Model Instruction

AW (J) E 2 - 6

- 6 — Number of stages of pump
- 2 — Single-pump capacity (m^3/h)
- E — Code of fully-integrated intelligent variable-frequency series
- AW (J) — Water pump model: AL (T)-Vertical/BW-Horizontal/AWJ-Sectional

Product Overview

The fully-integrated intelligent variable-frequency pump is a new generation of equipment for pressurized water supply, highly integrated by the newly-developed frequency controllers and water pumps and pressure tanks of the Company, presenting a beautiful appearance and reaching an international advanced level. Such pump has capacities of artificial intelligence and automatic adjustment to meet the user's demand for constant-pressure and variable-frequency water supply, which can help to keep constant the pressure of the water supply network and the whole system always at the best energy-efficient state.

Application

◎ Domestic water for residents: pressurization on the roof of high-rise buildings, apartments, and villas etc.
◎ Public places: schools, restaurants, stations, hospitals, and stadiums etc.
◎ Commercial buildings: hotels, office buildings, and department stores etc.
◎ Irrigation: farms, fruit gardens, and parks etc.
◎ Industry: manufacturing, food industry, industrial water, and other places needing constant-pressure water supply etc.

Applications Fields

◎ Operating voltage: AC220V±10% at 50HZ, with phase-to-phase imbalance less than 2%;
◎ Ambient temperature: -5° C ~ 40° C;
◎ Altitude of installation site: no higher than 1,000m;
◎ Ambient humidity: 10-90%RH (non-condensing);
◎ No medium with explosion hazard in ambient air and no medium containing any gas or conductive dust which can corrode metal or damage insulation; application in environment of which the pollution degree is 2.

Certificate

CE

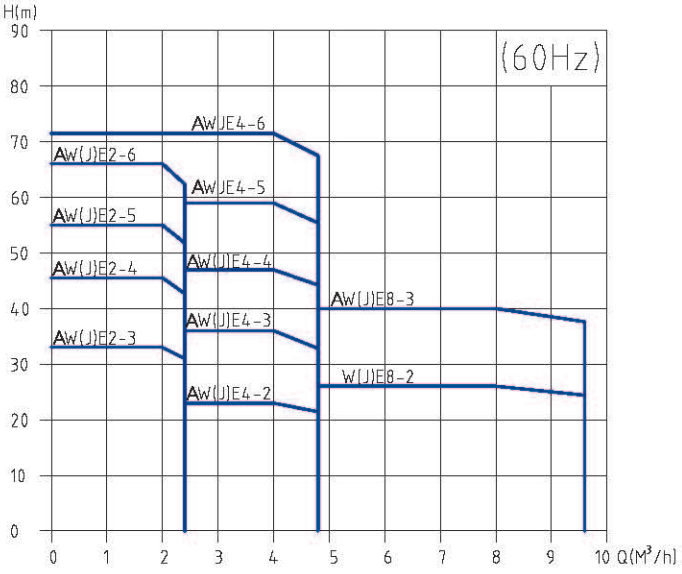
Functions

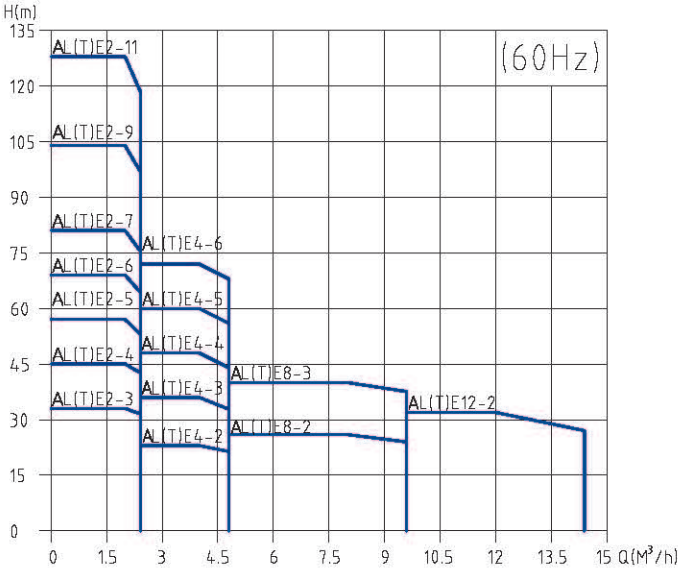
◎ When using water, the system will present its constant-pressure and variable-frequency control, while it will automatically maintain pressure and stop in case of no water used.
◎ The fluctuation range of the operating pressure of variable-frequency pump shall be no more than 0.01MPa.
◎ The pump will stop working in case of idling without water.
◎ It is able to inspect several faults concerning disconnection, overcurrent, overload, and grounding.

