



Reference No.: ET20048020-LVD

LVD TEST REPORT

On Behalf of

ZHEJIANG CHANGCHENG TRADING CO., LTD.

Isolating Switch

Model: YCH1-125 , YCH6-125 , YCH9-125



Prepared for : ZHEJIANG CHANGCHENG TRADING CO., LTD.
(South Tower) No.2-1 Baixiang Avenue, North
Baixiang Town, Yueqing,
Zhejiang Province, P.R.China)

Prepared by : Shenzhen Easy Test Electronic Products Co., Ltd.
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Tested By : 

Reviewed By :

**TEST REPORT****EN 60947-3:2009+A1:2012+A2:2015****Low-voltage switchgear and controlgear — Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units**

Report reference No	ET20048020-LVD
Testing laboratory	Shenzhen Easy Test Electronic Products Co., Ltd.
Address	A15, 8/F, West of 210 Building, Chegongmiao, Futian, Shenzhen, China
Testing location	As above
Applicant1	ZHEJIANG CHANGCHENG TRADING CO., LTD.
Address	(South Tower) No.2-1 Baixiang Avenue, North Baixiang Town, Yueqing, Zhejiang Province, P.R.China)
Manufacturer.....	ZHEJIANG CHANGCHENG TRADING CO., LTD.
Address	(South Tower) No.2-1 Baixiang Avenue, North Baixiang Town, Yueqing, Zhejiang Province, P.R.China)
Standard	EN 60947-3:2009+A1:2012+A2:2015
Test procedure	CE-LVD Scheme
Procedure deviation	N.A.
Non-standard test method	N.A.
Type of test object	Isolating Switch
Trademark	N.A.
Model/type reference	YCH1-125 , YCH6-125 , YCH9-125
Rating	See page 4.



Test item particulars	
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> stationary <input checked="" type="checkbox"/> fixed
Connection to the mains	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> direct plug-in <input type="checkbox"/> permanent connection <input checked="" type="checkbox"/> for building-in
Operating condition	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> short-time <input type="checkbox"/> intermittent
Over voltage category	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
Mains supply tolerance (%)	N/A
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Pollution degree	<input type="checkbox"/> PD 2 <input checked="" type="checkbox"/> PD 3
IP protection class	IP20

Possible test case verdicts:	
- test case does not apply to the test object.....	: N (N/A)
- test object does meet the requirement	: P (Pass)
- test object does not meet the requirement	: F (Fail)



Copy of marking plate:



Remark: These models may be YCH1-125 , YCH6-125 , YCH9-125 are identical in structure, schematic circuit and critical component except for different model number and different current. Unless otherwise specified, all tests were performed on model YCH6-125 (32A) to represent other models.



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
3	Classification		P
3.1	According to the utilization category		P
3.2	According to the method of operation of manually operated equipment		P
	– dependent manual operation (see 2.13);		N
	– independent manual operation (see 2.14);		N
	– semi-independent manual operation (see 2.15).		P
3.3	According to suitability for isolation		P
	– suitable for isolation		P
	– not suitable for isolation.		N
4	Characteristics of circuit-breakers		P
4.1	Summary of characteristics		P
	The characteristics of a circuit-breaker shall be stated in terms of the following, as applicable:		P
	– type of equipment (see 4.2);		P
	– rated and limiting values for the main circuit (see 4.3);		P
	– utilization category (see 4.4);	selectivity categories A	P
	– control circuits (see 4.5);		N
	– auxiliary circuits (see 4.6);		N
4.2	Type of circuit-breaker		P
4.2.1	Number of poles		P
4.2.2	Kind of current	Only a.c.	P
4.3	Rated and limiting values of the main circuit		P
4.3.1	Rated voltages		P
4.3.1.1	Rated operational voltage (Ue)	Ue:230/400V	P
4.3.1.2	Rated insulation voltage (Ui)	Ui: 500V	P
4.3.1.3	Rated impulse withstand voltage (Uimp)	Uimp:4KV	P
4.3.2	Currents		P
4.3.2.1	Conventional free-air thermal current (Ith)		N
4.3.2.2	Conventional enclosed thermal current (Ithe)		N
4.3.2.3	Rated current (In)	In: 32A	P
4.3.2.4	Current rating for four-pole circuit-breakers		P
4.3.3	Rated frequency	50/60Hz	P
4.3.4	Rated duty		P
4.3.4.1	Eight-hour duty		N
4.3.4.2	Uninterrupted duty		P
4.3.5	Short-circuit characteristics		P
4.3.5.1	Rated short-circuit making capacity (Icm)		P
	For a.c. the rated short-circuit making capacity of a circuit-breaker shall be not less than its rated ultimate short-circuit breaking capacity, multiplied by the factor n of Table 2		P
	For d.c., the rated short-circuit making capacity of a circuit-breaker shall be not less than its rated ultimate short-circuit breaking capacity.		N
4.3.5.2	Rated making capacity		P



