



中国认可
国际互认
检测
TESTING
CNAS L2162

TEST REPORT
IEC 60947-2

Low-voltage switchgear and controlgear—

Part 2: Circuit - breakers

Report Reference No.: Y230331E

Tested by (name + signature)..... :	Lechen Hu (胡乐晨)	
Approved by (name + signature)..... :	Xiaomu Ye (叶小木)	
Date of issue: Apr. 14, 2023		
Standard	Clause 8.3.5.3 (Test of rated ultimate short-circuit breaking capacity Icu) of IEC 60947-2:2016+A1:2019	
Test conclusion	Refer to the content of the report.	
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Applicant's Name	Changcheng Electrical Group Zhejiang Technology Co., Ltd.	
Address	DianHou Village, Liushi Town, Yueqing City, Zhejiang, China	
Test item description		
Trademark	CNC	
Manufacturer	Changcheng Electrical Group Zhejiang Technology Co., Ltd.	
Model and/or type reference	YCB6H-63	

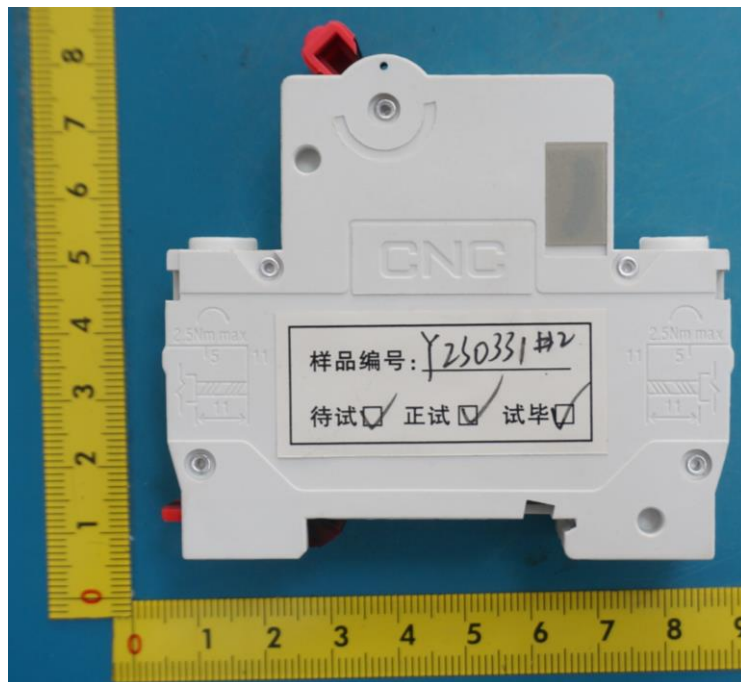
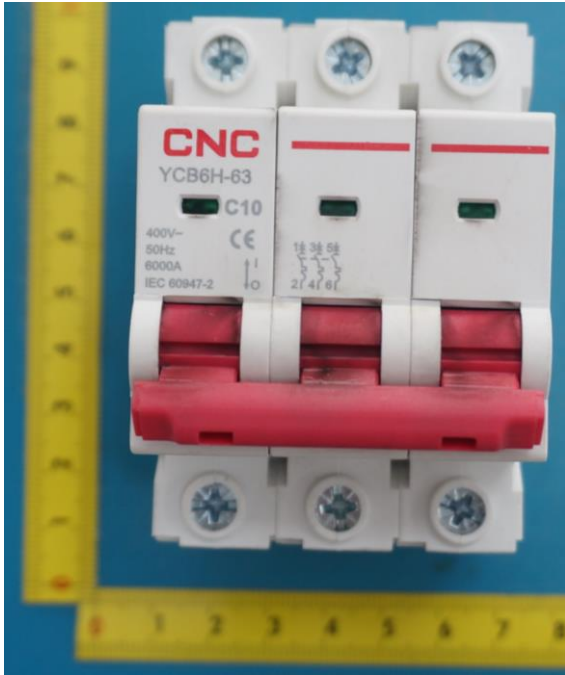
General remarks

This report is not valid without official seal and signatures.

The test results presented in this report relate only to the object tested.

