Copia Originale

Generatore di ozono O_3 portatile FL-803C

Fascicolo Tecnico

DIRETTIVA	**CODICE**
Bassa Tensione 2014/35/UE	**FT. FL-803C**

DESCRIZIONE DEL PRODOTTO

Generatore di Ozono O_3

NORMATIVE APPLICATE

EN 60335-1:2012 +A11:2014+A13:2017

EN 62233:2008

General Auto S.r.l.

Sede: Via Prof. Filippo Manna, 31 – 80013 Casalnuovo (NA)

P.iva 00326830635

CODICE Fascicolo di Prodotto		**CAPITOLO DEL DOSSIER** Pagina di presentazione	
REV. 00	**DATA** 01/04/2020	**TIMBRO E FIRMA General Auto S.R.L.**	**TIMBRO E FIRMA**

Indice

CAPITOLI	REVISIONE	DATA	NOTE
1. Dati del fabbricante / Importatore	00	1/04/20	---
2. Scheda Tecnica	00	1/04/20	---
3. Test Report	00	1/04/20	---
4. Istruzioni	00	1/04/20	---
5. Dichiarazione di conformità del costruttore	00	1/04/20	---
6. Marcatura	00	1/04/20	---

1.

Dati del fabbricante / Importatore

Società Importatrice: General Auto S.r.l.
Sede: Via Prof. Filippo Manna, 31 –
80013 Casalnuovo (NA)
P.iva 00326830635
Mail: info@ggroup.eu

Società produttrice: Shenzen Feili Electrical Appliance Technology Co., Ltd,
5th floor, building I, JINGTIE Science and Tecnology Industrial Park,
No.49, Chagjiang Pu Road, Henggang street, Longgang District,
Shenzen City, Guandong Province,
China

中鼎和昌

Certificate of Approval

Certificate No.: 17916Q10940R0S

Awarded to

ShenZhen FeiLi Electronic Technology Co., Ltd.

Organization Code Certificate No. :91440300584085 49XC
Add. :Room 601-602, 6th Floor, No 1 Buliding, Chengfa Industrial Zone, Yinhe Road, Henggang Street, Longgang District, Shenzhen China 518115

Beijing Zhongding Hengchang Certification Co., Ltd. (ZDHC) certify that the Quality Management System of the above organization has been assessed and found to be in accordance with the requirements of the standard:

IS09001:2008

SCOPE OF CERTIFICATION/REGISTRATION

Production of Ozone Generator(except regulations required range)

This certificate is used with the requirements of valid laws and regulations which the certification scope involved. These requirements include but are not limited to administrative permits, scopes of qualifications, and CCC requirements etc.
In the operating conditions that management system of the certificate holder' s conform with the Quality Management System requirements continually, the certificate is valid for three years.

Date from: Dec 9th, 2016 To: Sep 14th, 2018

The effectiveness of the Certificate shall be conformed to maintenance by periodic surveillance audit of ZDHC.

The time limit of the certificate is to **Nov 20th, 2017**, please conducting the surveillance or re-certification assessment before **Nov 20th, 2017.**

If the assessment is overdue , the certificate is invalid.

Information of this certificate can be found on the official website of Beijing Zhongding Hengchang Certification Co., Ltd. (http://www.zdhc.com.cn)

SCC Accredited CB-MS
OCSM
Accrédité CCN

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT
IAF

Beijing Zhongding Hengchang Certification Co., Ltd.
Cao Hong jie
ISSUED BY

Beijing Zhongding Hengchang Certification Co., Ltd.

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臭氧
科技

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OZONE

FEILI飞立®

臭氧科技 领航品牌

OZONE TECHNOLOGY LEADING BRANDS

臭氧发生器产品画册

PRODUCT CATALOG

FEILI OZONE
TECHNOLOGY

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BRAND
corevalue

自主研发 掌握核心 以质取胜

ABOUT FEILI

OZONE TECHNOLOGY
LEADER

关于飞立

公司简介
COMPANY PROFILE

深圳市飞立电器科技有限公司是一家专业从事臭氧消毒设备研发、制造、销售为一体的现代化高科技企业。公司长期秉承“自主研发，掌握核心，以质取胜”的理念，以“质量第一，客户至上”为导向，以“现代化的管理，卓越的品质，合理的价格，优质的服务”为承诺，为广大客户提供质优价廉的产品。

公司主要研发生产定制：大中小型空气源臭氧发生器、氧气源臭氧发生器、中央系统循环式臭氧消毒机、多功能臭氧消毒柜等。作为一家致力于打造高端品牌的现代化企业，飞立秉承以“宁为价格作解释，不为品质找借口”为宗旨，用最具竞争力的价格向顾客提供一流品质的产品。

飞立现有300+个服务网点遍布全国各地，拥有强大的服务体系，为客户提供专业、贴心、快速的服务，是飞立一直以来努力的方向。

展望未来，飞立一心追求发展规模化，经营专业化，业务区域化，管理差异化的产品格局，坚持专业化路线，以“技术创新”和“卓越品质“打造企业核心竞争力。




专业•创新•领航

专注臭氧行业10年，10年我们只做一件事
研发和设计创新的行业风向标，同行跟进和模仿的对象
强大的研发实力，业界突出的设计能力，高标准的质量成本管控体系

ENTERPRISE CULTURE

OZONE TECHNOLOGY
LEADER

企业文化

团队是企业发展的基石

飞立是一群互帮互助、团结一致为统一目标和标准而坚毅奋斗到底的一个企业团队。我们不仅强调个人的业务成果，更强调团队的整体业绩持之以恒，不断突飞猛进。

飞立的工作核心是共同奉献。我们作出切实可行而又具有挑战意义的工作计划目标，将企业的整体目标、部门目标和员工的努力方向有效结合起来，实现三者效益一致，并为之实现我们的方针目标管理，不断激发团队的工作动力和奉献精神，为飞立企业大家庭注入生命活力。

飞立的精髓是共同承诺。我们共同承担团队的责任，付诸承诺、齐心协力，立誓成为一个强有力的企业团队。

精神——诚信、责任、团结、进取。

愿景——打造中国臭氧消毒设备领航企业。

竞争——自主研发，掌握核心，以质取胜。

品质——工匠精神，精益求精，追求卓越。

服务——用户的满意，是我们的工作标准。

飞立始终遵循共赢共生，服务社会是我们的责任；

积极主动了解客户的需要，预测市场变化，提出创新的解决方案；

我们以永不服输、不甘人后的赶超精神，运用创造性思维和先进的技术，推陈出新，提高品质及服务。

CORPORATE HONOR

荣誉
资质

HONORARY QUALIFICATION CERTIFICATE
AUTHORITATIVE CERTIFICATION

资质证书
QUALIFICATION

飞立多年来从研发、生产、售后都严格要求做到精益求精。飞立臭氧机具有专业的检测标准和认证证书，让客户安全放心的使用，是飞立品牌不断发展前行的源动力。

ISO质量体系认证

国际CE认证


消毒产品生产许可证

产品专利

臭氧行业十佳品牌


臭氧除金黄色葡萄球菌检测


臭氧除大肠杆菌检测


臭氧分解甲醛检测

家用系列
HOUSEHOLD DISINFECTION

果蔬消毒 室内净化 杀菌除味

活氧解毒净化
OZONE DISINFECTION AND PURIFICATION

功能特点
FUNCTIONAL CHARACTERISTICS

- 分解果蔬表面农药残留，肉类激素等，食品杀菌保鲜
- 负离子空间净化，提升室内空气质量
- 臭氧空间杀菌除异味，防止室内空气细菌滋生感染
- 可自制活氧水，刷牙除口气、洗脸美白、泡脚除脚气等
- 1-30分钟自由定时功能，省心省力
- 采用独立负离子空气净化装置，可24小时连续工作
- 新一代搪瓷管，高压放电均匀、臭氧浓度高且稳定性强
- ABS工程塑料，硬度高，防腐性强，光洁性好
- 采用环氧树脂，真空封装高压模块，耐潮、抗震
- 配送耐腐蚀加厚硅胶管及三款不同形状曝气石，满足不同场景使用要求




型号	FL-8F	FL-8A
负离子量	400万个/cm³/s	-
臭氧产量	400mg/h	500mg/h
机身材质	ABS	ABS
定时范围	1-30min	5-30min
额定频率	50Hz	50Hz
额定电压	220V/50Hz	220V/50Hz
额定功率	18W	18W
产品净重	1kg	1kg
产品尺寸	215*80*300mm	170*70*240mm

活氧除味消毒

OZONE DEODORIZATION AND STERILIZATION

功能特点

FUNCTIONAL CHARACTERISTICS

- 可消除空气中多种细菌及微生物
- 快速消除物品表面和空气中的多种霉菌和真菌
- 可消除空气中大部份流感病毒、百典病毒等
- 预防室内疫病的传播，控制室内空气污染
- 可快速去除室内空气中的各种异味、臭味
- 液晶显示循环定时功能，无需繁琐调控
- 采用环氧树脂，真空封装高压模块，耐潮、抗震
- 采用微型臭氧发生器装置，耐用无耗材
- 360度无死角扩散除味，自动转换为氧气，安全可靠
- 原产ABS工程塑料，硬度高、光洁性好




型号	FL-8E	FL-8W
负离子量	-	-
臭氧产量	≥2mg/h	≥100mg/h
机身材质	ABS	ABS
定时范围	-	2H
额定频率	-	50Hz
额定电压	4节5号电池	AC100V~240V
额定功率	0.5W	5W
产品净重	172g	350g
产品尺寸	74*63*115mm	170*105*83mm

空间除甲醛

SPACE FORMALDEHYDE REMOVAL

功能特点

FUNCTIONAL CHARACTERISTICS

- 室内杀菌消毒除甲醛、除异味等
- 消除浮游霉菌、病毒、浮游细菌、螨虫、花粉等物质
- 可分解苯、甲苯、二甲苯、挥发性有机物（TVOC）、一氧化碳、二氧化碳及氮氧化物等
- 机身采用304不锈钢材质，一键杀菌消毒便捷操作
- 臭氧发生单元由3mm合金片+陶瓷组合构成，蜂窝式放电设计，臭氧浓度高，寿命长且抗震防摔性极强
- 具备120分钟定时功能，操作方便简洁
- 配备手柄、橡胶底座，后盖设计挂孔，可手提可壁挂，人性化设计
- 采用滚珠轴承散热风扇，转速提高20%，散热功能更强



型号	FL-803S	FL-807S
臭氧产量	3g/h	7g/h
机身材质	304不锈钢	304不锈钢
定时范围	120min	120min
冷却方式	风冷	风冷
额定电压	220V/50Hz	220V/50Hz
额定功率	70W	90W
产品净重	4.5kg	5.5kg
产品尺寸	350*168*200mm	350*168*200mm

360°

Eliminate

无死角杀菌 绿色除甲醛

MULTI-FUNCTION DISINFECTION

家用丨商用丨汽车·消毒

家用多功能消毒

HOUSEHOLD MULTIFUNCTIONAL DISINFECTION

功能特点

FUNCTIONAL CHARACTERISTICS

- 空间消毒、水消毒、物品消毒、一机多用
- 汽车杀菌除异味，开启车内空调内循环效果更佳
- 对宠物生长环境进行杀菌除味,预防细菌感染、能起到很好的防疫作用。并且可使用臭氧水为宠物洗澡
- 采用石英管发生单元，微间隙放电技术，放电频率高且稳定，臭氧浓度15-25mg/L
- 120分钟自由定时功能，可根据使用环境选择合理的消毒时间
- 气泵采用国际知名厂家，气压稳定，每分钟0.004Mpa
- 采用智能化控制面板，操作简单、快捷
- 机身采用不锈钢材质，耐腐蚀、抗氧化性强，打磨工艺精细。
- 采用滚珠轴承散热风扇，转速提高20%，散热功能更强。
- 升级机型采用数显面板，杀菌消毒随心掌控




型号	FL-802A	FL-803A	FL-803AS	FL-805AS
臭氧产量	2g/h	3g/h	3g/h	5g/h
最大臭氧浓度	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L
功率	60W	80W	80W	90W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	230*180*450mm	230*180*450mm	230*180*450mm	230*180*450mm
重量	6kg	7kg	6kg	6.5kg
冷却方式	风冷	风冷	风冷	风冷
使用气源	空气源	空气源	空气源	空气源
数显面板	-	-	数显	数显

移动式
MOBILE STERILIZER

学校丨幼儿园丨食品厂丨包装间丨冷冻室丨水处理

BUSINESS
SMALL OZONE
DISINFECTOR

商用消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 酒店客户、KTV包厢、学校、手术室、病房、等空间或物品消毒
- 纯净水、矿泉水、自来水净化杀菌
- 具有10-120分钟定时功能（15g以下机型）
- 气泵采用国际知名厂家，气压稳定，每分钟0.01-0.035Mpa（该气压为Y系列所有产品气压范围）
- 机身采用不锈钢材质、防腐蚀、抗氧化
- 机身配重载万向轮及扶手，移动便捷
- 采用石英管发生单元，微间隙放电技术，放电频率高且稳定，臭氧浓度15-25mg/L
- 采用滚珠轴承散热风扇，转速提高20%，散热功能更强




型号	FL-803Y	FL-805Y	FL-810Y	FL-815Y
臭氧产量	3g/h	5g/h	10g/h	15g/h
臭氧浓度	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L
功率	100W	140W	180W	300W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	320*250*600mm	320*250*600mm	320*260*580mm	400*300*710mm
重量	10kg	11kg	13kg	20kg
冷却方式	风冷	风冷	风冷	风冷
使用气源	空气源	空气源	空气源	空气源