Product Overview

◎ Frequency converter: IP65, safe and reliable
◎ High level of integration: The water pump is integrated with the frequency converter, so it is small in size and can be installed easily and save space.
◎ Full-automatic control: The product can automatically adjust its operating state on the basis of the pressure of the network of the user, to achieve its best working state and make the system energy-saving. When no water is used, automatic pressure maintenance and sleep will be realized and, therefore, the energy-saving effect is quite obvious. In case of failure of water pump, real-time tracking, judgement, and treatment will be carried out automatically.
◎ Easy and convenient operation: The man-machine interaction can be achieved directly via the keys and the display on the frequency converter. The user can make settings relating to pressure on the basis of its actual operating conditions and obtain the relevant information. In the event of any abnormality, the information about such an abnormality can be got as well.
◎ Constant-power operation: When the controller reaches the power limit, adjustment will be done on the basis of the actual operation, so as to keep the output power unchanged and protect the motor on the premises that the water consumption by the user is guaranteed to the greatest extend.

Equipment spectrum





Action Description

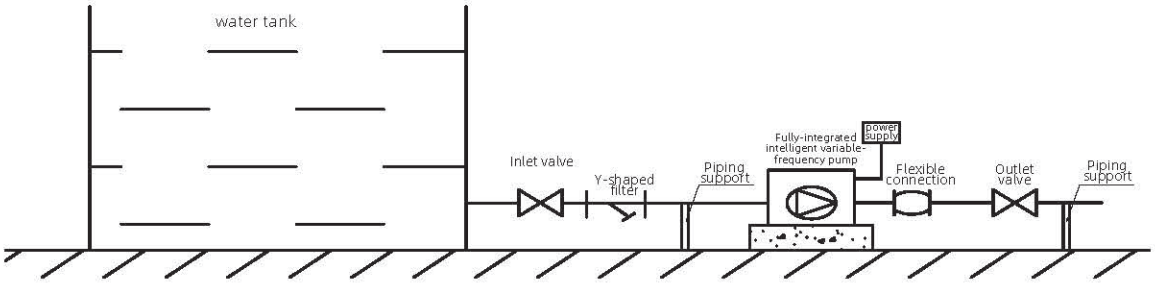
◎ The automatic identification module senses the pressure of the system via a pressure sensor and compares it with the set pressure, and then outputs a continuous analog signal to the frequency converter which changes the operating frequency of the motor on the basis of the change of the analog signal, to finally meet the demand for constant-pressure water supply. When the user's water consumption is large, the rotational speed will increase automatically and the power will be increased accordingly to satisfy the demand for constant-pressure water supply. If no water is used, the system will go to sleep automatically after the set pressure is reached. Where the user uses little water or the water pressure decreases to 80% due to leakage of the piping, the frequency controller will send out a signal to order the motor to operate and then make up for pressure until the set pressure is reached again, to maximize energy saving.