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Photos:



Particulars: test item vs. test requirements	
3. Classification	
3.1. Utilization category: (A or B)..... :	A
3.2. Interruption medium: (air, vacuum, gas Break)..... :	Air
3.3. Design: (open construction, moulded case)..... :	moulded case
3.4. Method of controlling the operation mechanism: (dependent manual, independent manual, dependent power, independent power) :	independent manual
3.5. Suitability for insulation: (suitable, not -suitable).. :	suitable
3.6. Provision for maintenance: (maintainable, non maintainable)..... :	non maintainable
3.7. Method of installation: (fixed, plug in, withdrawable .. :	fixed
3.8. Degree of protection: (IP code)..... :	IP20
4.8. Integral fuses (integrally fused circuit-breakers) Type and characteristics of SCPD..... :	N/A
4.9. Switching overvoltages: (when U_{imp} . is declared)..... :	N/A
7.3 Electromagnetic compatibility (EMC) Environment A or B..... :	N/A
Circuit-breaker for use on phase-earthed systems :	N/A
Circuit-breaker for use in IT systems..... :	suitable
Rated and limiting values, main circuit :	
- rated operational voltage: U_e (V)..... :	230V/400V~(1P);400V~(3P)
- rated insulation voltage: U_i (V)..... :	N/A
- rated impulse withstand voltage: U_{imp} (kV)..... :	N/A
- rated operational current: I_e (A)..... :	10A
- kind of current :	AC
- conventional free air thermal current: I_{th} (A)..... :	N/A
- conventional enclosed thermal current: I_{the} (A)..... :	N/A
- current rating for four-pole circuit-breakers: (A)..... :	N/A
- number of poles :	1P/3P
- rated frequency: (Hz) :	50/60Hz
- integral fuses (rated values) :	N/A
Rated duty :	
- eight-hour duty..... :	N/A
- uninterrupted duty: I_u (A)..... :	N/A
Short-circuit characteristic :	
rated short-time making capacity: I_{cm} (kA) :	N/A
rated ultimate short-circuit breaking capacity: I_{cu} (kA).. :	6,0kA
rated service short-circuit breaking capacity: I_{cs} (kA) :	N/A

rated short-time withstand current: I_{cw} (kA/s)	N/A
Control circuits :	
Electrical control circuits :	
- kind of current: (AC, DC).....	N/A
- rated frequency: (Hz).....	N/A
- rated control circuit voltage: U_c (nature, frequency, V) ...	N/A
- rated control supply voltage: U_s (nature, frequency V) ...	N/A
Air supply control circuits: (pneumatic or electro-pneumatic) :	
- rated pressure and its limit	N/A
- volumes of air, at atmospheric pressure, required for each closing and each opening operation	N/A
Auxiliary circuits :	
Rated and limiting values, auxiliary circuits.....	
- rated operational voltage U_e (V)	N/A
- rated insulation voltage: U_i (V)	N/A
- rated operational current: I_e (A)	N/A
- kind of current.....	N/A
- rated frequency: (Hz).....	N/A
- number of circuits	N/A
- number and kind of contact elements.....	N/A
- rated uninterrupted current: I_u (A).....	N/A
- utilization category: (AC, DC, current and voltage).....	N/A
Short-circuit characteristic :	
- Rated conditional short-circuit current (kA)	N/A
- Co-ordination of short-circuit protective devices.....	N/A
- kind of protective device.....	N/A

Releases :	
1) shunt release	N/A
2) Over-current release	N/A
a) instantaneous	N/A
b) definite time delay.....	N/A
c) inverse time delay.....	N/A
- independent of previous load	N/A
- dependent on previous load; (for example thermal type release)	N/A
3) Undervoltage release (for opening)	N/A
4) Other releases	N/A
Characteristics :	
1) Shunt release and undervoltage release (for opening) ... :	
- rated control circuit voltage: U_c (nature, frequency, V) ... :	N/A
- kind of current.....	N/A
- rated frequency: (if AC)	N/A
2) Over-current release	
- rated current	N/A
- kind of current.....	N/A
- rated frequency: (if AC)	N/A
- current setting (or range of settings)	N/A
- time settings (or range of settings)	N/A

