TEST REPORT
UL 508
Standard for Industrial Control Equipment

Job Number..... :	XK2601013005S
Test by (print+signature)..... :	Collin Zhou
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Date of issue..... :	December 29, 2025
Total number of pages..... :	20 pages
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Applicant's name..... :	**Zhejiang Sinou Environmental Protection Equipment Co., Ltd.**
Address..... :	NO.1 XinHai, 01 Province Road, HaiYan Industrial Park, ZheJiang
Manufacturer's name..... :	**Zhejiang Sinou Environmental Protection Equipment Co., Ltd.**
Address..... :	NO.1 XinHai, 01 Province Road, HaiYan Industrial Park, ZheJiang
Test specification:	
Standard..... :	UL 508, Ed.19, Edition Date: March 30, 2018, Re: October 28, 2024
Test procedure..... :	Type test
Non-standard test method.....	N/A
Test Report Form No..... :	UL508_2022
Test Report Form(s) Originator..... :	SiCT
Master TRF..... :	Dated 2022-05
Test item description..... :	Sand and gravel separator
Trade Mark..... :	SINOU
Model/Type reference..... :	SY-FG10, SY-FG(10-100) ,SY-FZ(10-100) ,SY-XG(10-100),SY-XD(10-100),SY-CHJ(10-100)
Ratings..... :	Input: 3PH AC380V 50Hz 14A 8000W

Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item.....:	December 23, 2025
Date (s) of performance of tests.....:	December 24, 2022 to December 28, 2025

General product information:

The product covered in this report is a Sand and gravel separator which is supplied from AC power supply

Relevant Technical consideration：

-Mass of equipment (kg): 35kg Max.

-Maximum ambient temperature: 25°C.

All the test was carried on the model SY-FG10 and complied with the requirement.

Copy of marking plate:

Sand and gravel separator **SINOU**

Model: SY-FG10

Input: 3PH AC380V 50Hz 14A 8000W

MMYY

Manufacturer:Zhejiang Sinou Environmental Protection Equipment Co., Ltd.

Made in China

Marking label

Notes:

- The above markings are the minimum requirements required by the safety standard as a reference marking label. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

- The date code “MMYY” denote the manufacturer date, for example, “0522”, the “05” denote the month of May, the “22” denote the year of 2025.

UL 508 Test Item

Test Required		Clause/ Section	Performance Test	Test Verdict	
Yes	N/A		Test Item Description	Pass	Fail
☒	☐	43	Temperature Test	☒	☐
☒	☐	44	Overvoltage and Undervoltage Test	☒	☐
☒	☐	45	Overload Test	☒	☐
☐	☒	46	Endurance Test	☐	☐
☐	☒	47	Endurance Test for Relays for Television Applications	☐	☐
☐	☒	48	Calibration Test	☐	☐
☒	☐	49	Dielectric Voltage-Withstand Test	☒	☐
☐	☒	49.2	Coils	☐	☐
☐	☒	49.3	Secondary circuits	☐	☐
☐	☒	50	Short Circuit Test – General	☐	☐
☐	☒	50.2	Enclosure	☐	☐
☐	☒	50.4	Group fusing	☐	☐
☐	☒	51	Standard Fault Current Circuits	☐	☐
☐	☒	51.1	Protective devices	☐	☐
☐	☒	51.2	Sample selection for overload relay	☐	☐
☐	☒	51.3	Parameters	☐	☐
☐	☒	52	High-Available Fault Current Circuits (Optional)	☐	☐
☐	☒	52.1	General	☐	☐
☐	☒	52.2	Sample selection	☐	☐
☐	☒	52.3	Procedure	☐	☐
☐	☒	52A	Group Installation (Optional) Terminals	☐	☐
☐	☒	52A.1	General	☐	☐
☐	☒	52A.2	Sample selection	☐	☐
☐	☒	52A.3	Group installation for standard fault circuit ratings	☐	☐
☐	☒	52A.4	Group installation for high capacity short circuit ratings	☐	☐
☐	☒	53	Standard and High Fault Acceptance Criteria	☐	☐
☐	☒	54	Calibration of Test Circuits	☐	☐
☐	☒	54.1	Circuit characteristics	☐	☐
☐	☒	54.2	Alternating-current circuits	☐	☐
☐	☒	54.3	Direct current circuits	☐	☐
☐	☒	54.4	Instrumentation for test currents above 10,000 amperes	☐	☐
☐	☒	54.5	Calibration characteristics for protective device	☐	☐
☐	☒	55	Transient-Voltage-Surge Suppression Test	☐	☐
☐	☒	56	Accelerated Aging Test	☐	☐
☐	☒	57	Breakdown of Components Test	☐	☐
☐	☒	57A	Strain Relief Test	☐	☐
☐	☒	57B	Push-Back Relief Test	☐	☐
☐	☒	58	Wire Flexing	☐	☐
☐	☒	59	Terminal Torque Test	☐	☐
☐	☒	60	Printed Wiring Board Abnormal Operation Test	☐	☐
☐	☒	61	Secondary Circuits Test	☐	☐
☐	☒	61.2	Limited voltage/current secondary test	☐	☐
☐	☒	61.3	Limited energy secondary test	☐	☐
☐	☒	61.4	Isolated power supply capacity test	☐	☐
☐	☒	61.5	Limited voltage secondary test	☐	☐
☐	☒	61.6	Limiting impedance test	☐	☐
☒	☐	61A	Leakage Current Test	☒	☐
☐	☒	61B	Protection Against Contact with Live Parts of Door Mounted Components Test	☐	☐
☐	☒	61C	Electronic Ballasts	☐	☐