壁挂式
FIXED DISINFECTION

学校丨幼儿园丨洁净车间丨包装间丨冷冻室

BUSINESS
SMALL OZONE
DISINFECTOR

商用消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 学校、手术室、病房、酒店客户、KTV包厢、等空间或物品消毒
- 食品加工、包装材料、无菌室消毒杀菌
- 牙科诊所、美容门诊等废水杀菌消毒
- 实用形壁挂式外观设计，不占空间
- 微电脑智能定时，根据设计时间自动开关机，循环工作无需重复设定
- 采用石英管发生单元，微间隙放电技术，放电频率高且稳定，臭氧浓度15-25mg/L
- 机身采用304加厚不锈钢材质,防腐蚀、抗氧化
- 采用滚珠轴承散热风扇，转速提高20%，散热功能更强




型号	FL-803BT	FL-805BT	FL-810BT	FL-815BT
臭氧产量	3g/h	5g/h	10g/h	15g/h
臭氧浓度	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L
功率	75W	100W	140W	160W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	450*220*160mm	450*220*160mm	580*220*280mm	580*220*280mm
重量	7kg	7kg	13kg	14kg
冷却方式	风冷	风冷	风冷	风冷
使用气源	空气源	空气源	空气源	空气源

汽车专用
FIXED DISINFECTION

汽车消毒杀菌丨负离子净化丨新车除异味

BUSINESS
SMALL OZONE
DISINFECTOR

商用消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 采用臭氧+负离子双重净化，一键启动
- 通过臭氧对汽车内饰及空气进行杀菌消毒、除异味
- 通过负离子对车内空气进行净化，达到空气清新效果
- 可清除车内异味、浮游霉菌、病毒、浮游细菌、螨虫、花粉、挥发性有机物（TVOC）、甲醛、汽车尾气中的一氧化碳、二氧化碳和氮氧化物等，消毒快速、效率高、成本低
- 可分别对臭氧及负离子功能单独设计工作时间，随心定时
- 底部装有重载万向轮带刹车，使用及移动非常方便
- 机箱尺寸及外观设计高大上，4S店及车主高度认可



型号	FL-805Q	FL-805QS
臭氧产量	5g/h	5g/h
负离子产量	800万（pcs/m³）	1500万（pcs/m³）
臭氧浓度	15-20mg/L	15-20mg/L
功率	150W	110W
使用电源	220V/50Hz	220V/50Hz
机身尺寸	550*400*1200mm	320*260*780mm(含脚高扶手)
重量	36kg	24kg
冷却方式	风冷	风冷
使用气源	空气源	空气源


EXCELLENT
OZONE TECHNOLOGY
INDUSTRY LEADER
匠心品质 臻于至善

气水两用
FIXED DISINFECTION

型号	FL-820A	FL-830A	FL-840A
臭氧产量	20g/h	30g/h	40g/h
臭氧浓度	15-30mg/L	15-30mg/L	15-30mg/L
功率	320W	410W	530W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	300*400*780mm	300*400*830mm	550*400*1000mm
重量	22kg	22.5kg	43kg
冷却方式	风冷+水冷	风冷+水冷	风冷+水冷
使用气源	空气源	空气源	空气源

INDUSTRY
MEDIUM OZONE DISINFECTION SERIES

工业消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 空气杀菌、水处理、物品包材等多功能消毒
- 纯净水，生活用水、泳池、及各种生产用水杀菌
- 各行业养殖空间去味杀菌，臭氧水喂食促进禽畜类健康生长，降低禽畜的疾病产生机率
- 具有臭氧浓度调节功能，机身采用不锈钢材质、防腐蚀、抗氧化
- 采用石英管发生单元，微间隙放电技术，放电频率高且稳定
- 可根据使用需求外接氧气源，产生高浓度臭氧
- 风冷+水冷双重冷却系统，保障主机可长时间24小时稳定工作
- 大功率无油空压机，气压稳定，消毒效率高

型号	FL-850A	FL-880A	FL-8100A
臭氧产量	50g/h	80g/h	100g/h
臭氧浓度	15-30mg/L	15-30mg/L	15-30mg/L
功率	900W	1100W	1300W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	400*550*1000mm	550*400*1240mm	550*400*1350mm
重量	40kg	70kg	76kg
冷却方式	风冷+水冷	风冷+水冷	风冷+水冷
使用气源	空气源	空气源	空气源

工业臭氧发生器
QUICK DISINFECTION SERIES

蜂窝式放电　风冷散热　水冷散热　空气源制臭氧　连续工作

•150G~300G臭氧发生器　•冷干机　•无油空压机

•400G~1000G臭氧发生器　•冷干机　•储气罐　•无油空压机

型号	FL-8150A	FL-8200A	FL-8300A	FL-8400A	FL-8500A
臭氧产量	150g/h	200g/h	300g/h	400g/h	500g/h
尺寸（含脚高）	990*450*1280mm	990*450*1480mm	1000*550*1650mm	1000*550*1650	1000*550*1650
功率	1.5KW	2KW	3KW	4KW	5KW
工作电压	220V	220V	220V	220V	220V
电压频率	50Hz	50Hz	50Hz	50Hz	50Hz
工作压力	≤0.4Mpa	≤0.4Mpa	≤0.4Mpa	≤0.4Mpa	≤0.4Mpa
重量	90kg	100kg	110kg	120kg	150kg
臭氧浓度	15~30mg/L	15~30mg/L	15~30mg/L	15~30mg/L	15~30mg/L
空气流量	≤150L/min	≤200L/min	≤300L/min	≤400L/min	≤500L/min
冷却水流量	0.6~0.7(T/H)	0.6~0.7(T/H)	0.8~1(T/H)	3(T/H)	3.5(T/H)
冷却方式	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷
使用气源	空气源	空气源	空气源	空气源	空气源

INDUSTRY
OZONE DISINFECTION FOR INDUSTRIAL USE

工业消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 应用于生活污水、饮用水、工业废水、海洋馆、游泳池、水产养殖等水处理杀菌脱色COD降解
- 采用蜂窝式臭氧发生单元设计，高压放电集中，臭氧浓度极其稳定、且防潮性强，使用寿命长
- 机身采用304不锈钢材质、防腐蚀、抗氧化
- 臭氧浓度可调节，并且可根据消毒需求外接氧气源
- 发生器的放电管为精制钛金管，管壁光滑不蓄热，臭氧产量及浓度稳定，使用寿命长达15年以上
- 风冷+水冷双重冷却系统，保障主机可长时间24小时稳定工作
- 外置无油空压机、冷干机、储气罐等配套设备（可按需求选择配置）
- 有效去除大肠杆菌、葡萄球菌、氨氮、亚硝酸盐等物质，杀灭率高效快速，无二次污染

型号	FL-8600A	FL-8700A	FL-8800A	FL-8900A	FL-81000A
臭氧产量	600g/h	700g/h	800g/h	900g/h	1000g/h
尺寸（含脚高）	1000*550*1650	1000*550*1650	1000*550*1650	1000*550*1650	1450*750*1900
功率	6KW	7KW	8KW	9KW	10KW
工作电压	380V	380V	380V	380V	380V
电压频率	50Hz	50Hz	50Hz	50Hz	50Hz
工作压力	≤0.4Mpa	≤0.4Mpa	≤0.4Mpa	≤0.4Mpa	≤0.4Mpa
重量	150kg	170kg	170kg	210kg	230kg
臭氧浓度	15~30mg/L	15~30mg/L	15~30mg/L	15~30mg/L	15~30mg/L
空气流量	≤600L/min	≤700L/min	≤800L/min	≤900L/min	≤1000L/min
冷却水流量	4(T/H)	4.5(T/H)	5(T/H)	5.5(T/H)	6(T/H)
冷却方式	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷
使用气源	空气源	空气源	空气源	空气源	空气源

高浓度臭氧发生器
HIGH CONCENTRATION OZONIZER

型号	810ET	815ET	820ET	830ET
臭氧产量	10g/h	15g/h	20g/h	30g/h
臭氧浓度	60-100mg/l	60-100mg/l	60-100mg/l	60-100mg/l
功率	680W	780W	850W	950W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	550*400*730mm	550*400*850mm	550*400*850mm	550*400*850mm
重量	45kg	51kg	53kg	55kg
冷却方式	风冷	风冷	风冷+水冷	风冷+水冷
冷却水流量	-	-	0.1-0.2（T/H）	0.2-0.3（T/H）
使用气源	内置氧气源	内置氧气源	内置氧气源	内置氧气源

INDUSTRY
MEDIUM OZONE DISINFECTION SERIES

工业消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 应用于废水处理，降低生化需氧量（BOD)和化学需氧量（COD),去除亚硝酸盐、脱色等
- 应用于生物制药车间、高标准空间消毒，可达万级以上净化标准
- 内置制氧单元以世界著名生产厂家美国UOP公司的制氧分子为吸附剂，用变压吸附法（PSA)将空气中的氧气与氮气分离，并滤除空气中的有害物质，从而获取符合医用标准的高浓度氧气所转化的臭氧浓度高达80-100mg/L以上
- 臭氧浓度可自由调节
- 臭氧发生单元为精制钛金管，管壁光滑、不蓄热有利于稳定臭氧产量，使用寿命长达15年以上
- 机器采用304不锈钢机箱，美观、抗腐蚀、耐氧化；
- 臭氧产量20克以上采用风冷+水冷双重冷却系统，保障主机长时间24小时稳定工作
- 臭氧产量40克以上外置无油空压机，保证机器气压稳定

型号	840ET	850ET	880ET	8100ET
臭氧产量	40g/h	50g/h	80g/h	100g/h
臭氧浓度	60-100mg/l	60-100mg/l	60-100mg/l	60-100mg/l
功率	1100W	1200W	1750W	1800W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	550*400*1240	550*400*1240	550*400*1330	550*400*1330
重量	61kg	72kg	85kg	90kg
冷却方式	风冷	风冷	风冷+水冷	风冷+水冷
冷却水流量	0.3-0.4（T/H）	0.5-0.6（T/H）	0.5-0.6（T/H）	0.6-0.7（T/H）
使用气源	内置氧气源	内置氧气源	内置氧气源	内置氧气源

高浓度臭氧发生器
HIGH CONCENTRATION OZONIZER

型号	FL-8150ET	FL-8200ET	FL-8300ET	FL-8400ET	FL-8500ET
臭氧产量	150g/h	200g/h	300g/h	400g/h	500g/h
尺寸(mm)	990*450*1280	990*450*1480	1000*550*1650	1000*550*1650	1000*550*1650
功率	1.5KW	2.0KW	3.0KW	4.0KW	5.0KW
工作电压	220V	220V	220V	220V	220V
电压频率	50Hz	50Hz	50Hz	50Hz	50Hz
工作压力	≤0.15Mpa	≤0.15Mpa	≤0.15Mpa	≤0.15Mpa	≤0.15Mpa
重量	90kg	100kg	110kg	120kg	150kg
臭氧浓度	60~120mg/L	60~120mg/L	60~120mg/L	60~120mg/L	80~120mg/L
氧气流量	≤30L/min	≤40L/min	≤60L/min	≤80L/min	≤100L/min
冷却水流量	1(T/H)	1.5(T/H)	2(T/H)	2.5(T/H)	3.0(T/H)
冷却方式	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷
使用气源	氧气源	氧气源	氧气源	氧气源	氧气源

INDUSTRY
LARGE INDUSTRIAL OZONE DISINFECTOR

工业消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 应用于生活污水、工业废水、医疗废水等水处理，杀菌脱色COD降解等功能
- 应用于生物制药车间、高标准空间消毒，可达万级以上净化标准
- 采用风冷+水冷双重冷却系统，保障主机长时间24小时稳定工作
- 臭氧发生单元采用精钛金管，管壁光滑、不蓄热有利于稳定臭氧产量，使用寿命长达15年以上
- 采用分体配套外置螺杆式空压机、冷杆机、储气装置、吸附式杆燥机、制氧机、蜂窝式臭氧发生器组成，臭氧浓度高且稳定，出口气压大
- 机箱采用304不锈钢，美观、抗腐蚀、耐氧化
- 臭氧浓度可根据使用需求自由调节

型号	FL-8600ET	FL-8700ET	FL-8800ET	FL-8900ET	FL-81000ET
臭氧产量	600g/h	700g/h	800g/h	900g/h	1000g/h
尺寸(mm)	1200*650*1680	1200*650*1680	1200*650*1680	1200*650*1680	1450*750*1900
功率	6.0KW	7.0KW	8.0KW	9.0KW	10.0KW
工作电压	220V	220V	220V	380V	380V
电压频率	50Hz	50Hz	50Hz	50Hz	50Hz
工作压力	≤0.15Mpa	≤0.15Mpa	≤0.15Mpa	≤0.15Mpa	≤0.15Mpa
重量	160kg	170kg	190kg	210kg	230kg
臭氧浓度	60~120mg/L	60~120mg/L	60~120mg/L	60~120mg/L	60~120mg/L
氧气流量	≤120L/min	≤140L/min	≤160L/min	≤180L/min	≤200L/min
冷却水流量	3.5(T/H)	4(T/H)	4.5(T/H)	5(T/H)	5.5(T/H)
冷却方式	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷	风冷+水冷
使用气源	氧气源	氧气源	氧气源	氧气源	氧气源

管道式消毒
DISINFECTION OF SPACE PIPES

微电脑定时工作　陶瓷极速制臭氧　风冷散热　空气源制臭氧　管道式消毒

型号	FL-820F	FL-840F	FL-860F	FL-880F	FL-8100F
臭氧产量	20g/h	40g/h	60g/h	80g/h	100g/h
最大臭氧浓度	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L
功率	260W	380W	490W	560W	880W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸(含脚高)	430*330*730mm	430*330*730mm	430*330*730mm	430*330*730mm	550*400*950mm
冷却方式	风冷	风冷	风冷	风冷	风冷
使用气源	空气源	空气源	空气源	空气源	空气源
机身重量	24KG	25KG	26KG	27KG	46KG
臭氧输出口	单管	单管	单管	单管	双管

