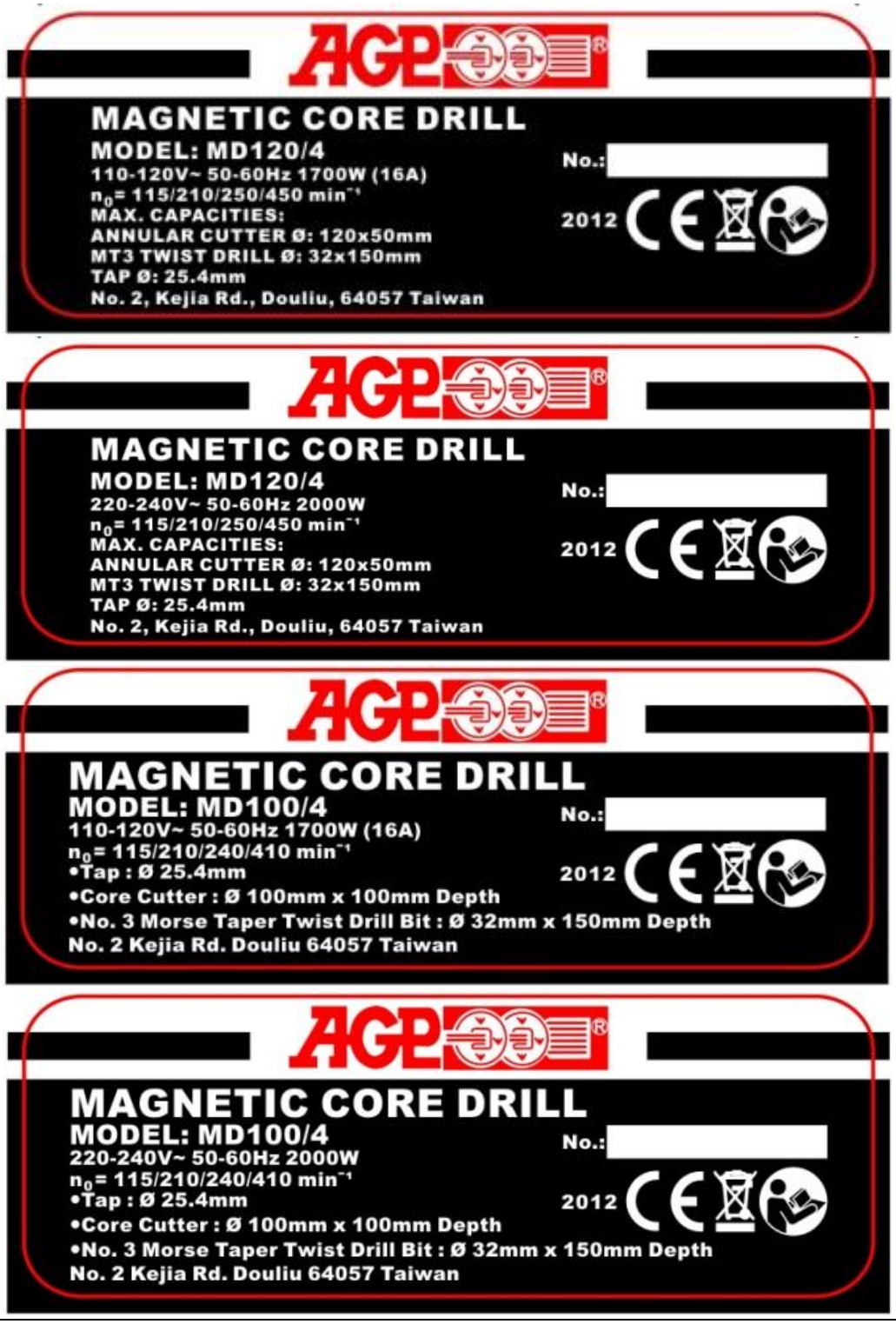
TEST REPORT
IEC 61029-1
Transportable motor-operated electric tools
Part 1: General requirements

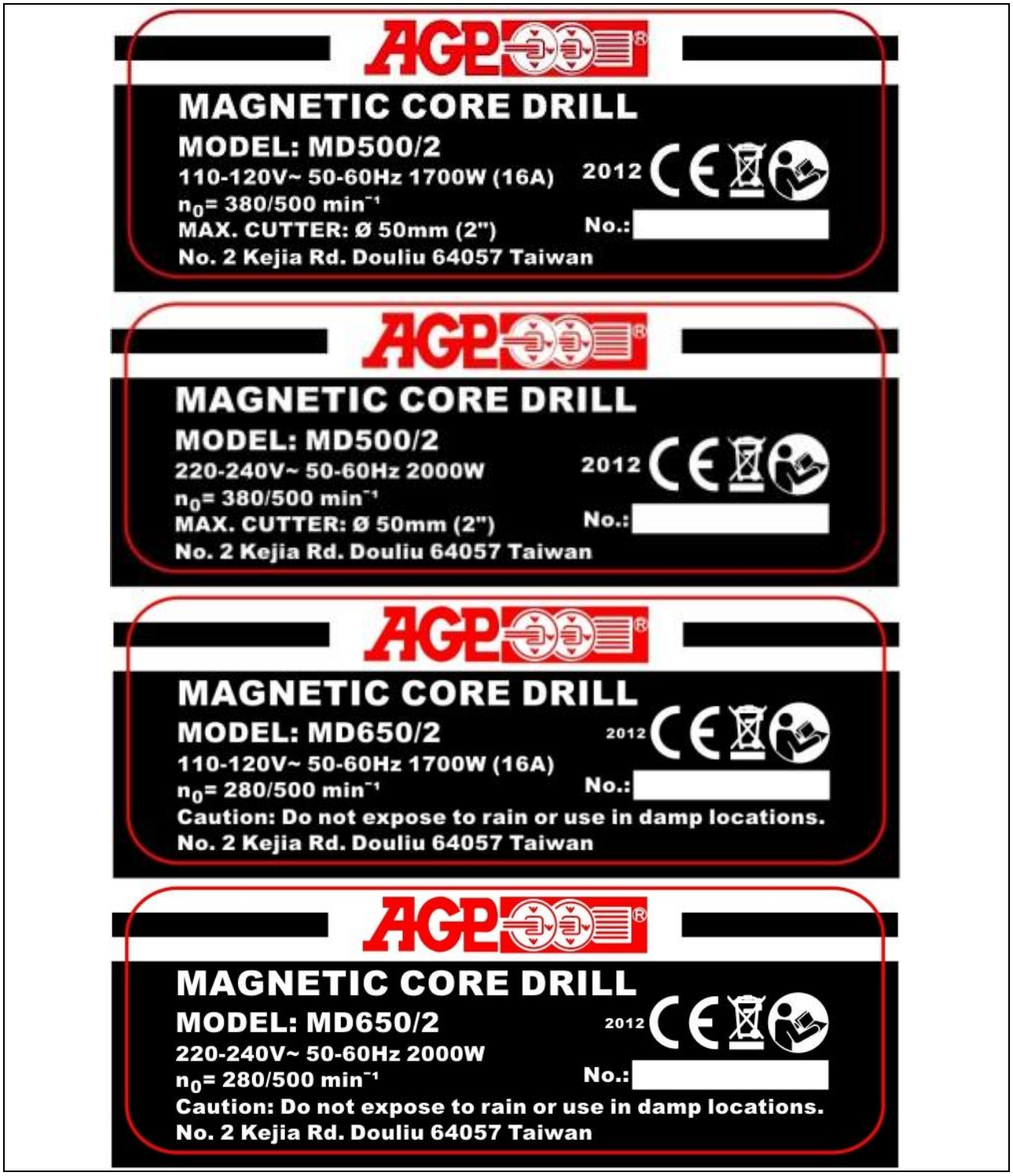
Report Reference No.....:	3182248.50A
Compiled by (+ signature) .....:	David Yang
Approved by (+ signature) .....:	Chris Feng
Date of issue.....:	2016-02-02
CB Testing Laboratory.....:	DEKRA Testing and Certification (Shanghai) Ltd.
Address .....:	3F, #250 Jiangchangsan Road, Building 16, Headquarter Economy Park, Shibei Hi-Tech Park, Zhabei District, Shanghai, 200436, China
Testing location/procedure .....:	CBTL ☒ SMT ☐ TMP ☐
Address .....:	Same as above
Applicant's name.....:	LEE YEONG INDUSTRIAL CO., LTD.
Address .....:	No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan
Test specification:	
Standard .....:	IEC 61029-1: 1990 (First Edition)
Test procedure .....:	CB
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC61029_1A
TRF Originator.....:	TÜV PRODUCT SERVICE GmbH
Master TRF.....:	2002-02-11

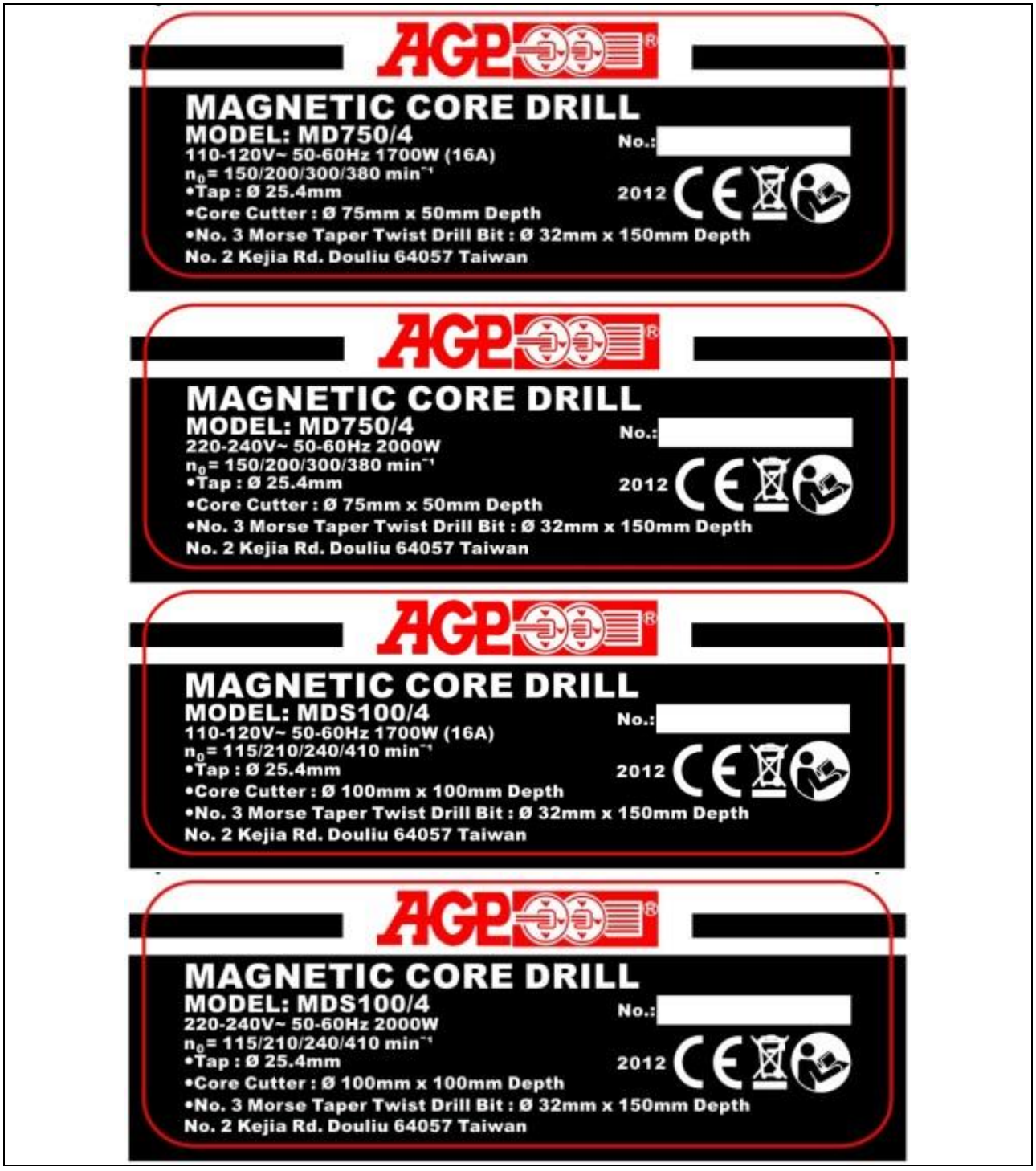
Test item description .....:	MAGNETIC CORE DRILL (Drill Press)
Trade Mark……..:	AGP
Manufacturer……..:	LEE YEONG INDUSTRIAL CO., LTD.
	No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan
Model/Type reference.....:	MD120/4; MD1204; MR1204.2000; MB1204; MAGPRO100(120); KBE2682848K; KBE2682845E; KBE2682828K; MD500/2; UNI5000; KW1500381; MD502; MD5075; MD-50Q; MR-5075; UNI-5000; MD-50Q; MAGPRO50/2S; AGP-MD500; RN-MD500/2; 50PM; MB502; MD750/4; UNI7500; KW1500382; MCD75; 16082606; MD754; MD7550; MD-75PQ; UNI-7500; MR-7550; MD-75PQ; MAGPRO75/4S; RN-MD750/4; 75PM; HF-750; MB754; MDS750/4; MDS754; MDS7550; MAGPRO75/4S SWIVEL BASE; AGP-DS750; 75PMB; MD100/4; MDS100/4; MD650/2; ME5000/2; ME5075; EVOMAG50; EBO5000/2; 5000/2; Q5000/2; 592581; ME7500/4; ME754; ME7550; EVOMAG75; EBO7500/4; 7500/4; Q7500/4; 592582
Ratings……..:	110-120 V; 50-60 Hz; 1700 W; 16 A; Class I
	or 220-240 V; 50-60 Hz; 2000 W; Class I

Copy of marking plate and summary of test results (information/comments):

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.




