Technical Solution

DPX-30021
AC400V-200kW - Automatic Load Bank

Catalog

AC400V-200kW Automatic Load Bank

1 Foreword

This solution introduces AC400V-200kW Automatic Load Bank and its accessories, including their function, performance, usage, structure, providing users with a high efficient and reliable choice to test generator.

All the pictures quoted in this agreement are for reference only.

2 Testing System

We do not supply testing cable, PC and printer if not specified.

3 Supply List

The following form presents the accessories provided when we make shipment.

Items	Quantity	Remark
AC400V-200kW Automatic Load Bank	1	
Power Cord	1	3 meters
RS485	1	10 meters
RS485/RS232/USB Converter	1	
Documents accompanied with shipment	Quantity	Remark
Operation Instruction	2	
Certification	1	
Warranty Card	1	12 months
Packing List	1	
Receiving Apron	1	
Data Managing Software U-disk	1	
Inspection Report	1	

4 Technical Parameter

Technical Parameter	
Rated Voltage & Frequency	400VAC; 3 phase 4 wire, 50/60Hz
Max Load Power	200kW at 400V
Load Steps	Resistive Load: 1, 2, 2, 5, 10, 10, 20, 50, 100kW
Power Factor	1
Load Tolerance (each step)	±5%
Load Tolerance (overall)	±3%
Display Meter	Multiple function meter
Fan Control Power	External power 400VAC 3 phase 4 wire 50Hz
Wire Connection	Load bank input——busbar (star coupling “Y”) Control power input——terminal block
Communication Interface	RS232/RS485
Insulation	F
Way of Working	Continuous Working
Cooling	Forced air, horizontal air intake and exhaust cooling, there will be louver at air outlet and inlet
Transportation	With lifting eyes and wheel castors
Color	Gray RAL7035
Dimensions	1500*1300*1070mm L×W×H
Weight	400kgs
Operating Environment Parameter	
Ambient Temperature	-20°C～+50°C
Using Place	Outdoor
Altitude	≤ 2500 meters
Relative Humidity	≤ 95%
Atmospheric Pressure	86～106kPa
Brands of Main Components	
Contactor	Schneider
Fuse	MIRO
PLC	Siemens
Alloy Resistor	Kaixiang
Data Processing Software	Kaixiang

5 Functions

1) 3- line LED multi-function meter can display real-time voltage and current of three phase and each phase, resistive power, power factor, apparent power, frequency and running time of generator set.
2) User can pre-set the power then press the master load button.
3) Control mode: user can choose local control or intelligent control (through PC with our data management software).
4) Control mode interlock: there is switch in control panel to choose control mode, other control mode is invalid if user choose one control mode.

6 Protection

1) Have emergency stop button.
2) In case of **over-load, over-heat, short circuit**, load bank will automatically remove load and give alarm.
3) Fan protection: Load bank could not load before power of fan is on.
4) Give alarm when any fan is abnormal or with insufficient air volume, etc.
5) Protection button: there are some protection buttons can be switched off when false alarm or for special requirements.

7 Data Processing Software

1) Automatic load: User can set several periods of power and duration and in turn of 0%→25%→50%→75%→100% or 110% then →75%→50%→25%→0%.etc to make automatic load testing.
2) Can make parallel testing for several units.
3) Data can be saved, could display real-time data and history data.
4) Charts and graphs can be exported in format of JPG while testing data exported in Excel and Word format, and all can be printed.


indicator light
Loading Test
Test Record
System Set
About Us
L1(V) 380.9
I1(A) 0.00
P(kW) 0.00
PF 0.000
L2(V) 380.2
I2(A) 0.00
Q(kvar) 0.00
F(Hz) 50.00
L3(V) 380.7
I3(A) 0.00
S(kVA) 0.00
STOP
00:00:00
[15:54:32] Start unload
[15:54:32] Set load power 0kW
[15:54:32] Unload Success
Save Data
Stop Fan
Power 0 kW PF 1.0
Load/Unload
Auto Load
Step unload
R (kW) 1 2 2 5 10 20 20 50 100 100
Voltage Graph
Current Graph
Power Graph
Frequency Graph
Power Factor Graph
L1
L2
L3
Voltage(V)
425
400
375
350
325
2022-07-13 15:50:00
2022-07-13 15:51:00
2022-07-13 15:52:00
2022-07-13 15:53:00
2022-07-13 15:54:00
2022-07-13 15:55:00


indicator light
Loading Test
Test Record
System Set
About Us
L1(V) 378.5
I1(A) 13.83
P(kW) 9.15
PF 1.000
L2(V) 378.3
I2(A) 14.07
Q(kvar) 0.00
F(Hz) 49.97
L3(V) 378.2
I3(A) 13.99
S(kVA) 9.15
STOP
00:00:35
[15:49:44] Load Success
[15:50:09] Set load power 10kW
[15:50:09] Load Success
Save Data
Stop Fan
Power 10.00 kW PF 1.0
Load/Unload
Auto Load
Step unload
R (kW) 1 2 2 5 10 20 20 50 100 100
Voltage Graph
Current Graph
Power Graph
Frequency Graph
Power Factor Graph
L1
L2
L3
Voltage(V)
425
400
375
350
325
2022-07-13 15:49:50
2022-07-13 15:50:00
2022-07-13 15:50:10