SPACE SPECIFIC
INDOOR PLACEMENT AIR DISINFECTION

空间专用

功能特点
FUNCTIONAL CHARACTERISTICS

- 畜牧养殖、预防瘟疫、提高成活率、净化养殖环境
- 生产车间、冷库、食堂、蔬菜大棚、培植室、学校、等空间杀菌消毒专用
- 可连接中央空调管道或自行布管道进行空气杀菌消毒
- 采用大功率多翼离心风机，风量大且臭氧投送距离远
- 机箱采用304不锈钢，顶部臭氧出风口直径为90mm
- 臭氧浓度可根据使用需求自由调节
- 可根据客户要求定制吊顶式风管臭氧消毒机

型号	FL-8120F	FL-8160F	FL-8180F	FL-8200F	FL-8240F
臭氧产量	120g/h	160g/h	180g/h	200g/h	240g/h
最大臭氧浓度	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L
功率	980W	1130W	1430W	1500W	1650W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸(含脚高)	550*400*950mm	550*400*950mm	600*500*1160mm	600*500*1160mm	600*500*1160mm
冷却方式	风冷	风冷	风冷	风冷	风冷
使用气源	空气源	空气源	空气源	空气源	空气源
机身重量	47KG	49KG	62KG	63KG	65KG
臭氧输出口	双管	双管	三管	三管	三管

空气消毒
SPACE DISINFECTION

SPACE SPECIFIC
INDOOR PLACEMENT AIR DISINFECTION

空间专用

功能特点
FUNCTIONAL CHARACTERISTICS

- 生产车间、冷库、食堂、蔬菜大棚、培菌室、学校等空间杀菌消毒专用
- 畜牧养殖、预防瘟疫、提高成活率、净化养殖环境
- 臭氧发生单元由3mm合金片+陶瓷组合构成，蜂窝式放电设计，臭氧浓度高，寿命长且抗震防摔性强
- 采用滚珠轴承散热风扇，转速提高20%，散热功能更强
- 机箱采用304不锈钢材质、防腐蚀、抗氧化
- 微电脑液晶显示智能定时功能，每天可调置16组开关机时间，机器循环自动开关，实现无人操守
- 底部装有重载万向轮带刹车，使用及移动非常方便








型号	FL-805N	FL-810N	FL-815N	FL-820N	FL-830N	FL-850N
臭氧产量	5g/h	10g/h	15g/h	20g/h	30g/h	50g/h
最大臭氧浓度	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L
功率	135W	185W	235W	450W	600W	980W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸	480*280*340mm	480*280*340mm	480*280*340mm	550*305*610mm	550*305*610mm	750*305*810mm
冷却方式	风冷	风冷	风冷	风冷	风冷	风冷
使用气源	空气源	空气源	空气源	空气源	空气源	空气源
机身重量	9KG	10KG	10KG	20KG	21KG	34KG
机型样式	手提式	手提式	手提式	移动式	移动式	移动式

SPACE SPECIFIC

INDOOR PLACEMENT
AIR DISINFECTION

空间专用

应用说明
APPLICATION NOTES

空间消毒机在食品厂的应用

目前，已广泛应用于食品加工车间杀菌净化 、环境杀菌、工作服消毒、食品车间除味净化，臭氧发生器可根据消毒灭菌的要求和体积，确定臭氧发生器的型号和臭氧发生量，并通过验证检查细菌数来确定灭菌时间。灭菌时，将臭氧发生器置于一环境清洁、湿度较小的房间内，设置开机时间，产生的臭氧可以通过管道输送至各需灭菌间；也可以将臭氧发生器直接放置于需灭菌间内，直接对空间进行杀菌消毒。并能根据各厂家的不同情况，采用定时灭菌消毒，上下班自动开关机杀菌消毒，避免臭氧对人的影响。

臭氧在宾馆饭店的应用

一般星级宾馆都采用中央空调来调节空气温度和除尘，但由于没有消毒灭菌和加湿措施及空气的循环使用，导致空气污浊、干燥、各种病毒细菌大量增加，严重威胁人体健康。采取在风管中加入适量臭氧和水蒸汽，保持合适的温度，不仅起到了消毒和灭菌的作用，而且还增加空气的清新感。

臭氧在仓库冻库的应用

冷库中堆货往往密而高，空间空隙小，而臭氧机产生的臭氧是通过风机吹出，可弥漫到每一空间，消毒无死角。臭氧在消除异味方面有特殊功效，在冷库中使用，可有效地清除空气中以及吸入墙壁、地台板中的食品异味。避免转存其它食品时的串味污染。

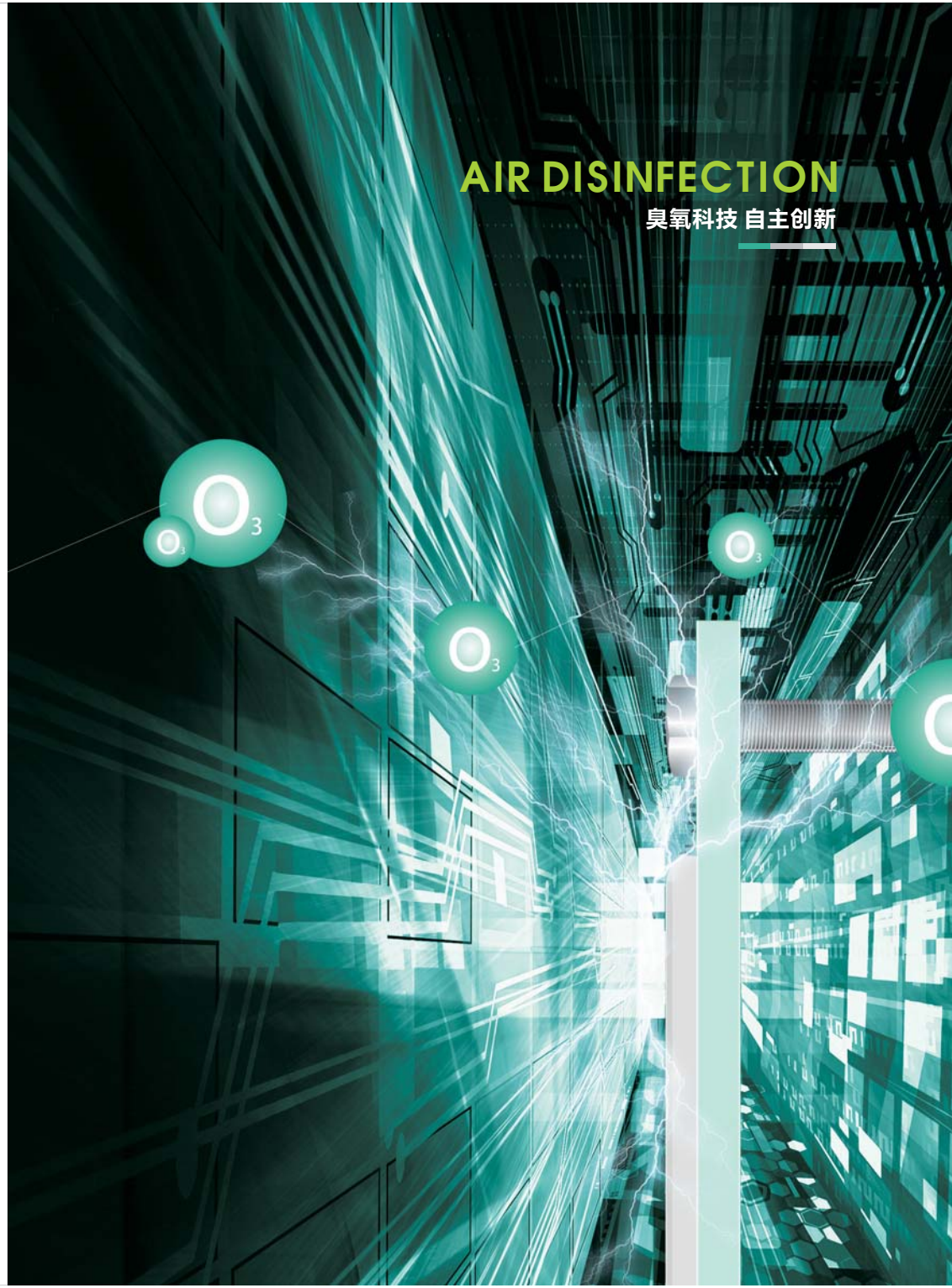
空间消毒机在养殖中的应用

臭氧充注到养殖棚内，首先与禽类排泄物所散发的异臭进行分解反应去除异臭，当异臭去除到一定程度稍闻到臭氧味时，棚内空间的大肠杆菌，葡萄球菌及新城瘟疫、 鸡霍乱、禽流感等病毒基本随之杀灭。另外，不可忽视禽类的排泄物散发的胺类气体给禽类造成的毒害，农村养殖户冬天在养殖棚直接用煤炉取暖所产生的氧化硫等有毒气体给禽类造成的危害不可能靠化学药物来消除。但应用臭氧技术之后，有效地达到净化作用，进入应用臭氧技术的养殖棚内很直观地让人感觉到空气明显变清新。

在食用菌种植领域的应用

食用菌种植最头疼的就是接种环节，因为此环节一旦感染杂菌，那就会造成极大的损失。近几来，一些食用菌机械设备生产企业，利用臭氧进行接种环节的消毒，取得了非常好的效果。

型号	FL-860N	FL-870N	FL-880N	FL-8100N	FL-8150N	FL-8200N	FL-8280N
臭氧产量	60g/h	70g/h	80g/h	100g/h	150g/h	200g/h	280g/h
最大臭氧浓度	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L	15-20mg/L
功率	1130W	1220W	1450W	1750W	1990W	2480W	3250W
使用电源	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz
机身尺寸(mm)	750*305*810	750*305*810	850*305*970	850*305*970	850*330*970	850*330*970	850*330*970
冷却方式	风冷	风冷	风冷	风冷	风冷	风冷	风冷
使用气源	空气源	空气源	空气源	空气源	空气源	空气源	空气源
机身重量	36KG	38KG	47KG	50KG	60KG	63KG	66KG
机型样式	移动式	移动式	移动式	移动式	移动式	移动式	移动式



中央空调专用臭氧发生器
THE CENTRAL AIR CONDITIONING DEDICATED

陶瓷极速制臭氧　风冷散热　空气源制臭氧　微电脑定时工作

型号	FL-830K	FL-850K	FL-880K	FL-8100K
臭氧产量	30g/h	50g/h	80g/h	100g/h
尺寸(含脚高)	550*305*570mm	550*305*570mm	550*305*570mm	750*305*770mm
功率	580W	830W	980W	1200W
工作电压	220V	220V	220V	220V
电压频率	50Hz	50Hz	50Hz	50Hz
臭氧浓度	15~20mg/L	15~20mg/L	15~20mg/L	15~20mg/L
重量	22kg	24kg	24kg	36kg
冷却方式	风冷	风冷	风冷	风冷

SPACE SPECIFIC
INDOOR PLACEMENT AIR DISINFECTION

空间专用

功能特点
FUNCTIONAL CHARACTERISTICS

- 中央空调内置配套臭氧消毒
- 臭氧发生单元由3mm合金片+陶瓷组合构成，蜂窝式排放设计，臭氧浓度高，寿命长且抗震防摔性强
- 外置微电脑智能定时，可壁挂定时控制箱+5米电源线长，操作更方便
- 采用标准304不锈钢机身，实用防腐抗潮
- 底部螺丝固定孔位，保证消毒机在空调内部的稳固性
- 机箱两面加大风孔，臭氧扩散性更广

型号	FL-8120K	FL-8160K	FL-8200K	FL-8280K
臭氧产量	120g/h	160g/h	200g/h	280g/h
尺寸(含脚高)	750*305*770mm	750*305*770mm	850*305*920mm	850*305*920mm
功率	1450W	1800W	2290W	3050W
工作电压	220V	220V	220V	220V
电压频率	50Hz	50Hz	50Hz	50Hz
臭氧浓度	15~20mg/L	15~20mg/L	15~20mg/L	15~20mg/L
重量	37kg	39kg	54kg	62kg
冷却方式	风冷	风冷	风冷	风冷

定制型臭氧消毒柜
OZONE DISINFECTION CABINET

可定制臭氧丨紫外线丨高温丨单双门丨透窗等

CUSTOMIZED
DISINFECTION
OF INSTRUMENTS

器械
消毒

功能特点
FUNCTIONAL CHARACTERISTICS

- 可根据客户需求定制不同规格、尺寸、功能等臭氧消毒柜
- 可定制紫外线/高温/臭氧/烘干/排风/等多功能合一
- 可为化妆品行业定制透窗式臭氧消毒柜
- 消毒柜机身均采用304不锈钢材质
- 消毒柜门框密封条均采用硅胶耐腐蚀材料，消毒柜密封性极强
- 消毒柜臭氧发生单元均采用石英管发生单元，微间隙放电技术，放电频率高且稳定
- 消毒柜采用滚珠轴承散热风扇，转速提高20%，散热功能更强








型号	FL-803X-A	FL-803X-B	FL-805X-C	FL-805X-D	FL-805X-E
臭氧产量	3g/h	3g/h	5g/h	5g/h	5g/h
尺寸(含脚高)	500*500*680mm	500*450*1280mm	900*500*1600mm	900*500*1600mm	1000*305*1600mm
功率	95W	95W	105W	105W	105W/1600W
工作电压	220V	220V	220V	220V	220V
电压频率	50Hz	50Hz	50Hz	50Hz	50Hz
臭氧浓度	15~20mg/L	15~20mg/L	15~20mg/L	15~20mg/L	15~20mg/L
冷却方式	风冷	风冷	风冷	风冷	风冷
机型	小型臭氧消毒柜	小型单开门	双开门	透明玻璃窗双开门	双开门（烘干型）