MAGNETIC CORE DRILL
MODEL: MD500/2
110-120V~ 50-60Hz 1700W (16A)
n_0= 380/500 min^{-1}
MAX. CUTTER: Ø 50mm (2")
No. 2 Kejia Rd. Douliu 64057 Taiwan
2012
No.:
MAGNETIC CORE DRILL
MODEL: MD500/2
220-240V~ 50-60Hz 2000W
n_0= 380/500 min^{-1}
MAX. CUTTER: Ø 50mm (2")
No. 2 Kejia Rd. Douliu 64057 Taiwan
2012
No.:
MAGNETIC CORE DRILL
MODEL: MD650/2
110-120V~ 50-60Hz 1700W (16A)
n_0= 280/500 min^{-1}
Caution: Do not expose to rain or use in damp locations.
No. 2 Kejia Rd. Douliu 64057 Taiwan
2012
No.:
MAGNETIC CORE DRILL
MODEL: MD650/2
220-240V~ 50-60Hz 2000W
n_0= 280/500 min^{-1}
Caution: Do not expose to rain or use in damp locations.
No. 2 Kejia Rd. Douliu 64057 Taiwan
2012
No.:


AGP
MAGNETIC CORE DRILL
MODEL: MD750/4
110-120V~ 50-60Hz 1700W (16A)
n_0= 150/200/300/380 min^{-1}
•Tap : Ø 25.4mm
•Core Cutter : Ø 75mm x 50mm Depth
•No. 3 Morse Taper Twist Drill Bit : Ø 32mm x 150mm Depth
No. 2 Kejia Rd. Douliu 64057 Taiwan
No.:
2012
AGP
MAGNETIC CORE DRILL
MODEL: MD750/4
220-240V~ 50-60Hz 2000W
n_0= 150/200/300/380 min^{-1}
•Tap : Ø 25.4mm
•Core Cutter : Ø 75mm x 50mm Depth
•No. 3 Morse Taper Twist Drill Bit : Ø 32mm x 150mm Depth
No. 2 Kejia Rd. Douliu 64057 Taiwan
No.:
2012
AGP
MAGNETIC CORE DRILL
MODEL: MDS100/4
110-120V~ 50-60Hz 1700W (16A)
n_0= 115/210/240/410 min^{-1}
•Tap : Ø 25.4mm
•Core Cutter : Ø 100mm x 100mm Depth
•No. 3 Morse Taper Twist Drill Bit : Ø 32mm x 150mm Depth
No. 2 Kejia Rd. Douliu 64057 Taiwan
No.:
2012
AGP
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MODEL: MDS100/4
220-240V~ 50-60Hz 2000W
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No. 2 Kejia Rd. Douliu 64057 Taiwan
No.:
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•Tap : Ø 25.4mm
•Core Cutter : Ø 75mm x 50mm Depth
•No. 3 Morse Taper Twist Drill Bit : Ø 32mm x 150mm Depth
No. 2 Kejia Rd. Douliu 64057 Taiwan
No.:
2012
MAGNETIC CORE DRILL
MODEL: ME5000/2
110-120V~ 50-60Hz 1700W (16A)
n_0= 380/500 min^{-1}
Caution: Do not expose to rain or use in damp locations.
No. 2 Kejia Rd. Douliu 64057 Taiwan
No.:
2012
MAGNETIC CORE DRILL
MODEL: ME5000/2
220-240V~ 50-60Hz 2000W
n_0= 380/500 min^{-1}
Caution: Do not expose to rain or use in damp locations.
No. 2 Kejia Rd. Douliu 64057 Taiwan
No.:
2012

The marking labels of MD120/4; MD1204; MR1204.2000; MB1204; MAGPRO100(120); KBE2682848K; KBE2682845E; KBE2682828K are same.

The marking labels of MD500/2; UNI5000; KW1500381; MD502; MD5075; MD-50Q; MR-5075; UNI-5000; MD-50Q; MAGPRO50/2S; AGP-MD500; RN-MD500/2; 50PM; MB502 are same.

The marking labels of MD750/4; MDS750/4; MDS754; MDS7550; MAGPRO75/4S SWIVEL BASE; AGP-DS750; 75PMB; UNI7500; KW1500382; MCD75; 16082606; MD754; MD7550; MD-75PQ; UNI-7500; MR-7550; MD-75PQ; MAGPRO75/4S; RN-MD750/4; 75PM; HF-750; MB754 are same.

The marking labels of MD100/4; MDS100/4 are same.

The marking labels of ME5000/2; ME5075; EVOMAG50; EBO5000/2; 5000/2; Q5000/2; 592581 are same.

The marking labels of MD7500/4; ME754; ME7550; EVOMAG75; EBO7500/4; 7500/4; Q7500/4; 592582 are same.

Summary of testing:

All tests were done at the samples with rated voltage 110-120 V; 1700 W; 16 A and 220-240 V; 2000 W

Testing and Calibration Laboratory of vibration and noise of TIET

No. 10, Baoqing Road, Shanghai, 200031, P. R. China

Noise level: L_{pA}: 97 dB (A) L_{wA}: 110 dB (A) K = 3 dB (A)

Vibration level: a_h = 0,4 m/s^2 K = 1,5 m/s^2

Test item particulars ..... :	
Classification of installation and use ..... :	transportable
Supply Connection..... :	non-detachable cord
..... :	
..... :	
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 ..... :	2015-12-26
Date (s) of performance of tests ..... :	2015-12-26 to 2016-02-01

General remarks:

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

The tools also tested and complies with following standards:

IEC 61029-1 :1990

EN 61029-1 :2009 + A11 :2010

Test report constituents:
- 3182248.50A covering IEC 61029-1:1990 and pictures (total 57 pages)
- 3182248.50B covering EU group differences to IEC 61029-1:1990 (total 11 pages)

Name and address of factory (ies):

LEE YEONG INDUSTRIAL CO., LTD.

No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan

General product information:

The models in this report share the same construction and components except the motors of MD120/4 are different with others. MD120/4 also has a speed adjustable switch.

The rated speed of each model is different due to the different gear box with it.

Model name	Rated no-load speed
MD120/4; MD1204; MR1204.2000; MB1204; MAGPRO100(120); KBE2682848K; KBE2682845E; KBE2682828K	115/210/250/450 /min
MD500/2; UNI5000; KW1500381; MD502; MD5075; MD-50Q; MR-5075; UNI-5000; MD-50Q; MAGPRO50/2S; AGP-MD500; RN-MD500/2; 50PM; MB502	380/500 /min
MD750/4; MDS750/4; MDS754; MDS7550; MAGPRO75/4S SWIVEL BASE; AGP-DS750; 75PMB; UNI7500; KW1500382; MCD75; 16082606; MD754; MD7550; MD-75PQ; UNI-7500; MR-7550; MD-75PQ; MAGPRO75/4S; RN-MD750/4; 75PM; HF-750; MB754	150/200/300/380 /min
MD100/4; MDS100/4	115/210/240/410 /min
MD650/2	280/500 /min
ME5000/2; ME5075; EVOMAG50; EBO5000/2; 5000/2; Q5000/2; 592581	380/500 /min
ME7500/4; ME754; ME7550; EVOMAG75; EBO7500/4; 7500/4; Q7500/4; 592582	150/200/300/380 /min

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
7	MARKING		P
7.1	Rated voltage(s) (V) .....:	110-120 V or 220-240 V	P
	Nature of supply	~	P
	Rated frequency (Hz) .....:	50-60	P
	Input (W or kW).....:	110-120 V: 1700 W 220-240 V: 2000 W	P
	Rated current (A) if greater than 10A .....:	110-120 V: 16 A	N/A
	Manufacturer's name or trade mark	AGP	P
	Model or type reference	MD120/4; MD1204; MR1204.2000; MB1204; MAGPRO100(120); KBE2682848K; KBE2682845E; KBE2682828K; MD500/2; UNI5000; KW1500381; MD502; MD5075; MD-50Q; MR-5075; UNI-5000; MD-50Q; MAGPRO50/2S; AGP-MD500; RN-MD500/2; 50PM; MB502; MD750/4; UNI7500; KW1500382; MCD75; 16082606; MD754; MD7550; MD-75PQ; UNI-7500; MR-7550; MD-75PQ; MAGPRO75/4S; RN-MD750/4; 75PM; HF-750; MB754; MDS750/4; MDS754; MDS7550; MAGPRO75/4S SWIVEL BASE; AGP-DS750; 75PMB; MD100/4; MDS100/4; MD650/2; ME5000/2; ME5075; EVOMAG50; EBO5000/2; 5000/2; Q5000/2; 592581; ME7500/4; ME754; ME7550; EVOMAG75; EBO7500/4; 7500/4; Q7500/4; 592582	P
	Rated operating/resting time	Continuous	P
	Symbol for Class II		N/A
	Symbol for protection against moisture		N/A
7.2	Operating time/resting time corresponding to normal use	Continuous	N/A
	Marking of operation		N/A
7.3	Heating elements: marking according to IEC 60335-1		N/A

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
7.4	Adjustable voltage or input easily and clearly discernible		N/A
7.5	Marked input for each rated voltage or voltage range		P
7.6	Correct symbols used		P
	Symbol for nature of rated supply next to rated voltage		P
	Correct dimensions for Class II symbol and no confusion with any other marking		N/A
7.7	Letter N used exclusively for neutral conductor		N/A
	Marking for earthing terminal		P
	Marking not on screws, removable washers or other removable parts		P
7.8	Use of red push-button (only to open the circuit)		N/A
	Figure 0 indicates only OFF position		P
	Figure I indicates ON position		P
	Correct symbols used for greater output, input, speed etc.		P
	Manual reset buttons of thermal cut-outs cannot be mistaken for main controls		N/A
7.9	Marking easily legible and durable		P
	Marking placed on a main part clearly discernible		P
	Marking and indications related to any component placed in the vicinity of the component involved		P
	Marking not placed on removable parts, if confusion possible		P
	Rubbing test		P
7.10	Regulation devices marked with .....:		N/A
7.11	Switches so marked or placed as to indicate clearly which part of the tool they control		P
7.12	Wiring diagram if more than 2 supply conductors		N/A
7.13	Language of safety markings/instructions .....:	English version	P
	Installation instructions:		P
	- setting-up or fixing tool in a stable position as appropriate		P
	- unpacking and assembly		P
	- connection to power supply, cabling, fusing, socket-type and earthing requirements		P
	- illustrated description of functions		P

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- limitations on ambient conditions		P
	- list of contents		P
	Operating instructions:		P
	- setting and testing		P
	- tool changing		P
	- clamping of work		P
	- limits on size of work piece		P
	- general instructions for use		P
	Safety precautions:		P
	- precautions and use of clothing (where necessary)		P
	- special safety precautions		P
	- dust extraction		N/A
	- guards; security and adjustment		P
	Maintenance and servicing:		P
	- regular cleaning, maintenance and lubrication		P
	- servicing by manufacturer or agent; list of addresses		P
	- list of user replaceable parts		P
	- special tools which may be required		P
8	PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS		
8.1	Adequate protection against accidental contact with:		P
	- live parts, even after removal of detachable parts		P
	- basic insulation of metal parts separated from live parts by basic insulation only (Class II)		N/A
	Lacquer, enamel etc. not relied upon		P
	Uninsulated parts at safety extra-low voltage considered to be live parts		N/A
	Apertures in Class II and Class I tools: 10 N force test with test pin		P
	Openings in enclosure: 50 N force test with standard test finger		P
8.2	Adequate strength of parts providing protection (do not work loose and are only removable with tools)		P
8.3	Shafts of operation knobs and the like not live		P

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.4	Metal handles or knobs of switch-operating means (tools other than Class III) covered by insulating material		N/A
	Separation by supplementary insulation		N/A
8.5	Capacitors not connected to accessible metal parts in Class II tools		N/A
	Separation by supplementary insulation (in case of metal casing)		N/A
8.6	Risk of electric shock from the pins of a plug		P
	Measured voltage (V) one second after disconnection .....:	Capacitor behind switch	N/A
9	STARTING		
9.1	Start under normal voltage conditions		P
	Starting three times at 0,85 times rated voltage without load or lower limit of the voltage range		P
	With centrifugal or other automatic starting switch: three times at 1.06 times rated voltage or upper limit of the voltage range		N/A
9.2	Overload protection devices not operating during normal starting conditions		P
10	POWER INPUT AND CURRENT		
10.1	Input deviations at rated voltage and under normal load	(see appended table)	P
10.2	Current deviations at rated voltage and under normal load conditions	(see appended table)	P
11	HEATING		
11.1	No excessive temperatures in normal use	(see appended table)	P
11.2	Tool loading conditions during temperature test:		P
11.3	Temperature rises of windings and core laminations	(see appended table)	P
11.4	Tool operating time .....:	Until steady condition	P
11.5	Operations of thermal cut-outs		N/A
11.6	Additional tests if temperature rise of the windings and core laminations exceeds the value of 11.5		N/A
	Heat treatment for 240 h		N/A
	Heating cabinet temperature (EC).....:		N/A
	Insulation resistance after heat treatment		N/A

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Electric strength after heat treatment		N/A
	Humidity treatment		N/A
	Insulation resistance after humidity treatment		N/A
	Electric strength after humidity treatment		N/A
12	LEAKAGE CURRENT		
12.1	Test voltage (V) (1,06 times rated voltage)	(see appended table)	P
12.2	Leakage current test	(see appended table)	P
	Tools with heating element tested according to IEC 60335-1; 13.2		N/A
13	RADIO INTERFERENCE SUPPRESSION		
13.1	Safety of the tool not affected by components for radio and television interference suppression		P
13.1	Safety of the tool not affected by components for radio and television interference suppression		N/A
14	MOISTURE RESISTANCE		
14.1	Tools marked with degree of protection against ingress of foreign bodies fullfil this requirement under working conditions		N/A
14.2	Tools with a higher degree than IPX0 comply with IEC 60529 under working condition IP .....:		N/A
14.3	Humidity test		P
	Relative humidity 91 - 95% .....:	93%	P
	Temperature 20 - 30°C .....:	25 °C	P
	Duration of treatment (h) .....:	48 h	P
	Electric strength test after humidity treatment		P
14.4	Spillage of liquid in normal use for tools with liquid container		N/A
	Electric strength test after spillage of liquid		N/A
	No appreciable quantity of water has entered the appliance and no trace of water on insulating parts		N/A
15	INSULATION RESISTANCE AND ELECTRIC STRENGTH		
15.2	Insulation resistance	(see appended table)	P
15.3	Electric strength test (50 or 60 Hz)	(see appended table)	P
16	ENDURANCE		

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
16.1	Extended normal use		P
	No electrical or mechanical failure		P
	Insulation not damaged		P
	Contacts and connections do not work loose		P
	Tests of 16.2 and 16.3		P
	Electric strength test after extended use (75% of values specified in 15.3 (V) .....:	938 V, 1875 V, 2813 V	P
16.2	Intermittent operation with no load for 2 x 24 h		P
	Operating period for short-time or intermittent operation tools .....:		P
	Test voltage(s) (V) .....:	99 V; 132 V And 198 V; 264 V	P
	Test positions .....:	On horizontal	P
	Operation of overload protection devices during extended normal use		P
	Safety of tools not impaired after extended normal use		P
16.3	Tools with a centrifugal or other automatic starting switch		N/A
	Number of starting operations .....:		N/A
	Test voltage(s) (V) .....:		N/A
	After extended use, the safety of tools in normal use not impaired		N/A
17	ABNORMAL OPERATION		
17.1	Prevention against hazards as a result of abnormal or careless operation		P
	Tools incorporating commutator motors		P
	Test voltage (V) (1,3 times rated voltage) .....:	156 V and 312 V	P
	Tools incorporating induction motors		N/A
	- moving parts are liable to be jammed or stopped by hand		N/A
	- operated by hand look for 30 s max. winding temperature: ..... °C:		N/A
	- attend during use look for 5 min max. winding temperature: ..... °C:		N/A
	Three phase motors with one phase disconnected and under the torque producing normal load max. winding temperature: ..... °C:		N/A