Performance Parameters

Number	Model	Input voltage	Setting range of constant pressure values kg/cm²	Factory-set constant pressure value (rated pressure) kg/cm²	Inlet diameter	Outlet diameter	Single-pump power kW	Maximum lift (zero flow) m	Rated lift(m)	Rated flow m³/h	Volume of pressure tank(L)
A01	AWE2-3	1ΦAC220V	0.5-2	2	G1	G1	0.75	38	33	2	3
A02	AWE2-4	1ΦAC220V	0.5-2.5	2.5	G1	G1	1.1	51	44	2	3
A03	AWE2-5	1ΦAC220V	0.5-3.5	3.5	G1	G1	1.1	63	55	2	3
A04	AWE2-6	1ΦAC220V	0.5-4	4	G1	G1	1.1	75	66	2	3
A05	AWE4-2	1ΦAC220V	0.5-1.5	1.5	G1¼	G1	0.75	26	22	4	3
A06	AWE4-3	1ΦAC220V	0.5-2	2	G1¼	G1	1.1	39	33	4	3
A07	AWE4-4	1ΦAC220V	0.5-3	3	G1¼	G1	1.5	53	44	4	3
A08	AWE8-2	1ΦAC220V	0.5-1.5	1.5	G2	G2	1.5	27	25	8	5
A09	AWE8-3	1ΦAC220V	0.5-3	2.2	G2	G2	2.2	41	39	8	5
A10	AWJE2-3	1ΦAC220V	0.5-2	2	G1	G1	0.75	38	33	2	3
A11	AWJE2-4	1ΦAC220V	0.5-2.5	2.5	G1	G1	1.1	51	44	2	3
A12	AWJE2-5	1ΦAC220V	0.5-3.5	3.5	G1	G1	1.1	63	55	2	3
A13	AWJE2-6	1ΦAC220V	0.5-4	4	G1	G1	1.1	75	66	2	3
A14	AWJE4-2	1ΦAC220V	0.5-1.5	1.5	G1¼	G1	0.75	26	22	4	3
A15	AWJE4-3	1ΦAC220V	0.5-2	2	G1¼	G1	1.1	39	33	4	3
A16	AWJE4-4	1ΦAC220V	0.5-3	3	G1¼	G1	1.5	53	44	4	3
B01	AWJE4-5	1ΦAC220V	0.5-3.5	3.5	G1¼	G1	2.2	65	56	4	3
B02	AWJE4-6	1ΦAC220V	0.5-4.5	4.5	G1¼	G1	2.2	80	69	4	3
B03	AWJE8-2	1ΦAC220V	0.5-1.5	1.5	G1½	G1¼	1.5	27	25	8	5
B04	AWJE8-3	1ΦAC220V	0.5-2	2	G1½	G1¼	2.2	41	39	8	5
B05	AL(T)E2-3	1ΦAC220V	0.5-2	2	G1¼	G1¼	0.75	39	34	2	3
B06	AL(T)E2-4	1ΦAC220V	0.5-3	3	G1¼	G1¼	1.1	52	45	2	3
B07	AL(T)E2-5	1ΦAC220V	0.5-3.5	3.5	G1¼	G1¼	1.1	65	57	2	3
B08	AL(T)E2-6	1ΦAC220V	0.5-4.5	4	G1¼	G1¼	1.1	78	69	2	3
B09	AL(T)E2-7	1ΦAC220V	0.5-5	5	G1¼	G1¼	1.5	92	81	2	3
B10	AL(T)E2-9	1ΦAC220V	0.5-6.5	6.5	G1¼	G1¼	2.2	118	104	2	5
B11	AL(T)E2-11	1ΦAC220V	0.5-8	8	G1¼	G1¼	2.2	144	128	2	5
B12	AL(T)E4-2	1ΦAC220V	0.5-1.5	1.5	G1¼	G1¼	0.75	26	23	4	3
B13	AL(T)E4-3	1ΦAC220V	0.5-2	2	G1¼	G1¼	1.1	40	36	4	3
B14	AL(T)E4-4	1ΦAC220V	0.5-3	3	G1¼	G1¼	1.5	53	48	4	3
B15	AL(T)E4-5	1ΦAC220V	0.5-4	4	G1¼	G1¼	2.2	66	60	4	3
B16	AL(T)E4-6	1ΦAC220V	0.5-4.5	4.5	G1¼	G1¼	2.2	80	71	4	3
B17	AL(T)E8-2	1ΦAC220V	0.5-1.5	1.5	DN40	DN40	1.5	27	26	8	5
B18	AL(T)E8-3	1ΦAC220V	0.5-2	2	DN40	DN40	2.2	41	40	8	5
B19	AL(T)E12-2	1ΦAC220V	0.5-2	2	DN50	DN50	1.5	35	32	12	5