气水混合器配件
THE GAS WATER MIXER ACCWSSORIES

INACCESSORIES
OZONE DISINFECTION ACCESSORIES

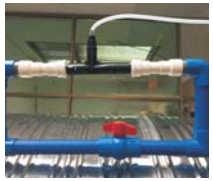
消毒配件

功能特点-气液混合射流器
FUNCTIONAL CHARACTERISTICS

- 分为2分、4分、6分、1寸、1.5寸、2寸水管路射流器
- 适合0.1~50吨/小时流量使用
- 1.5寸射流器以下尺寸自带单向阀，2寸单独配一个单向阀（6分PVC材料）
- 射流器(气液混合腔)又称水射器,它是由喷嘴、吸入室、扩压管三部份组成，利用射流负压原理发展起来的一种多用途曝气方式，独特的混合气室设计，强劲的水流与臭氧混合，使臭氧混合度更均匀，溶氧效率更高

功能特点-气液混合泵
FUNCTIONAL CHARACTERISTICS

- 气液混合泵是一种卧式安装的自吸式气液混合泵，采用特配电机，直联式结构
- 采用标准电机轴联器连接形式，该泵结构、性能全部引进国外技术，泵的过流部件全部采用不锈钢材料精铸制成
- 气液混合泵的吸入口可以利用负压作用吸入气体，高速旋转的泵叶轮将液体与气体混合搅拌
- 由于泵内的加压混合，气体与液体充分溶解，溶解效率可达80~100%。
- 使用气液混合泵，可以提高溶气液制取效率、简化制取装置、节省场地




型号	2分	4分	6分	1寸	1.5寸	2寸
进口规格(寸)	1/4	1/2	3/4	1	1.5	2
进气阀帽外牙(寸)	1/8	1/4	1/4	3/8	1/2	1.25
软管接口(寸)	-	1/4	3/8	-	1/2	1/2
总长度	57mm	100mm	152mm	230mm	275mm	275mm
出水量(吨/小时)	0.05~0.25	0.2~1	1~3	3-10	10-25	25-50
水泵功率(KW)	-	0.35	0.55	0.75	1.5	2.2

臭氧作为一种强氧化剂、消毒剂、精制剂、催化剂等被广泛应用于石油、化工、纺织、食品、制药、培植、香料、环保等部门。1905年起臭氧开始用于水处理，它可以解决饮用水的质量问题。

目前，日本及欧美的大部分国家已把臭氧技术应用于医疗器械、餐具杀菌等。臭氧作为氧化剂在纺织、印染、造纸、除臭脱色、漂白、老化技术处理、生物工程等领域中亦在逐步得到应用。臭氧的最大特点是气体（由三个氧原子组成），并且具有极强的氧化能力。它的氧化能力仅次于氟而高于氯，效率高而无有害残留物，因而具有广泛的应用领域。

臭氧应用的分类

按作用分类

臭氧具有极强的氧化能力，因此具有极强的杀菌作用、脱色、脱臭、脱味作用及分解作用。

- 杀菌可用于：上、下水，游泳池水，饮料水等的杀菌消毒；食品储藏室内杀菌消毒；医院、学校、幼儿园、办公室、食品加工厂、制药厂、培植等空气净化；器具类杀菌消毒，医院污水、生活污水的杀菌消毒等等。
- 脱色、脱臭、脱味作用可用于：粪便处理、给排水的脱色除味、养殖场除臭等，下水道的净化脱臭。
- 氧化：无机物的氧化，水中除铁、锰，含氰废水的处理，矿石处理等。有机物氧化分解，工业废水处理，微污染水处理，COD消除等，表面活性化，表面改性（炭黑表面改性，纤维表面改性，颜料表面改性），香料的合成，改变构造等。内燃机燃烧剂，火箭氧化剂等。

按其应用领域分类

- 可分水处理、化学氧化、食品加工和医疗卫生等四个领域：
- 水处理：臭氧在水中对细菌、病毒等微生物杀灭率高、速度快，对有机化合物等污染物质去除彻底又不产生二次污染，因此饮用水杀菌消毒是当前臭氧应用的最主要的部门，自来水行业是臭氧的最大市场。
- 化学氧化：臭氧作为氧化剂、催化剂和精制剂而应用于化工、石油、造纸、纺织和制药、香料工业。新型材料碳素纤维经臭氧表面处理后提高品质；塑料薄膜臭氧处理后提高了表面印刷着色能力；纸浆漂白在挪威已发展到生产验证阶段。在生物、化学污染气体净化方面，皮毛、肠衣与鱼类加工厂的恶臭，橡胶、化工厂的污染气体均可通过臭氧分解除味。英国把臭氧与紫外线共同作用作为处理化学污染的优选技术，一些应用取得了很好的效果，臭氧对农药的合成产生催化作用，对某些农药的残留又可以氧化的分解。
- 食品行业：臭氧的强杀菌能力及无残余污染优点使其在食品行业的消毒除味，防霉保鲜方面得到广泛应用。1904年就有利用臭氧保存牛奶、肉制品、奶酪、蛋白等食品的报道，1909年法国德波涅冷冻厂正式使用臭氧对冷冻肉表面杀菌，取得了微生物数量显著减少的效果。美国食品与医药管理局（FDA）1997年4月，修改了一直把臭氧作为“食品添加剂”限制使用的规定，允许不必申请即可在食品加工、贮藏中使用臭氧。
- 医疗卫生：对病房、手术室空气进行臭氧消毒在我国是推广的主要方向，而国外则开展了很多治疗应用研究试验。德国、瑞士、俄罗斯、法国及意大利的内科和牙科医生，多年来都在运用臭氧进行治疗，如口腔手术和镶牙用臭氧水保持口腔无菌，采用臭氧与放射治疗合用治疗癌症，注射臭氧气体治疗静脉曲张等。

臭氧在食品、制药、GMP认证等空间杀菌消毒应用

臭氧特性

消毒杀菌

臭氧对细菌、霉菌、病菌等微生物具有极强的杀灭力，它杀灭病毒是通过直接破坏其PNA和DNA物质完成的，而杀细菌，病毒类微生物的过程则是臭氧先作用细胞膜，继而破坏膜组织直至溶解死亡。

除异臭味

臭氧去除霉，腥、臭等异味效果极好，它可以快速氧化分解异味的化学物质。

防霉保鲜

臭氧为弥漫性气体，消毒无死角，可实现机器自行运行而杀菌防霉。对水果菜类不但能杀菌防霉、延长保鲜期，而且可快速分解果蔬令其快速成熟的乙烯气体。

物体表面消毒杀菌

在药品生产过程中常常要对原材料，工具，包装物等进行表面消毒，常常使用消毒柜，传递窗等，传统的方法是用紫外线消毒，问题主要是消毒不彻底，所以若使用在诸如传递窗等要求不高的场合是可以的，但远不如臭氧的效果好。《消毒技术规范》中详细讲述，对于浸没在臭氧气体中的物体表面，接触一段时间，可将表面细菌杀死。

臭氧在医药工业的应用

- 医药工业：医药工业洁净室与其他工业洁净室有所不同，特别是无菌生产制剂及原料药品生产，不仅要控制空气中一般悬浮状态的气溶胶粒子，还要控制微生物数，既提供“无菌药品”生产所必须的相应空气洁净度环境（无菌室）
- 杀菌可用于：上、下水，游泳池水，饮料水等的杀菌消毒；食品储藏室内杀菌消毒；医院、学校、幼儿园、办公室、食品加工厂、制药厂、培植等空气净化；器具类杀菌消毒，医院污水、生活污水的杀菌消毒等。
- 操作方便：根据消毒灭菌的要求和空间体积，确定臭氧发生器的型号和臭氧发生量，并通过验证检查细菌数来确定灭菌时间。灭菌时，直接将臭氧输出口置于无菌室内或HVAC系统中，可选用24小时时间控制器设置开机关机时间即可。
- 高洁净性：应用臭氧作消毒杀菌剂，停机30分钟后，剩余臭氧即可渐渐自行分解还原为氧，同时还可以改善空气的质量，优化工作环境。所以臭氧被赞誉为“绿色消毒剂”。
- 对机器设备无不良影响：臭氧对空气中的浮游菌灭杀所需臭氧的浓度很低，一般只需要2~4PPM，对物体表面沉降菌落（代替传统的化学熏蒸大消毒）只需要10~15PPM左右。空气中臭氧浓度只有10-15百万分之一，是化学熏蒸浓度的500分之一。由于灭菌过程时间短，正确使用不足以构成物体腐蚀的条件。这也是大家特别关心的。
- 使用经济：以空气为原料，工作能耗低，运行费用低，经济效益好。

臭氧在药厂的应用场合

臭氧在医药行业的应用主要有几个方面：一是GMP车间及设备、器具表面的杀菌消毒；二是中央空调系统杀菌消毒；三是更衣室和工作服杀菌消毒；四是生产加工用水的杀菌净化；五是制备高浓度的臭氧消毒液。

生产GMP车间的空气杀菌消毒：

根据GMP车间级别不同，对应选择合适的机型		
车间洁净度级别	微生物最大允许数浮菌/m3	适用场合
30万级	1000	丸剂、颗粒包装车间
10万级	500	注射剂浓配车间
1万级	100	小容量注射剂灌装车间，直接接触药品包装材料最终处理车间
100级	5	大容量注射剂的灌装车间

生产GMP车间或食品净化级别选择：

种类	浓度ppm	每m³每小时臭氧量mg/h
家庭办公室	1--2	2.5--5
一般场所	6--10	5--10
冷库　30万级	6--10	5--10
食品医药车间　十万级	15--20	10--20
医院无菌病房　一万级	30--40	30--50
食品医药实验室　100级	60--80	40--60

飞立臭氧机型选择建议(FL-Y型）：

型号\级别	30万级	10万级
FL-803Y	80-120m³	30-60m³
FL-805Y	120-250m³	50-100m³
FL-810Y	180-350m³	100-200m³
FL-815Y	300-500m³	150-300m³

水冷臭氧发生器A系列采用先进脱羟石英介质微间隙放电单元 如下表：

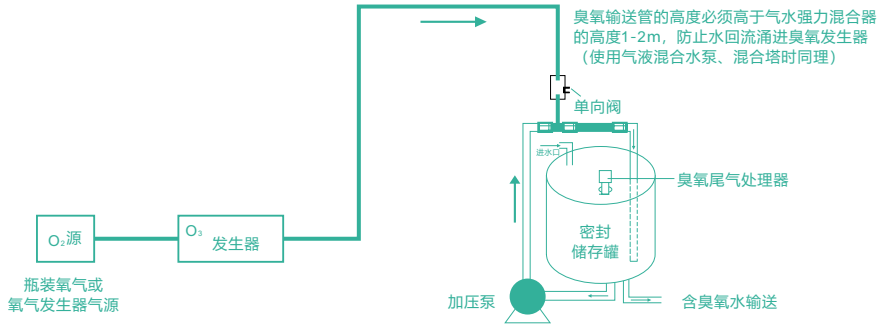
型号\级别	30万级	10万级
FL-820A	600-1000m³	300-500m³
FL-830A	700-1250m³	400-625m³
FL-840A	900-1600m³	500-800m³
FL-850A	1500-2500m³	800-1250m³
FL-880A	2200-4000m³	1200-2000m³
FL-8100A	2800-5000m³	1600-2500m³
FL-8150A	5000-7500m³	2500-3750m³
FL-8500A	16000-25000m³	8000-12500m³

臭氧的应用-水处理

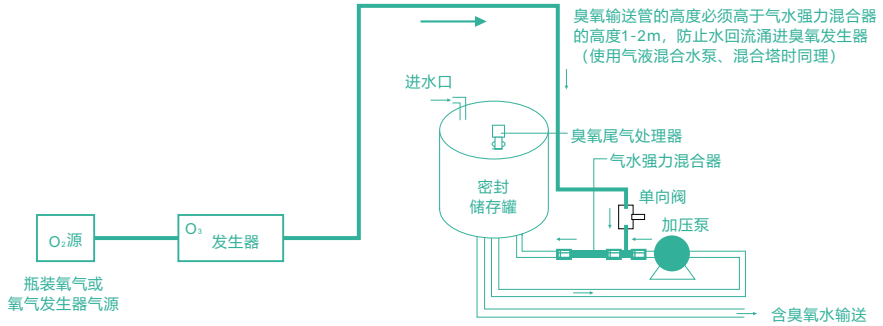
目前在世界范围内，纯净水、天然水（山泉水，矿泉水、地下水等经过过滤等工序制成），已普遍采用臭氧消毒。在自来水臭氧净化应用时，国际常规标准为0.4mg/L的溶解度值保持4分钟，即CT值为1.6。下表为参考值：

指标\类别	分质供水	纯净水	天然水	自来水	泳池水
水中臭氧浓度	0.1-0.3mg/L	0.2-0.4mg/L	0.4-0.6mg/L	0.4mg/L	0.2mg/L
臭氧添加量	1-2g/T	2-3g/T	3-5g/T	2-3g/T	1-2g/T