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
17.2	Tools incorporating electronic devices		P
	Operating with electronic device short-circuited		P
	Operating with electronic device open circuited		P
	No damage within the meaning of this standard		P
17.3	Tools with switches or other devices for reversing the motor		N/A
	Reversing the direction of rotation under running conditions		N/A
	Test voltage(s) (V) .....:		N/A
	No electrical or mechanical failure of the device		N/A
	No damage within the meaning of this standard		N/A
18	MECHANICAL HAZARDS		
18.1	Protection against injury by parts moving in normal use		P
	Adequate mechanical strength of protective enclosures and guards		P
	Protective enclosures, covers, guards etc. not removable without the aid of a tool		P
	Guard for more frequent access does not create danger in case of:		N/A
	- used as protection of working element		N/A
	- during use and adjustment		N/A
	All working elements are secured so that they cannot create dangers		P
	Compliance with tests of Cl. 19		P
18.2	Adequate stability		P
	Tilting test through an angle of 10° appliance does not overturn		P
18.3	Tools have adequate stability under the most onerous condition		P
18.4	No sharp edges, burrs, flashes and the like		P
19	MECHANICAL STRENGTH		
19.1	Adequate mechanical strength tested with the spring operated impact-test apparatus		P
	Tools possess adequate mechanical strength and withstand rough handling		P
19.2	Three blows applied to brush caps		N/A

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Impact energy: 0,5 ± 0,05 Nm .....:		N/A
	Compression: 20,0 mm .....:		N/A
	Test voltage (V) .....:		N/A
	Other parts tested		P
	Impact energy: 1,0 ± 0,05 Nm .....:	1,0	P
	Compression: 28,3 mm .....:	28,3	P
	Test voltage (V) .....:	1250 V / 2500 V / 3750 V	P
19.3	Adequate mechanical strength for brush holders and their caps		N/A
	Removing and replacing the brushes ten times		N/A
	Test torque (Nm) .....:		N/A
	Brush-holder shows no damage		N/A
20	CONSTRUCTION		
20.1	Use tools of class I, class II or class III construction only		P
20.2	Accidental changing of the setting is unlikely to occur in tools with different voltages or different speed setting		N/A
20.3	Accidental changing of the setting of control devices is unlikely to occur		P
20.4	Removal of parts which ensure the required degree of protection against moisture without the aid of a tool not possible		N/A
20.5	The fixing of handles, knobs and the like used to indicate the position of switches or similar components in a wrong position not possible		P
20.6	Replaceable components suitable fitted		P
20.7	Replaceable of a flexible cable or cord requiring the displacement of a switch possible without subjecting internal wiring to undue stress		P
	After repositioning of the switch and before reassembling the tool, construction allows verification whether the internal wiring is correctly positioned		P
20.8	Wood, cotton, silk, ordinary paper and similar fibrous or hygroscopic material not used as insulation, unless impregnated chemically rendered non-fibrous.		P
	Driving belts not relied upon to ensure electrical insulation		N/A

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict
20.9	Reinforced insulation only used if it is manifestly impracticable to provide separate basic insulation and supplementary insulation		P
20.10	Insulating barriers of Class II tools, and parts of Class II tools which serve as supplementary insulation or reinforced insulation		N/A
	– fixed in such a way that they cannot be removed without being seriously damaged		N/A
	– so designed that they cannot be replaced in an incorrect position, and when omitted, the tool inoperable or manifestly incomplete		N/A
20.11	Assembly gap with a width greater than 0,3 mm in supplementary insulation		P
20.12	Hazards from parts such as wire, screw, nut, washer or spring becoming loose for falling out of position.		P
	In Class I tools: accessible metal not made live		P
	In Class II tools: clearance and creepage distances not reduced to less than50 % of values shown in 27.1		N/A
	Class II tools, other than those of the all-insulated type provided with an insulating barrier which encloses the motor and all other live parts		N/A
20.13	Supplementary and reinforced insulation not likely to be impaired by deposition of dirt, or by dust resulting from wear of parts within the tools		P
	Parts of natural or synthetic rubber used as supplementary insulation in Class II tools resistant to aging		N/A
	Rubber parts so arranged and dimensioned that creepage distances are not reduced below the values specified in 27.1, even if cracks occur		N/A
	Aging test for rubber parts		N/A
20.14	Internal wiring etc. not exposed to oil, grease and similar substances for constructions which necessitate the exposure, oil or grease used with adequate insulating properties		P
20.15	No access to brushes without the aid of a tool		P
	When tightening screw-type brush-caps, two surfaces clamped together		N/A
	Locking device retaining brushes in position not depending upon the brush-spring tension		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Screw-type brush-caps accessible from the outside of the tool made of insulating material or covered with insulating material of adequate mechanical and electrical strength		N/A
	Compliance with tests of 19.1 and 19.3		N/A
	Compliance with tests for supplementary and/or reinforced insulation		N/A
20.16	Radio and television suppressor adequately protected		P
20.17	Tools are fitted with a mains switch		P
20.18	Accidental operation of switches unlikely to occur		P
20.19	Tools provided with a switch or control device to stop the machine		P
20.20	No danger after voltage recovery		P
21	INTERNAL WIRING		
21.1	Internal wiring so rigid, so fixed or so insulated that , in normal use, creepage distances and clearances cannot be reduced below values specified in 27.1		P
	The insulation not damaged in normal use		P
21.2	Internal wiring and electrical connections adequately protected		P
21.3	Wireways smooth and free from sharp edges, burrs etc.		P
	Holes in metal through which insulated wires pass provided with bushings of insulating material		P
	Wiring prevented from coming into contact with moving parts		P
21.4	Class II tools need prevention for direct contact of basic insulated wires and accessible metal parts		N/A
21.5	Use of green/yellow conductors for earthing terminals only		P
21.6	Wiring between different parts of tools are not exposed to undue stress		P
	No damage of insulation by using flexible metallic tubes		N/A
	Open-coil springs are not used		P
	Flexing test		N/A
	Number of flexings .....:		N/A
	Wiring withstands electric strength test		N/A
	Test voltage (V) .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
21.7	Minimum distance of 25 mm between moving parts and wiring or additional prevention		N/A
21.8	Aluminium wires not used for internal wiring		P
22	COMPONENTS		
22.1	Components comply with relevant IEC standards	(see appended table)	P
	Components used in accordance with their markings		P
	Capacitors in series with a motor winding marked with rated voltage and rated capacitance		N/A
	Measured voltage across capacitor with tool operating at 1,1 times rated voltage under minimum load not exceeding 1,1 times rated voltage of capacitor		N/A
22.2	Adequate breaking capacity of mains switches		P
	Mains switches have a contact separation of at least 3 mm		P
	Mains switches rated for frequent operation		P
	Switch operated 50 times with motor stalled		P
	Mains switches marked with individual ratings tested in accordance with IEC 60328		N/A
22.3	Mains switches not fitted in the flexible cable or cord		P
22.4	Overload protection devices of the non-self-resetting type		N/A
22.5	Plugs and appliance inlets for safety extra-low voltage circuits or for frequencies other than 50 Hz of 60 Hz not interchangeable with plugs, connectors and appliance inlet complying with IEC 60083 or IEC 60320		N/A
22.6	Capacitors not connected between contacts of thermal cut-outs		P
22.7	Components for basic radio and television interference suppression are not incorporated in plugs		P
22.8	Inductors for radio and television interference suppression inserted in the earthing circuit		N/A
	Inductor test		N/A
22.9	Appliance couplers comply with IEC 60320		N/A
23	SUPPLY CONNETION AND EXTERNAL FLEXIBLE CABLES AND CORDS		

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Clause	Requirement + Test	Result - Remark	Verdict
23.1	Tools are provided with		P
	– power supply cord with type X or M attachment		P
	– appliance inlet		N/A
	Type M attachment not easily replaceable by type X attachment		N/A
	Connector inserted in appliance inlet without difficulties		N/A
	No accidental contact with live parts or pins during insertion or removal of connector		N/A
23.2	Flexible cables or cords not lighter than:		P
	– polyvinyl chloride sheathed (227 IEC 60053)	H05VV-F	P
	– rubber sheathed (245 IEC 60053)	H07RN-F	P
	Class I tools: cord provided with green/yellow conductor, connected to earthing terminal of appliances and earthing contact of plug		P
23.3	Tools provided with plug complying with IEC 60083, IEC 60309-1 and IEC 60309-2		P
23.4	The nominal cross-sectional area (mm²) of flexible cables or cords .....:	220-240 V: 1,0 mm² 110-120 V: 1,5 mm²	P
	Rated current (A) .....:	110-120 V: 16,0 A 220-240 V: 9,3 A	P
23.5	Conductors relieved from strain and twisting and protected against abrasion		P
	Clear method of strain relief and prevention of twisting for type X flexible cords or cables		P
	Cord anchorages of Class II tools		N/A
	No strain on the earthing conductor due to failure of the cord anchorages of Class I tools		P
	Cord anchorages of Class II tools made of or lined with insulating material		N/A
	Cord anchorages of type X cords:		P
	– no contact between cable or cord and accessible metal parts through clamping screws		P
	– cable or cord not clamped by a metal screw directly bearing the cord		P
	– components not readily lost during cord replacement		P
	– one part of component securely fixed to an integral part of tool		P
	– replacement of cable or cord without special tool		P

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Clause	Requirement + Test	Result - Remark	Verdict
	– suitable for all specified types of cable or cord		P
	– allowing for easy replacement of cable or cord		P
	Cord anchorage part of mains switch		N/A
	Removal of screws fixing other components during replacement of cable or cord		N/A
	Glands not used as cord anchorages		P
	Pull test for cord anchorage		P
	Pull force (N) .....:	100	P
	Torque test for cord anchorage		P
	Torque (Nm) .....:	1,2 Nm * 2/3 = 0,8 Nm	P
	Mass of the tool (kg) .....:	27	P
	Cable or cord not damaged		P
	Cable or cord displacement (max. 2mm) .....:	0	P
	Movement of conductors in the terminals (max. 1 mm)	0	P
	Cord anchorage not damaged		P
	Creepage distances and clearances not reduced		P
23.6	Protection of flexible cords against excessive bending at the inlet opening by means of a cord guard of insulating material		P
	Protection of cord guard outside the tool		P
	Fixing of cord guard		P
	Curvature of cable or cord min 1,5 D		P
23.7	Cable or cord introduced into inlet openings without risk of damage		P
	Inlet opening for flexible cable or cord in insulating material or bushing of insulating material		P
	Bushing free from ageing effects in normal use		N/A
	No damage to flexible cable or cord due to shape of openings or bushings		P
	Inlet bushing not removable without aid of a tool		N/A
	Inlet bushings reliably fixed		N/A
	Bushings in Class II tools with inlet openings in metal (not of rubber nor part of the cord guard)		N/A
	Bushings in other tools with inlet openings in metal (not of rubber nor part of the cord guard)		N/A
23.8	Sufficient space for introduction and connection of supply cable or cord		P
	No damage to conductors when fitting cover		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Checking of correct position of conductors possible before fitting cover		P
	Removal of covers possible without a special tool		P
	Uninsulated end of conductor freed from its terminal not touching accessible metal parts		P
	Loosened wire test (with force of 2 N)		N/A
24.	TERMINALS FOR EXTERNAL CONDUCTORS		
24.1	Tools provided with terminals of screw type or equally effective devices		P
	Use of screws, nuts etc. with metric ISO thread for external conductors		N/A
	Screws and nuts for fixing external conductors, not used to fix other components		N/A
	Screws and nuts for fixing external conductors clamping internal conductors		N/A
	Soldered connections for external conductors in tools with type X or M attachment and rated input not exceeding 100 W		N/A
	Conductors maintained in position by additional means and not by soldering alone		P
	Use of barriers to maintain at least 50% of required creepage distances and clearances in case of conductor breaking away		P
24.2	Terminals for type X attachment suitable for connection of required size conductors:		P
	Rated current (A) of tool .....:	110-120 V: 16,0 A 220-240 V: 9,3 A	P
	required cross-sectional area (mm²) .....:	220-240 V: 1,0 mm² 110-120 V: 1,5 mm²	P
24.3	Terminals and terminations for type M attachment		N/A
	Pull test of 5 N		N/A
24.4	Terminals prevented from working loose:		N/A
	– use of two screws		N/A
	– use of one screw, fixed in a recess		N/A
	– use of self-hardening resins		N/A
	Internal wiring not subjected to stress		N/A
	Creepage distances and clearances not reduced below values specified in 27.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Torque test with torque 2/3 of torque specified in 26.1 (ten fastening and loosening operations)		N/A
	Torque test (Nm) .....:		N/A
24.5	Conductors clamped between metal surfaces with sufficient pressure		N/A
	No damage to conductors		N/A
24.6	For tools rated current 16 A maximum, no special preparation of conductors required		N/A
	No slipping out of conductor during tightening of clamping screws		N/A
24.7	Use of pillar terminals:		N/A
	– rated current (A) of tool .....:		N/A
	– measured thread diameter (mm) .....:		N/A
	– measured hole diameter (mm) .....:		N/A
	– measured length of thread in pillar (mm) .....:		N/A
	– measured length of threaded part of screws (mm) .....:		N/A
	– differences between diameter of hole and thread diameter (mm) .....:		N/A
	Surface against which the conductor is clamped free from sharp edges		N/A
	Visibility of conductor end inserted into terminal		N/A
	Distance beyond threaded hole (mm) .....:		N/A
	Depth of recess (mm) for recessed threaded holes ..		N/A
	Length of threaded part of (headed) screw mm) ...:		N/A
24.8	Screw terminals:		N/A
	– rated current (A) of tool .....:		N/A
	– thread diameter (mm) .....:		N/A
	– length of thread on screw (mm) .....:		N/A
	– length of thread in screw hole or nut (mm) .....:		N/A
	– differences between diameter (mm) of head and shank of screw .....:		N/A
	– height of screw head (mm) .....:		N/A
	Use of extruded terminal screw hole		N/A
	– edge of extrusion smooth .....:		N/A
	– length of thread in screw hole (mm) .....:		N/A
	– length of extrusion (mm) .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– 80% of original thickness or adequate mechanical strength .....:		N/A
	Use of terminals with intermediate part (pressure plate):		N/A
	– intermediate part locked against rotation		N/A
	– thickness of intermediate part (mm) .....:		N/A
	– length of thread on screw (mm) .....:		N/A
	– differences between diameter of head and shank (mm) .....:		N/A
	Use of intermediate part with more than one screw.		N/A
	– thread diameter of screw (mm) .....:		N/A
	Use of recessed screw hole or nut:		N/A
	– depth of recess (mm) .....:		N/A
	– length of headed screw (mm) .....:		N/A
24.9	Stud terminals:		N/A
	– rated current (A) .....:		N/A
	– rated diameter (mm) .....:		N/A
	– differences between thread diameter (mm) and inner diameter of washers .....:		N/A
	– differences between thread diameter and outer diameter of washers (mm) .....:		N/A
	A negative deviation of 0,15 mm is allowed for the normal thread diameter and for the nominal difference between diameters of head and shank of the screw		N/A
24.10	Use of thread smaller than specified:		N/A
	Torque test		N/A
	Torque value (Nm) (1,2 times the torque specified in 26.1) .....:		N/A
	Pull test (24.4)		N/A
	Pull force (N) .....:		N/A
24.11	Terminals for type X and M attachment located in proximity to corresponding terminals		P
24.12	Terminals not accessible without the aid of a tool		P
24.13	Conductor cannot slip out, if soldering or welding breaks		N/A
24.14	Location or shielding of terminals and terminations for type X and M attachments such as to prevent hazards from escaped wire		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Test with 8 mm escaped wire of stranded conductor		P
25	PROVISION FOR EARTHING		
25.1	Accessible metal parts of Class I tools permanently connected to earthing terminal or earthing contact of appliance inlet		P
	No electrical connection between earthing terminals or contacts and neutral terminal		P
	No provision for earthing in Class II and III		N/A
25.2	Earthing connections not made by screwless terminals		P
	Clamping means adequately locked against loosening		P
	Earthing connections not possible to loosen without the aid of a tool		P
25.3	No risk of corrosion between metal parts of earthing terminal and copper of earthing conductor or other metal in contact with terminal		P
	Body of terminal made of brass or other metal no less resistant to corrosion		P
	Screw or nut of brass or other metal no less resistant to corrosion		P
	No risk of corrosion between copper and aluminium (or aluminium alloy) of enclosure		P
25.4	For tools with power supply cords or cables, current-carrying conductors become taut before the earthing conductor if the cable or cord slips out of anchorage		P
25.5	Resistance of earthing circuit (max. 0,1 Ω) .....:	0,029	P
25.6	Terminal screws for earthing conductors don't serve any other purpose, e.g. mechanical fixing		P
26	SCREWS AND CONNECTIONS		
26.1	All screwed connections withstand the mechanical stresses in normal use		P
	Use of screws diameter < 3 mm transmitting contact pressure or tightened by the user		N/A
	Screws not made of soft metal or liable to creep metal		P
	Diameter of screws of insulation material min. 3mm .		N/A
	Use of screws of insulating material only for non-electrical connections		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Screws of insulating material removable for cord replacement etc. not used if replacement by metal screws could impair electrical insulation		N/A
	Torque test on screws and nuts transmitting contact pressure or screws tightened by the user		P
	Torque test .....:	1) 1,2 Nm for screw on cord anchorage 2) 1,2 Nm for screw on plastic enclosure of motor 3) 0,8 Nm for screw on switch box	P
	Number of operations .....:	screw on cord anchorage: 5 times screw on plastic enclosure: 10 times Screw on switch box: 5 times	P
26.2	Screws in engagement with thread of insulating material		P
	Correct introduction of screw into nut or screw hole ensured		P
26.3	Contact pressure not transmitted through insulating material (unless compensated for shrinkage or distortion)		N/A
26.4	Space-threaded screws not used for connection of current-carrying parts, unless directly clamping and locking means provided		P
	No thread-cutting screws used for connection of current-carrying parts, unless they generate full from standard machine screw thread		P
	Use of space-threaded or thread-cutting in earthing circuit		P
26.5	Screws for mechanical connection between parts of tool locked against loosening if connection carries current		N/A
	Rivets for current-carrying connections subject to torsion in normal use, locked against loosening		N/A