Test item particulars	
Classification of installation and use	Installed by rail
Supply Connection	N/A
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	Apr. 12, 2023
Date (s) of performance of tests	Apr. 13, 2023
General product information:	
ABNT NBR 60947-2:2013 has been also taken into consideration	

IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	(3P/10A)	#1	
8.3.5.3	Test of rated ultimate short-circuit breaking capacity		
	The test sequence of operations is O – t – CO		
	For circuit-breaker fitted with adjustable releases, test shall be made with the current and time settings at maximum.		N/A
	closing mechanism energized with 85% at the rated U_c : (V)		N/A
	The circuit-breaker is mounted complete on its own support or an equivalent support.		P
	Test made in free air:		P
	Distances of the metallic screen's: (all sides)	50mm	P
	The characteristics of the metallic screen:		-
	- woven wire mesh		N/A
	- perforated metal		P
	- expanded metal		N/A
	- ratio hole area/total area: 0,45-0,65	0,5	P
	- size of hole: <math><30\text{mm}^2</math>	25mm ²	P
	- finish: bare or conductive plating	bare	P
	Test made in specified individual enclosure: Details of these tests, including the dimensions of the enclosure:		P
	Fuse "F": copper wire: diameter 0,8 mm, 50 mm long	0,8mm / 50mm	P
	Circuit is earthed at: (load-star- or supply-star point)	supply-star point	P
	Conductor cross-sectional area (mm ²) :	1,5mm ²	P
	If terminals unmarked: line connected at: (underside/upside)	upside	P
	Test sequence of operation: O – t – CO	O – t – CO	P
	- test voltage $U/U_e = 1,05$ (V) L1: L2: L3:	432V	P
	- r.m.s. test current AC/DC: (A) L1: L2: L3:	6227A	P
	power factor/time constant :	0,66	P
	- Factor "n"	1,53	P
	- peak test current (A) :	9598A	P

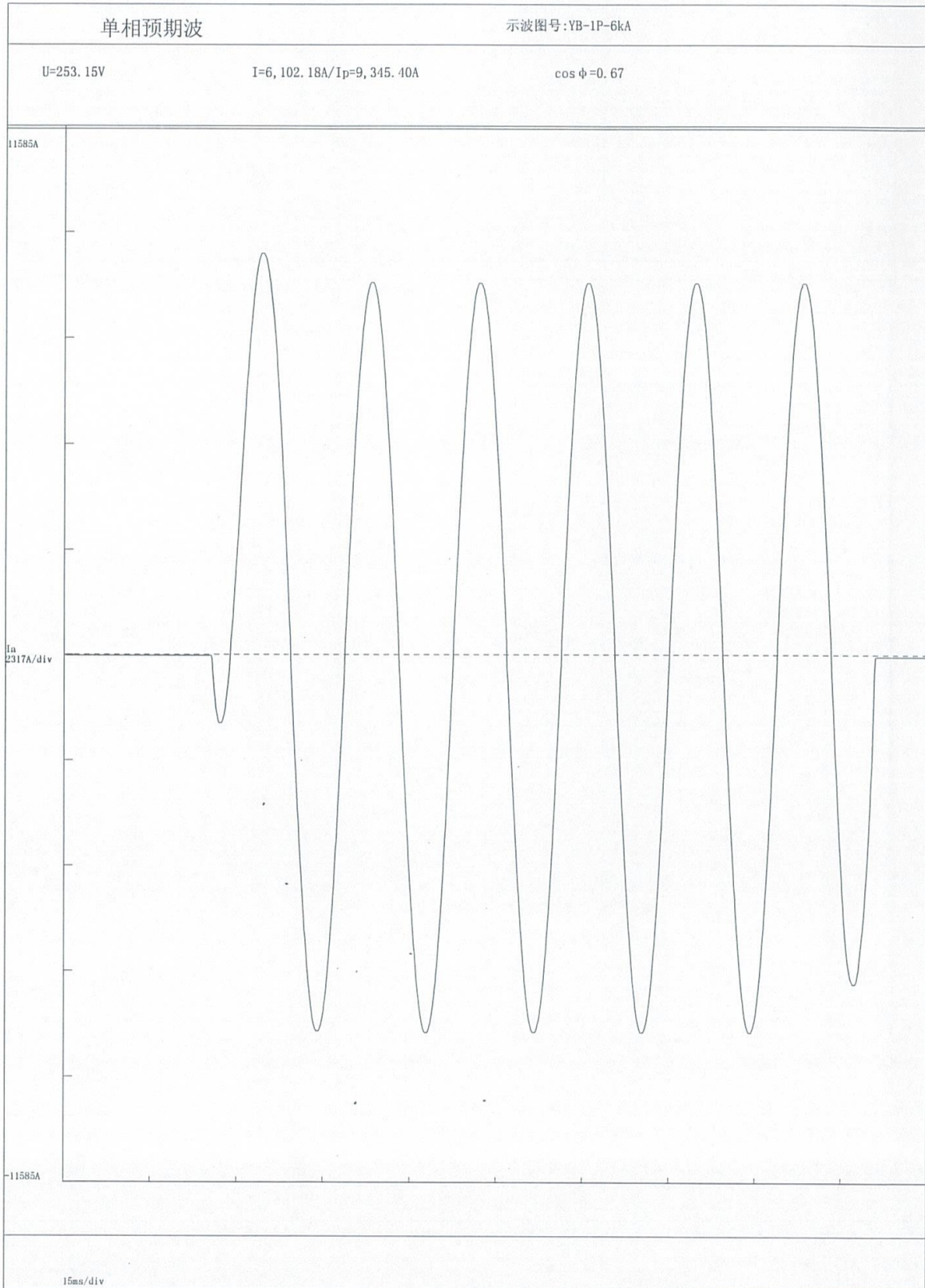
IEC 60947-2			
	- max. let-through current: (kA _{peak}) L1: L2: L3:	4,35kA	P
	- Joule integral I ² dt (kA ² s) L1: L2: L3:	93,4kA ² s	P
	Pause, t: (min)	3min	P
	Melting of the fusible element	Not melt	P
	Holes in the PE-sheet for test sequence "O"	No holes	P
	Cracks observed	No cracks	P