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
4.3.5.3	Rated breaking capacity		P
4.3.6	Short-circuit characteristics		P
	4.3.6.1 Rated short-time withstand current (I _{cw})		P
4.3.6.2	Rated short-circuit making capacity (I _{cm})		P
4.3.6.4	Rated conditional short-circuit current		P
4.4	Utilization category	Selectivity categories A	P
4.5	Control circuits		N
4.5.1	Electrical control circuits		N
4.5.2	Air-supply control circuits		N
4.6	Auxiliary circuits		N
4.7	Relays and releases		N
4.7.1	Types		N
	1) Shunt release;		N
	2) Over-current release:		N
	a) instantaneous;		N
	b) definite time delay;		N
	c) inverse time delay:		N
	– independent of previous load;		N
	– dependent on previous load		N
	3) Undervoltage release		N
	4) Other releases.		N
4.7.2	Characteristics		N
	1) Shunt release and undervoltage release (for opening):		N
	– rated control circuit voltage (U _c);		N
	– kind of current;		N
	– rated frequency, if a.c.		N
	2) Over-current release:		N
	– rated current (I _n);		N
	– kind of current;		N
	– rated frequency, if a.c.;		N
	– current setting (or range of settings);		N
	– time setting (or range of settings).		N
4.7.3	Current setting of over-current releases		N
	– the operating value of overload releases other than those of the thermal type is independent of the ambient air temperature within the limits of –5 °C to +40 °C;		N
	– for releases of the thermal type, the values stated are for a reference temperature of +30 °C ± 2 °C. The manufacturer shall be prepared to state the influence of variations in the ambient air temperature (see 7.2.1.2.4		N
4.7.4	Tripping time setting of over-current releases		N
	1) Definite time-delay over-current releases		N
	2) Inverse time-delay over-current releases		N
4.8	Integral fuses		P
5	Product information		P



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
5.1	Nature of the information		N
5.2	Marking		P
5.2.1	Each equipment shall be marked in a durable and legible manner with the following data.		P
	a) Indication of the open and closed position. The open and closed position shall be respectively indicated by the graphical symbols 60417-EN-5007 and 60417- EN -5008 of EN 60417-2 (see 7.1.5.1 of E 60947-1).		N
	b) Suitability for isolation		N
	c) Additional marking for disconnectors		N
5.2.2	The following data shall also be marked on the equipment but need not be visible from the front when the equipment is mounted:		P
	• manufacturer's name or trade mark;	ZHEJIANG CHANGCHENG TRADING CO., LTD.	P
	• type designation or serial number;	See page 4.	P
	c) rated operational currents (or rated powers) at the rated operational voltage and utilization category (see 4.3.1, 4.3.2 and 4.4);	See page 4.	P
	d) value (or range) of the rated frequency or the indication "d.c."	50Hz	P
	e) for fuse-combination units, the fuse type and maximum rated current and the power loss of the fuse-link;		N
	f) EN 60947-3, if the manufacturer claims compliance with this standard;	See page 4.	P
	g) degree of protection of enclosed equipment (see annex C of EN 60947-1).	IP20	N
5.2.3	The following terminals shall be identified:		P
	a) line and load terminals unless the connection is immaterial (see 8.3.3.3.1);	line and load terminals used	P
	b) neutral pole terminal, if applicable, by the letter "N" (see 7.1.7.4 of EN 60947-1);		N
	c) protective earth terminal (see 7.1.9.3 of EN 60947-1).		N
5.2.4	The following data shall be made available in the manufacturer's published information:		P
	a) rated insulation voltage;		P
	b) rated impulse withstand voltage for equipment suitable for isolation or when determined;		P
	c) pollution degree, if different from 3;		N
	d) rated duty;		P
	e) rated short-time withstand current and duration, where applicable;		N
	f) rated short-circuit making capacity, where applicable;		P
	g) rated conditional short-circuit current, where		P