27	CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGHT INSULATION		
27.1	Creepage distances	(see appended table)	P
	Clearances	(see appended table)	P
	Distances through insulation	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Use of minimum three layers of thin sheet material for reinforced insulation		N/A
	Electric strength test on two layers of insulation		N/A
	Test voltage (V) .....:		N/A
27.2	Distances between metal parts	(see appended table)	P
27.3	Rated current over 25 A		N/A
	Distance between terminal and metal enclosures (mm) .....:		N/A
28	RESISTANCE TO HEAT, FIRE AND TRACKING		
28.1	External parts of insulating materials: ball pressure test	(see appended table)	P
28.2	Insulating parts retaining live parts in position: ball pressure test	(see appended table)	P
	Insulating parts retaining live parts in position: conical mandrel test	(see appended table)	P
28.3	Resistance to tracking	(see appended table)	P
29	RESISTANCE TO RUSTING		
	Ferrous parts adequately protected against rusting		N/A
	Exposure to a 10% solution of ammonium chloride and moisture treatment		N/A
30	RADIATION		
	No emission of harmful radiation		N/A
B	APPENDIX B		
B1.	Reliable operation of thermal cut-outs and overload releases		N/A
	Test current (A) at normal load .....:		N/A
	Test voltage (V) .....:		N/A
	Number of operations: 15 .....:		N/A
B2.	No changes to the setting of thermal cut-outs and overload releases by heating, vibration etc., occurring in normal use		N/A
C	APPENDIX C		
C8.1	Accessible parts not regarded as live parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C17.101	Electronic circuits designed and applied that any fault conditions do not render the appliance unsafe	(see appended table)	P
C20.101	Parts separated by protective impedance comply with DI or RI		N/A
C20.102	RI is allowed for parts separated by SLV transformer or protective impedance or opto coupler		N/A
C20.103	Protective impedance structur consists of two separate components		N/A
C27.1	Creepage distances and clearances on printed circuit boards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

10.1	TABLE: input data (in normal load conditions)					P
rated input (W)	rated voltage U (V)	rated current I (A)	measured input (W) or current (A)	deviation	load conditions/remark	
1700 W	110-120	16 A	1732 W 16 A	4 % 0 %	Normal load	
2000 W	220-240	--	2000 W	0%	Normal load	
supplementary information						

11.1	TABLE: temperature rise measurements (Rated input voltage: 220-240 V)		P
	test voltage (V) .....:	207/220/240/**254**	P
	ambient temperature C.....:	21,4	P
	operating time .....:	Until steady condition	P
	torque load (Nm) .....:	42,8	P
	input current (A) / power (W) .....:	1716/1868/2118/**2320** W 8,98/9.18/9,46/**9,68** A	P
	speed (/min) .....:	185/199/218/**229**	P

temperature rise dT of part/at:	dT (K)	required dT (K)
Supply cord	12	50
Ambient of main switch	18	30
Main switch knob	12	60
X2 capacitor	12	75(T100)
Support of PWB	22	Ref.
Internal wire	21	50
Plastic Enclosure	16	60
Metal Enclosure	35	60
Brush holder	51	Ref.
Stator core	35	Ref.
Handle	11	50
Magnetic switch knob	11	60
Adjustable switch knob	10	60

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict

supplementary information			
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11.1	TABLE: temperature rise measurements (Rated input voltage: 110-120 V)		P
	test voltage (V) .....:	103/**110**/120/127	P
	ambient temperature C.....:	22,9	P
	operating time .....:	Until steady condition	P
	torque load (Nm) .....:	47,4	P
	input current (A) / power (W) .....:	1483/**1626**/1870/2047 W 15,29/**15,70**/16,56/17,12 A	P
	speed (/min) .....:	129/**139**/150/156	P

temperature rise dT of part/at:	dT (K)	required dT (K)
Supply cord	16	50
Ambient of main switch	23	30
Main switch knob	4	60
X2 capacitor	12	75(T100)
Support of PWB	9	Ref.
Internal wire	13	50
Plastic Enclosure	4	60
Metal Enclosure	11	60
Brush holder	50	Ref.
Stator core	10	Ref.
Handle	6	50
Adjustable switch knob	7	60
supplementary information		
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11.3	TABLE: temperature rise of windings (Rated input voltage: 220-240 V)		P
	test voltage (V) °C.....:	220	P
	t1 (EC) °C.....:	21,5	P
	t2 (EC) °C.....:	23,0	P

temperature rise dT of winding and core laminations (by resistance):	R_1 (Ω)	R_2 (Ω)	dT (K)	allowed dT (K)	insulation class
Stator 1 of main motor	1,2157	1,4780	53,7	140	Class H

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Clause	Requirement + Test	Result - Remark	Verdict

Stator 2 of main motor		1,2041	1,4697	55,0	140	Class H
Rotor (1-7th)		0,4315	0,5744	83,3	140	Class H
Temperature rise of magnetic wire						
	test voltage (V) °C.....:	254				P
	t1 (EC) °C.....:	21,5				P
	t2 (EC) °C.....:	21,4				P
temperature rise dT of winding and core laminations (by resistance):		R_1 (Ω)	R_2 (Ω)	dT (K)	allowed dT (K)	insulation class
Magnetic wire		330	402	56,0	140	Class H
11.3	TABLE: temperature rise of windings (Rated input voltage: 110-120 V)					P
	test voltage (V) °C.....:	110				P
	t1 (EC) °C.....:	21,5				P
	t2 (EC) °C.....:	22,9				P
temperature rise dT of winding and core laminations (by resistance):		R_1 (Ω)	R_2 (Ω)	dT (K)	allowed dT (K)	insulation class
Stator 1 of main motor		0,3290	0,3980	52,3	140	Class H
Stator 2 of main motor		0,3319	0,4013	52,1	140	Class H
Rotor (1-7th)		0,3581	0,4547	67,7	140	Class H
Temperature rise of magnetic wire						
	test voltage (V) °C.....:	127				P
	t1 (EC) °C.....:	21,5				P
	t2 (EC) °C.....:	23,4				P
temperature rise dT of winding and core laminations (by resistance):		R_1 (Ω)	R_2 (Ω)	dT (K)	allowed dT (K)	insulation class
Magnetic wire		79,55	95,12	48,2	140	Class H
temperature rise dT of winding and core laminations (by thermocouplers)				dT (K)	allowed dT (K)	insulation class
				-	-	-
supplementary information						

12.1 + 12.2	TABLE: Leakage current measurements at operating temperature		P
	at 1,06 times rated voltage (V) .....:	254	P
Leakage current I between:		I (mA)	required I (mA)
L/N to Enclosure		0,012/0,019	0,75

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Clause	Requirement + Test	Result - Remark	Verdict

	at 1,06 times rated voltage (V) .....:	127	P
Leakage current I between:		I (mA)	required I (mA)
L/N to Enclosure		0,015/0,026	0,75

15.2	TABLE: insulation resistance measurements		P
insulation resistance R between:		R MΩ	required R MΩ
live parts and body (basic insulation)		>5000 MΩ	2 MΩ
live parts and body (reinforced insulation)		>5000 MΩ	7 MΩ
live parts and metal parts (basic Class II tools)		>5000 MΩ	2 MΩ
metal parts and body (separated from live parts by basic Class II tools)		>5000 MΩ	5 MΩ

15.3	TABLE: electric strength measurements		P
test voltage applied between:		test voltage (V)	Breakdown
L/N to earthed part		1250	P
L/N to metal core		1250	P
Metal core to plastic enclosure		2500	P
L/N to plastic enclosure		3750	P
supplementary information			

22.1	TABLE: list of critical components				P
object/part No.	manufac-turer/trademark	type/model	technical data	standard	mark(s) of conformity[1])
Supply cord*	Ta An Electric	H05VV-F	3 G 1,5 mm^2	IEC 60227	VDE
Alternative	Lu Chiang Electric	H05VV-F	3 G 1,5 mm^2	IEC 60227	VDE
Alternative	I-Sheng Electric	H05VV-F	3 G 1,5 mm^2	IEC 60227	VDE
Alternative	I-Sheng Electric	H05VV-F	3 G 2,5 mm^2	IEC 60227	VDE
Alternative	Nexans	H07RN-F	3 G 1,5 mm^2	IEC 60245	LCIE
Alternative	Nexans	H07RN-F	3 G 2,5 mm^2	IEC 60245	LCIE
Alternative	Ta Tun Electric	H07RN-F	3 G 1,5 mm^2	IEC 60245	VDE
Supply cord only for 220-240 V*	Ta An Electric	H05VV-F	3 G 1,0 mm^2	IEC 60227	VDE

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Clause	Requirement + Test	Result - Remark	Verdict

Alternative	Lu Chiang Electric	H05VV-F	3 G 1,0 mm^2	IEC 60227	VDE
Alternative	I-Sheng Electric	H05VV-F	3 G 1,0 mm^2	IEC 60227	VDE
Alternative	Nexans	H07RN-F	3 G 1,0 mm^2	IEC 60245	LCIE
Alternative	Ta Tun Electric	H07RN-F	3 G 1,0 mm^2	IEC 60245	VDE
Power plug for 220-240 V*	Ta An Electrical	TP-66	13 A; 250 Vac (Fuse included)	BS 1363	ASTA
Alternative	Ta An Electrical	TP-52	16 A; 250 Vac	IEC 60884	VDE
Alternative	Ta An Electrical	TP-50	16 A; 250 Vac	IEC 60884	VDE
Alternative	Ta An Electrical	TP-51	16 A; 250 Vac	IEC 60884	VDE
Alternative	Ta An Electrical	TP-22	10 or 15 A; 250 VAC	IEC 60884	SAA
Alternative	Ching Cheng Wire Material	EL-208	16 A; 250 Vac	SANS 164-1 SABS 164-1	SABS
Alternative	Ta An Electrical	TP-34	10 A; 250 Vac (Fuse included)	BS 1363	IRAM
Alternative	Ta An Electrical	TP-33	10 A; 250 Vac	CEI 23-50	IMQ
Alternative	Ta An Electrical	TP-32	10 A; 250 Vac	IEC 60884	SEMKO
Alternative	Ta An Electrical	TP-23	10 A; 250 Vac	IEC 60884	DEMKO
Power plug only for 110-120 V*	Ningbo Znpon	P1134	16 A; 130 Vac	IEC 60309	SEMKO
Alternative	Ta An Electrical	TP-52	16 A; 250 Vac	IEC 60884	VDE
Alternative	Ta An Electrical	TP-50	16 A; 250 Vac	IEC 60884	VDE
Alternative	Ta An Electrical	TP-51	16 A; 250 Vac	IEC 60884	VDE
Alternative	Ching Cheng Wire Material	EL-208	16 A; 250 Vac	SANS 164-1 SABS 164-1	SABS
Main switch 220-240 V	Zhejiang Kedu Electric	KJD12-14	250 Vac; 16(12) A; 5E4	IEC 61058-1	VDE
Main switch 110-120 V	Zhejiang Kedu Electric	KJD12-14/120 V	120 Vac; 18(18) A; 5E4	IEC 61058-1	TUV
Magnetic switch	Zhejiang Jiaben Electronics Co., Ltd.	KND2-12/2	250 Vac; 12(10) A 125 Vac; 18(16) A; 5E4	IEC 61058-1	TUV

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Clause	Requirement + Test	Result - Remark	Verdict

Reversing switch	Transmit Technology Co., Ltd.	TR26	250 Vac; 16(4) A	IEC 61058-1	VDE
X2 capacitor**	Carli Electronics	MPX	0.47 µF; 0,22 µF; or 0,1 µF; 275 Vac	IEC 60384-14	VDE
Alternative	Aid Electronics	MEX	0.47 µF; 0,22 µF; or 0,1 µF; 275 Vac	IEC 60384-14	VDE
PWB	HONG SHIEN	CCP-508	1,6 mm (UL/E119853)	IEC 61029-1	Tested in Appliance
PWB	LONG CHANG	CCP-508	1,6 mm (UL/E94733)	IEC 61029-1	Tested in Appliance
1) an asterisk indicates a mark which assures the agreed level of surveillance *) or other certified plugs and cables with the same technical data **) or any other certified brand/type with equivalent ratings and the same construction.					