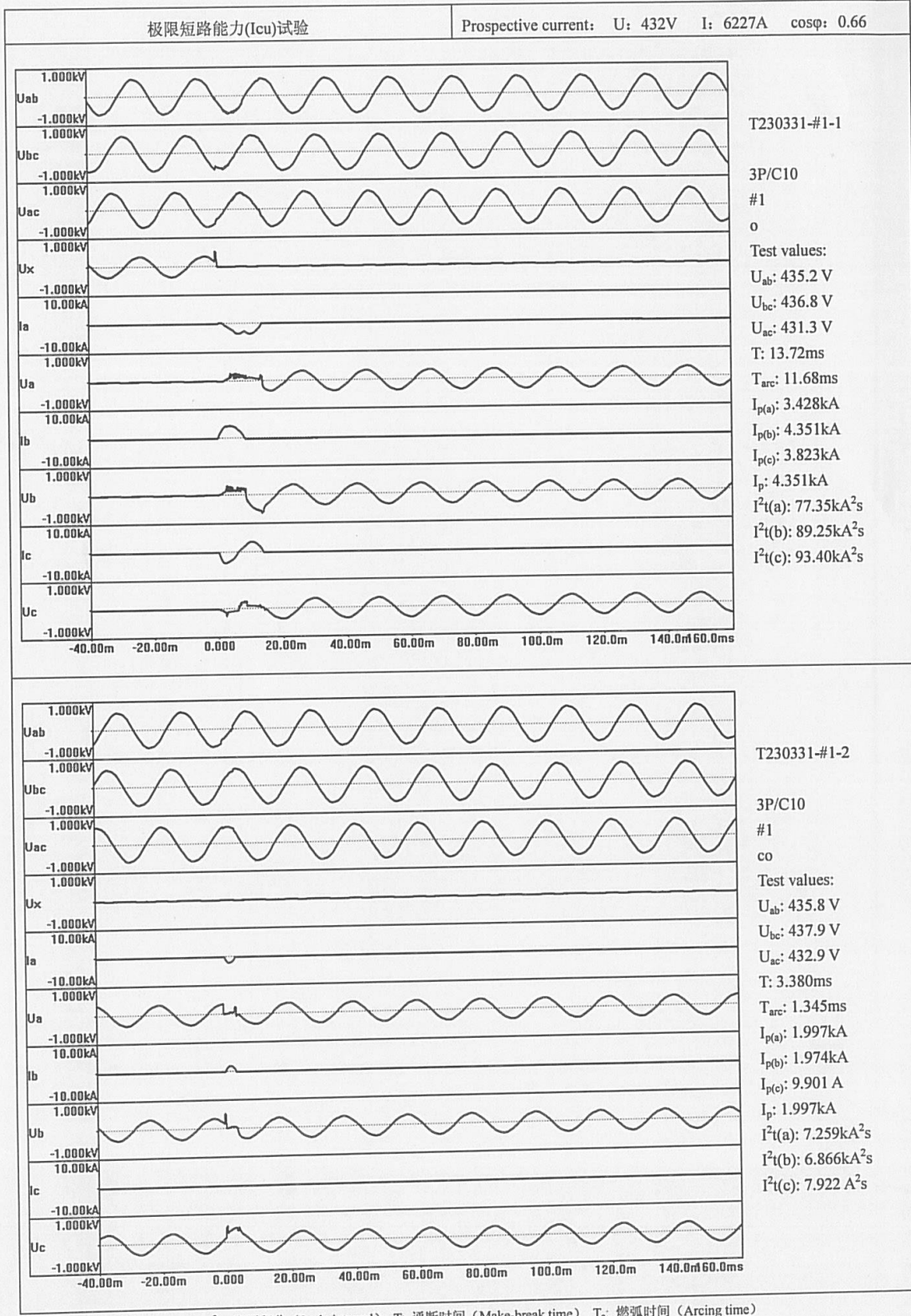
IEC 60947-2			
Clause	Requirement + Test	Result - Remark	Verdict
	(1P/10A)	#2	
8.3.5.3	Test of rated ultimate short-circuit breaking capacity		
	The test sequence of operations is O – t – CO		
	For circuit-breaker fitted with adjustable releases, test shall be made with the current and time settings at maximum.		N/A
	closing mechanism energized with 85% at the rated U_c : (V)		N/A
	The circuit-breaker is mounted complete on its own support or an equivalent support.		P
	Test made in free air:		P
	Distances of the metallic screen's: (all sides)	50mm	P
	The characteristics of the metallic screen:		-
	- woven wire mesh		N/A
	- perforated metal		P
	- expanded metal		N/A
	- ratio hole area/total area: 0,45-0,65	0,5	P
	- size of hole: <math><30\text{mm}^2</math>	25mm ²	P
	- finish: bare or conductive plating	bare	P
	Test made in specified individual enclosure: Details of these tests, including the dimensions of the enclosure:		P
