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: BV(T)-Vertical/AW-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

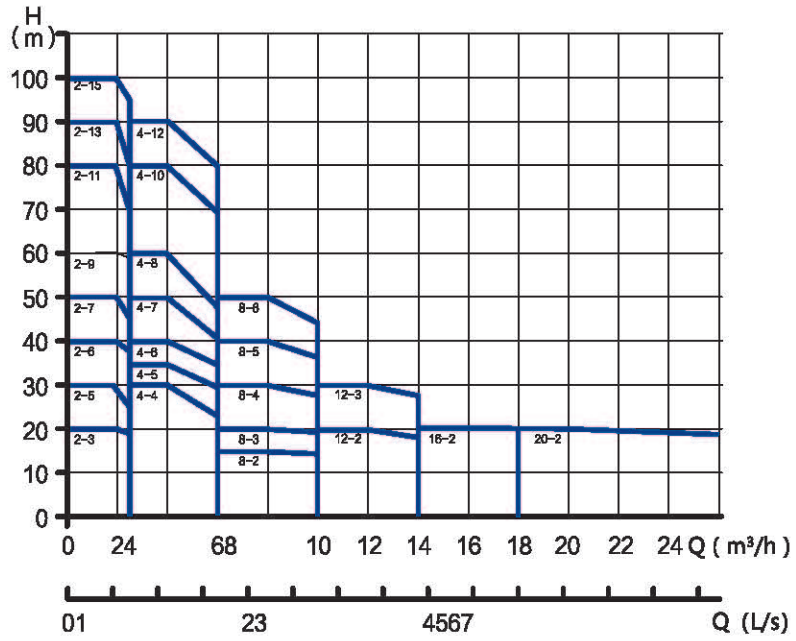
Functions

◎ 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.

Features

◎ 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

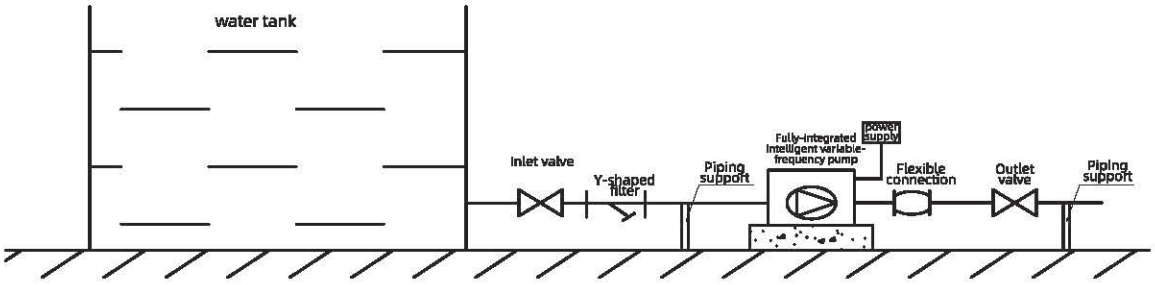
◎ The automatic identification module senses the pressure of the system via a pressure sensor and compares it with the set pressure, and then outputs a continuous analog signal to the frequency converter which changes the operating frequency of the motor on the basis of the change of the analog signal, 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