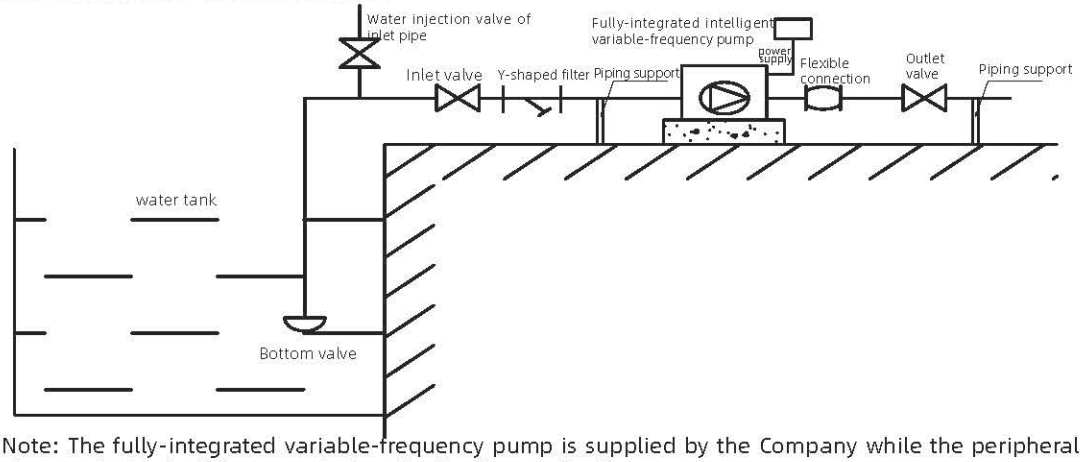
Installation Diagram

Positive-pressure Water Inlet :



Note: The fully-integrated variable-frequency pump is supplied by the Company while the peripheral pipes and other facilities are to be installed by the user itself.

Negative-pressure Water Inlet :



Note: The fully-integrated variable-frequency pump is supplied by the Company while the peripheral pipes and other facilities are to be installed by the user itself.

Instructions for Installation

◎ When the pump is installed indoors, there should be no water drop, metal dust, oily dirt, corrosive/flammable gas or liquid, or electromagnetic signal interference. When installed outdoors, the pump should be sheltered.
◎ The assembling floor of the variable-frequency pump must be firm, without any split or sink.
◎ The equipment should be installed with positive pressure at the inlet while installation with negative-pressure suction should be avoided to the greatest extent. In case negative-pressure installation is required, please select a bottom valve with good quality and carry out regular overhauls.
◎ The diameter of the inlet pipe and the outlet pipe to be connected with the variable-frequency pump should be greater than the diameter of the variable-frequency pump itself.
◎ Please check whether the provided power supply complies with the requirement of the variable-frequency pump for the power supply at the incoming line.
◎ During installation, the user should furnish the inlet and the outlet valves of the variable-frequency pump and the relevant flexible connections so as to facilitate repairs and prevent noise from passing through piping.
◎ If installation is made with positive pressure at the inlet, please open the vent valve of the water pump and discharge the air prior to use. Do not tighten the vent valve until there is water flowing out. In case of installation made with negative pressure at the inlet, please fill the suction pipe with water prior to use (there should be a filling valve at the suction pipe) and start up the pump after the chamber of the water pump is full of water.

Reference for Model Selection

Computational method of maximum water consumption

No	Accessories for water supply	Rated flow (L/s)	Equivalent	Nominal diameter of connecting pipe (mm)	Minimum operating pressure (MPa)
1	Washtub, mop basin, washbasin Single-valve faucet Single-valve faucet Mixed-water faucet	0.15 ~ 0.20 0.30 ~ 0.40 0.15 ~ 0.20(0.14)	0.75 ~ 1.00 1.5 ~ 2.00 0.75 ~ 1.00(0.70)	15 20 15	0. 050
2	Washbasin Single-valve faucet Mixed-water faucet	0.15 0.15 (0.10)	0.75 0.75(0.50)	15 15	0. 050
3	Washbasin Sensor faucet Mixed-water faucet	0.10 0.15(0.10)	0.50 0.75(0.5)	15 15	0. 050
4	Bathtub Single-valve faucet Mixed-water faucet (including converter with shower)	0.20 0.24(0.20)	1.00 1.2(1.0)	15 15	0. 050 0. 050 ~ 0.0 70
5	Shower Mixing valve	0.15(0.10)	0.75(0.50)	15	0. 050 ~ 0.100
6	Closet pan Float valve of flushing cistern Delay-driven self-closing flush valve	0.10 1.20	0.50 6.00	15 25	0.020 0.10 ~ 0.15
7	Urinal Manual or automatic self-closing flush valve Inlet valve of automatic flushing cistern	0.10 0.10	0.50 0.50	15 15	0. 050 0. 020
8	Perforated flushing pipe of urinal (in m)	0.05	0.25	15 ~ 20	0. 015
9	Faucet of bidet	0.10(0.07)	0.50(0.35)	15	0. 050
10	Pan closet used in a hospital	0.10(0.07)	1.00	15	0. 050
11	Gooseneck-type faucet for testing in a laboratory Single-linkage Double-linkage Triple-linkage	0.07 0.15 0.20	0.35 0.75 1.00	15 15 15	0. 020 0. 020 0. 020
12	Nozzle of drinking fountain	0.05	0.25	15	0. 050
13	Sprinkler	0.40 0.70	2.00 3.50	20 25	0.0 50 ~ 0.100 0.050 ~ 0.100
14	Flushing faucet for indoor ground	0.20	1.00	15 15	0. 050
15	Faucet of domestic washing machine	0.20	1.00	15 15	0. 050