Record No	Time	L1(V)	L2(V)	L3(V)	I1(A)	I2(A)	I3(A)	P(kW)	Q(kvar)	S(kVA)	PF	F(hZ)
1	2022-07-13 15:54:11	376.7	376.2	376.9	13.81	13.99	13.94	9.08	0	9.08	1	50
2	2022-07-13 15:54:12	376.6	376.2	376.8	13.8	13.99	13.94	9.06	0	9.06	1	49.99
3	2022-07-13 15:54:13	376.3	376	376.7	13.8	13.98	13.94	9.06	0	9.06	1	49.99
4	2022-07-13 15:54:14	376.3	376	376.7	13.8	13.98	13.94	9.06	0	9.06	1	49.99
5	2022-07-13 15:54:15	376.2	375.8	376.5	13.8	13.98	13.94	9.06	0	9.06	1	49.98
6	2022-07-13 15:54:16	376.2	375.7	376.4	13.79	13.97	13.92	9.05	0	9.05	1	49.98
7	2022-07-13 15:54:17	376.2	375.9	376.5	13.79	13.97	13.93	9.06	0	9.06	1	49.98
8	2022-07-13 15:54:18	376.2	375.9	376.5	13.79	13.98	13.93	9.06	0	9.06	1	49.98
9	2022-07-13 15:54:19	376.2	375.9	376.4	13.79	13.97	13.93	9.06	0	9.06	1	49.97
10	2022-07-13 15:54:20	376.2	375.8	376.3	13.79	13.97	13.93	9.05	0	9.05	1	49.97
11	2022-07-13 15:54:21	376.3	375.9	376.4	13.79	13.98	13.92	9.06	0	9.06	1	49.97
12	2022-07-13 15:54:22	376.2	375.8	376.4	13.79	13.98	13.92	9.05	0	9.05	1	49.97
13	2022-07-13 15:54:23	376.3	375.9	376.4	13.79	13.98	13.92	9.06	0	9.06	1	49.96
14	2022-07-13 15:54:24	376.3	375.9	376.4	13.79	13.98	13.92	9.06	0	9.06	1	49.96
15	2022-07-13 15:54:25	376.3	375.7	376.4	13.8	13.98	13.92	9.05	0	9.05	1	49.96
16	2022-07-13 15:54:26	376.2	375.7	376.5	13.8	13.97	13.92	9.05	0	9.05	1	49.96

8 Pictures

Control panel

9 Resistor

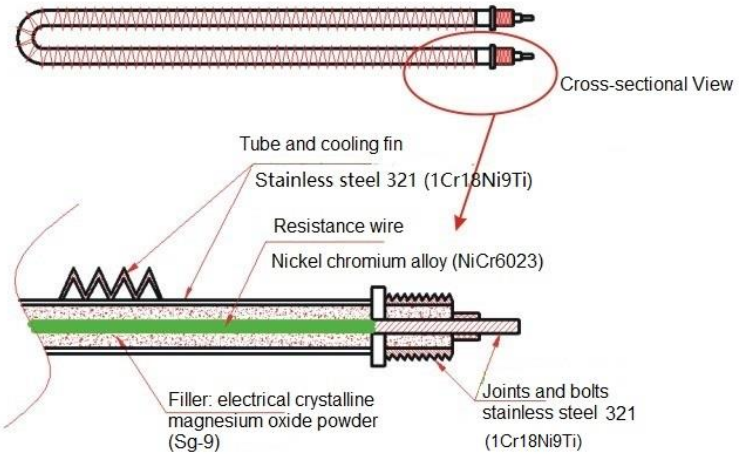
The core part of the load---the dry load module, can convert electrical energy into thermal energy, and perform continuous discharge tests on the equipment such as the generator set and power supply to be tested. Our company uses self-made alloy resistors to form load modules. In view of the characteristics of dry load safety which is easily affected by temperature, our company adopts strict quality control on temperature coefficient and heat dissipation

performance. The alloy resistors produced have small temperature drift, slow temperature rise and fast heat dissipation, the heat resistance is stronger when working at full load, and it can work stably for a long time. The specific technical solutions and goals are as follows:

1) Alloy resistor is Nickel chromium alloy (NiCr6023), anti-temperature (max working temperature reach up to 1300℃), steady electrical performance, low temperature drift ($5*10^{-5}$/℃), this technology is the most advanced in alloy resistor manufacturing.

2) The materials of resistor strictly use low extensibility and resistance oxidation Stainless Steel 321 (1Cr18Ni9Ti), filling material is exporting grade electrical crystallization magnesium oxide powder (Sg-9), performance standards JBY-TE4088-199, magnesite density 3.0g/cm^3±0.2, screws is anti-corrosion, anti-temperature Stainless Steel 321 (1Cr18Ni9Ti). With strict and clear material control, the mass-produced alloy resistor is with highly congruent performance.

3) Cooling fin Stainless Steel 321, height 7mm±2, thickness 0.4mm±0.2, winding interval no more than 3mm±0.2.



4) Each resistor withstand voltage is DC3000V or 1500V, 50Hz, 1 minute without puncture. Real voltage is 1/3 of withstand voltage, make sure the resistor in good working condition without puncture.

5) Cooling fin uniform temperature no more than 300℃, max 320℃, there is enough margin to make sure alloy resistor can be working continuously, resistor max temperature 1300℃.

6) When resistor temperature reach 300℃ to 400℃, temperature drift is also less than ±2%, it assure the resistance value no much changes in high

temperature working condition, thus loading steady power could be available in any temperature.

7) Whether in max and min temperature, load accuracy is no more than 3%

8) Air outlet temperature no more than 80℃ (within 1 meter)

10 After-sale Service

(1). Warranty period is one year.

(2). If required, technicians will be sent to help customer install, debug or repair the machine by the user's cost.

(3). Customer has the right of technical consulting service for free forever.