No	Model	Input voltage	Constant pressure value set (Bar)	The factory set constant value (rated pressure) Bar	Inlet diameter	Outlet diameter	Single pump power	The highest lift (zero flow) m	Rated flow m^3/h	Pressure tank volume L
A01	AWE2-6	220V/380V	0.5-4	4	G1	G1	0.75	56	2	3
A02	AWE4-4	220V/380V	0.5-3	3	G1¼	G1	0.75	38	4	3
A03	AWE8-2	220V/380V	0.5-1.5	1.5	G2	G2	0.75	22	8	5
A04	AWE8-3	220V/380V	0.5-2	2	G2	G2	1.1	32	8	5
A05	AWE8-4	220V/380V	0.5-3	3	G2	G2	1.5	43	8	5
A06	AWE8-5	220V/380V	0.5-4	4	G2	G2	2.2	54	8	5
A07	AWE12-2	220V/380V	0.5-2	2	G2	G2	1.2	23	12	5
A08	AWE12-3	220V/380V	0.5-3	3	G2	G2	1.8	35	12	5
A09	AWE16-2	220V/380V	0.5-2	2	G2	G2	2.2	27	16	5
A10	AWE20-1	220V/380V	0.5-1	1	G2	G2	1.1	13	20	5
A11	AWE20-2	220V/380V	0.5-2	2	G2	G2	2.2	26.5	20	5
A12	AWJE2-6	220V/380V	0.5-4	4	G1	G1	0.75	56	2	3
A13	AWJE4-4	220V/380V	0.5-3	3	G1¼	G1	0.75	38	4	3
A14	AWJE4-5	220V/380V	0.5-3.5	3.5	G1¼	G1	1.1	47	4	3
A15	AWJE4-6	220V/380V	0.5-4.5	4.5	G1¼	G1	1.1	57	4	3
A16	AWJE8-2	220V/380V	0.5-1.5	1.5	G1 ½	G1¼	0.75	22	8	5
A17	AWJE8-3	220V/380V	0.5-2	2	G1 ½	G1¼	1.1	32	8	5
A18	AWJE8-4	220V/380V	0.5-3	3	G1 ½	G1¼	1.5	43	8	5
A19	AWJE8-5	220V/380V	0.5-4	4	G1 ½	G1¼	2.2	54	8	5
A20	AWJE12-2	220V/380V	0.5-2	2	G1 ½	G1¼	1.2	23	12	5
A21	AWJE12-3	220V/380V	0.5-3	3	G1 ½	G1¼	1.8	35	12	5
A22	AWJE16-2	220V/380V	0.5-2	2	G1 ½	G1¼	2.2	27	16	5
A23	AWJE20-1	220V/380V	0.5-1	1	G2	G2	1.1	13	20	5
A24	AWJE20-2	220V/380V	0.5-2	2	G2	G2	2.2	26.5	20	5
B01	BV(T)E2-6	220V/380V	0.5-4	4	DN25	DN25	0.75	58	2	3
B02	BV(T)E2-7	220V/380V	0.5-5	5	DN25	DN25	0.75	68	2	3
B03	BV(T)E2-9	220V/380V	0.5-6	6	DN25	DN25	1.1	87	2	5
B04	BV(T)E2-11	220V/380V	0.5-8	8	DN25	DN25	1.1	106	2	5
B05	BV(T)E2-13	220V/380V	0.5-9	9	DN25	DN25	1.5	124	2	5
B06	BV(T)E2-15	220V/380V	0.5-10	10	DN25	DN25	1.5	138	2	5
B07	BV(T)E4-4	220V/380V	0.5-3	3	DN32	DN32	0.75	38	4	3
B08	BV(T)E4-5	220V/380V	0.5-3.5	3.5	DN32	DN32	1.1	47	4	3
B09	BV(T)E4-6	220V/380V	0.5-4	4	DN32	DN32	1.1	58	4	3
B10	BV(T)E4-7	220V/380V	0.5-5	5	DN32	DN32	1.5	69	4	3
B11	BV(T)E4-8	220V/380V	0.5-6	6	DN32	DN32	1.5	78	4	5
B12	BV(T)E4-10	220V/380V	0.5-8	8	DN32	DN32	2.2	96	4	5
B13	BV(T)E4-12	220V/380V	0.5-9	9	DN32	DN32	2.2	117	4	5
B14	BV(T)E8-2	220V/380V	0.5-1.5	1.5	DN40	DN40	0.75	22	8	5
B15	BV(T)E8-3	220V/380V	0.5-2	2	DN40	DN40	1.1	32	8	5
B16	BV(T)E8-4	220V/380V	0.5-3	3	DN40	DN40	1.5	42	8	5
B17	BV(T)E8-5	220V/380V	0.5-4	4	DN40	DN40	2.2	53	8	5
B18	BV(T)E8-6	220V/380V	0.5-5	5	DN40	DN40	2.2	62	8	5
B19	BV(T)E12-2	220V/380V	0.5-2	2	DN50	DN50	1.5	26	12	5
B20	BV(T)E12-3	220V/380V	0.5-3	3	DN50	DN50	2.2	38	12	5
B21	BV(T)E16-2	220V/380V	0.5-2	2	DN50	DN50	2.2	28	16	5
B22	BV(T)E20-2	220V/380V	0.5-2	2	DN50	DN50	2.2	30	20	5