	Fuse "F": copper wire: diameter 0,8 mm, 50 mm long	0,8mm / 50mm	P
	Circuit is earthed at: (load-star- or supply-star point)	supply-star point	P
	Conductor cross-sectional area (mm ²) :	1,5mm ²	P
	If terminals unmarked: line connected at: (underside/upside)	upside	P
	Test sequence of operation: O – t – CO	O – t – CO	P
	- test voltage $U/U_e = 1,05$ (V) L1: L2: L3:	253V	P
	- r.m.s. test current AC/DC: (A) L1: L2: L3:	6102A	P
	power factor/time constant :	0,67	P
	- Factor "n"	1,53	P
	- peak test current (A) :	9345A	P

IEC 60947-2			
	- max. let-through current: (kA _{peak}) L1: L2: L3:	4,52kA	P
	- Joule integral I ² dt (kA ² s) L1: L2: L3:	82,5kA ² s	P
	Pause, t: (min)	3min	P
	Melting of the fusible element	Not melt	P
	Holes in the PE-sheet for test sequence "O"	No holes	P
	Cracks observed	No cracks	P

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三相预期波	YB-3P-6kA
1.000kV	





I_p: 电流峰值 (Peak current) I²t: 焦耳积分 (Joule integral) T: 通断时间 (Make-break time) T_a: 燃弧时间 (Arcing time)