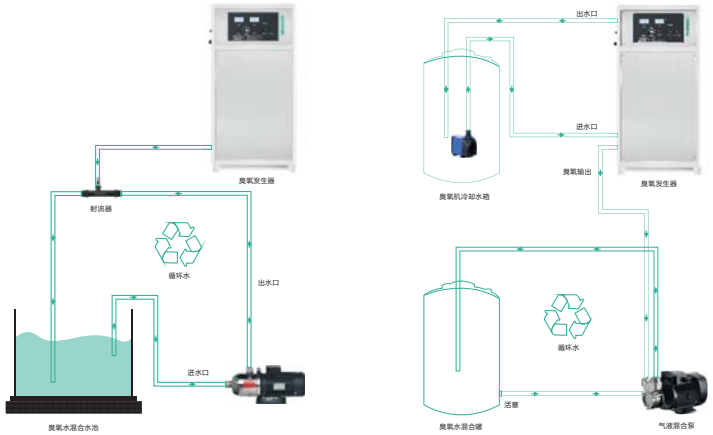
气水混合连接图①　（氧气源臭氧发生器自带无油空压机，8T水以上时要另配套无油空压机和冷干机）



气水混合连接图②　（氧气源臭氧发生器自带无油空压机）

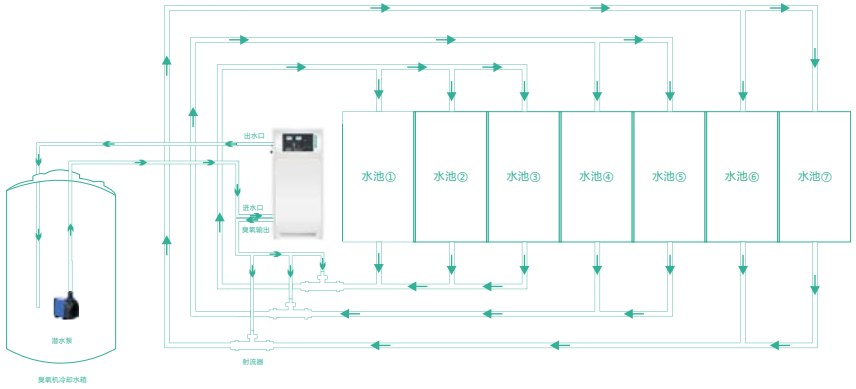


气液混合水循环连接图A/B（氧气源臭氧发生器自带无油空压机，8T水以上时要另配套空压机和冷干机）



A:射流器混合　　B:混合泵混合

游泳池水循环处理连接图（氧气源臭氧发生器自带无油空压机，8T水以上时要另配套空压机和冷干机）



臭氧的应用-泳池消毒

概述

按国家规定或规范，根据游泳池和水上游乐池给池水排水设计规程。《CECS14：2002》设置臭氧处理装置。此外，一些公众性泳池、高档宾馆、小区的游泳池也采用臭氧技术。人们对于个人卫生的保护意识在“非典”危害中得到进一步加强。可以预见，臭氧处理泳池水技术今后必将加速发展。

游泳池使用臭氧

臭氧及其二次产物羟基氧具有最强的杀菌性及灭活病毒的作用，可有效防止细菌和病毒的蔓延，实验证明，同样浓度的臭氧杀灭细菌和病毒的效果是氯的600-3000倍。臭氧是国际公认的环保型绿色杀菌剂，不会对环境造成二次污染，而氯制剂会与水中的有机物反应生成三氯甲烷、氯仿等，这些物质均为公认的致癌致突变物。当人游泳时，这些有毒物质会被人体所吸收在水中人体每小时可吸收500毫升水）。水中的氯代有机化合物还会刺激人的眼睛及皮肤，从而引发红眼及皮疹。

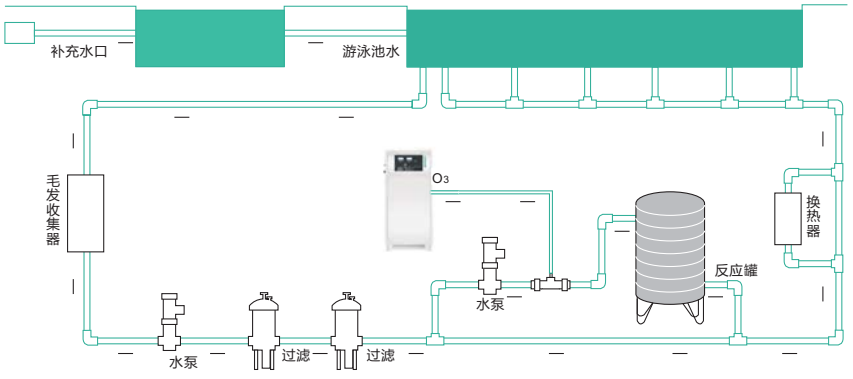
臭氧是最强的氧化剂，可有效分解水中的腐蚀质，氧化水中的铁、锰离子，分解水中散射光线的微小有机体，从而大大提高水的清澈度，使水呈现出美丽的蓝色，而氯制剂则无效果。为使水呈现蓝色，使用氯制剂的游泳池往往需加入铜盐，对人体极为有害。

加入氯制剂后，会导致水的PH值的改变，使人感到不适，需要加入碱性或酸性物质予以中和。而臭氧是中性物质，不会产生此种问题。

臭氧技术

循环水量用臭氧消毒。投加浓度为：0.5--1.0mg/L，一般采用的方法：通过水流压力，由射流器中产生的负压混合成的臭氧水与主管水流合并，并在接触罐中反应不低于二分钟方能达到杀菌的目的。为了保障空气中的臭氧低于0.1ppm，可安装活性炭分解器。

产品运用示意图



臭氧在水产养殖中的应用

随着水产养殖业的发展，养殖业因病原微生物引起疾病时有发生，对养殖业危害极大。各养殖设施除加强管理外，在饲养水及使用的各类器具上消除病原微生物已成为一个重要课题。臭氧作为一种强氧化剂、消毒剂、催化剂不仅在工业上得到广泛的应用，实践证明臭氧亦在水消毒、改善水质、防止水产养殖系统内的疾病及赤潮解毒等领域得到了成功的应用。通过臭氧杀菌装置可对生物卵消毒、养殖水杀菌、设施消毒，可以防止病原体的侵入。臭氧具有强烈的杀菌消毒和水质净化作用，而且无毒害，是水产养殖和育苗生产中最理想的杀菌净化剂，对防治鱼、虾、海胆、河蟹、甲鱼等生物病害，改善水产养殖的生态环境，有着重要的意义。总之水产养殖中使用臭氧育苗，现在成套的设备价格并不高，一次性投资也不大，而且可节约各种消毒剂，抗素，还可以减少换水量，应用臭氧育苗，其成活率至少可提高一倍以上而且一套设备可使用数年，从而既可大大节省养殖本，又可培养出绿色环保食品，从各个方面讲是比较经济的。目前日本及欧美等大部分国家已广泛采用臭氧进行养殖，并禁止采用氯化物等化学消毒剂进行养殖而造成含氯素过高的产品进入其市场，各大报刊时有报道。

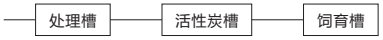
■ 淡水养殖中的臭氧杀菌饲育用水的处理模式图

（臭氧投加量：每立方水投加1~2克）

图中所示先以0.1~0.3mg/L浓度处理5~10分钟，再曝气到臭氧浓度0.003mg/L以下方可用作饲养育水

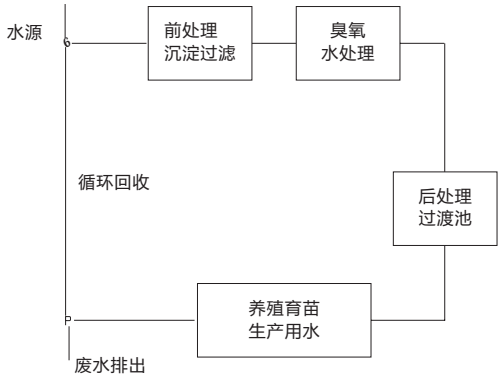
■ 海水养殖中臭氧杀菌饲育用水处理模式图

（臭氧投加量：每立方水投加1~3克）



图中所示先以0.1~0.5mg/L浓度处理5~10分钟，再经活性炭槽到臭氧浓度0.003mg/L以下方可用作饲养育水

注意：海水养殖需经活性炭槽等将臭氧气体及所生成的强氧化剂去除，不能等同于淡水养殖工序。



臭氧的应用
OZONE APPLICATION

食品车间臭氧应用

生产环境和生产用水达到企业标准

- 生产环境灭菌
- 生产用水灭菌

食品加工臭氧应用

合理用臭氧，绿色食品生产的重要保障

- 杀灭浮游生物及微生物
- 降解水中有机物，改善水质
- 杀菌、消毒
- 生产环境及器具消毒

仓储冻库臭氧应用

臭氧在我国冷库贮藏保鲜领域广泛应用

- 杀灭微生物-消毒杀菌
- 使各种有臭味的无机或有机物氧化-除臭
- 使新陈代谢产物氧化，抑制新陈代谢过程

泳池水处理应用

比赛用泳池或高档水上乐园均采用臭氧消毒

- 改进水质，杀死包括大肠杆菌等病菌
- 促进过滤，使用水质更清澈

污水处理臭氧应用

强氧化能力在环境保护和化工领域被广泛应用

- 降低BOD、COD
- 去除水中酚、氰等污染物质
- 脱色、除味、杀菌、消毒
- 除去水中铁、锰等金属离子

学校幼儿园环境卫生应用

臭氧在教育环境卫生领域已获官方认可

- 空间消毒
- 防止流行性病毒传染
- 预防手足口病
- 食堂应用水杀菌消毒

纯净水处理应用

臭氧是真正无残留无负作用的消毒剂

- 替代氯
- 抑杀藻类
- 除菌消毒

绸缎漂白臭氧应用

臭氧是公认的漂白无残留效果好

- 具备强氧化性
- 催化剂
- 精制剂

洗水厂处理应用

采用臭氧脱色即环保又节约成本

- 脱色
- 漂白

臭氧的应用
OZONE APPLICATION

海鲜水产养殖臭氧应用
国外水产养殖普遍采用臭氧技术净化水源

- 净化育苗水源
- 杀菌消毒分解污染物
- 使水体增氧

菌菇培植臭氧应用
臭氧能改善菇菌生长环境及人员工作环境

- 菇房灭菌
- 培养基处理
- 防止腐殖菌，促进食用菌生长

畜禽臭氧消毒应用
从源头上解决畜禽养殖问题，降低养殖风险

- 改善圈舍养殖环境
- 畜禽增重快
- 减少抗生素，降低成本
- 激活畜禽机体免疫细胞，提高成活率
- 预防畜禽传染病

无菌实验室臭氧应用
提高对微生物指标检测合格标准

- 消毒净化
- 灭杀细菌群体、避免生产污染

餐饮服务业臭氧应用
臭氧的消毒能力在餐饮酒店消毒方面独具优势

- 消毒净化
- 除甲醛、去异味
- 毛巾、被套等物品杀菌消毒

汽车美容店臭氧应用
高档汽车美容店、4S店均采用车内臭氧消毒

- 车内除异味
- 净化车内空间
- 防止病菌滋生

生产制药臭氧应用
臭氧灭菌是我国GDM验证中推荐的消毒方法

- 容器的消毒灭菌
- 通过中央空调对洁净区消毒灭菌
- 物品表面灭菌
- 原料及工器具灭菌
- 生产用水消毒

公共卫生领域臭氧应用
臭氧消毒简单易行，获广泛认可及应用

- 中央空调除菌净化
- 汽车空调除菌净化
- 饮食服务行业消毒净化

医院臭氧应用
安全、高效、彻底、无残留消毒

- 病房消毒
- 地面和物体表面消毒
- 医用污水消毒

FEILI 飞立
臭氧科技 · 领航者

备注：
本画册所涉及的所有产品图均以实物为准。
本画册所有内容经过严格审阅校对，但不排除可能存在排版或印刷错漏，敬请谅解！

2.

Scheda Tecnica

Caratteristiche Tecniche

PRODUZIONE OZONO	3g/H
CONCENTRAZIONE OZONO	15-20mg/L
IONIZZAZIONE NEGATIVA	20.000.000/m_3
VOLUME DI UTILIZZO	90 m_3
ALIMENTAZIONE (VOLTS)	220V AC / 12V DC
CONSUMO (AMPERE)	6.5A
POTENZA (WATTS)	60/70W
TIPO DI SORGENTE	ARIA
DIMENSIONI	260x150x160mm
PESO NETTO	4 kg

3.

Test Report

BCTC Building & 1-2F, East of B Building, Pengzhou Industrial Park,
Fuyuan 1st Road, Qiaotou, Fuyong Street, Bao'an District, Shenzhen,
Guangdong, China

Certificate of Compliance

Certificate Number: BCTC2003002022C

Applicant	:	**Shenzhen Feili Electrical Appliance Technology Co., Ltd.** 5th floor, building L, JINGTIE science and Technology Industrial Park, No. 49, Changjiang Pu Road, Henggang street, Longgang District, Shenzhen City, Guangdong Province
Manufacturer	:	**Shenzhen Feili Electrical Appliance Technology Co., Ltd.** 5th floor, building L, JINGTIE science and Technology Industrial Park, No. 49, Changjiang Pu Road, Henggang street, Longgang District, Shenzhen City, Guangdong Province
Trademark	:	FEILI 飞立
Product	:	**Ozone sterilizer**
M/N	:	**FL-B803S, FL-803C, FL-803BT, FL-805D, FL-805N, FL-810N, FL-815N, FL-803AS, FL-805AS, FL-805QS, FL-8W, FL-8F, FL-8A, FL-8C, FL-803E,FL-803M,FL-803D,FL-803X,FL-803H,FL-803S,FL-B805N,FL-B803BT,FL-805BT**
Test Standard	:	**EN 60335-1:2012+A11:2014+A13:2017;** **EN 62233:2008;**

The EUT described above has been tested by us with the listed standards and found in compliance with the council LVD directive 2014/35/EU. It is possible to use CE marking to demonstrate the compliance with this LVD Directive. It is only valid in connection with the test report number: BCTC2003002022SN1.