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
5.3	applicable. Instructions for installation, operation and maintenance		P
6	Normal service, mounting and transport conditions		P
7	Constructional and performance requirements		P
7.1	Constructional requirements		P
7.1.1	Materials		P
	The suitability of materials used shall be verified with respect to resistance to abnormal heat and fire by conducting tests:		P
	a) on the equipment; or		N
	b) on sections taken from the equipment; or		P
	c) on samples of identical material having a representative cross-section.		N
7.1.1.1	Resistance to abnormal heat and fire		P
	Parts of insulating material necessary to retain current-carrying parts in position shall conform to the glow-wire tests of 8.2.1.1.1 of EN 60947-1 at a test temperature of 960 °C.		P
	When tests are conducted on material manufacturers samples according to 7.1.1c), they shall be made according to the tests for flammability and hot wire corresponding to a glow-wire test of 960 °C as specified in 8.2.1.1.2, and annex M of EN 60947-1.		P
7.1.3	Clearances and creepage distances	Cl> 3mm, Cr>6.3mm (Limit: Cl=3mm, Cr=6.3mm)	P
7.1.4	Actuator		P
7.1.6	Additional requirements for equipment suitable for isolation		P
7.1.6.1	Additional constructional requirements for equipment suitable for isolation		P
7.1.6.2	Supplementary requirements for equipment with provision for electrical interlocking with contactors or circuit-breakers		N
7.1.6.3	Supplementary requirements for equipment provided with means for padlocking the open position		N
7.1.8	Additional requirements for equipment provided with a neutral pole		N
7.1.11	Degrees of protection of enclosed equipment	IP20	N
7.2	Performance requirements		P
7.2.1	Operating conditions	Capacity is not exceeding 10 kA.	N
7.2.2	Temperature rise		P
7.2.3	Dielectric properties		P



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
7.2.3.1	Impulse withstand voltage		P
7.2.3.2	Power-frequency withstand voltage of the main, auxiliary and control circuits		P
7.2.4	Ability to make and break under no load, normal load and overload conditions		P
7.2.4.1	Making and breaking capacities		P
7.2.4.2	Operational performance		P
	Tests concerning the verification of the operational performance of an equipment are intended to verify that the equipment is capable of making and breaking without failure, the currents flowing in its main circuit for the intended use.		P
7.2.4.3	Mechanical durability		P
7.2.4.4	Electrical durability		P
7.2.5	Ability to make, break or withstand short-circuit currents		P
7.2.7	Additional requirements for circuit-breakers suitable for isolation		P
7.2.9	Overload requirements for equipment incorporating fuses		N
7.3	Electromagnetic compatibility (EMC)		N

8	Tests		P
8.1	Kind of tests		P
8.1.1	The tests to verify the characteristics of circuit-breakers		P
8.1.2	Type tests	Type tests	P
8.1.3	Routine tests		N
8.1.3.1	General		N
8.1.3.2	Mechanical operation test		N
8.1.3.3	Dielectric test		N
8.1.4	Sampling tests		P
8.1.5	Special tests		N
8.2	Type tests for constructional requirements		P
8.2.4	Mechanical properties of terminals		P
8.2.5	Verification of the strength of actuator mechanism and position indicating device		P
8.2.5.1	Condition of equipment for tests		P
8.2.5.2	Method of test		P
8.2.5.2.1	Dependent and independent manual operation		P
8.2.5.2.2	Dependent power operation		P
8.2.5.2.3	Independent power operation		N
8.2.5.2.3	Independent power operation		P
8.3	Type tests for performance		P
8.3.1	Test sequences		P
8.3.2	General test conditions		P
8.3.2.1	General requirements		P
	Subclause 8.3.2.1 of EN 60947-1 applies to all		P