Remark: Y – Test required; N – Test not required; P – Pass; F – Fail; N/A – Not applicable

Temperature Test

Method:

Industrial control equipment tested under the conditions described in 43.2 – 43.27 shall:
a) Not attain a temperature at any point so high as to constitute a risk of fire or adversely affect any materials employed in the equipment;
b) Not exceed the temperature limit for any individual component within the equipment; and
c) Not exceed the temperature rise above the test ambient at specific points greater than those specified in Tables 43.1 and 43.1A.

All values for temperature rises specified in Table 43.1 apply to equipment intended for use in a maximum consistent ambient temperature of 40°C (104°F).

For industrial control equipment rated below 40°C (104°F), the allowable temperature rise for this reduced ambient is to be calculated in accordance with the following formula:
TR = TT + [40°C (104°F) - TM]
in which:
TR is the Allowable Temperature Rise;
TT is the Maximum Temperature Rise allowed by Table 43.1; and
TM is the Reduced Ambient Temperature Marked on the equipment. See 62.1.1

To determine whether industrial control equipment complies with the temperature test requirements, it is to be operated:
a) Under normal conditions;
b) While carrying its rated current continuously (see 43.11 – 43.13);
c) At the voltage specified in Table 42.2 or as in 43.8 for coils;
Exception: Instead of the voltages specified, a low voltage source of supply is able to be used for temperature tests on parts other than voltage rated coils.
d) While mounted as intended in use (see 43.14 and 43.16);
e) At an ambient temperature as in 43.17; and
f) Until temperatures are constant (see 43.25).

TC No	Thermocouple Location	Max Temp. rise ºC	Temp. rise Limit, °C
1#	L contact R1-20A	45.3	65
2#	N contact R1- 20A	46.8	65
3#	L contact R2	49.7	65
4#	N contact R2	53.5	65
5#	L contact R3	57.4	65
6#	N contact R3	55.9	65
7#	Transformer winding	89.6	FR
8#	Enclosure (max.)	37.2	40
9#	Terminal block	58.3	FR
10#	issuing air, 1 inch (25.4 mm) above the enclosure	63.9	175
11#	Inaccessible parts of the enclosure	47.4	50
12#	Handle of circuit breaker	45.8	50
13#	Internal wire (4X5-15R.)	69.7	105
14#	Internal wire (6-20R.)	52.1	105
15#	Internal wire (5-15R.)	50.3	105
16	Ambient air	25.0	——

Remark: _____

Overall Comments:

This result (did ~~/ did not~~) comply with the requirement.