Note:

◎ A value inside brackets in the table is to be used for the independent calculation relating to cold water or hot water, when there is hot water supply.
◎ When a shower is attached to a bathtub or a mixed-water faucet is provided with a shower converter, then for the calculation of the rated flow and the equivalent, only the faucet should be included. However, the computation of water pressure shall be based on the shower.
◎ The water pressure needed by a domestic gas water heater should be determined on the basis of the requirement of the product and the operating pressure needed by the most unfavorable water distribution point of the hot water supply system.
◎ The automatic sprinkling irrigation of a green belt should be designed in accordance with the requirement of the product.
◎ When there are special requirements for the rated flow and the minimum operating pressure needed by the water supply accessories of sanitary fixtures, their values should be determined as per the requirement of the product (how to determine the equivalence when the requirement of the product is determined).
◎ Calculation of maximum water consumption
L=Number of single-valve faucets * Rated flow + Mixed-water faucet * Rated flow +·····+ Number of domestic washing machines * Rated flow
The unit of L to be calculated should be "L/S", converted into t/h by multiplying 3.6 (for the rated flow, please refer to Table I).

Calculation of minimum pressure

The minimum pressure should be the pressure calculated from the suction surface of the water pump, plus the minimum necessary pressure for the highest sanitary fixture used.
The minimum pressure used by the water supply equipment (Mpa) ≈ 1/100*(hg+hf)+pe
Ha: the actual lift from the suction surface to the highest fixture (m);
Hf: the loss of the piping and the bending, to be calculated as 6m-10m;
Pe: the minimum necessary pressure of the highest sanitary fixture (please refer to Table I).

For example:

There is a small hotel four-storeyed above the ground, about 12m high (calculated from the suction surface), including 12 rooms. Each room is equipped with one closet plan, one washbasin (with a mixed-water faucet), and one shower (with a mixed-water faucet). In addition, the hotel has one faucet for domestic washing machines, four flushing faucets for indoor ground, and four faucets of drinking fountains. Please calculate the flow and the lift of the equipment to be selected.

Answer:
Calculation of the maximum water consumption:
Maximum water consumption=3.6{12 (1*0.1+1*0.15+1*0.24) +1*0.2+4*0.2+4*0.05}=6.084t/h
Calculation of the minimum pressure:
Minimum pressure ≈ 1/100* (12+10) +0.07=0.29 Mpa
Ha: the actual lift from the suction surface to the highest sanitary fixture, 12m;
Hf: the head loss of the piping and the bending, taking 10m;
Pe: the minimum operating pressure of the shower, 0.7bar.
Note: 1bar ≈ 1kg/cm2 =0.1Mpa; 1Mpa is approximately equal to 100m lift of the water pump.
When equipment is selected, the total flow of the selected equipment should be the maximum water consumption and the lift should be no less than the minimum pressure calculated. Please refer to the Equipment Spectrum.

