| | | | Confirm the air intake without stopping. |
| | | | Remove foreign material out of the heat radiator. Confirm fins without dirt. |
| | | | Through appropriate ventilation, offer sufficient room. |

## 8. Safe operation

Caution： 1) Misuse may cause controller or system damage

2) Pls. don't make pressure durability test to the Controller.

3) Pls. don't splash water or other liquid on the component

Dangerous： 1) Pls. don't take down, alter, otherwise, electric shock, fire and injure would be occurred

2) Pls. don't open the cover during electrifying

3) The installation should be processed by electric technician under electric operation stipulation

## 9. Operation environment

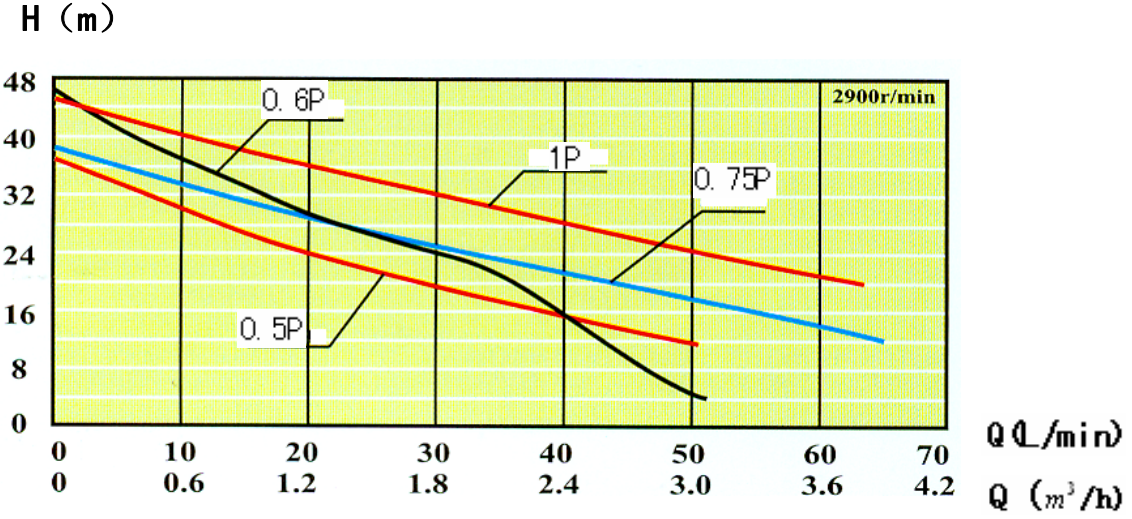
- Indoor, outdoor without oil fog .or. Dust .or. Flammable gas
- The installation environment should be dry & clean & good ventilation
- Ambient temperature: -10℃ to +40℃
- Humidity: 20% to 90% (protected from frosted and iced)
- Voltage: single phase 220V±10％
- Frequency: 50/60HZ ±5％
- Good condition in grounding

## Ⅶ. The characteristic data of B600S series integration intelligent constant pressure variable flow water supply equipment

### 1. Matching pump parameter

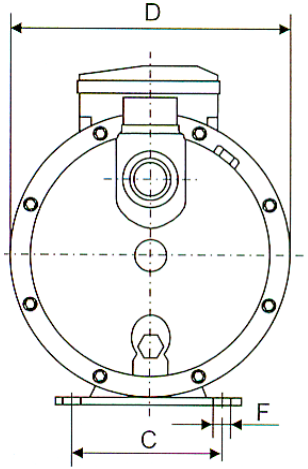
① BJZ stainless jet self absorption pump

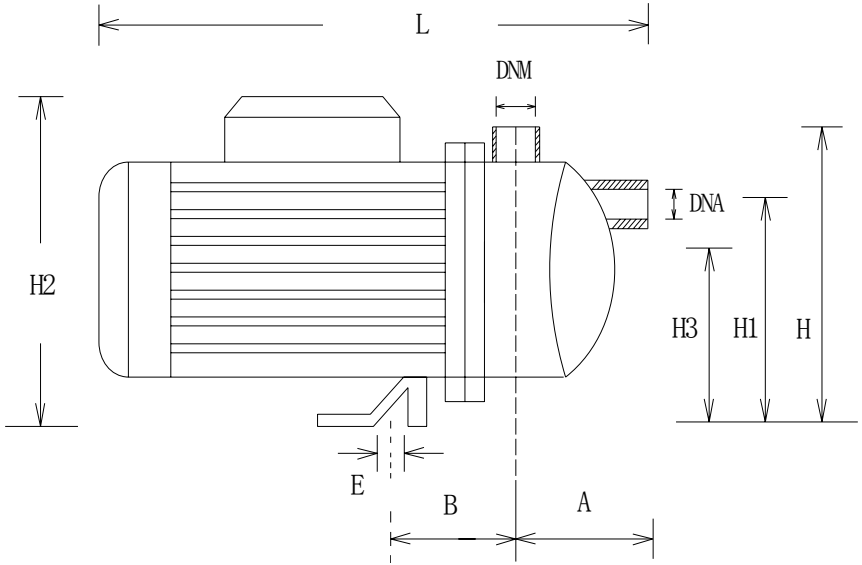
H-Q characteristic curve:




（Pic. 8）

**Dimension of pump**:



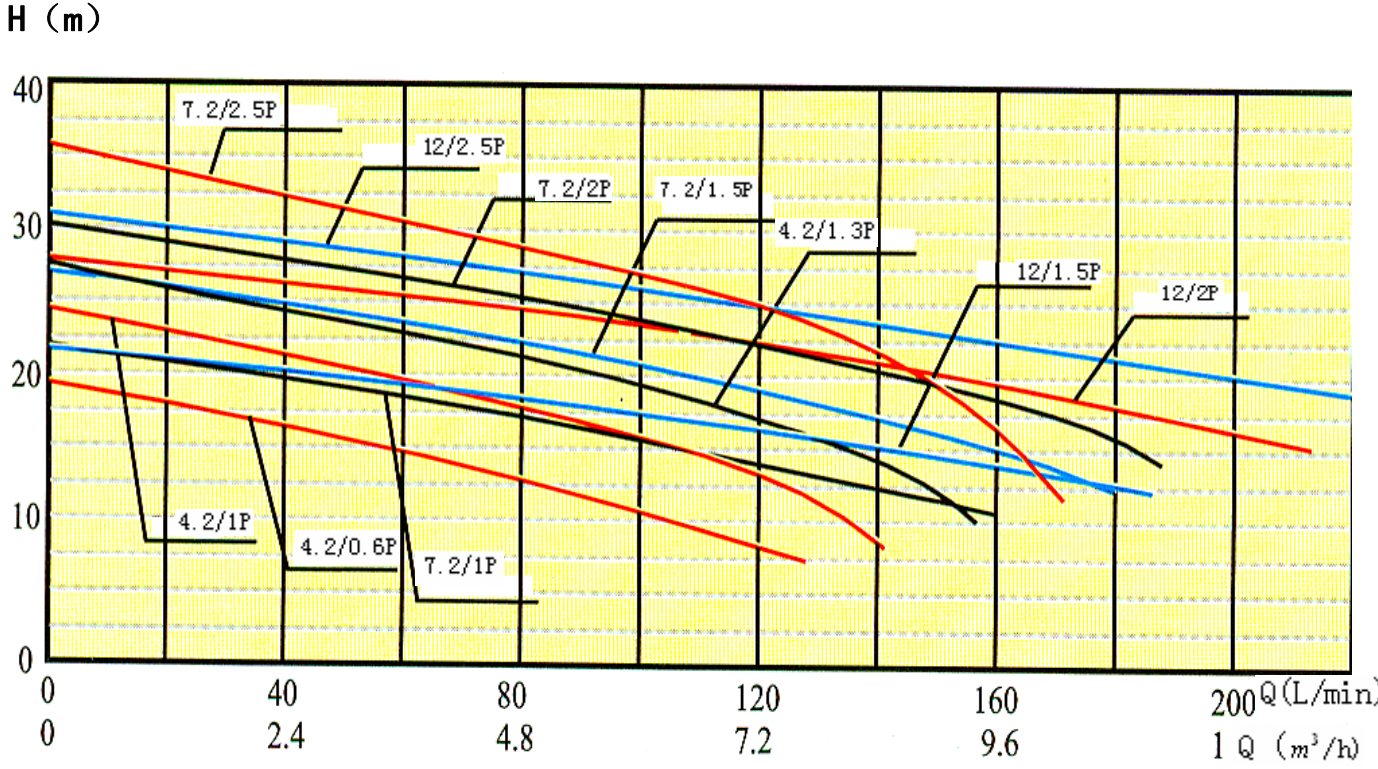



（Pic. 9）

| Item no.: | Power（KW） | A | B | C | D | E | F | H | H1 | H2 | L | DNA | DNM | weight（Kg） |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BEDFORD-B600S-2000.5 -BJZ-□/□ | 0.37 | 88 | 109 | 100 | 170 | 7 | 7 | 178 | 128 | 195 | 365 | 1 | 1 | 6.0 |
| BEDFORD-B600S-2000.6-BJZ-□/□ | 0.55 | 88 | 109 | 100 | 170 | 7 | 7 | 178 | 128 | 208 | 388 | 1 | 1 | 7.0 |
| BEDFORD-B600S-2000.75-BJZ-□/□ | 0.55 | 80 | 80 | 98 | 184 | 20 | 10 | 203 | 157.5 | 202 | 354 | 1 | 1 | 8.0 |
| BEDFORD-B600S-2001-BJZ-□/□ | 0.75 | 80 | 80 | 98 | 184 | 20 | 10 | 203 | 157.5 | 202 | 354 | 1 | 1 | 9.0 |