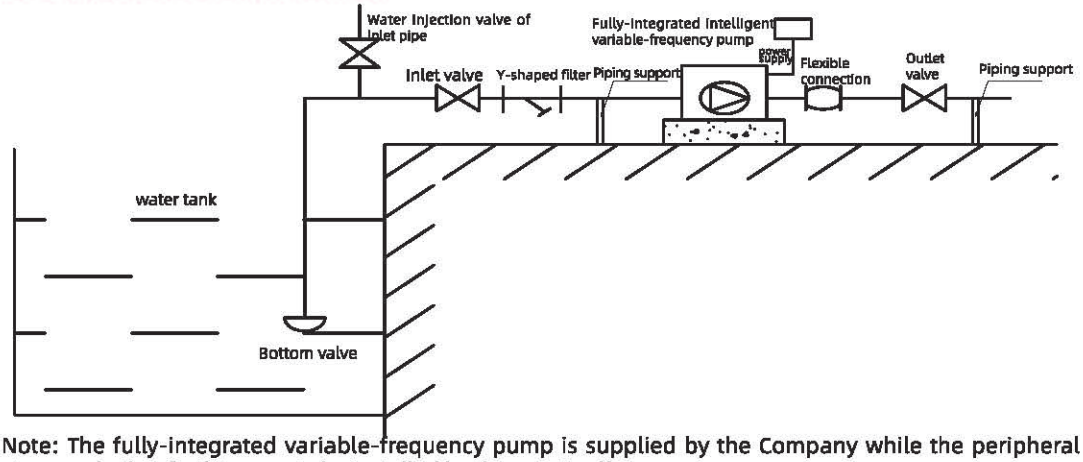
Installation Diagram

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).

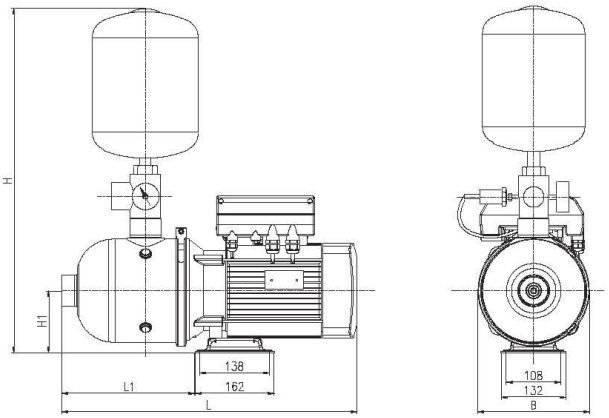
For example:

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.

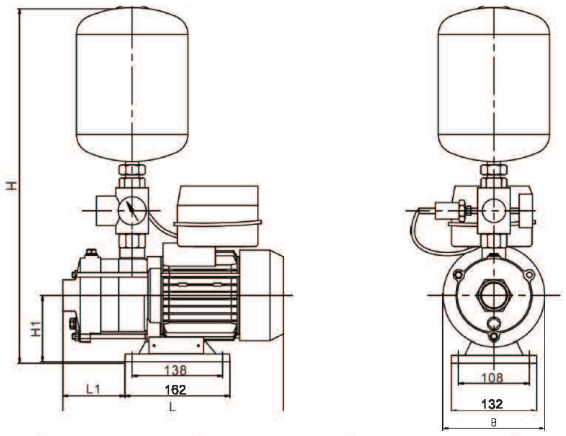
Answer:

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.

Overall Dimensions of Variable-frequency Pump

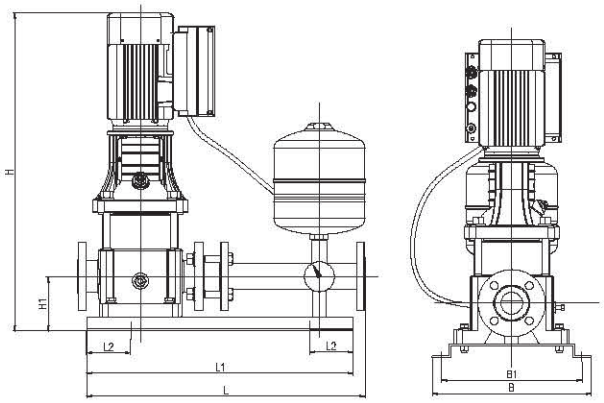


Model	L (mm)	L1 (mm)	B (mm)	H1 (mm)	H (mm)	N.W (kg)	G.W (kg)
AWE2-6	424	159	166	111	530	19	21.5
AWE4-4	424	159	166	111	530	19	21.5
AWE8-2	536	270	228	118	626	19	22.3
AWE8-3	536	270	228	118	626	25	28.3
AWE8-4	574	270	228	118	626	29	32.3
AWE8-5	574	270	228	118	626	33	36.3
AWE12-2	536	270	228	118	626	25	28.3
AWE12-3	574	270	228	118	626	29	32.3
AWE16-2	574	270	228	118	626	32	35.3
AWE20-1	536	270	228	118	626	25	28.3
AWE20-2	574	270	228	118	626	33	36.3