Overvoltage and Undervoltage Test

Method:
An assembly using one or more electromagnetic switching components shall withstand 110 percent of the rated voltage without damage to the operating coil that prevents full closure of the switched contacts
and shall operate at 80 percent of its rated voltage when for use on direct current or 85 percent of its rated
voltage when for use on alternating current.

The electromagnet is first to be energized under the conditions of the temperature test until constant coil temperatures are observed. The control circuit voltage is then to be reduced to the undervoltage test voltage explained in 44.1. The control circuit is then to be opened and closed several times to determine if full closure of the armature results.
The control circuit voltage is to be increased to the overvoltage test value explained in 45.1 until constant temperatures are observed using the thermocouple method. The voltage is then to be rapidly reduced to the temperature test voltage and the control circuit is to be immediately opened and closed several times to determine if full closure of the armature results.
An electromagnet intended for intermittent duty is to be tested to determine whether it complies with the requirements in 44.1 – 44.4 for the time rating specified. If resistance is inserted into the electromagnet circuit after closing of the contactor, this resistance is to be included in the circuit when the
coil is energized under temperature test conditions.
Results:

Overall Comments:

This result (did / ~~did not~~) comply with the requirement.

Overload Test

Method:

The wire used for this test is to have an ampacity of at least 125 percent of the maximum full-load motor-current in accordance with Table 45.2 or Table 45.3, as appropriate, or at least 100 percent for other loads.

The overload test or tests are to cover the conditions of maximum interrupted values of voltage, power, and current.

Tests on equipment having an alternating-current rating are to be conducted using a circuit having a frequency of 60 hertz.
Exception: A test circuit frequency in the range of 25 – 60 hertz may be considered to be representative.

Equipment is to close and open a test circuit having the current and power factor as described in Table 45.1. I

AC General Use 1.5 times device rated value 0.75 – 0.80

Results:

During the overload test described in this section, there ~~is/~~ is no electrical or mechanical breakdown of the equipment, no undue burning or pitting of the contacts and no welding of the contacts. The fuse specified in 45.13 shall not open.

Remark: _____

Overall Comments:

This result (did / ~~did not~~) comply with the requirement.

Endurance Test N/A

Method:

The conditions for the endurance test shall be the same as the conditions for the overload test as specified in Section 45, except as described in this section.
46.3 The equipment is to close and open a test circuit having the applicable current and power factor specified in Table 46.1. The number of test cycles and the test cycle times are to be as specified in Table
46.1. The closed circuit test voltage is to be 100 to 110 percent of the endurance test voltage specified in Table 42.2.
46.4 If tungsten-filament lamps are used as the load, the load is to be made up of the smallest possible number of 500-watt lamps, or of larger lamps if agreeable to those concerned; except that one or two lamps smaller than the 500-watt size may be used if necessary to make up the required load.

With regard to 46.4, the circuit is to be such that the peak value of the inrush current will be reached in 1/240 of a second after the circuit is closed.
46.6 A synthetic load may be used in place of tungsten-filament lamps if it is equivalent to a tungsten-filament lamp load on the test circuit in question, and the inrush current is at least ten times the normal current.
46.7 A synthetic load used in place of tungsten-filament lamps may consist of noninductive resistors if they are connected and controlled so that a portion of the resistance is shunted during the closing of the switch under test. A synthetic load may also consist of a noninductive resistor or resistors that are connected in parallel with a capacitor.
Results:

During the endurance test described in this section , there ~~is/~~ is no
1. electrical or mechanical breakdown of the device, welding, undue burning or pitting of the contacts.
2. The fuse specified in 45.13 ~~did/~~ did not open.
3. After the test, the device shall comply with the requirements of the Dielectric Voltage-Withstand Test, Section 49

Remark: _____

Overall Comments:

This result (did / did not) comply with the requirement.

Dielectric Voltage-Withstand Test

49.1 General

49.1.1 While at its maximum normal operating temperature, industrial control equipment shall withstand for 1 minute without breakdown the application of a 60 hertz essentially sinusoidal potential or a direct-current potential:
a) Between uninsulated live parts and the enclosure with the contacts open and closed;
b) Between terminals of opposite polarity with the contacts closed; and
c) Between uninsulated live parts of different circuits.

