BROAD PUMPSET

Global Partner of Expo 2010 Shanghai China

Functions

- Transmission of central air conditioning water systems including A/C water, cooling water, hot water as well as other water medium.
- Auto dosing, auto water discharging and filling, auto water softener, inverter controlled pumps, auto cooling/heating metering by ultrasonic flow meter, and auto protection for A/C water off.

Applications

- Any water-cooled central air conditioning systems including electric and non-electric ones.
- Fields of clean water, hot water, fire fighting water, high-rise water supply, residence water supply, industrial water supply (special orders for specified filter, pump power & head).

Features

- Miraculous electricity saving

  Zero water resistance design enables 60%+ electricity saving compared with conventional water distribution systems. Inverter controlled water pumps reduce the operating electricity consumption to 30%~50% of the rated power.
- Complete bacteria killing

  Auto dosing device charges biocide to the cooling water system automatically to eradicate legionnaire's diseases.
- Quick installation

  Installation time is 10% of that needed for conventional projects, which saves a lot of time cost and labor cost for customers.
- Cost and space saving

  One-shot investment solves all problems: designing, purchasing, installation, commissioning, and 50% footprint reduction.
- Worry-free & carefree

  Whole system factory made and tested. Customers' management cost saved. All European/US safety certificates secured. Central Air conditioning industrialization materialized.

Technical Advantages

Case study

Compared with conventional machine room mode, BROAD packaged pumpset system reduces the rated power demand by 40-60%, and the operating electricity consumption by 60-75% (the electricity for pumpset only amounts to 2-5% of the rated cooling capacity.)

Examples on power consumption comparison

• BY50 type (pumpset for 582kW/165Rt chillers)

Power consuming parts	Conventional machine room mode power demand	Packaged pumpset power demand	Packaged pumpset operating power consumption
Cooling water pump	30 kW	7.5 kW	2～7.5 kW
Cooling tower fan	11 kW	11 kW	3～11 kW
Chilled/heating W pump	22 kW	7.5 kW	7.5 kW
Total electricity/ cooling capacity	63 kW 10.8%	26 kW 4.47%	17 kW (annual) 2.92%
Annual operating consumption	**190 MWh**	**52 MWh(power saving is 73%)**	

• BY300 type (pumpset for 3489kW/992Rt chillers)

Power consumption equipment	Conventional machine room type power demand	Packaged pumpset system power demand	Packaged pumpset system operating power consumption
Cooling capacity	180 kW	44 kW	11～44 kW
Cooling tower fan	37 kW	37 kW	6～37 kW
Chilled/heating W pump	110 kW	60 kW	30～60 kW
Total Electricity/ cooling capacity	327 kW 9.4%	141 kW 4.04%	100 kW (annual) 2.86%
Annual operating consumption	**1000 MWh**	**300 MWh (power saving is 70%)**	

• BY1000 type (pumpset for 11630kW/3307Rt chillers)

Power consumption equipment	Conventional machine room type power demand	Packaged pumpset system power demand	Packaged pumpset system operating power consumption
Cooling capacity	550 kW	180 kW	30～180 kW
Cooling tower fan	110 kW	110 kW	22～110 kW
Chilled/heating W pump	440 kW	180 kW	90～180 kW
Total Electricity/ cooling capacity	1100 kW 9.5%	470 kW 4.04%	250 kW (annual) 2.15%
Annual operating consumption	**3300 MWh**	**750 MWh (power saving is 77%)**	

Notes: 1. Calculation of annual operating power consumption is based upon cooling operation, 5 months per year and 20 hours per day.

2. Operating consumption is the result of using inverters and shifting between two pumps, while the power consumption of conventional pump system equals to the power demand.

Why electricity saving ?

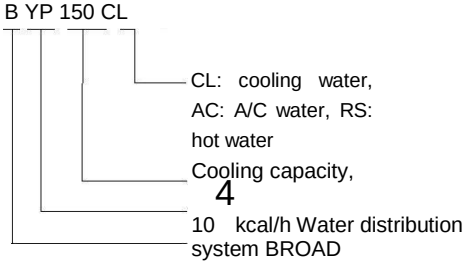
• Saving from design: 1. Many innovations reduce the resistance from filters, valves and piping to almost zero. 2. Specially designed pumps optimize head and flow rate to system design.

• Saving from operation: 1. BROAD leads the world in inverter control system design and operation. Standard designs incorporate inverter-controlled cooling water pump(s) and cooling tower fan(s) which are automatically adjusted according to load and ambient temperature. 2. Two pumps combined or separate operation by software analyzer. 3. Actual power consumption during operation is 30-60% of the rated design.

Specifications

No.	Items	Specifications
1	Transmission medium	Clean water (dreggy cooling water is permitted). Special order for other water medium
2	Medium temperature	0~95℃ (antifreeze to be added if ambient temperature is below 0℃)
3	Ambient temperature	-10 ~40℃
4	Working pressure	Rated: 0.8MPa, Max.: 2.4MPa (special order)
5	Protection grade	IP44
6	Power	380V, 50Hz (other power requests can be accommodated)
7	Auto water treatment	Automatic dosing of antisludge agent & biocide for cooling water
8	Softened water	Outlet water hardness: ≤ 1.5 mg $CaCO_3$/L

Nomenclature



Supply List

No.	Name	Unit	Qty	Description
1	A/C W. pump	pc	2	Special order for specified pump head and power
2	Cooling W. pump	pc	2	Special order for specified pump head and power
3	Hot W. pump	pc	2	N/A if without hot water function
4	Pipeline	set	1	Including flexible connectors, vibration isolator, valves
5	Water drainage motor valve	pc	1	Discharge the cooling W. automatically when water quality becomes Poor
6	Zero resistance filter header	pc	3	Two pieces if without hot water function
7	Zero resistance check valve header	pc	3	Two pieces if without hot water function (cooling/heating switch valve inside A/C W. check valve header)
8	A/C W. flow meter	pc	1	For precise metering chiller load and A/C W. flow rate. Can be ordered Separately
9	Hot W. flow meter	pc	1	For precise metering chiller load and hot W. flow rate. N/A if without hot water function
10	Cooling W. flow meter	pc	1	Verify chiller load and cooling water flow rate. Can be ordered separately
11	Water softener	set	1	Cooling water and A/C water make-up. It can be ordered separately
12	Auto water treatment system	set	1	Antisludge agent, corrosion inhibitor and biocide for cooling water
13	Control cabinet	pc	1	Including inverters and starters. It can be ordered separately
14	Inverter	pc	2	For 1# cooling water pump
15	PLC control cabinet	pc	1	N/A for BROAD IX and X generation chiller
16	PLC	pc	1	N/A for BROAD IX and X generation chiller
17	Touch screen	pc	1	N/A for BROAD IX and X generation chiller
18	Starter	pc	3	For A/C water pumps, 2# cooling water pump
19	Switch gear	pc	1	Main power
20	Circuit breaker	pc	6	5 pieces if without hot water function
21	A/C contactor	pc	0～18	per orders
22	Thermal relay	pc	0～5	per orders
23	Power meter	pc	1	/
24	Temperature sensor	pc	4	N/A for BROAD IX and X generation chiller
25	Pressure difference sensor	pc	1	Optional
26	Conductivity sensor	pc	1	/
27	Flow switch	pc	1	For non-BROAD chillers. Cut off the cooling water pump when A/C water is low or off

Certificates

CE Low voltage Directive

CE EMC

ETL

ISO14001

ISO9001

ETL

Contact Information

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Note: BROAD pursues a policy of continuous product perfection. Catalog information is subject to changes without notice.

BY162-08