27.1	TABLE: clearances and creepage distance measurements					P
clearances cl and creepage distance dcr between:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
live parts of different polarity:	-	240	2,5	6,2	2,5	6,2
live parts and other metal parts over BI	-	240	3,0	5,2	4,0	5,2
live parts and other accessible parts over reinforced insulation:	-	240	8,0	>12	8,0	>12
metal parts separated by supplementary insulation:	-	240	4,0	>12	4,0	>12
lacquered or enamelled windings and metal parts separated from live parts:	-	240	6,0	8,3	6,0	8,3
supplementary information						
	distance through insulation					P
distance through insulation di between:		U r.m.s.	test voltage (V)		required di (mm)	di (mm)
windings and accessible metal parts separated by reinforced insulation		240	240		2	-
metal parts separated by supplementary insulation		240	240		1	1,5
other metal parts separated by reinforced insulation		-	-		-	-

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Clause	Requirement + Test	Result - Remark	Verdict

supplementary information

27.3	TABLE: creepage distance measurements					N/A
clearances cl and creepage distance dcr between:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
terminal to metal enclosures					9,5	

28.1	TABLE: ball-pressure test		P
	required impression diameter 2 mm (mm) .....:		
part under test	test temperature °C	impression diameter (mm)	
Brush holder	125	0,9	
Enclosure	75	0,8	
Support of PWB	125	1,2	
supplementary information			

28.2	TABLE: hot mandrel test		P
	mandrel temperature 300 °C (°C) .....:	Glow wire test at 550 °C	P
	test duration 5 min (min) .....:		N/A
	pressure force 12 N (N) .....:		N/A
part under test	ignition of sample or gases		
Brush holder	No		
Enclosure	No		
Support of PWB	No		
supplementary information			

28.3	TABLE: resistance to tracking		P
	test current (A) 1,0 ± 0,1 A .....:	1,0 A	P
	number of drops 50 .....:	50 drops	P
	test solution 0,1% ammonium chloride .....:	0,1 %	P
part under test	flashover or breakdown		
Brush holder	No		

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Clause	Requirement + Test	Result - Remark	Verdict

Support of PWB	No
supplementary information	

C17.101	TABLE: fault condition test		P
	ambient temperature °C ..... :	21	-
	model/type ..... :	MD120/4	-
	rated input ..... :	1700 W/ 2000 W	-
	rated voltage ..... :	120 Vac/ 240 Vac	-
	rated frequency ..... :	50 Hz	-

No.	component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
1	Control module	Short-circuit	240	5 min	-	-	No operation No hazard
2	Control module	Open-circuit	240	5 min	-	-	No operation No hazard
3	Speed adjustable switch	Short-circuit	240	5 min			Operating at max. speed, no hazard.
4	Speed adjustable switch	Open-circuit	240	5 min			Operating at max. speed, no hazard.
5	Control module	Short-circuit	120	5 min	-	-	No operation No hazard
6	Control module	Open-circuit	120	5 min	-	-	No operation No hazard
7	Speed adjustable switch	Short-circuit	120	5 min			Operating at max. speed, no hazard.
8	Speed adjustable switch	Open-circuit	120	5 min			Operating at max. speed, no hazard.
supplementary information							

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Clause	Requirement + Test	Result - Remark	Verdict

Photos: MD120/4

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Clause	Requirement + Test	Result - Remark	Verdict

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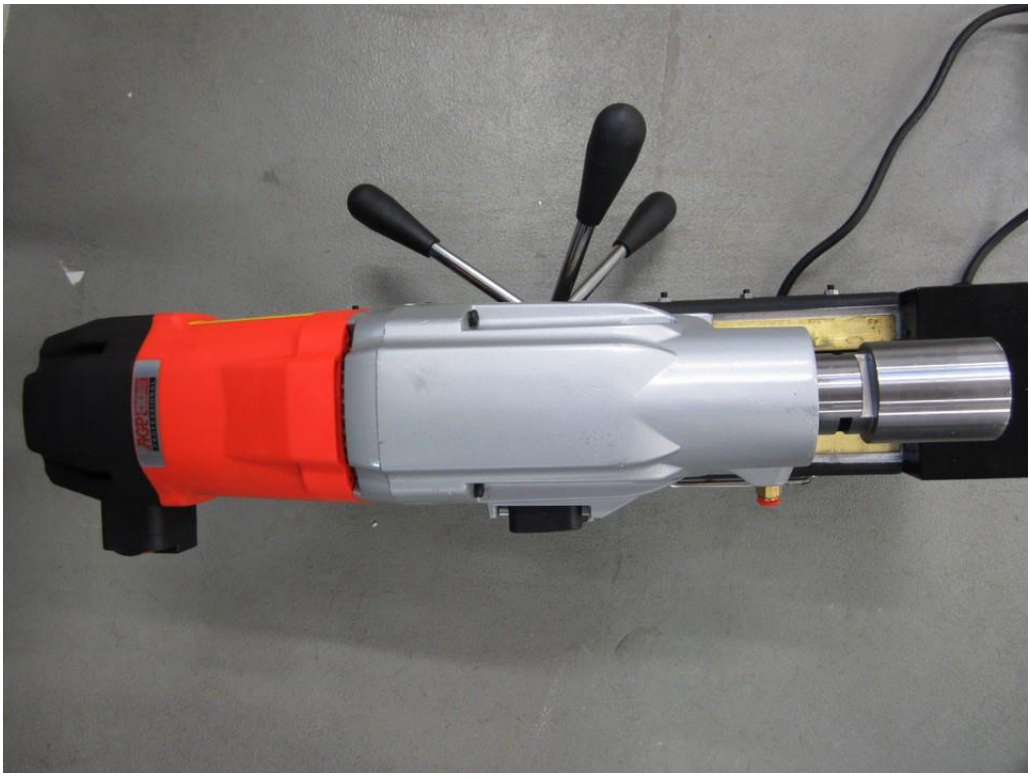
Clause	Requirement + Test	Result - Remark	Verdict



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Clause	Requirement + Test	Result - Remark	Verdict

Photos of ME7500/4 & ME5000/2:

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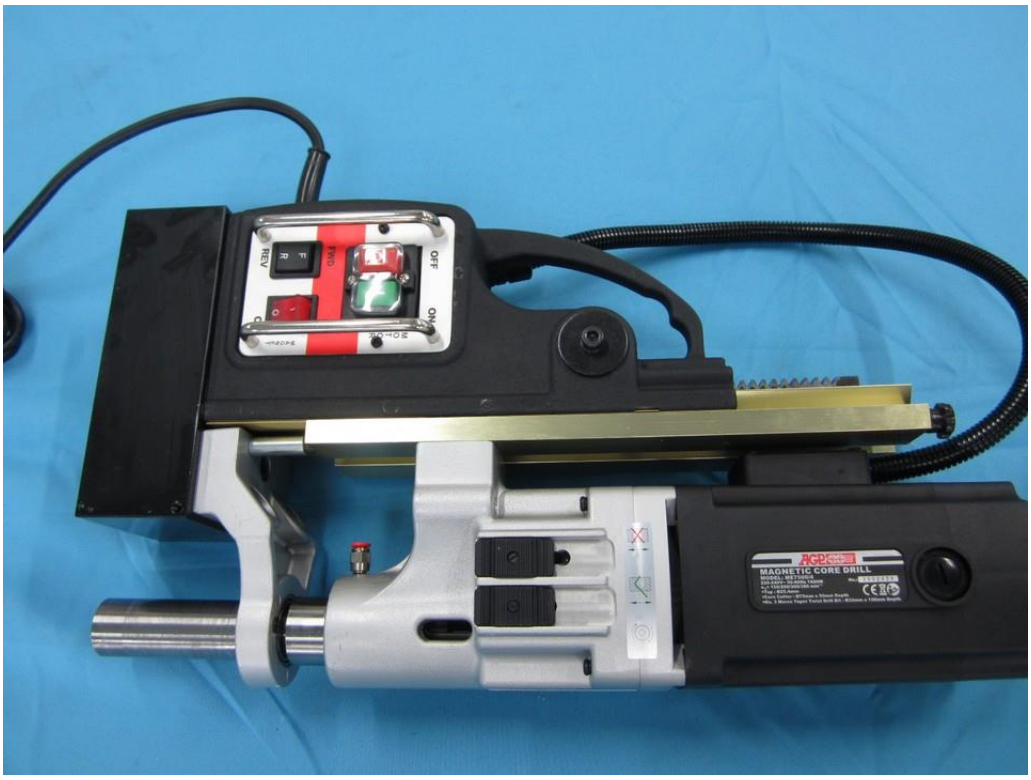
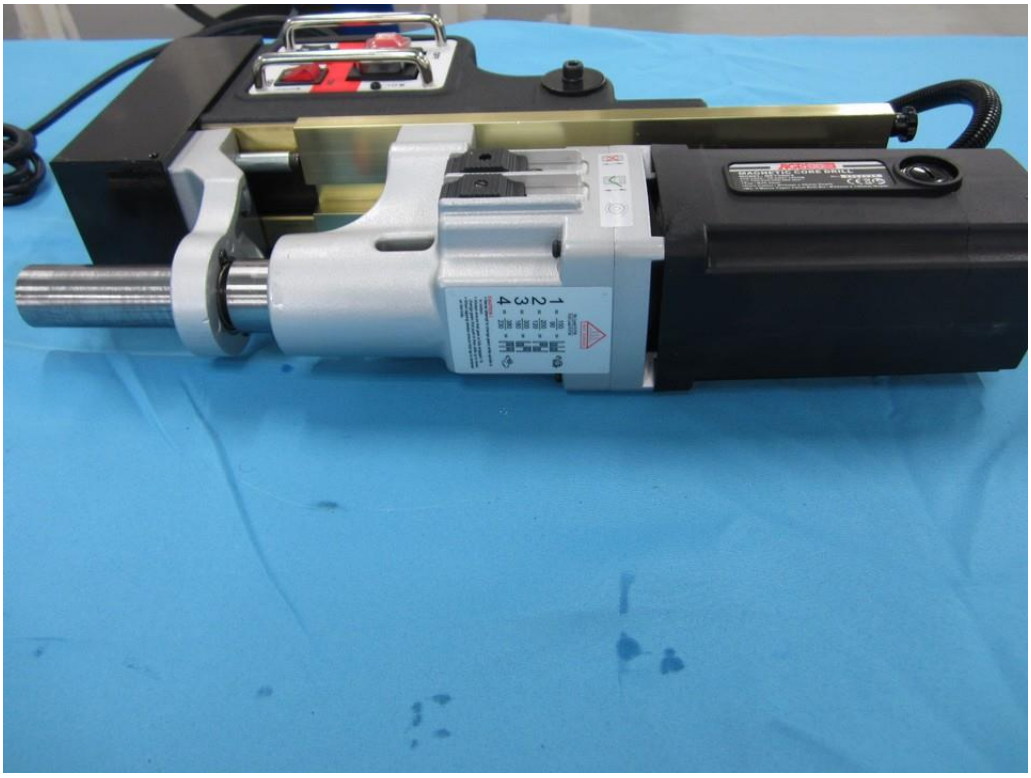
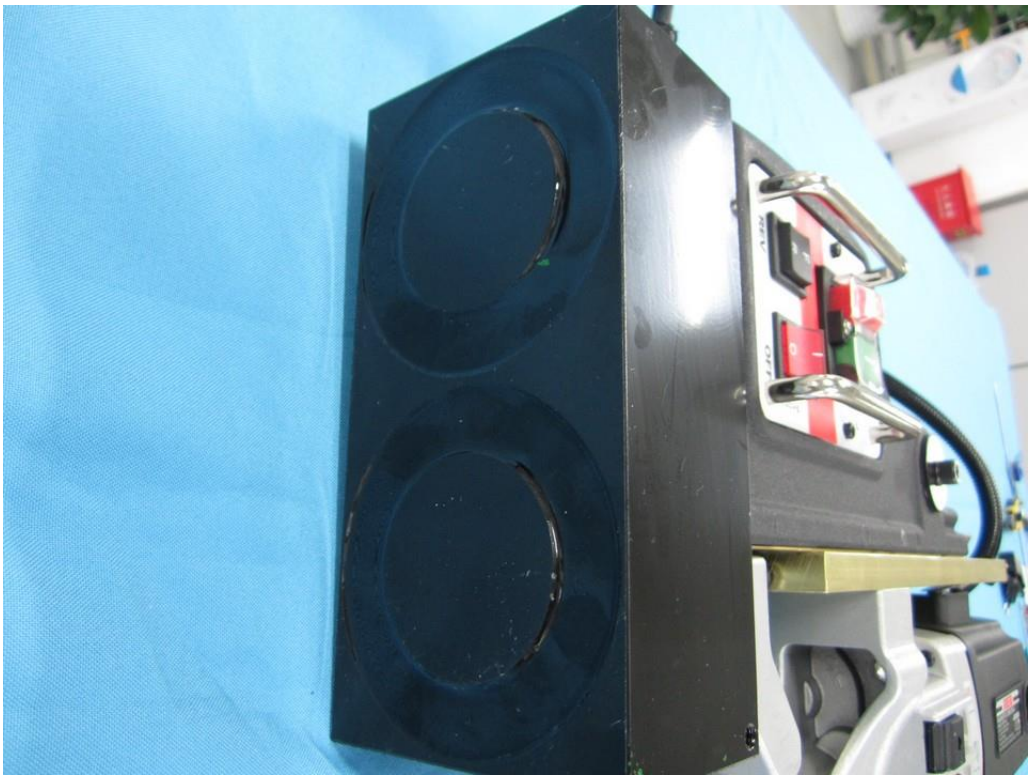
Clause	Requirement + Test	Result - Remark	Verdict





IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict



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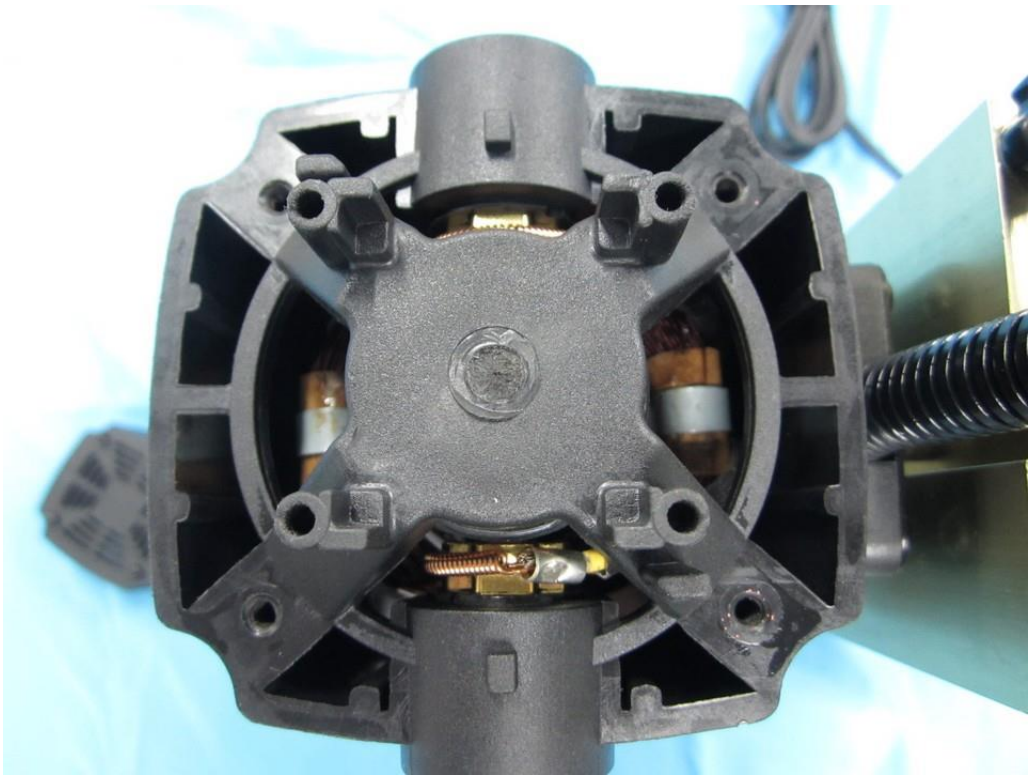
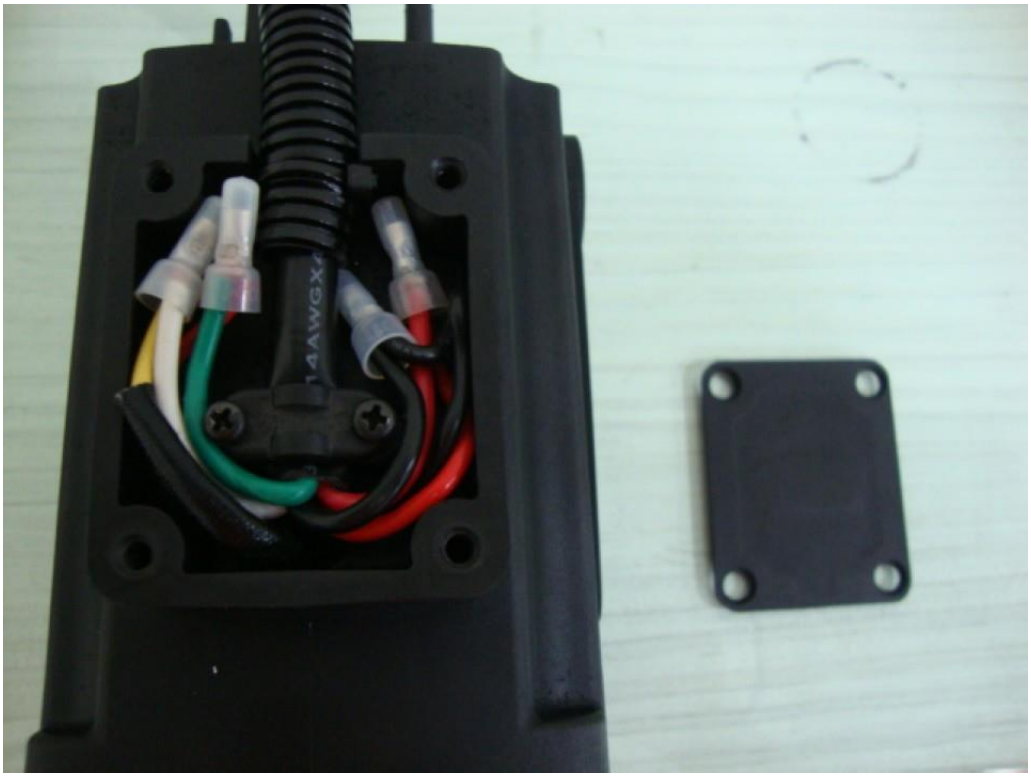
Clause	Requirement + Test	Result - Remark	Verdict





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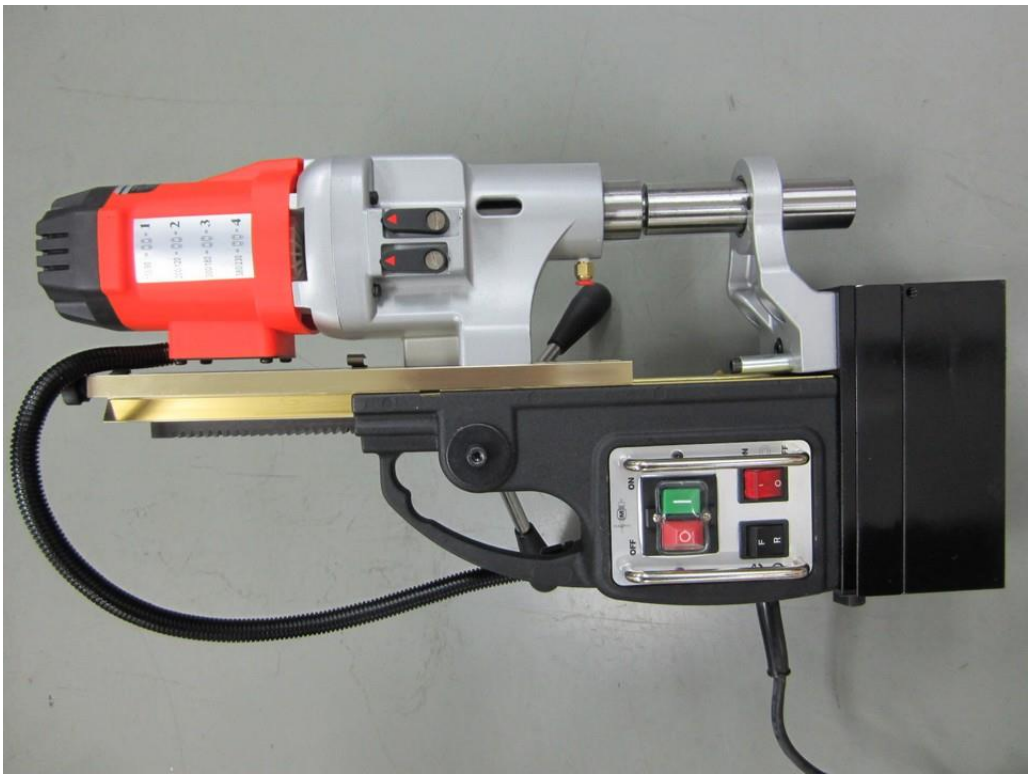
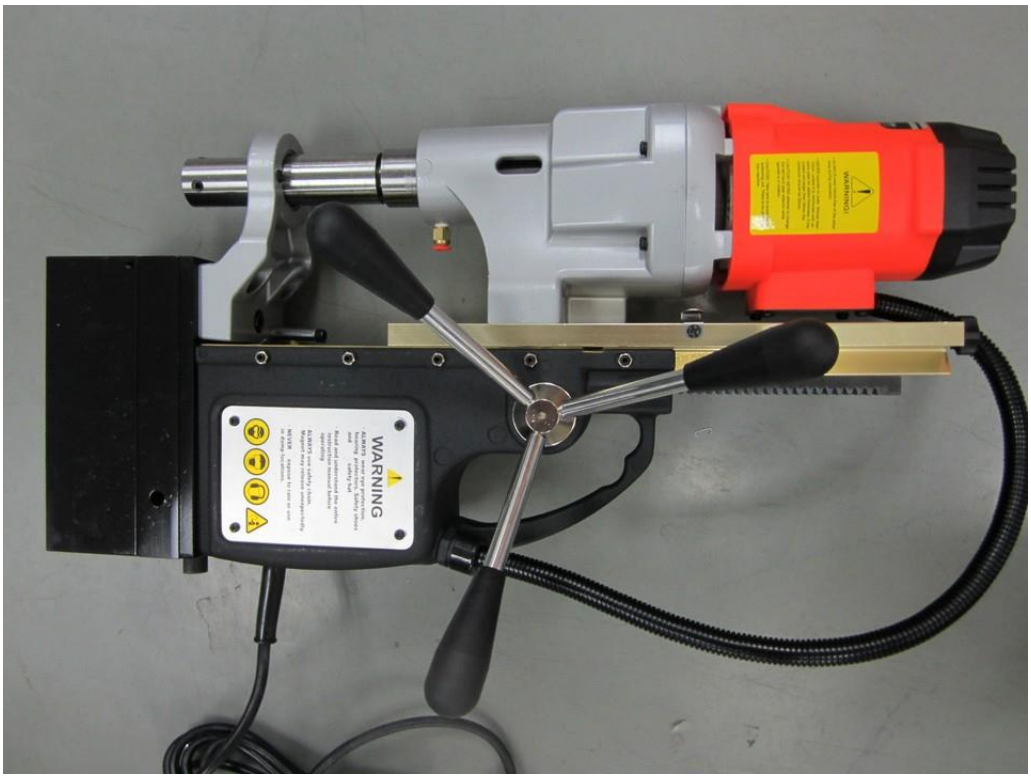
Clause	Requirement + Test	Result - Remark	Verdict

Photos: other models





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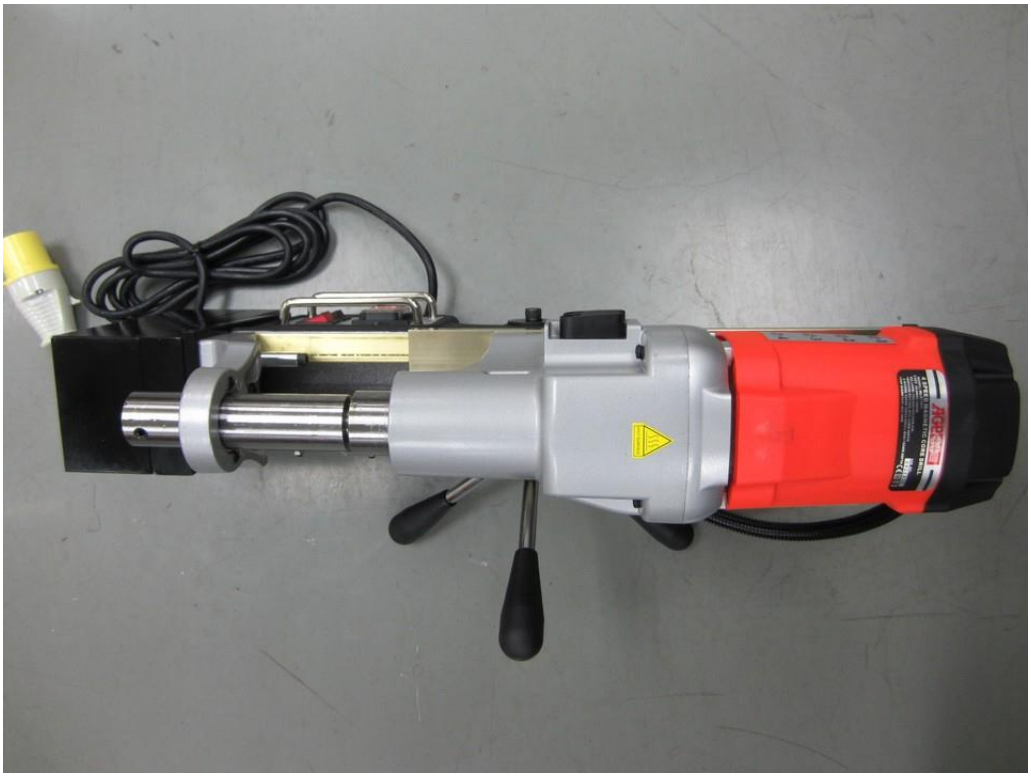