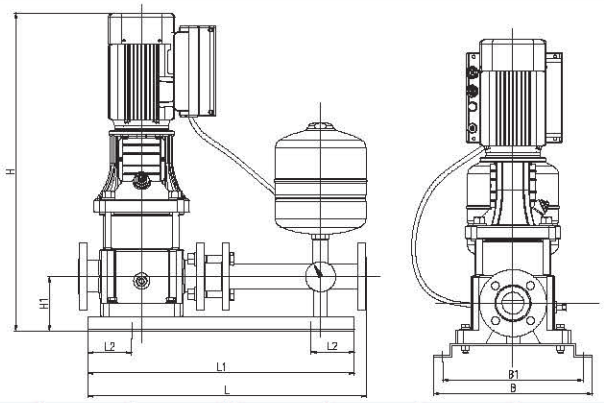


Model	L (mm)	L1 (mm)	B (mm)	H1 (mm)	H (mm)	N.W (kg)	G.W (kg)
AWJE2-6	440	158	158	110	498	20	22.8
AWJE4-4	441	159	158	110	498	19	21.5
AWJE4-5	469	187	158	111	498	22	25
AWJE4-6	496	214	158	111	498	23	25.5
AWJE8-2	405	120	158	118	568	23	26.7
AWJE8-3	437	152	158	118	568	25	28.8
AWJE8-4	492	183	168	118	568	30	33.3
AWJE8-5	524	215	168	118	568	32	35.9
AWJE12-2	405	120	158	118	568	26	29.3
AWJE12-3	460	151	168	118	568	31	34.3
AWJE16-2	441	132	168	118	568	34	37.9
AWJE20-1	391	106	158	118	583	26	29.3
AWJE20-2	459	150	168	118	583	31	34.3

Overall Dimensions of Variable-frequency Pump



Model	L (mm)	L1 (mm)	L2 (mm)	B (mm)	B1 (mm)	H (mm)	H1 (mm)	N.W.(kg)		G.W.(kg)	
								BLE	BLTE	BLE	BLTE
BV(T)E2-6	600	550	100	320	280	625	80	37	43	52	58
BV(T)E2-7	600	550	100	320	280	643	80	37	43	52	58
BV(T)E2-9	600	550	100	320	280	679	80	40	46	57	63
BV(T)E2-11	600	550	100	320	280	715	80	41	47	58	64
BV(T)E2-13	600	550	100	320	280	809	80	44	51	63	70
BV(T)E2-15	600	550	100	320	280	845	80	45	51	64	70
BV(T)E4-4	600	550	100	320	280	625	80	37	44	52	59
BV(T)E4-5	600	550	100	320	280	652	80	39	46	54	61
BV(T)E4-6	600	550	100	320	280	679	80	40	47	57	64
BV(T)E4-7	600	550	100	320	280	764	80	43	51	61	69
BV(T)E4-8	600	550	100	320	280	791	80	44	51	62	69
BV(T)E4-10	600	550	100	320	280	845	80	48	55	66	73
BV(T)E4-12	600	550	100	320	280	899	80	49	57	69	77



Model	L (mm)	L1 (mm)	L2 (mm)	B (mm)	B1 (mm)	H (mm)	H1 (mm)	N.W.(kg)		G.W.(kg)	
								BLE	BLTE	BLE	BLTE
BV(T)E8-2	750	700	100	360	320	650	120	53	63	72	82
BV(T)E8-3	750	700	100	360	320	680	120	55	65	74	84
BV(T)E8-4	750	700	100	360	320	760	120	59	69	80	90
BV(T)E8-5	750	700	100	360	320	790	120	63	73	84	94
BV(T)E8-6	750	700	100	360	320	820	120	64	74	85	95
BV(T)E12-2	750	700	100	360	320	713	120	59	69	80	90
BV(T)E12-3	750	700	100	360	320	745	120	62	72	83	93
BV(T)E16-2	750	700	100	360	320	740	120	62	73	83	94
BV(T)E20-2	750	700	100	360	320	740	120	64	74	85	95

Packing Sizes & Weight

Model	Dim.(mm)(LxWxH)
AWE2-6	520×260×590
AWE4-4	
AWE8-2	660×290×700
AWE8-3	
AWE8-4	
AWE8-5	
AWE16-2	
AWJE2-6	520×260×590
AWJE4-4	
AWJE4-5	580×260×570
AWJE4-6	
AWJE8-2	660×290×700
AWJE8-3	
AWJE8-4	
AWJE8-5	
AWJE16-2	
BV(T)E2-6	800×330×670
BV(T)E2-7	
BV(T)E2-9	800×330×740
BV(T)E2-11	
BV(T)E2-13	800×330×870
BV(T)E2-15	
BV(T)E4-4	800×330×670
BV(T)E4-5	
BV(T)E4-6	800×330×740
BV(T)E4-7	800×330×870
BV(T)E4-8	
BV(T)E4-10	
BV(T)E4-12	800×330×920
BV(T)E8-2	900×360×720
BV(T)E8-3	
BV(T)E8-4	900×360×870
BV(T)E8-5	
BV(T)E8-6	
BV(T)E12-2	
BV(T)E12-3	
BV(T)E16-2	
BV(T)E20-2	