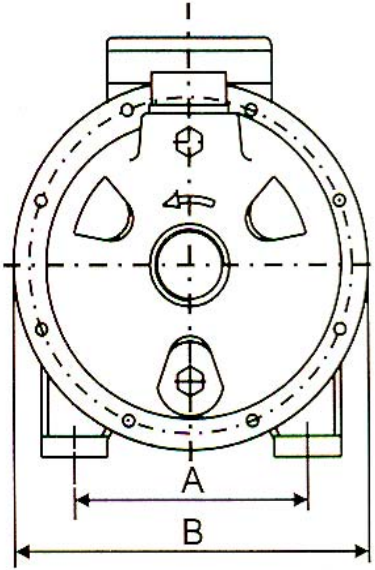
② **BLC stainless centrifugal pump**

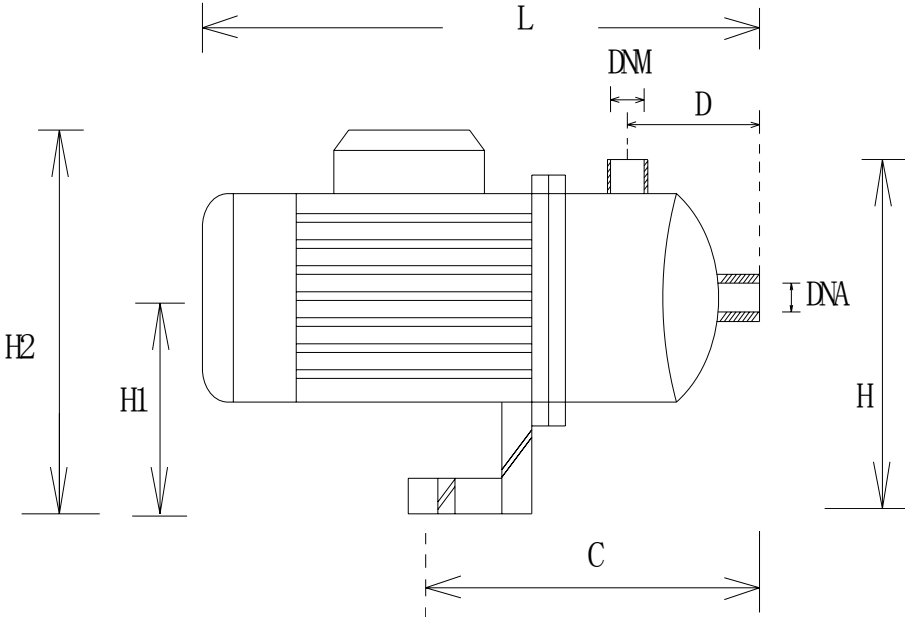
**H-Q Characteristic Curve:**




（Pic.10）

**Dimension of Pump:**






Pic.11）

| Item no.: | Power（KW） | A | B | C | D | H | H1 | H2 | L | DNA | DNM | Weight（Kg） |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BEDFORD-B600S-2000.75-BLC-4.2/14 | 0.55 | 140 | 213 | 138 | 47 | 222 | 110 | 242 | 313 | $1^{1/4}$ | 1 | 12.5 |
| BEDFORD-B600S-2001-BLC-4.2/19 | 0.75 | 140 | 213 | 138 | 47 | 222 | 110 | 242 | 313 | $1^{1/4}$ | 1 | 13 |
| BEDFORD-B600S-2001.5-BLC-4.2/22 | 1 | 140 | 213 | 138 | 47 | 222 | 110 | 242 | 313 | $1^{1/4}$ | 1 | 15.5 |
| BEDFORD-B600S-2001-BLC-7.2/14 | 0.75 | 140 | 213 | 138 | 47 | 222 | 110 | 242 | 313 | $1^{1/4}$ | 1 | 13.5 |
| BEDFORD-B600S-2001.5-BLC-7.2/19 | 1.1 | 140 | 213 | 138 | 47 | 222 | 110 | 242 | 313 | $1^{1/4}$ | 1 | 15.5 |
| BEDFORD-B600S-2002-BLC-7.2/22.5 | 1.5 | 150 | 234 | 140 | 49 | 240 | 120 | 251 | 337 | $1^{1/4}$ | 1 | 18.5 |
| BEDFORD-B600S-2002.5-BLC-7.2/26 | 0.185 | 150 | 234 | 140 | 49 | 240 | 120 | 251 | 373 | $1^{1/4}$ | 1 | 22 |
| BEDFORD-B600S-2001.5-BLC-12/12 | 1.1 | 140 | 213 | 138 | 47 | 222 | 110 | 255 | 366 | $1^{1/2}$ | lor $1^{1/4}$ | 16 |