CE

倍测检测 BCTC APPROVED SHENZHEN BCTC TESTING CO., LTD

Kevin Wang

Manager

Apr. 09, 2020

Tel: 400-788-9558 or 0755-32936262
Http://www.bctc-lab.com

TEST REPORT
IEC 60335-1
Part 1: Safety of household and similar electrical appliances

Report Number ..... :	BCTC2003002022SN1
Date of issue ..... :	Arp. 09, 2020
Total number of pages..... :	94
Testing Laboratory ..... :	**Shenzhen BCTC Testing Co., Ltd.**
Address ..... :	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Applicant's name ..... :	**Shenzhen Feili Electrical Appliance Technology Co., Ltd.**
Address ..... :	5th floor, building L, JINGTIE science and Technology Industrial Park, No. 49, Changjiang Pu Road, Henggang street, Longgang District, Shenzhen City, Guangdong Province
Test specification	
Standard..... :	IEC 60335-1:2010+A1:2013+A2:2016;
Test procedure ..... :	CE-LVD
Non-standard test method ..... :	N/A
Test Report Form	
Test Report Form No. ..... :	IEC60335_1V
Test Report Form(s) Originator..... :	Nemko AS
Master TRF ..... :	Dated 2017-12

Test item description ..... :	**Ozone sterilizer**
Trademark ..... :	FEILI 飞立
	Shenzhen Feili Electrical Appliance Technology Co., Ltd.
Manufacturer ..... :	5th floor, building L, JINGTIE science and Technology Industrial Park, No. 49, Changjiang Pu Road, Henggang street, Longgang District, Shenzhen City, Guangdong Province
Model/Type reference ..... :	FL-B803S, FL-803C, FL-803BT, FL-805D, FL-805N, FL-810N, FL-815N, FL-803AS, FL-805AS, FL-805QS, FL-8W, FL-8F, FL-8A, FL-8C, FL-803E,FL-803M,FL-803D,FL-803X,FL-803H,FL-803S,FL-B805N,FL-B803BT,FL-805BT
Ratings..... :	230V~ 50Hz 80W

Testing procedure and testing location:

Testing Laboratory ..... :	**Shenzhen BCTC Testing Co., Ltd.**
Address..... :	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Date of Test ..... :	**Mar. 25, 2020 – Arp. 02, 2020**
Tested by (name + signature)..... :	Leif Liang
Reviewed by (name + signature)..... :	Seven Zheng
Approved by (name + signature)..... :	Kevin Wang

List of Attachments (including a total number of pages in each attachment):

-- Attachment I : 7 pages for EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

-- Attachment II: 3 pages for Photo documentation

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
-- EN 60335-1:2012+A11:2014+A13:2017; -- EN 62233:2008; The submitted samples were found to comply with the requirements of above specification.	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China

Copy of marking plate

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.

Ozone sterilizer

Model: FL-B803S

230V~ 50Hz 80W

Importer: XXXX

Importer address: XXXX

Manufacturer: Shenzhen Feili Electrical Appliance Technology Co., Ltd.

Address: 5th floor, building L, JINGTIE science and Technology Industrial Park, No. 49, Changjiang Pu Road, Henggang street, Longgang District, Shenzhen City, Guangdong Province

Made in China

Remark on above marking:

1, The height of CE symbols is more than 5 mm;

2, The height of WEEE symbols is more than 7 mm;

Test item particulars.....:	
Classification of installation and use.....:	Portable appliance
Supply Connection .....:	Connection to AC supply
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 .....:	Mar. 25, 2020
Date (s) of performance of tests .....:	Mar. 25, 2020 – Arp. 02, 2020

General remarks:

"(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 / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

General product information:

1, The equipment is an Ozone sterilizer for general use.

2, All tests were conducted at the model of FL-B803S, They are with the similar construction and circuit theory, the differences among them are Model name, The test results comply with the requirement of the relevant standards.

3. This report Add additional models on the basis of the original report, original report No: BCTC2003002022S.

Report version:

Test Report No	Date of issue	Describe	Approved
BCTC2003002022S	Arp. 03, 2020	initial report	invalid
BCTC2003002022SN1	Arp. 09, 2020	Revised report	valid

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

5	**GENERAL CONDITIONS FOR THE TESTS**		—
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
6	**CLASSIFICATION**		—
6.1	Protection against electric shock: Class 0, 0I, I, II, III..... ..... :	Class I	P
	For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part		N/A
6.2	Protection against harmful ingress of water		N/A
7	**MARKING AND INSTRUCTIONS**		—
7.1	Rated voltage or voltage range (V) .... :	230	P
	Symbol for nature of supply, or .... :	~	P
	Rated frequency (Hz) .... :	50	P
	Rated power input (W), or .... :	80	P
	Rated current (A) .... :		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark..... ..... :	See marking label	P
	Model or type reference .... :	See marking label	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0..... ..... :		N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only, or		N/A
	for appliances powered by rechargeable batteries recharged in the appliance		N/A
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N/A
7.2	Warning for stationary appliances for multiple supply		N/A
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N/A
	the power input or current are related to the arithmetic mean value of the rated voltage range		P
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		P
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		—
	- marking of terminals exclusively for the neutral conductor (letter N)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N/A
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard		N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .... :		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	This applies also to switches which are part of a control		N/A
	If figures are used, the off position indicated by the figure 0		N/A
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A
7.11	Indication for direction of adjustment of controls		N/A
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		—
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated..... ..... :		N/A
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A
7.12.1	Sufficient details for installation supplied		N/A
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		—
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		P
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N/A
7.12.8	Instructions for appliances connected to the water mains:		—
	- max. inlet water pressure (Pa) .... :		N/A
	- min. inlet water pressure, if necessary (Pa)..... :		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P

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Clause	Requirement + Test	Result - Remark	Verdict
	These instructions may be supplied with the appliance separately from any functional use booklet		P
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		P
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		P
	In addition, instructions are also available in an alternative format such as on a website or in a format such as a DVD .... :		P
7.13	Instructions and other texts in an official language		P
7.14	Markings clearly legible and durable:		—
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified..... ..... :		N/A
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm .... :		N/A
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		N/A
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		N/A
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		—
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P
	Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		P
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements or supporting parts		N/A
	For a single switching action obtained by a switching device, requirements as specified		N/A
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N/A
8.1.4	Accessible part not considered live if:		—
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V		N/A
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0.7 mA		N/A
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N/A
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		—
	- built-in appliances		N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		—
	Requirements and tests are specified in part 2 when necessary		N/A
10	**POWER INPUT AND CURRENT**		—
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1 :	(see appended table)	P
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the power input is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2..... :	(See appended table)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the current is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated current is related to the arithmetic mean value of the range		N/A
11	**HEATING**		—
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described ..... :	Placed in accordance with the product specification	P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N/A
	the windings are non-uniform or it is difficult to make the necessary connections		P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .... :		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V)..... :		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V)..... :		N/A
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 ..... :	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out		P
	Protective devices do not operate, except		P

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Clause	Requirement + Test	Result - Remark	Verdict
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		—
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times the rated power input (W)..... :		N/A
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V)..... :		P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999		P
	For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter		N/A
	Leakage current measurements ..... :	(See appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4 ..... :	(see appended table)	P
	No breakdown during the tests		P
14	**TRANSIENT OVERVOLTAGES**		—
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6 ..... :		N/A
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	**MOISTURE RESISTANCE**		—
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		N/A
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 ..... :		N/A
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		N/A
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N/A
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts are removed		N/A
	Overfilling test with additional amount of the solution, over a period of 1 min (l)..... :		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		N/A
	Humidity test for 48 h in a humidity cabinet	25°C; 93% R.H.	P
	Reassembly of those parts that may have been removed		N/A
	The appliance withstands the tests of clause 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		—
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V)..... :		P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by √3 (V) ..... :		N/A
	Leakage current measurements ..... :	(See appended table)	P
	Limit values doubled if:		—
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	With the radio interference filters disconnected, the leakage current do not exceed limits specified .... :		N/A
16.3	Electric strength tests according to table 7 ..... :		P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified ..... :		N/A
	No breakdown during the tests	(See appended table)	P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		—
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use ..... :		N/A
	Appliance supplied with 1.06 or 0.94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V) ..... :		N/A
	Basic insulation is not short-circuited		N/A
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8		N/A
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	**ENDURANCE**		—
	Requirements and tests are specified in part 2 when necessary		N/A
19	**ABNORMAL OPERATION**		—
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe ..... :		N/A
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N/A
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		N/A
	if applicable, to the test of 19.5		N/A
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		P
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N/A
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N/A
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		N/A
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W) ..... :		N/A
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W) ..... :		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures (V)..... :		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		P

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Clause	Requirement + Test	Result - Remark	Verdict
	locking moving parts of other appliances		P
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, unless		N/A
	the capacitor is of class S2 or S3 of IEC 60252-1		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed..... :		N/A
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit		N/A
	Other appliances supplied with rated voltage for a period as specified ..... :		P
	Winding temperatures not exceeding values specified in table 8..... :		P
19.8	Multi-phase motors operated at rated voltage with one phase disconnected		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A
	Motor-operated and combined appliances for which 30.2.3 is applicable and that use overload protective devices relying on electronic circuits to protect the motor windings, are also subjected to the test		N/A
	Winding temperatures not exceeding values as specified ..... :	(see appended table)	N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V)..... :		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		N/A
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		N/A
	During and after each test the following is checked:		—
	- the temperature of the windings do not exceed the values specified in table 8		N/A
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		—
	- the base material of the printed circuit board withstands the test of Annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		—
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		—
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		N/A
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		P
	they comply with IEC 60384-14		N/A
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		P

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Clause	Requirement + Test	Result - Remark	Verdict
	This fault condition is not applied between the two circuits of an optocoupler		N/A
	e) failure of triacs in the diode mode		N/A
	f) failure of microprocessors and integrated circuits		N/A
	g) failure of an electronic power switching device		N/A
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N/A
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		N/A
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A
	Surge protective devices disconnected, unless		N/A
	They incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		N/A
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A
	Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) ..... :		N/A
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9 ..... :		P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		—
	- basic insulation (V) ..... :	1250	N/A
	- supplementary insulation (V) ..... :	1750	N/A
	- reinforced insulation (V) ..... :	3000	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		—
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		—
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N/A
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N/A
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/A
20	**STABILITY AND MECHANICAL HAZARDS**		—
20.1	Appliances having adequate stability		P
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N/A
	Not possible to touch dangerous moving parts with the test probe described		P
21	**MECHANICAL STRENGTH**		—
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J		P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		N/A
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		N/A
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N/A
22	**CONSTRUCTION**		—
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		—
	- a supply cord fitted with a plug, or		N/A
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- an appliance inlet		N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching pins, for appliances having a capacitor with rated capacitance equal to or greater than 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak		N/A
	Voltage not exceeding 34 V (V) ..... :		N/A
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N/A
	The discharge test is then repeated three times, voltage not exceeding 34 V (V) ..... :		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		N/A
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		N/A
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard		P
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		N/A
	A choking hazard does not apply to appliances for commercial use		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		N/A
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N/A
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		—
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		P
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N/A
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		N/A
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		N/A
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		N/A
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		N/A
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N/A
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or		N/A
	unearthed metal parts separated from live parts by basic insulation only		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		N/A
	the shaft is not accessible when the part is removed		N/A
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N/A
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N/A
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		N/A
22.39	Lamp holders used only for the connection of lamps		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		N/A
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		—
	- continuously, or		N/A
	- automatically, or		N/A
	- remotely		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N/A
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N/A
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N/A
22.55	Devices operated to stop the intended function of the appliance, if any, are be distinguished from other manual devices by means of shape, size, surface texture or position ..... :		N/A
	The requirement concerning position does not preclude use of a push on push off switch		N/A
	An indication when the device has been operated is given by:		—
	– tactile feedback from the actuator or from the appliance, or		N/A
	– reduction in heat output; or		N/A
	– audible and visible feedback		N/A
22.56	Detachable power supply part provided with the part of class III construction		N/A
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in Annex T		N/A
	This requirement does not apply to glass, ceramics or similar materials		N/A
23	**INTERNAL WIRING**		—
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well-rounded or provided with bushings		N/A
	Wiring effectively prevented from coming into contact with moving parts		N/A
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N/A
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply,		N/A
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N/A
	A single layer of internal wiring insulation does not provide reinforced insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N/A
	be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow only used for earthing conductors		N/A
23.8	Aluminium wires not used for internal wiring		P

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Clause	Requirement + Test	Result - Remark	Verdict
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		N/A
	the contact pressure is provided by spring terminals		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
24	**COMPONENTS**		—
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components ..... :	(see appended table)	P
	Motors not required to comply with IEC 60034-1, they are tested as part of the appliance		N/A
	Relays tested as part of the appliance, or		N/A
	alternatively acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1		N/A
	The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance		P
	Components can comply with the requirements for clearances and creepage distances for functional insulation in the relevant component standard		P
	30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections		P
	Components that have not been previously tested to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2		P
	Components that have been previously tested to comply with the resistance to fire requirements in the IEC standard for the relevant component need not be retested provided the specified conditions are met		N/A
	If these conditions are not satisfied, the component is tested as part of the appliance.		P
	Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		N/A
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		N/A
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, comply with IEC 60384-14		P
	If the capacitors have to be tested, they are tested according to Annex F		N/A
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16		N/A
	Safety isolating transformers comply with IEC 61558-2-6		N/A
	If they have to be tested, they are tested according to Annex G		N/A
24.1.3	Switches comply with IEC 61058-1, the number of cycles of operation being at least 10 000		N/A
	If they have to be tested, they are tested according to Annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N/A
24.1.4	Automatic controls comply with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		—