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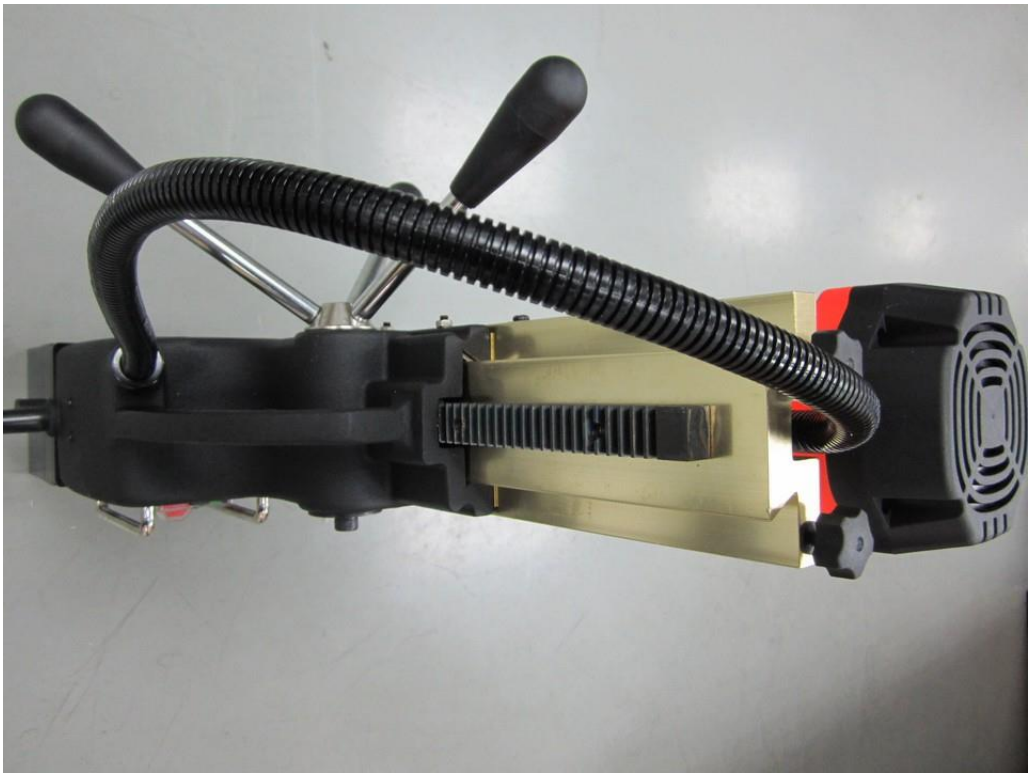
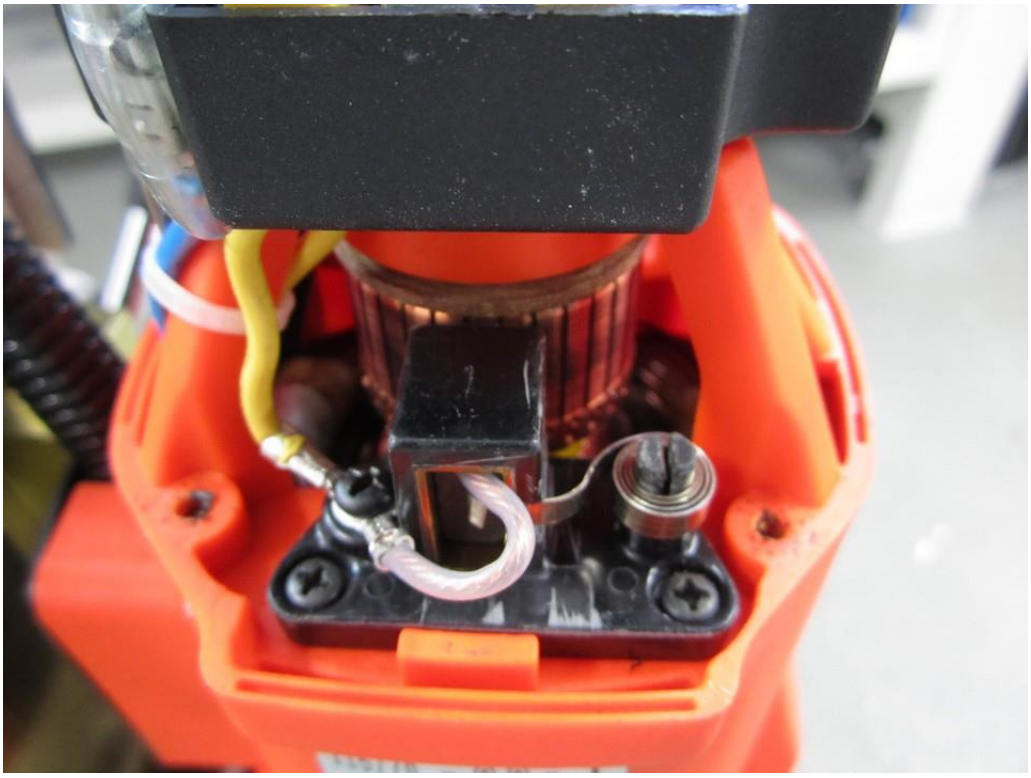
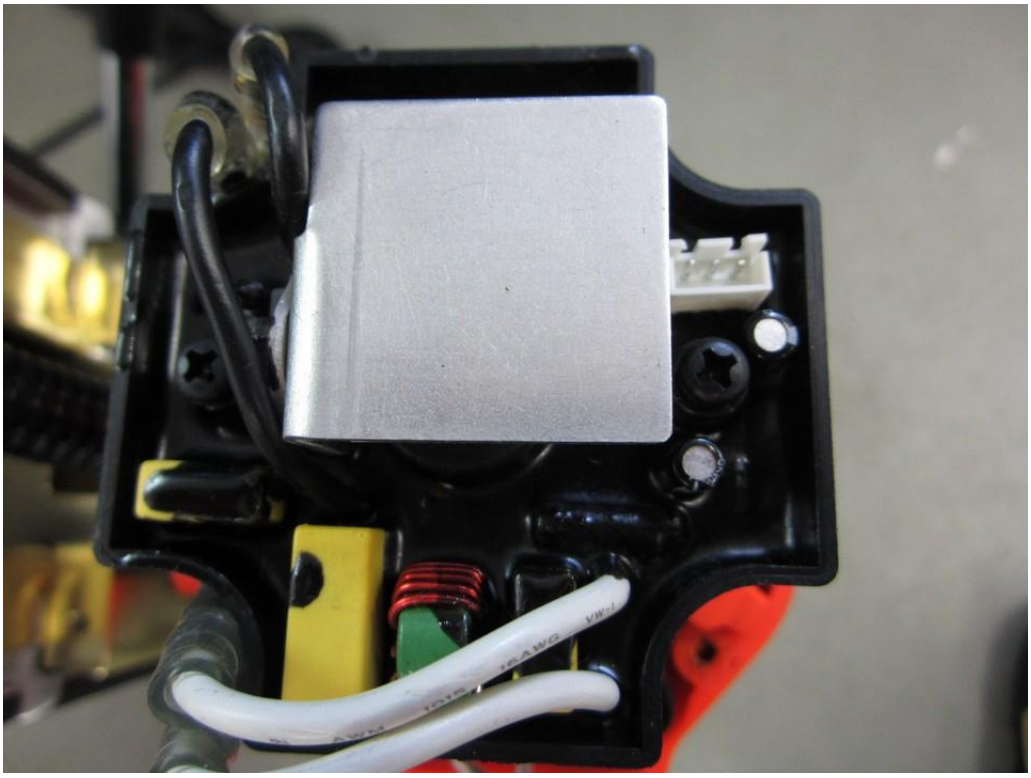


IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict

Photos: Details

IEC 61 029-1			
Clause	Requirement + Test	Result - Remark	Verdict





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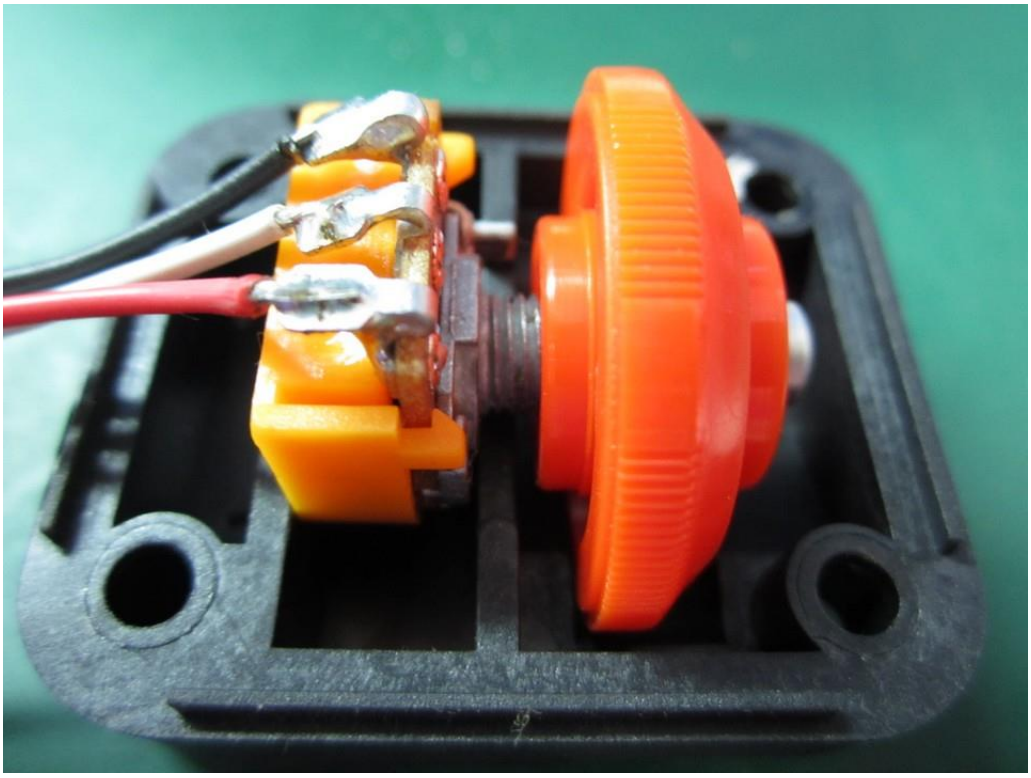

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Clause	Requirement + Test	Result - Remark	Verdict

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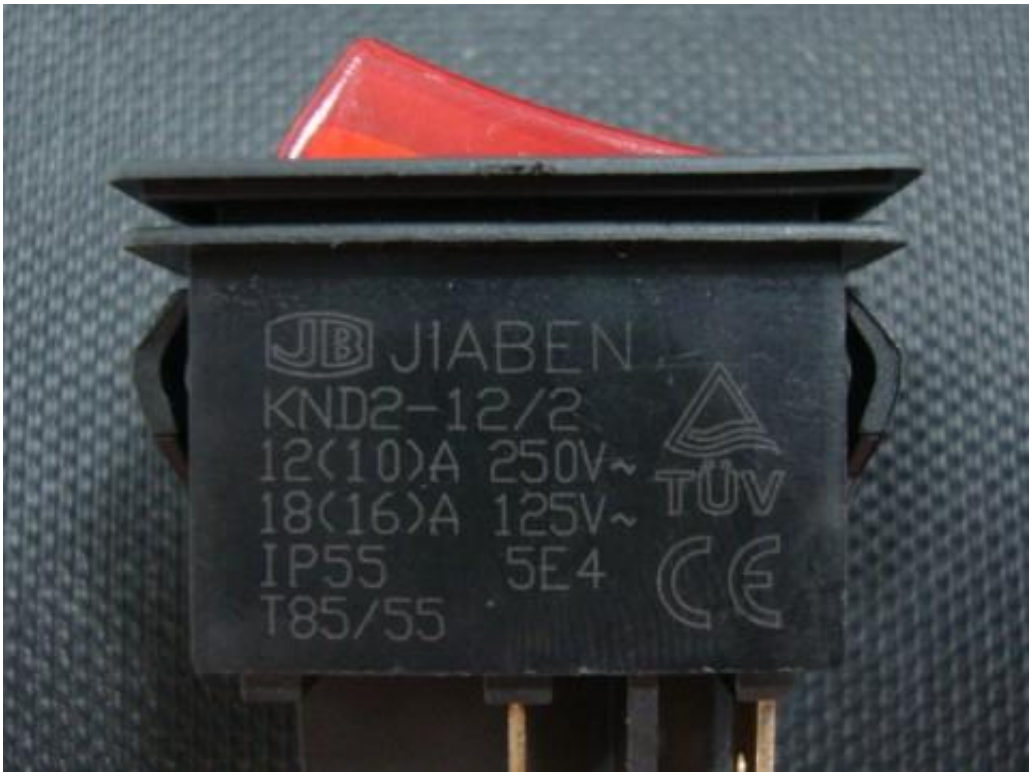

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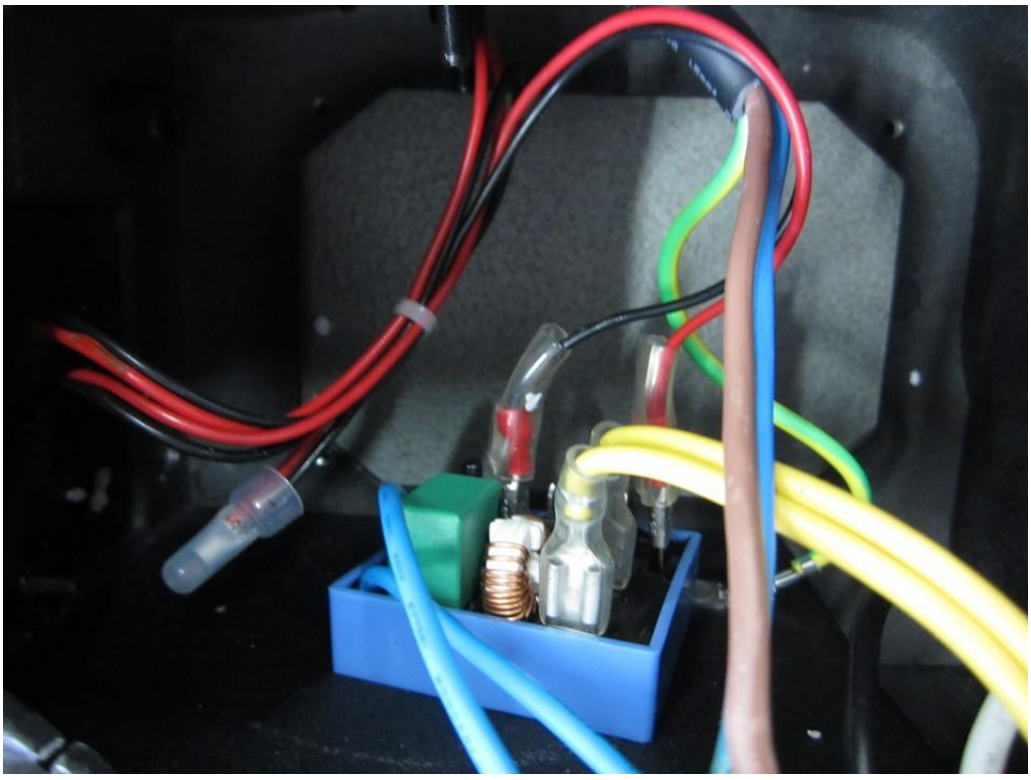