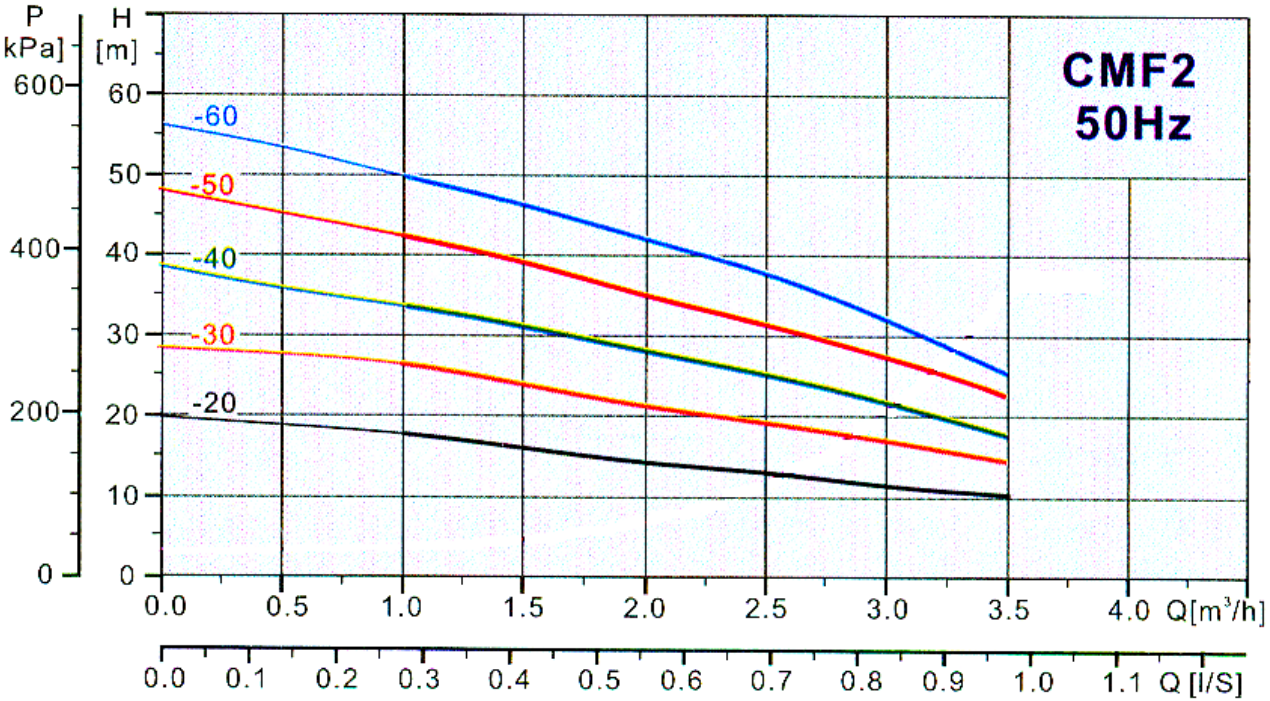
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BEDFORD-B600S-2002-BLC-12/16 | 1.5 | 140 | 213 | 138 | 47 | 222 | 110 | 255 | 366 | $1^{1/2}$ | lor $1^{1/4}$ | 19 |
| BEDFORD-B600S-2002.5-BLC-12/20 | 1.85 | 140 | 213 | 138 | 47 | 222 | 110 | 255 | 366 | $1^{1/2}$ | lor $1^{1/4}$ | 21.5 |

**③CMF stainless multistage centrifugal pump**

CMF2 Characteristic standard:

| Pump Item no.: | Motor (KW) | Q ($m^3$/h) | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 |
|---|---|---|---|---|---|---|---|---|---|
| CMF2-20 | 0.37 | H(m) | 19 | 18 | 16 | 14 | 13 | 11 | 10 |
| CMF2-30 | 0.55 | | 28 | 27 | 24 | 21 | 20 | 17 | 14 |
| CMF2-40 | 0.55 | | 36 | 35 | 32 | 28 | 26 | 23 | 17 |
| CMF2-50 | 0.55 | | 46 | 43 | 40 | 35 | 33 | 28 | 22 |
| CMF2-60 | 0.75 | | 54 | 50 | 48 | 42 | 38 | 32 | 25 |

CMF2 Characteristic Curve:

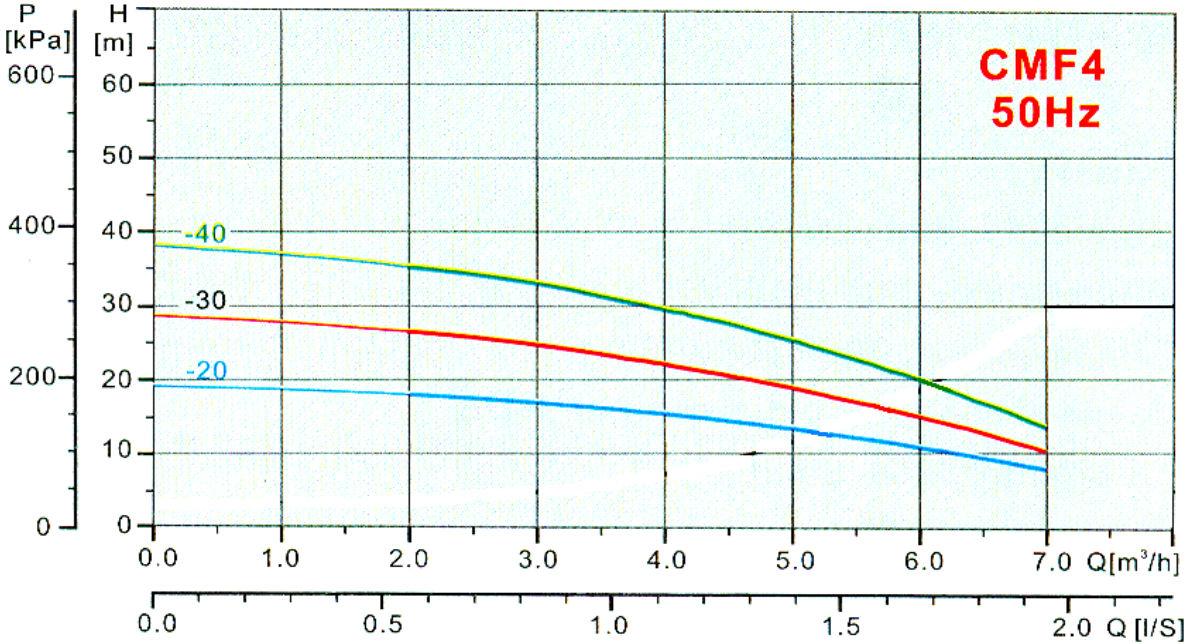



（Pic.12）

CMF4 Characteristic standard:

| Pump item no.: | Motor (KW) | Q ($m^3$/h) | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6. | 7.0 |
|---|---|---|---|---|---|---|---|---|---|
| CMF4-20 | 0.55 | H(m) | 19 | 18 | 16 | 15 | 13 | 10 | 7 |
| CMF4-30 | 0.75 | | 28 | 27 | 25 | 22 | 19 | 15 | 10 |
| CMF4-40 | 0.75 | | 38 | 36 | 33 | 30 | 26 | 20 | 14 |

CMF4 Characteristic Curve:

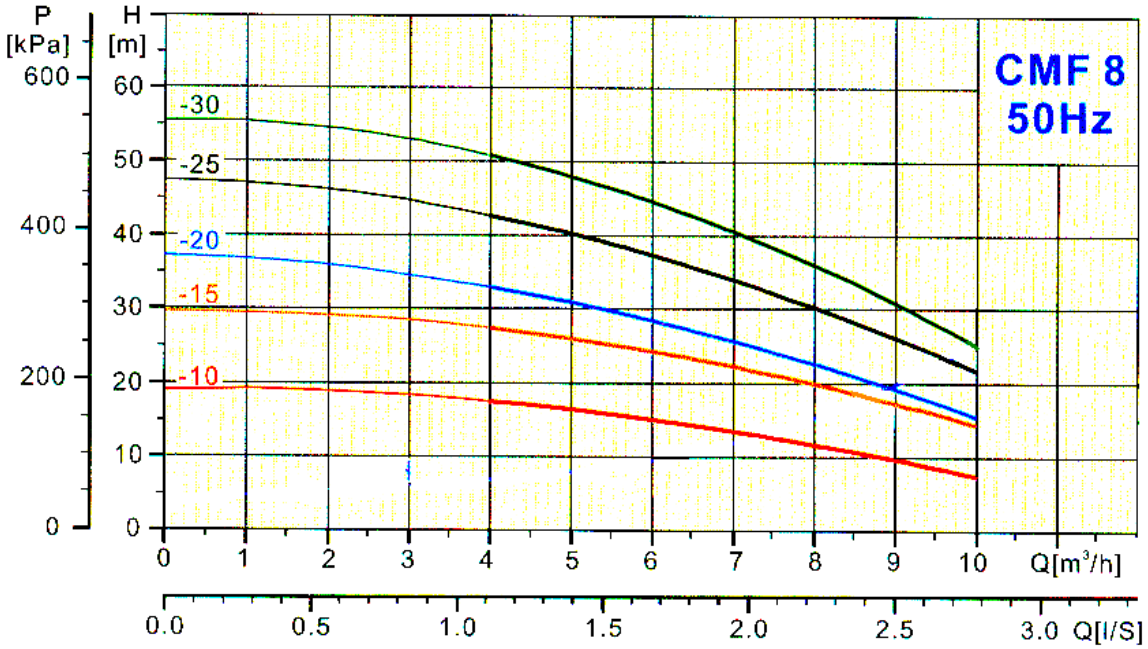



（Pic. 13）

CMF8 Characteristic standard:

| Pump item no. | Motor (KW) | Q ($m^3$/h) | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CMF8-10 | 0.55 | H(m) | 19 | 18.5 | 18 | 17 | 16 | 15 | 14 | 11 | 9.5 | 7 |
| CMF8-15 | 0.75 | | 30 | 29 | 28 | 27 | 26 | 24 | 22 | 20 | 17 | 14 |
| CMF8-20 | 1.0 | | 37 | 36 | 35 | 33 | 31 | 28 | 26 | 22 | 19 | 15 |
| CMF8-25 | 1.5 | | 47 | 46 | 45 | 43 | 40 | 37 | 34 | 30 | 26 | 22 |
| CMF8-30 | 2.2 | | 56 | 55 | 53 | 51 | 47 | 44 | 41 | 35 | 31 | 25 |