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Clause	Requirement + Test		Result - Remark	Verdict
	- thermostats:	10 000		N/A
	- temperature limiters:	1 000		N/A
	- self-resetting thermal cut-outs:	300		N/A
	- voltage maintained non-self-resetting thermal cut-outs:	1 000		N/A
	- other non-self-resetting thermal cut-outs:	30		N/A
	- timers:	3 000		N/A
	- energy regulators:	10 000		N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited			N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D			N/A
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7			N/A
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9			N/A
24.1.5	Appliance couplers comply with IEC 60320-1			N/A
	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3			N/A
	Interconnection couplers comply with IEC 60320-2-2			N/A
24.1.6	Small lamp holders similar to E10 lampholders comply with IEC 60238, the requirements for E10 lampholders being applicable			N/A
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151			N/A
24.1.8	The relevant standard for thermal links is IEC 60691			N/A
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19			N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance			N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance..... :		N/A
24.2	Appliances not fitted with:		—
	- switches, automatic controls or power supplies in flexible cords		N/A
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		N/A
	the solder has a melding point of at least 230 ˚C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N/A
	In addition, the motors comply with the requirements of Annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N/A
	One or more of the following conditions are to be met:		—
	- the capacitors are of class S2 or S3 according to IEC 60252-1		N/A
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		—
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		P
	- supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket-outlets		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		N/A
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		—
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord		N/A
	- a set of supply leads accommodated in a suitable compartment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm) ..... :		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		—
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cords, other than for class III appliances, being one of the following types:		—
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		—
	• light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N/A
	• ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		—
	• heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	• heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N/A
	- halogen-free, low smoke, thermoplastic insulated and sheathed		N/A
	• light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable		N/A
	• Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f(for flat cable		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm²) ..... :		P
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		N/A
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue		N/A
	Where additional neutral conductors are provided in the supply cord:		—
	– other colours may be used for these additional neutral conductors;		N/A
	– all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N/A
	– the supply cord is fitted to the appliance		N/A
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		N/A
	the contact pressure is provided by spring terminals		N/A
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If it is not evident that the supply cord can be introduced without risk of damage, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		P
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		—
	- applied force (N)..... :		N/A
	- number of flexings..... :		N/A
	The test does not result in:		—
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord:		—
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm) ..... :		N/A
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm)..... :		P
	Cord not damaged and max. 2 mm displacement of the cord		P
25.16	Cord anchorages for type X attachments constructed and located so that:		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of supply cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N/A
	they are separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	Constructed so that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		—
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		—
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		—
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		N/A
	- for class I or class II appliance with class III construction, the cross sectional areas of the conductors need not comply with 25.8 if specified conditions are met		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		—
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover, except		N/A
	for class III appliances that do not contain live parts		N/A
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for the connection of cables of fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N/A
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		—
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor creepage distances are reduced below the values in clause 29		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm)..... :		N/A
	No deep or sharp indentations of the conductors		N/A
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and,		N/A
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2)..... :		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N/A
	conductors ends fitted with means suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		P

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Clause	Requirement + Test	Result - Remark	Verdict
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N/A
27	**PROVISION FOR EARTHING**		—
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for protective earthing		N/A
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N/A
	Safety extra-low voltage circuits not earthed, unless		N/A
	protective extra-low voltage circuits		N/A
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		P
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm², and		N/A
	- do not provide earthing continuity between different parts of the appliance, and		N/A
	- conductors cannot be loosened without the aid of a tool		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		N/A
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N/A
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω) ..... :	0.03Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
28	**SCREWS AND CONNECTIONS**		—
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		P
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		N/A
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N/A
	For screws and nuts; torque-test as specified in table 14..... :		P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		N/A
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		—
	• 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N/A
	• 30.2.3 is applicable and that carry a current not exceeding 0,2 A		P
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		—
	- in normal use,		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		N/A
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N/A
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N/A
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		—
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies..... :		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation ..... :		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless ..... :	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		P
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1		N/A
	Impulse voltage test is not applicable:		—
	- when the microenvironment is pollution degree 3, or		N/A
	- for basic insulation of class 0 and class 01 appliances, or		N/A
	- to appliances intended for use at altitudes exceeding 2 000 m		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable ..... :	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		N/A
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16:		P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage ..... :		P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		N/A
29.1.4	Clearances for functional insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage ..... :	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		P
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		N/A
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage ..... :		P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		P
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree ..... :	(see appended table)	P
	Pollution degree 2 applies, unless		P
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		N/A
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N/A
29.2.1	Creepage distances of basic insulation not less than specified in table 17..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 ..... :		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 ..... :		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or ..... :		P
	Table 2 of IEC 60664-4, as applicable..... :		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or ..... :		P
	Table 2 of IEC 60664-4, as applicable..... :		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		—
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		N/A
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N/A
	Supplementary insulation consist of at least 2 layers		N/A
	Reinforced insulation consist of at least 3 layers		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N/A
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19..... :		N/A
30	**RESISTANCE TO HEAT AND FIRE**		—

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Clause	Requirement + Test	Result - Remark	Verdict
30.1	External parts of non-metallic material,		N/A
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		N/A
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C)..... :		P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C) ..... :	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)..... :		P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		—
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		N/A
	Compliance checked by the test of 30.2.1, and in addition:		N/A
	- for attended appliances, 30.2.2 applies		N/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		N/A
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550°C	(see appended table 30.2)	N/A
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		N/A
	parts of non-metallic material within a distance of 3mm of such connections,		N/A
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:		N/A
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		—
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		—
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10 ..... :		N/A
	Glow-wire test not applicable to conditions as specified ..... :		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	The tests are not applicable to conditions as specified ..... :		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		N/A
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C		P
	Glow-wire applied to an interposed shielding material, if relevant		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table 30.2)	P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		—
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	• 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	• 675 °C, for other connections		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		—
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		—

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N/A
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		—
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E		P
	Test not applicable to conditions as specified..... :		N/A
31	**RESISTANCE TO RUSTING**		—
	Relevant ferrous parts adequately protected against rusting		N/A
	Tests specified in part 2 when necessary		N/A
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		—
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		N/A
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
A	**ANNEX A (INFORMATIVE)** **ROUTINE TESTS**		—
	Description of routine tests to be carried out by the manufacturer		P
B	**ANNEX B (NORMATIVE)** **APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		—

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	Three forms of construction covered:		—
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N/A
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N/A
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N/A
3.1.9	Appliance operated under the following conditions:		—
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage (V) and polarity of the terminals .... :		N/A
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N/A
	use only with <model designation> supply unit ... :		N/A
7.6	Additional symbols		N/A
7.12	The instructions give information regarding charging		N/A
	Instructions for appliances incorporating batteries intended to be replaced by the user include required information		N/A
	Instructions for appliances containing non user-replaceable batteries state the substance of the following:		—
	This appliance contains batteries that are only replaceable by skilled persons		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		—
	This appliance contains batteries that are non-replaceable		N/A
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following:		—
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N/A
	If the symbol for detachable supply unit is used, its meaning is explained		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
	The type reference of the detachable supply unit is placed in close proximity to the symbol		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period stated in the instructions or 24 h ..... :		N/A
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K) ..... :		N/A
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
19.13	The battery does not rupture or ignite		N/A
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		—
	- 100, if the mass of the part does not exceed 250 g (g) ..... :		N/A
	- 50, if the mass of the part exceeds 250 g ..... :		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
C	**ANNEX C (NORMATIVE) AGEING TEST ON MOTORS**		—
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A
	Test conditions as specified		N/A
D	**ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS**		—
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test conditions as specified		N/A
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		—
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		—
7	Severities		—
	The duration of application of the test flame is 30 s ± 1 s		N/A
9	Test procedure		
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		N/A
9.2	The first paragraph does not apply		N/A
	If possible, the flame is applied at least 10 mm from a corner		N/A
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		—
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A
F	**ANNEX F (NORMATIVE) CAPACITORS**		—
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		—
1.5	Terms and definitions		—
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		—
	Items a) and b) are applicable		N/A
3.4	Approval testing		—
3.4.3.2	Table 3 is applicable as described		N/A
4.1	Visual examination and check of dimensions		—
	This subclause is applicable		N/A
4.2	Electrical tests		—
4.2.1	This subclause is applicable		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table 11 is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A
4.12	Damp heat, steady state		—
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		—
	This subclause is applicable		N/A
4.14	Endurance		—
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	No visible damage		N/A
4.17	Passive flammability test		—
	This subclause is applicable		N/A
4.18	Active flammability test		—
	This subclause is applicable		N/A
G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		—
	The following modifications to this standard are applicable for safety isolating transformers:		—
7	Marking and instructions		—
7.1	Transformers for specific use marked with:		—
	-name, trademark or identification mark of the manufacturer or responsible vendor ..... :		N/A
	-model or type reference ..... :		N/A
17	Overload protection of transformers and associated circuits		—
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		—
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N/A
29	Clearances, creepage distances and solid insulation		—

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N/A
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N/A
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N/A
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N/A
H	**ANNEX H (NORMATIVE) SWITCHES**		—
	Switches comply with the following clauses of IEC 61058-1, as modified below:		—
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		—
	Switches are not required to be marked		N/A
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		—
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		—
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		—
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N/A
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335 ..... :		N/A
	Switches for operation under no load and which can be operated only by a tool, and		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	switches operated by hand that are interlocked so that they cannot be operated under load,		N/A
	are not subjected to the tests		N/A
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N/A
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K)..... :		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		—
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection		N/A
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24		N/A
I	**ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		—
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		—
8	Protection against access to live parts		—
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		—
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		—
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N/A
19	Abnormal operation		—
19.1	The tests of 19.7 to 19.9 are not carried out		N/A
19.I.101	Appliance operated at rated voltage with each of the following fault conditions:		—

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		—
22.I.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	**ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS**		—
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		—
5.7	Conditioning of the test specimens		—
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		—
	The test is carried out at -25 °C		N/A
5.7.3	Rapid change of temperature		—
	Severity 1 is specified		N/A
5.9	Additional tests		—
	This subclause is not applicable		N/A
K	**ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES**		—
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
L	**ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES**		—
	Information for the determination of clearances and creepage distances		N/A
M	**ANNEX M (NORMATIVE) POLLUTION DEGREE**		—
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		—
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		—
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		—
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		—
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		—
7	Test apparatus		—
7.3	Test solutions		—
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		—
10.1	Procedure		—
	The proof voltage is 100V, 175V, 400V or 600V.. :	175 V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		—
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A
O	**ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		—
	Description of tests for determination of resistance to heat and fire		P
P	**ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN TROPICAL CLIMATES**		—
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332		—
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332, if liable to be connected to a supply mains that excludes the protective earthing conductor		—
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N/A
7.1	The appliance marked with symbol IEC 60417-6332		N/A
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The instructions state that the appliance is considered to be suitable for use in countries having a tropical climate, but may also be used in other countries		N/A
	If symbol IEC 60417-6332 is used, its meaning is explained		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	**ANNEX Q (INFORMATIVE)** **SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		—
	Description of tests for appliances incorporating electronic circuits		N/A
R	**ANNEX R (NORMATIVE)** **SOFTWARE EVALUATION**		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N/A
R.1	Programmable electronic circuits using software		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N/A
R.2	Requirements for the architecture		—
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N/A
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		—
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		—
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A
R.2.2	Measures to control faults/errors		—
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N/A
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		—

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.3.1	General		—
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		—
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N/A
R.3.2	Specification		—
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		—
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		—
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

R.3.3.3	Software validation		—
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		—
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

TABLE R.1 [e] – GENERAL FAULT/ERROR CONDITIONS

Component [a]	Fault/error	Acceptable measures [b, c]	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
1 CPU 1.1 Registers	Stuck at	Functional test, or periodic self-test using either: - static memory test, or - word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			N/A
1.2 VOID						N/A
1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N/A
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N/A

IEC 60335-1						
Clause	Requirement + Test			Result - Remark		Verdict
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/ sub-harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N/A
4. Memory 4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			N/A
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N/A
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A

IEC 60335-1						
Clause	Requirement + Test			Result - Remark		Verdict
6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						N/A
6.2 VOID						N/A
6.3 Timing	Wrong point in time	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15			N/A
	Wrong sequence	Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.3 H.2.18.10.2 H.2.18.10.4 H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.1 VOID						N/A
7.2 Analog I/O 7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict

7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						N/A
9 Custom chips [d] e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A

NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.

[a] For fault/error assessment, some components are divided into their sub-functions.
[b] For each sub-function in the table, the Table R.2 measure will cover the software fault/error.
[c] Where more than one measure is given for a sub-function, these are alternatives.
[d] To be divided as necessary by the manufacturer into sub-functions.
[e] Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.