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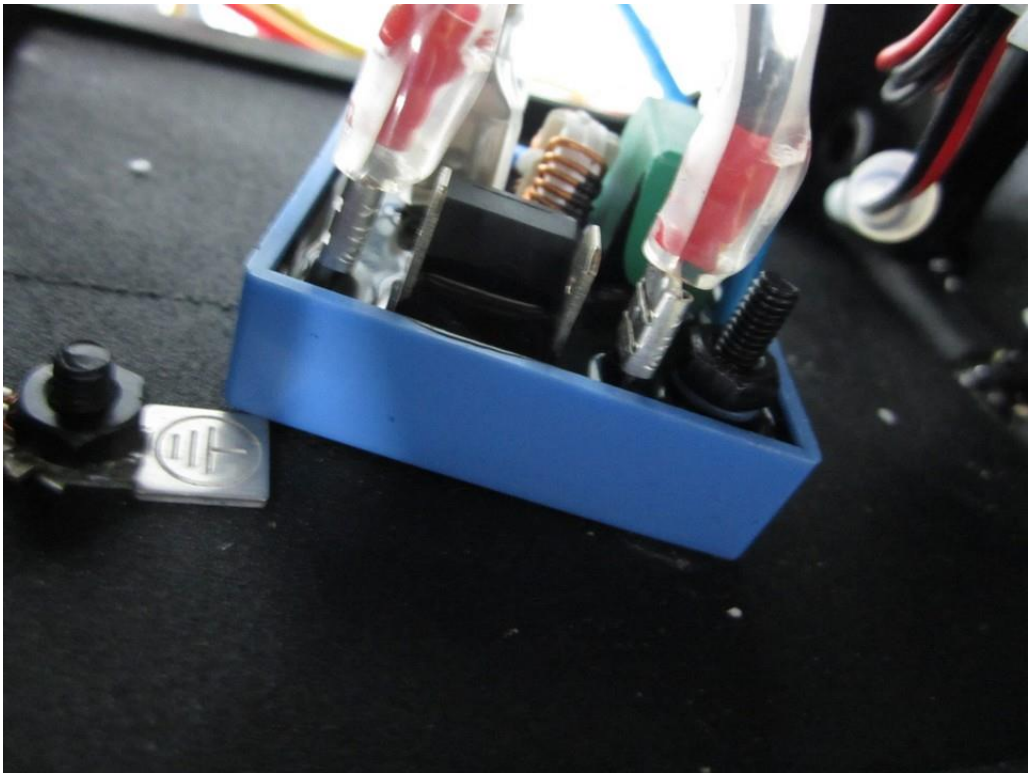

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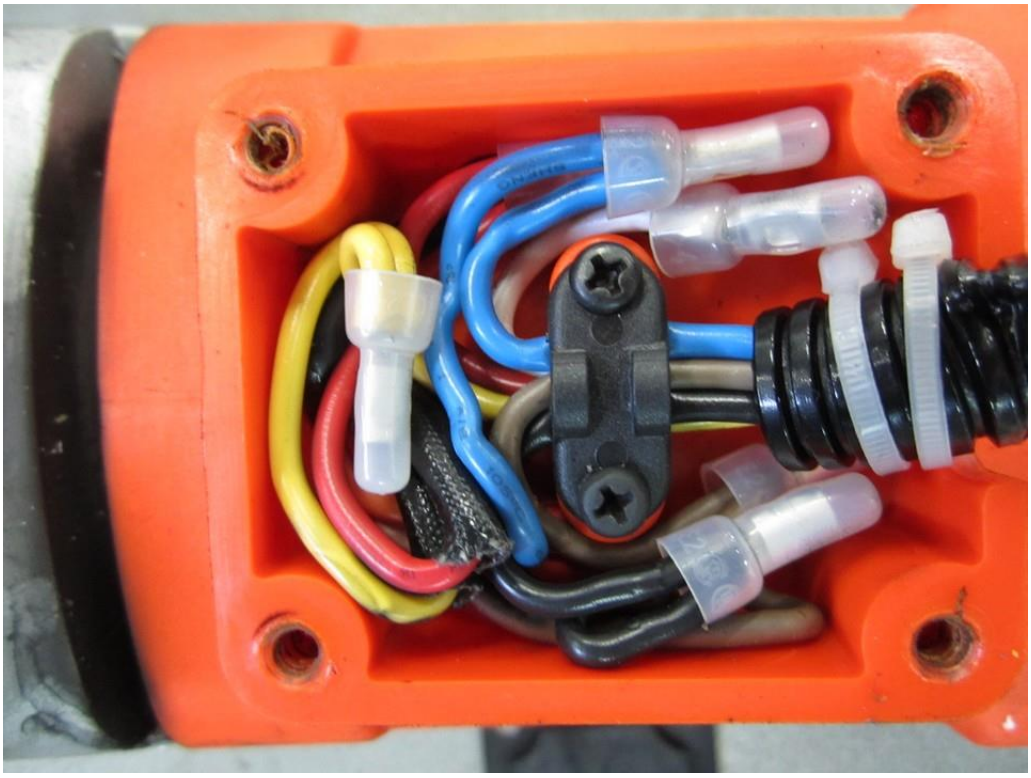

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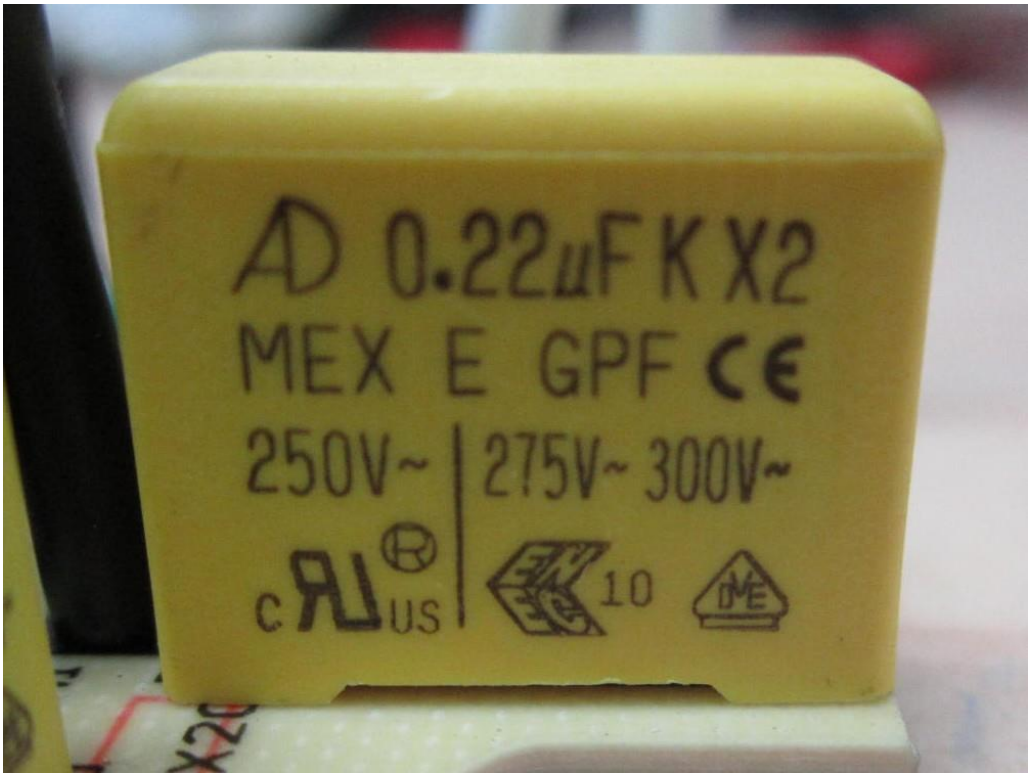

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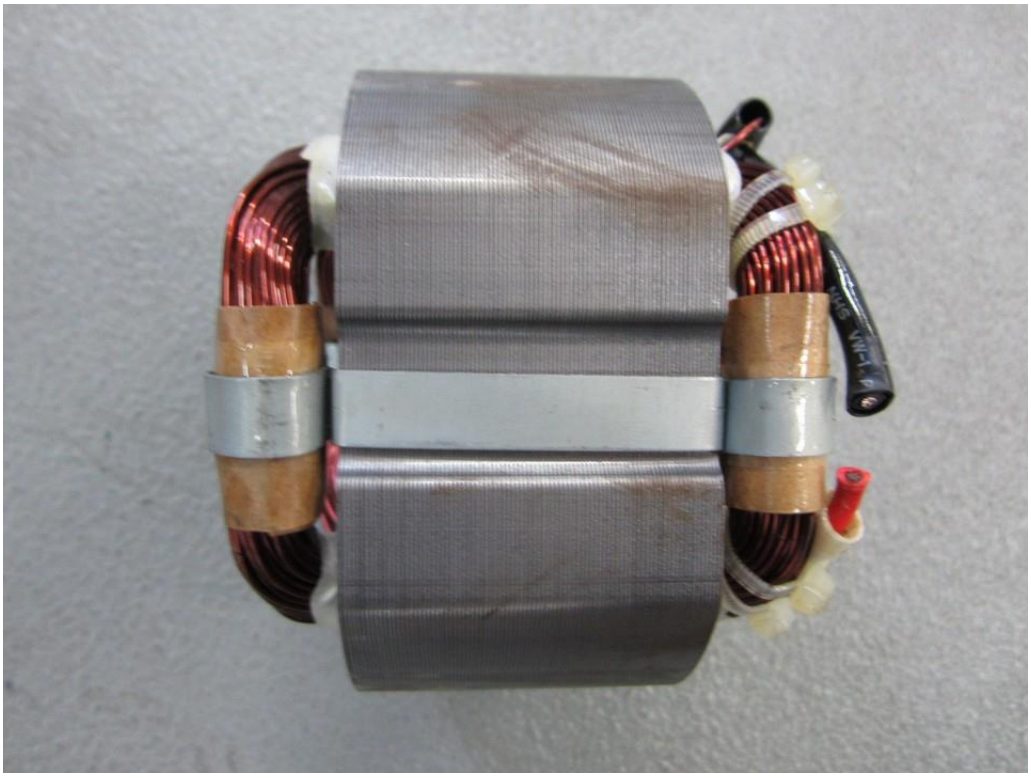

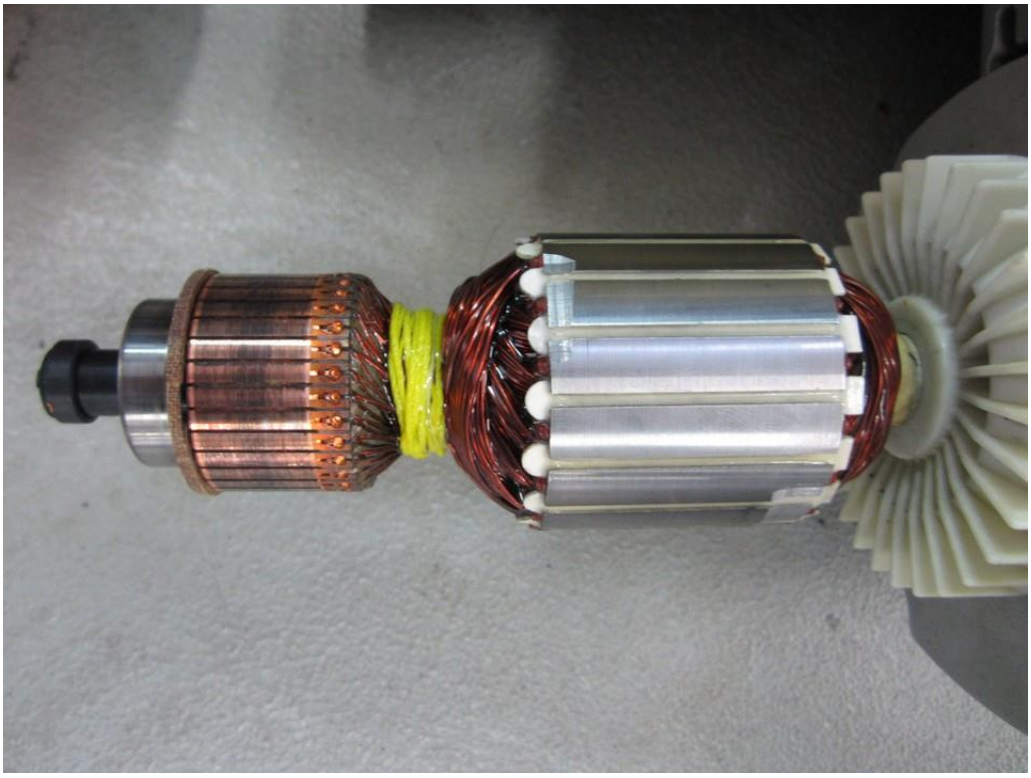

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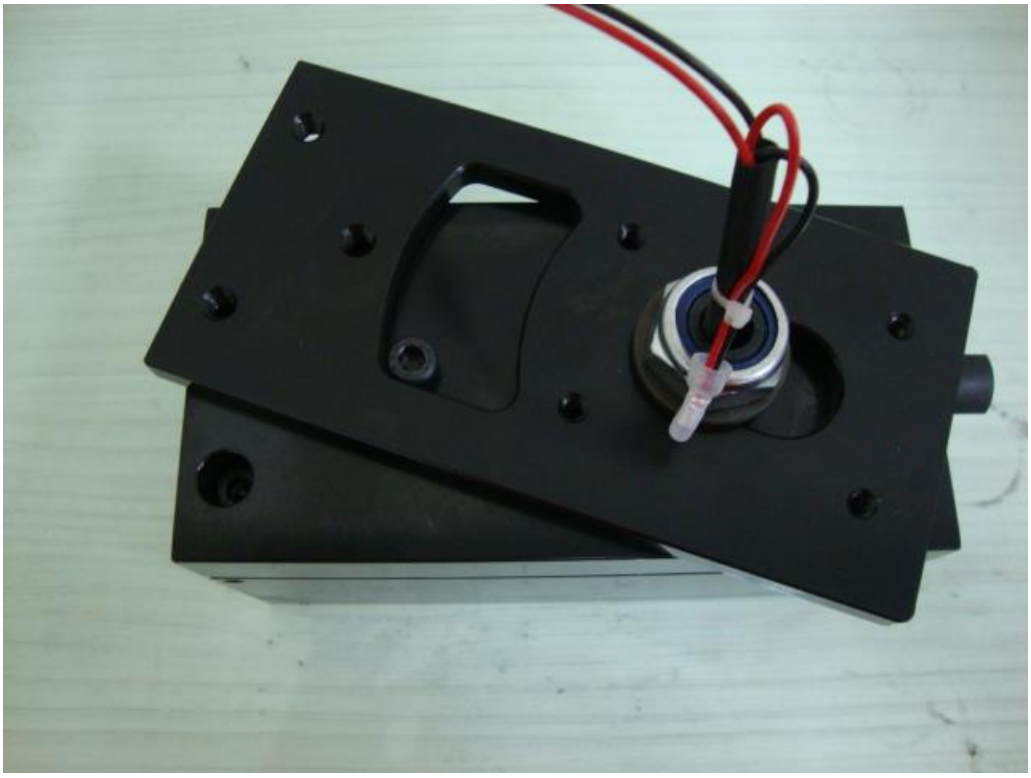

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