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
	type tests as applicable. The equipment at the start of any test sequence shall be in new and clean condition.		
	The force applied for any opening operation shall not be greater than the test force determined in 8.2.5.2 and shall be applied in the same manner without shock.		P
	Where doubt exists as to the correct opening operation, no more than three attempts to operate the equipment to the open position are allowed.		P
	In order to reduce multiple testing for the same fundamental design of equipment, the following test requirements may be used.		P
8.3.2.1.1	Simplified test for equipment having the same fundamental design		P
	When submitting simultaneously a range of switches, disconnectors, switch-disconnectors or fuse combination units of the same fundamental design, the following variations are permitted provided the equipment complies in all other respects.		P
8.3.2.1.2	Requirements for equipment having the same fundamental design		P
	a) the material, finish and dimensions of the current-carrying parts are identical, except for variation in design of terminals and means of fuse attachment;		P
	b) the contact size, material, configuration and method of attachment are identical;		P
	c) the operating mechanism is of the same fundamental design, materials and physical characteristics are identical;		P
	d) the closing and opening speeds of contacts are substantially the same;		P
	e) moulding and insulating materials are identical;		P
	f) method, materials and construction of any arc extinction device are identical.		P
	g) utilization category and operational voltage;		P
	h) application for 50 Hz or 60 Hz;	50 Hz	P
	i) three or four pole equipment (switched or non-switched neutral), provided the requirements of 7.1.8 are applicable;		N
	j) design of terminal provided that clearances and creepage distance are not reduced (see 7.1.3, 8.2.4 and 8.3.3.2 of this standard and 8.3.3.1 of EN 60947-1);		P
	k) different types of actuators, either additional or integral, provided the requirements for		N



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
	strength of actuator are verified (see 8.2.5) on each type of actuator, one of which during test sequence I;		
	l) fuse-base contacts of switch-fuses, disconnecter-fuses and switch-disconnector-fuse with different types of fuse-links (fuse-link removed only under no-load conditions).		N
8.3.2.1.3	Simplified test procedure		P
8.3.2.2	Test quantities		P
8.3.2.3	Evaluation of test results		P
8.3.2.4	Test report		P
8.3.3	Test sequence I: General performance characteristics		P
8.3.3.1	Temperature-rise		P
8.3.3.2	Test of dielectric properties		P
8.3.3.3	Making and breaking capacities		P
8.3.3.3.1	Test values and conditions		P
8.3.3.3.2	Test circuit		P
8.3.3.3.3	Transient recovery voltage		P
8.3.3.3.5	Behaviour of equipment during making and breaking capacity tests		P
8.3.3.3.6	Condition of equipment after the making and breaking capacity tests		P
8.3.3.4	Dielectric verification	See appended table.	P
8.3.3.5	Leakage current	See appended table.	P
8.3.3.6	Temperature-rise verification	See appended table.	P
8.3.3.7	Strength of actuator mechanism		P
8.3.4	Test sequence II: Operational performance capability		N
8.3.4.1	Operational performance test		N
8.3.4.1.1	Test values and conditions		N
8.3.4.1.2	Test circuit		N
8.3.4.1.3	Transient recovery voltage		N
8.3.4.1.4	Switching overvoltages		N
8.3.4.1.5	Behaviour of the equipment during the operational performance test		N
8.3.4.1.6	Condition of the equipment after the operational performance test		N
8.3.4.2	Dielectric verification		N
8.3.4.3	Leakage current		N
8.3.4.4	Temperature-rise verification		N
8.3.5	Test sequence III: Short-circuit performance capability		N
8.3.5.1	Short-time withstand current test		N
8.3.5.1.1	Test values and conditions		N
8.3.5.1.2	Test circuit		N
8.3.5.1.3	Test circuit calibration		N
8.3.5.1.4	Test procedure		N
8.3.5.1.5	Behaviour of the equipment during the test		N