Model	L	L1	B	H	H1	N.W (kg)	G.W (kg)
AWE2-3	419	165	165	540	111	18.2	20.7
AWE2-4	421	165	165	540	111	21.7	24.2
AWE2-5	421	165	165	540	111	22.7	25.2
AWE2-6	443	165	165	540	111	23.7	26.2
AWE4-2	426	165	165	540	111	18.2	20.7
AWE4-3	421	165	165	540	111	21.5	24
AWE4-4	472	165	165	540	111	23.7	26.2
AWE8-2	590	283	280	610	118	23.2	27
AWE8-3	590	283	280	610	118	29.5	33.3

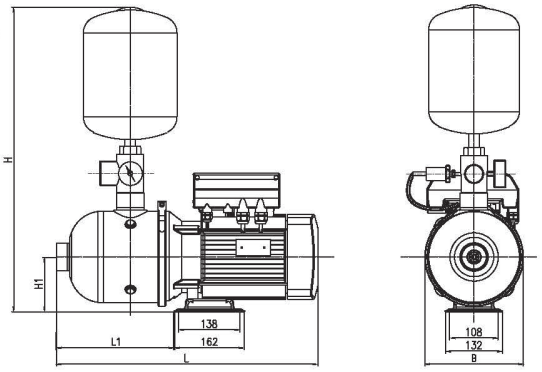


Figure 1

Model	L	L1	B	H	H1	N.W (kg)	G.W (kg)
AWJE2-3	391	95	156	540	111	18.7	21.2
AWJE2-4	409	113	156	540	111	21	23.5
AWJE2-5	427	131	156	540	111	21.4	23.9
AWJE2-6	512	151	169	540	111	25.3	27.8
AWJE4-2	391	95	156	540	111	18.7	21.2
AWJE4-3	418	122	156	540	111	21.2	23.7
AWJE4-4	483	151	169	540	111	24	26.5
AWJE4-5	539	178	169	540	111	27.3	29.8
AWJE4-6	566	232	169	540	111	28	30.5
AWJE8-2	443	111	169	600	118	27.9	31.7
AWJE8-3	473	141	169	600	118	30.1	33.9

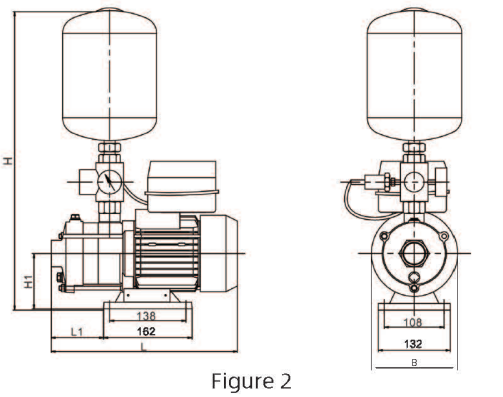


Figure 2

Model	L	L1	B1	B	H	H1	N.W (kg)	G.W (kg)
AL(T)E2-3	600	550	280	320	552	80	32/42	47/57
AL(T)E2-4	600	550	280	320	570	80	37/44	52/59
AL(T)E2-5	600	550	280	320	588	80	38/44	53/59
AL(T)E2-6	600	550	280	320	606	80	38/45	53/60
AL(T)E2-7	600	550	280	320	686	80	41/47	56/62
AL(T)E2-9	600	550	280	320	722	80	45/52	60/67
AL(T)E2-11	600	550	280	320	758	80	46/53	61/68
AL(T)E4-2	600	550	280	320	552	80	36/42	51/69
AL(T)E4-3	600	550	280	320	579	80	38/45	53/60
AL(T)E4-4	600	550	280	320	668	80	41/48	56/63
AL(T)E4-5	600	550	280	320	695	80	45/51	60/66
AL(T)E4-6	600	550	280	320	722	80	45/52	60/67
AL(T)E8-2	750	700	320	360	706	120	58/65	77/84
AL(T)E8-3	750	700	320	360	736	120	62/69	81/88
AL(T)E12-2	750	700	320	360	713	120	61/68	82/89

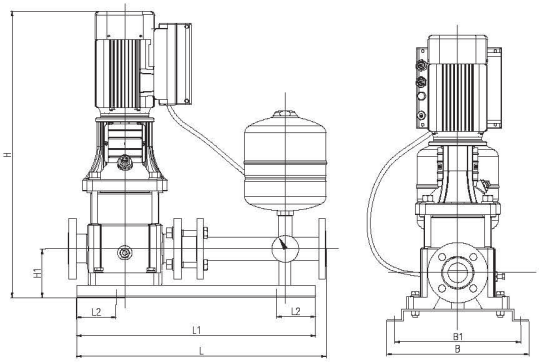


Figure 3