CMF8 Characteristic Curve

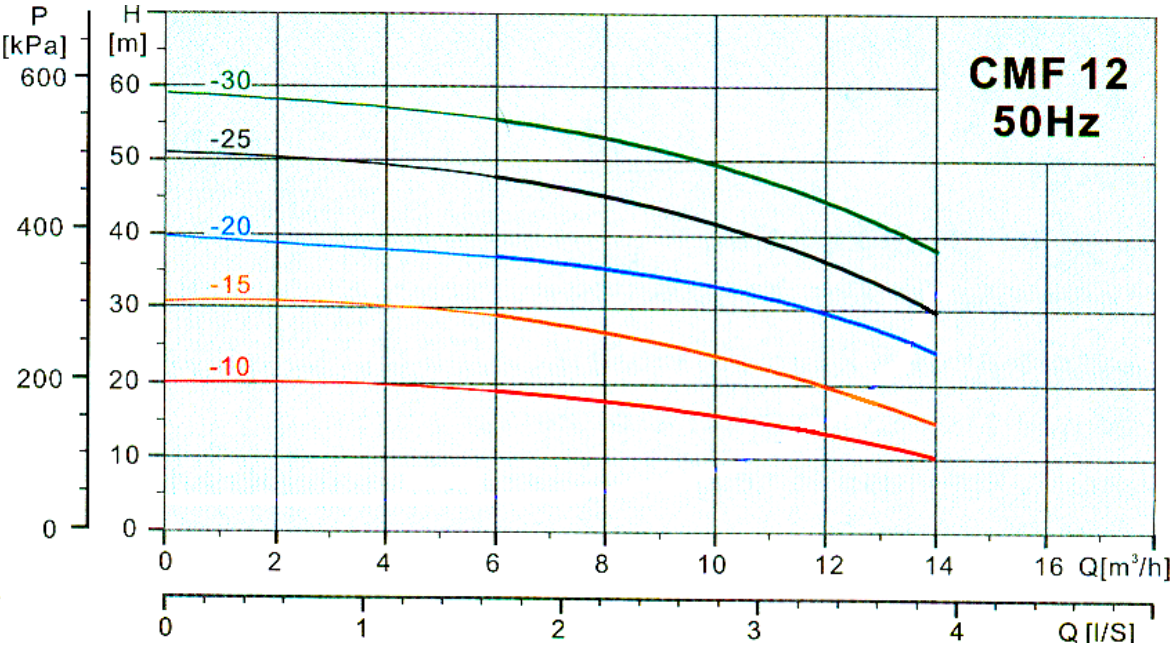



（Pic.14）

CMF12 Characteristic standard:

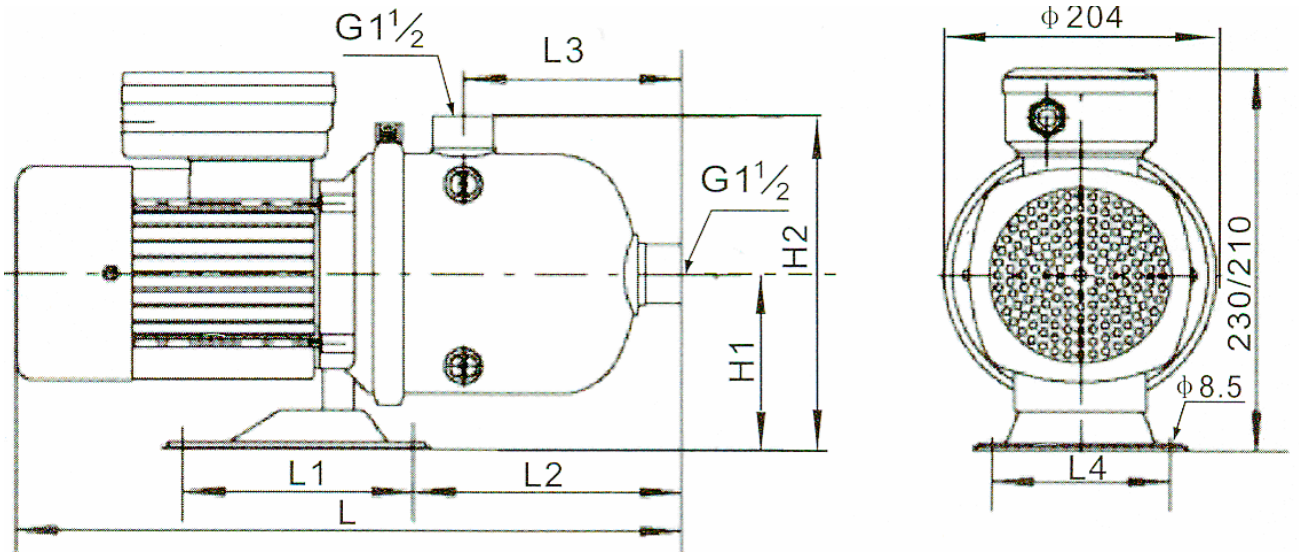
| Pump item no.: | Motor （KW） | Q （$m^3$/h） | 2.0 | 4.0 | 6.0 | 8.0 | 10 | 12 | 14 |
|---|---|---|---|---|---|---|---|---|---|
| CMF12-10 | 1.0 | H(m) | 20 | 19.5 | 19 | 18 | 15.5 | 13 | 10 |
| CMF12-15 | 1.1 | | 31 | 30 | 29 | 28 | 23.5 | 20 | 15 |
| CMF12-20 | 1.5 | | 39 | 38 | 37 | 35 | 33 | 29 | 24 |
| CMF12-25 | 1.85 | | 50 | 49 | 48 | 45 | 41.5 | 36 | 30 |
| CMF12-30 | 2.2 | | 58 | 57 | 56 | 53 | 49.5 | 45 | 38 |