EN 60947-3			
Clause	Requirement – Test	Result - Remark	Verdict
8.3.5.1.6	Conditions of the equipment after the test		N
8.3.5.2	Short-circuit making capacity test		N
8.3.5.2.1	Test values and conditions		N
8.3.5.2.2	Test circuit		N
8.3.5.2.3	Test circuit calibration		N
8.3.5.2.4	Test procedure		N
8.3.5.2.5	Behaviour of the equipment during the test		N
8.3.5.2.6	Condition of the equipment after the test		N
8.3.5.3	Dielectric verification		N
8.3.5.4	Leakage current		N
8.3.5.5	Temperature-rise verification		N
8.3.6	Test sequence IV: Conditional short-circuit current		N
8.3.6.1	Circuit-breaker protected short-circuit withstand		N
8.3.6.2	Fuse protected short-circuit withstand		N
8.3.6.2.1	Test values and conditions		N
8.3.6.2.2	Test circuit		N
8.3.6.2.3	Test circuit calibration		N
8.3.6.2.4	Test procedure		N
8.3.6.2.5	Behaviour of the equipment during the test		N
8.3.6.2.6	Condition of the equipment after the test		N
8.3.6.3	Dielectric verification		N
8.3.6.4	Leakage current		N
8.3.6.5	Temperature-rise verification		N
8.3.7	Test sequence V: Overload performance capability		N
8.3.7.1	Overload test		N
8.3.7.2	Dielectric verification		N
8.3.7.3	Leakage current		N
8.3.7.4	Temperature-rise verification		N
8.4	Electromagnetic compatibility tests		N
8.4.1	Immunity		N
8.4.1.1	Equipment not incorporating electronic circuits		N
8.4.1.2	Equipment incorporating electronic circuits		N
8.4.2	Emission		N
8.4.2.1	Equipment not incorporating electronic circuits		N
8.4.2.2	Equipment incorporating electronic circuits		N
8.5	Special tests		N
8.5.1	Mechanical durability		N
8.5.2	Electrical durability		N

Annex A	Equipment for direct switching of a single motor		N
A.1	Rated duty		N
A.1.1	Intermittent periodic duty or intermittent duty		N
A.1.1.1	Classes of intermittent duty		N
A.1.2	Temporary duty		N
A.2	Making and breaking capacities		N
A.3	Utilization category		N
A.4	Operational performance		N



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Clause	Requirement – Test	Result - Remark	Verdict
A.5	Mechanical durability		N
A.6	Electrical durability		N
A.7	Verification of making and breaking capacities		N
A.8	Operational performance test		N
A.9	Special tests		N
A.9.1	Mechanical durability test		N
A.9.1.1	Condition of the equipment for tests		N
A.9.1.2	Operating conditions		N
A.9.1.3	Test procedure		N
A.9.1.4	Results to be obtained		N
A.9.2	Electrical durability test		N
Annex B	Items subject to agreement between manufacturer and user		N
Annex C	Single pole operated three pole switches		N
C.1	General		N
C.2	Tests		N
C.3	Test set-up and sequence		N
C.3.2	Fuse protected short-circuit test (8.3.6.2)		N
C.4	Condition of equipment after tests		N
C.5	Instructions for use		N



8.3.3.4 Table: dielectric withstand tests		P
Test voltage applied between	Test voltage (V)	Breakdown (Yes/No)
each pair of the terminals which are electrically connected together when the circuit-breaker is in the closed position	2500ac	No
all poles connected together and the frame with metal foil	2500ac	No
Remark: A voltage of substantially sine-wave form, having a frequency of 50 Hz are applied for 5s.		

8.3.3.5 TABLE: leakage current measurements at operating temperature		P
Test voltage applied between:	Test Current (mA)	Allowed Current (mA)
all poles and the metal enclosure	0.05	0.5
Remark:		

8.3.3.6 Table: temperature- rise test		P
Test Condition.....	AC230V, 50Hz	---
Ambient temperature T1(°C)	24.7°C	---
Ambient temperature T2(°C)	24.8°C	---
Temperature of part/at:	Test(K)	Required Tmax(K)
Terminal	43.2	60
Switch	10.3	35
Plastic Enclosure	12.7	50
Supplementary information:		



APPEDIX A - EUT PHOTOS

A.1 EUT PHOTO-FRONT VIEW OF UNIT



A.2 EUT PHOTO-SIDE VIEW OF UNIT