49.1.2 With respect to 49.1.1, the test potential shall be the following values for alternating-current, or 1.414 times the following values for direct-current:
a) 500 volts – For industrial control equipment rated not more than 50 volts;
b) 1000 volts plus twice the rated voltage of the equipment – For industrial control equipment rated 51 – 600 volts
c) 1000 volts – For industrial control equipment rated 51 – 250 volts and intended for use in a pollution degree 2 location; or
d) 2000 volts plus 2.25 times maximum rated voltage – For Industrial control equipment rated

601 – 1500 volts.

49.1.3 A transformer, a coil, an electronic part, or a similar device normally connected between lines of opposite polarity is to be disconnected from one side of the line during the test described in 49.1.1 (b).
49.1.4 If the equipment has a meter or meters, they are to be disconnected from the circuit for the dielectric voltage-withstand test described in 49.1.1 and 49.1.2. The meter or meters are to be tested separately for dielectric voltage withstand, with an applied potential of 1000 volts in the case of an ammeter, and 1000 volts plus twice rated voltage in the case of any other instrument having a potential circuit.
49.1.5 To determine whether industrial control equipment complies with the requirements in 49.1.1 and 49.1.4, it is to be tested by means of a 500 volt-ampere or larger capacity transformer, the output voltage of which is essentially sinusoidal and can be varied. The applied potential is to be increased from zero to the required value at a substantially uniform rate and as rapidly as is consistent with its value being correctly indicated by a voltmeter.
Exception: A 500 volt-ampere or larger capacity transformer need not be used if the transformer is provided with a voltmeter that directly measures the applied output potential.

Results:

Potential Measured Between (Volts)	Test voltage	Result
		There was no damage, arcing or dielectric breakdown during the application of the test potential.
uninsulated live parts and the enclosure with the contacts open and closed	1480	Pass
Transformer primary and secondary	1480	Pass
opposite polarity with the contacts closed	1480	Pass

Remark:

Overall Comments:

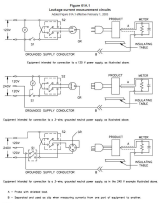
[√] There was no damage, arcing or dielectric breakdown during the application of the test potential.
This result (did / ~~did not~~) comply with the requirement.

Leakage Current Test

Method:

61A.1 The leakage current of cord-and-plug-connected equipment rated for a nominal 120-, 208-, or 240-V supply when tested in accordance with 61A.3 – 61A.8 shall not be more than 3.5 mA for grounded,
3-wire, portable and stationary equipment employing a standard attachment plug rated 20 A, or less.
Added 61A.1 effective February 1, 2003
61A.2 Leakage current refers to all currents, including capacitively coupled currents, that may be conveyed between exposed conductive surfaces of the equipment and ground or other exposed surfaces
of the equipment.
Added 61A.2 effective February 1, 2003
61A.3 All exposed conductive surfaces are to be tested for leakage currents. Leakage currents from these surfaces are to be measured to the grounded supply conductor individually as well as collectively if simultaneously accessible, and from one surface to another if simultaneously accessible. Parts are considered to be exposed surfaces unless they are guarded by an enclosure considered acceptable for protection against the risk of electric shock. Surfaces are considered to be simultaneously accessible if they can be readily contacted by one or both hands of a person at the same time. These measurements do not apply to terminals operating at voltages that are not considered to involve a risk of electric shock. If all accessible surfaces are bonded together and connected to the grounding conductor of the power-supply cord, the leakage current can be measured between the grounding conductor and the grounded supply conductor. If exposed dead metal parts of the equipment are connected to the neutral supply conductor, this connection is to be open during the test.