CMF12 Characteristic Curve:




（Pic.15）

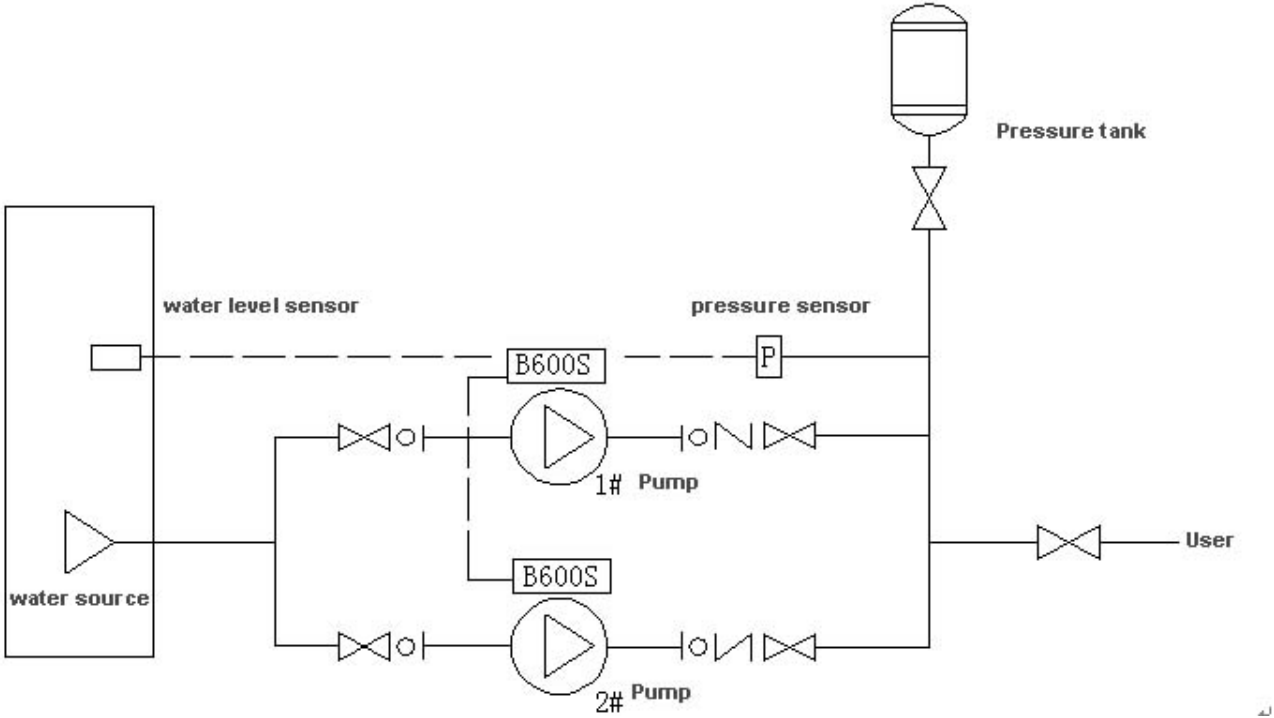
**CMF2/4/8/12 Dimension of pump:**




（Picture 16）

| Pump item no.: | L | L1 | L2 | L3 | L4 | H1 | H2 | Weight（Kg） |
|---|---|---|---|---|---|---|---|---|
| CMF2-20 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 9 |
| CMF2-30 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 10 |
| CMF2-40 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 10 |
| CMF2-50 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 10 |
| CMF2-60 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 11 |
| CMF4-20 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 10 |
| CMF4-30 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 11 |
| CMF4-40 | 400 | 138 | 160 | 130 | 108 | 110 | 208 | 11 |
| CMF8-10 | 420 | 138 | 179 | 138 | 108 | 120 | 242 | 10.5 |
| CMF8-15 | 420 | 138 | 179 | 138 | 108 | 120 | 242 | 12.1 |
| CMF8-20 | 420 | 138 | 179 | 138 | 108 | 120 | 242 | 13.7 |
| CMF8-25 | 450 | 138 | 179 | 138 | 108 | 120 | 242 | 14.3 |
| CMF8-30 | 450 | 138 | 179 | 138 | 108 | 120 | 242 | 21.4 |
| CMF12-10 | 400 | 138 | 179 | 138 | 108 | 120 | 242 | 11.8 |
| CMF12-15 | 420 | 138 | 179 | 138 | 108 | 120 | 242 | 13.5 |
| CMF12-20 | 420 | 138 | 179 | 138 | 108 | 120 | 242 | 20.9 |
| CMF12-25 | 450 | 138 | 179 | 138 | 108 | 120 | 242 | 23.9 |
| CMF12-30 | 450 | 138 | 179 | 138 | 108 | 120 | 242 | 23.9 |

## 2. Connection diagram of double pumps Parallel-Joining water supply equipment




**Pic.17 Double pumps parallel-joining system picture**

(1) When running, B600S controller would auto-control the pumps to stop or start as per actual requirement.(See Pic. 3)

(2) Soft start & Soft stop without any impact to make the performance of pumps better than frequency inverter constant water supply equipment.

(3) The fault occurred rate is far less than that of traditional water supply system.

① Tank standard

| Item No.: | PT-2LP | PT-4LP | PT-8LP | PT-19LP | PT-24LP | PT-60LP |
|---|---|---|---|---|---|---|
| Capacity （Litres） | 2 | 4 | 8 | 19 | 24 | 60 |
| Pipe specification | 1″ | | | | | |

② The choice of tank Capacity

Q=L/t*K

：Q——tank capacity