61A.4 If a conductive surface other than metal is used for the enclosure or part of the enclosure, the leakage current is to be measured using a metal foil with an area of 10 by 20 cm (4 by 8 inches) in contact
with the surface. If the surface is less than 10 by 20 cm (4 by 8 inches), the metal foil is to be the same size as the surface. The metal foil is not to remain in place long enough to affect the temperature of the equipment.
Added 61A.4 effective February 1, 2003
61A.5 The measurement circuit for leakage current for single phase equipment is to be as illustrated in Figure 61A.1. For 3-phase equipment, the leakage current shall be the sum of measurements from each phase to neutral. The measurement instrument is defined in (a) – (c). The meter that is actually used for a measurement need only indicate the same numerical value for a particular measurement as would the defined instrument; it need not have all the attributes of the defined instrument.
a) The meter is to have an input impedance of 1500 ohms resistive shunted by a capacitance of 0.15 microfarad.
b) The meter is to indicate 1.11 times the average of the full-wave rectified composite waveform of voltage across the resistor or current through the resistor.
c) Over a frequency range of 0 – 100 kHz, the measurement circuitry is to have a frequency response – ratio of indicated to actual value of current – that is equal to the ratio of the impedance of a 1500-ohm resistor shunted by a 0.15-microfarad capacitor to 1500 ohms. At an indication of 3.5 mA, the measurement is to have an error of not more than 5 percent at 60 Hz.
Added 61A.5 effective February 1, 2003
61A.6 Unless the meter is being used to measure leakage from one part of the equipment to another, the
meter is to be connected between the accessible parts and the grounded supply conductor.



61A.7 A sample of the equipment is to be tested for leakage current starting with the as-received condition – as-received being without prior energization except as may occur as part of the production-line
testing. The grounding conductor, if any, is to be open at the attachment plug. The supply voltage is to be
in accordance with Table 42.2. The test sequence, with reference to the measuring circuit, Figure 61A.1, is to be as follows:
a) With switch S1 open, the equipment is to be connected to the measuring circuit. Leakage current is to be measured using both positions of switch S2, and with the equipment switching devices in all their normal operating positions.
b) Switch S1 is then to be closed energizing the appliance and within 5 seconds the leakage current is to be measured using both positions of switch S2, and with the equipment switching devices in all their normal operating positions.
c) The leakage current is to be monitored until thermal stabilization. Both positions of switch S2 are to be used in determining this measurement. Thermal stabilization is considered to be obtained by operation as in the normal temperature test.
Added 61A.7 effective February 1, 2003
61A.8 Normally a sample will be carried through the complete leakage-current-test programs described in 61A.7, without interruption for other tests. With the concurrence of those concerned, the Leakage Current Tests may be interrupted for the purpose of conducting other nondestructive tests.

Between Supply circuit and	Supply Voltage (V)	Polarity	Maximum Leakage Current (mA)			
Non-current Carrying Conductive Parts			At Ambient Within 5 second		Hot Temperature stabilized	
			S1 Open	S1 Closed	S1 Open	S1 Closed
	380	Normal	0.05	0.06	0.08	0.08
	380	Reverse	0.04	0.05	0.09	0.07

Results:
Remark: _____

Overall Comments:

This result (did /~~did not~~) comply with the requirement.

Bond Impedance Test

Method:

4.16.1.1

Industrial control equipment shall comply with CAN/CSA-C22.2 No. 0.4, except that the test current for the impedance test shall be based on the ampere rating of the device.

4.16.1.2

Provision for grounding and bonding for industrial control equipment shall be provided in one of the following ways:
(a) terminations in enclosures in accordance with Clause 4.16.1.3; or
(b) suitable means to install approved grounding and bonding kits.

Results:

Test current	Duration	from	to	Voltage drop
40A	2 min	Ground lead on 380V cord	enclosure	0.2V

Remark:

Overall Comments:

This result (did /~~did not~~) comply with the requirement.

STRAIN RELIEF TEST N/A

Method:

The means of strain relief provided on a flexible cord shall withstand, without damage to the cord or conductors and without displacement, a direct pull of 156 N applied to the cord for 1 min. Supply connections within the equipment shall be disconnected from terminals or splices during the test when applicable.

Results:

- ✧ There (☐ **was /** ☐ **was no**) damage to the cord or conductor.
- ✧ Movement of the conductor of _____mm.

Remark: _____

Overall Comments:

This result (☐ **did /** ☐ **did not**) comply with the requirement.

Pictures

Figure 1(For model: SY-FG10)

********** End of report **********