L——Litres/Hour in peak use (Unit: Litres)

T——Start Times/Hour in peak use (6～10 times available)

K——Adjustable factor，(0.2～0.4 available)

**Thank you for you choose Bedford Brand series products, pls. read the above user instruction carefully.**

## Ⅷ Attachment:

**Parameter set:**

**1. Press “MODE” and “SET” Keys simultaneity for above 5seconds, then the Keyboard appear the symbol of “FN-00”.**

**2.Press ▲or ▼to choice the parameter items which we want to adjust, and then press “SET” Key entering into parameter adjustment,.**

**3. Press ▲ ▼ to adjust the parameter and confirm by “SET” Key**

**4. Press “Mode” key to return back the initial-face.**

Parameter list(See next page)

| No. | Description | Min | Max. | Default | Explanation |
|---|---|---|---|---|---|
| FN-00 | Control method select | 0 | 1 | 1 | 0: Manual control run<br>1: Pressure control run |
| FN -01 | Stop mode select | 0 | 1 | 0 | 0: Ramp stop<br>1: Coast to stop |
| FN -02 | Max. frequency | 0 | 400 | 60 | |
| FN -03 | Basic frequency | 0 | 400 | 60 | |
| FN -04 | Mid. Frequency | 0 | 400 | 1.5 | |
| FN -05 | Mid. Output voltage | 0 | 220 | 10 | |
| FN -06 | Min. frequency | 0 | 20 | 1.5 | |
| FN -07 | Min voltage | 0 | 50 | 10 | |
| FN -08 | Accel. time | 1 | 600 | 2 | |
| FN -09 | Decel. time | 1 | 600 | 2 | |
| FN -10 | Anti-stall select | 0 | 1 | 0 | 0: Disable<br>1: enable |
| FN -11 | Anti-stall when Acceleration | 50 | 200 | 150% | |
| FN -12 | Anti-stall when Running | 50 | 200 | 150% | |
| FN -13 | Overload mode select | 0 | 4 | 0 | 0: Disable<br>1-4: Enable |

| | | | | | |
|---|---|---|---|---|---|
| FN -14 | Overload capacity | 30 | 200 | 130 | |
| FN -15 | Overload time | 0.1 | 120 | 5 | |
| FN -16 | PWM frequency | 1 | 10 | 7 | 7: 10khz |
| FN -17 | Preparation 1 | 0 | 20 | 0 | |
| FN -18 | Preparation 2 | 0 | 20 | 0 | |
| FN -19 | Preparation 3 | 0 | 20 | 0 | |
| FN -20 | initialization | 0 | 10 | 0 | |
| FN -21 | Horsepower | 1 | 3 | 3 | |
| FN -22 | Auto reset | 0 | 20 | 5 | Auto reset trips when multi-pump run |
| FN -23 | Fault reset | 0 | 1 | 0 | Auto reset when fault of power ON/OFF |

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**Agent:**