S	**ANNEX S (NORMATIVE)** **BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE**		—
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N/A
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N/A
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N/A
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N/A
5.S.102	Appliances are tested as motor-operated appliances.		N/A
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless..... ..... :		N/A
	the polarity is irrelevant		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances also marked with:		—
	– name, trade mark or identification mark of the manufacturer or responsible vendor .... :		N/A
	– model or type reference .... :		N/A
	– IP number according to degree of protection against ingress of water, other than IPX0 .. .. :		N/A
	– type reference of battery or batteries .... :		N/A
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N/A
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N/A
7.6	Additional symbols		N/A
7.12	The instructions contain the following, as applicable:		—
	– the types of batteries that may be used .. .. :		N/A
	– how to remove and insert the batteries		N/A
	– non-rechargeable batteries are not to be recharged		N/A
	– rechargeable batteries are to be removed from the appliance before being charged		N/A
	– different types of batteries or new and used batteries are not to be mixed		N/A
	– batteries are to be inserted with the correct polarity		N/A
	– exhausted batteries are to be removed from the appliance and safely disposed of		N/A
	– if the appliance is to be stored unused for a long period, the batteries are removed		N/A
	– the supply terminals are not to be short-circuited		N/A
11.5	Appliances are supplied with the most unfavourable supply voltage between		—
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N/A
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N/A
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N/A
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N/A

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
19.13	The battery does not rupture or ignite		N/A
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N/A
	such a connection is unlikely to occur due to the construction of the appliance		N/A
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N/A
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N/A
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N/A
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N/A
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N/A
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N/A
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N/A
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
T	**ANNEX T (NORMATIVE)** **UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS**		—
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/A
	Does not apply to glass, ceramic and similar materials		N/A
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		—
	Modifications to ISO 4892-1:		—

IEC 60335-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.6	The UV-C emitter is a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m2 at 254 nm		N/A
	Subclause 5.1.6.1 and Table 1 are not applicable		N/A
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N/A
9	This clause is not applicable		N/A
	Modifications to ISO 4892-2:		
7.1	At least three test specimens are tested		N/A
	Ten samples of internal wiring is tested		N/A
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N/A
7.3	Apparatus prepared as specified		N/A
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N/A
7.4	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N/A
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N/A
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N/A
8	This clause is not applicable		N/A

10.1	TABLE: Power input deviation				P
Input deviation of/at:	P rated (W)	P measured (W)	dP	Required dP	Remark
AC230V/50Hz	80	90	+12.5%	+20%	--

10.2	TABLE : Current deviation				N/A
Current deviation of/at:	I rated (mA)	I measured (mA)	dI	Required dI	Remark

11.8	TABLE: Heating test, thermocouples		P
	Test voltage (V):	1.06×230V=243.8V	—
	Ambient (°C):	T1:23.1 T2:23.4	—
Thermocouple locations		dT (K)	Max. dT (K)
Power cord		3.7	50
Motor winding		20.4	85
Metal enclosure outside		5.9	60
C2 body		23.1	50
X1 body		20.2	75
C1 body		15.1	50
Enclosure inside		21.6	Ref.
Switch		1.3	60
Handle		0.3	60
Test corner		1.0	65

11.8	TABLE: Heating test, resistance method					N/A
	Test voltage (V) ..... :					—
	Ambient, t1 (°C) ..... :					—
	Ambient, t2 (°C) ..... :					—
Temperature rise of winding:		R1 (Ω)	R2 (Ω)	Δ T (K)	Max. Δ T (K)	Insulation class
Supplementary information: —						

13.2	TABLE: Leakage current		P
	Heating appliances: 1.15 x rated input (W)..... :	—	—
	Motor-operated and combined appliances: 1.06 x rated voltage (V)..... :	1.06×230V=243.8V	—

Leakage current between:	I (mA)	Max. allowed I (mA)
Live parts to plastic enclosure wrapped foil metal	0.15	0.75
Supplementary information: --		

13.3	TABLE: Dielectric strength		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
Live parts to plastic enclosure wrapped foil metal		3000	No
Supplementary information: —			

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage (V) ..... :	1.06×230V=243.8V	—
	Three phase appliances 1.06 x rated voltage divided by √3 (V) ..... :	—	—
Leakage current between:		I (mA)	Max. allowed I (mA)
Live parts to plastic enclosure wrapped foil metal		0.1	0.75
Supplementary information: -			

16.3	TABLE: Dielectric strength		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
Live parts to plastic enclosure wrapped foil metal		3000	No
Supplementary information: —			

17	TABLE: Overload protection		N/A
Thermocouple locations:		Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)
—		—	—
Supplementary information: —			

17	TABLE: Overload protection, resistance method					N/A
	Test voltage (V) ..... :		—			—
	Ambient, t1 (°C) ..... :		—			—
	Ambient, t2 (°C) ..... :		—			—
Temperature of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)	
—	—	—	—	—	—	
Supplementary information: —						

19	Abnormal operation conditions		P
Operational characteristics	YES/NO	Operational conditions	

Are there electronic circuits to control the appliance operation?	YES	Normal operation
Are there “off” or “stand-by” position?	NO	N/A
The unintended operation of the appliance results in dangerous malfunction?	NO	N/A

Sub-clause	Operating conditions description	Test results description	PEC description	EMP 19.11.4	Software type required	19.11.3 PEC	Final result
19.2	—	—	—	—	—	—	N/A
19.3	—	—	—	—	—	—	N/A
19.4	—	—	—	—	—	—	N/A
19.5	—	—	—	—	—	—	N/A
19.6	—	—	—	—	—	—	N/A
19.7	See clause 19.7	No hazard	—	—	—	—	P
19.8	—	—	—	—	—	—	N/A
19.9	—	—	—	—	—	—	N/A
19.10	—	—	—	—	—	—	N/A
19.11.2	See clause 19.11.2	No hazard	—	—	—	—	P
19.11.4.8	—	—	—	—	—	—	N/A
19.10X	—	—	—	—	—	—	N/A
Supplementary information: —							

19.7	TABLE: Abnormal operation, locked rotor/moving parts					P
	Test voltage (V) ..... :	230				—
	Ambient, t1 (°C) ..... :	23.2				—
	Ambient, t2 (°C) ..... :	23.6				—
Temperature of winding:		R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Fan winding		—	—	36.1	59.7	175
Power cord		—	—	8.6	32.2	150
Supplementary information: —						

19.9	TABLE: Abnormal operation, running overload					N/A
	Test voltage (V) ..... :					—
	Ambient, t1 (°C) ..... :					—
	Ambient, t2 (°C) ..... :					—
Temperature of winding:		R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Supplementary information: —						

19.13	TABLE: Abnormal operation, temperature rises			P
Thermocouple locations	dT (K)	(°C)	Max. dT (K)	Max. (°C)
--	--	--	--	--

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity
PCB	Fastline	FJ-2	V-0, 130°C	EN 60335-1	Tested within appliance UL E464342
Control enclosure	Chi Mei Corporation	PC-110 (+)	V-2, 125°C	EN 60335-1	Tested within appliance UL E56070
Internal wire	Jet Power	1015	105°C 600V 22AWG	EN 60335-1	Tested with appliance UL E166138
Power supply cord	Xinya Electronics Co., Ltd.	H03VVH2-F	2 x 0,75 mm2	EN 60227-5	VDE
Plug	Shenzhen Xiekang Electric Co., Ltd.	XK-01	AC250V, 6A	EN 50075	VDE
Power switch	Pronic Electronics (Shenzhen) Co., Ltd.	BR	250V AC, 5A	EN 61058-1	VDE
Fan	Shenzhen Fuye Industrial Co., LTD.	DP200A 2123HBL	AC220~240V 50/60Hz 0.22A 22/23W	EN 60335-1	Tested within appliance
ozone generator	ShenZhen FEILI Electric Appliance Technology Co., Ltd	FL-5G(QF-500W)	220V 50/60Hz 55W	EN 60335-1	Tested within appliance
X capacitor(CX1)	Shenzhen Su Rong Electronic Co., Ltd.	MPX/MKP	250VAC, Max. 0.22μF, 40/100/21/C	EN 60384-14	VDE

28.1	TABLE: Threaded part torque test			P
Threaded part identification:	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)	
Enclosure screw	3.75	II	1.2	
Earthing screw	3.81	II	1.2	
Supplementary information:				

29.1	TABLE: Clearances Overvoltage category					P
Rated impulse voltage (V)	Min. cl (mm)	Type of insulation				Verdict
		Basic	Functional	Supplementary	Reinforced	
330	0.5	--	--	--	--	

550	0.5	--	--	--	--	
800	0.5	--	--	--	--	
1500	0.5	--	--	--	--	
2500	1.5	>4.5	>3.2	>5.5	--	P
4000	3.0	--	--	--	>7.8	P
6000	5.5	--	--	--	--	
8000	8.0	--	--	--	--	
10000	11	--	--	--	--	
supplementary information:						

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	B*)	S*)	R*)	Verdict
≤50	0,2	0,6	0,9	1,2	1,5	1,7	1,9	—	—	—	
>50 and ≤125	0,3	0,8	1,1	1,5	1,9	2,1	2,4	—	—	—	
>125 and ≤250	0,6	1,3	1,8	**2,5**	3,2	3,6	4,0	×	—	—	P
>125 and ≤250	0,6	1,3	1,8	**2,5**	3,2	3,6	4,0	—	×	—	P
>125 and ≤250	1,2	2,6	3,6	**5,0**	6,4	7,2	8,0	—	—	×	P
>250 and ≤400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—	—	—	
>400 and ≤500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—	—	
>500 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—	—	
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—	—	—	
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—	—	—	
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—	—	
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—	—	—	
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—	—	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—	—	—	
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—	—	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—	—	—	
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—	—	—	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—	—	—	
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—	—	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—	—	—	
*), B=Basic, S=Supplementary and R=Reinforced											

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	Verdict
≤50	0,2	0,6	0,8	1,1	1,4	1,6	1,8	
>50 and ≤125	0,3	0,7	1,0	1,4	1,8	2,0	2,2	
>125 and ≤250	0,4	1,0	1,4	**2,0**	2,5	2,8	3,2	P
>250 and ≤400	0,8	1,6	2,2	3,2	4,0	4,5	5,0	
>400 and ≤500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	

>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	

30	**TABLE: Resistance to heat and fire**																			
Object/ part No.	Manufacturer / trademark	Type/ model	Ball pressure test °C				Glow wire test (GWT) °C					Glow-wire flammability index (GWFI) °C				Glow- wire ignition temp. (GWIT) °C		Needle-flame test (NFT)	Verdict
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775		
								t_e	t_i	t_e	t_i									
Control enclosure	See table 24.1	See table 24.1	X 0.8 mm	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—	—	P
PCB	See table 24.1	See table 24.1	—	X 0.5 mm	—	—	—	—	—	0 S	0 S	X	—	—	—	—	—	—	X	P

Supplementary information:

[1] Parts of material classified at least HB40 or if relevant HBF
[2] Parts of material classified as V-0 or V-1
[3] Flame persisting longer than 2 s (= t_e – t_i) need only be reported for unattended appliances
[4] Surrounding parts subjected to the needle-flame test of annex E
[5] Base material classified as V-0 or if relevant VTM-0

IEC60335_1T - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

Attachment I:

ATTACHMENT TO TEST REPORT IEC 60335-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Household and similar electrical appliances – Safety –
Part 1: GENERAL REQUIREMENTS

Differences according to:	EN 60335-1:2012+A11:2014+A13:2017 EN 62233:2008
Attachment Form No.:	EU_GD_IEC60335_1T
Attachment Originator:	Nemko AS
Master Attachment:	2013-02

	CENELEC COMMON MODIFICATIONS		
6.1	Delete “class 0” and “class 01”		N/A
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.		N/A
	An indication that the device has been operated is given by:		N/A
	• a tactile feedback, or		N/A
	• an audible and visual feedback		N/A
7.12	The instructions include the substance of the following:		--
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P
7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions		P

IEC60335_1T - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	The height of the characters, measured on the capital letters, is at least 3 mm		N/A
	These instructions are also available in an alternative format, e.g. on a website		N/A
7.14	In NOTE Z1, replace “IEC 82079-1” by “EN 82079-1”		P
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test		P
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		P
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		P
	parts intended to be removed for user maintenance are also not removed		P
8.2	Compliance is checked by applying the test probes of EN 61032		P
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		P
11.8	Footnotes to “External enclosure of motor-operated appliances” to be taken into account		P
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A
20.2	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		N/A
	Test probe 18 applied with a force of 2,5N on the appliance fully assembled		N/A
24.1	Components comply with the safety requirements specified in the relevant standards as far as they reasonably apply		P
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		P

IEC60335_1T - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2		P
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:		N/A
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N/A
	- the test report for the component states whether it complied with the standard for the relevant component with or without flame, flames not exceeding 2 s during the test are ignored		N/A
	Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		N/A
	Components that have not been separately tested and found to comply with the relevant standard, and		N/A
	components that are not marked or not used in accordance with their marking,		N/A
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N/A
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance		N/A
	Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N/A
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N/A
	with connectors and appliance inlets complying with the standard sheets of IEC 60320-1,		N/A

IEC60335_1T - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	if direct supply to these parts from the supply mains gives rise to a hazard		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003		N/A
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N/A
24.Z1	For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary		N/A
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC/TR 60083:		--
	- for Class I appliances: standard sheet C2b, C3b or C4 .....:		P
	- for Class II appliances: standard sheet C5 or C6.....:		N/A
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors or when they are liable to be exposed to significant amount of ultraviolet radiation		N/A
	Halogen-free thermoplastic compound sheathed supply cords have properties at least those of:		N/A
	• halogen-free thermoplastic compound sheathed cords (H03Z1Z1H2-F or H03Z1Z1-F), for appliances having a mass not exceeding 3 kg		N/A
	• halogen-free thermoplastic compound sheathed cords (H05Z1Z1H2-F or H05Z1Z1-F), for other appliances		N/A
	Cross-linked halogen-free compound sheathed supply cords have properties at least those of cross-linked halogen-free compound sheathed cords (H07ZZ-F)		N/A
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder		N/A

IEC60335_1T - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N/A
32	Compliance regarding electromagnetic fields is checked according to EN 62233		N/A
Annex I, 19.I.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N/A
	The duration of the test is as specified in 19.7		N/A
ZA	**ANNEX ZA** (NORMATIVE) **SPECIAL NATIONAL CONDITIONS**		—
	Norway		—
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
	Norway		—
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N/A
	All CENELEC countries		—
25.6 and 25.25	Information concerning National plug and socket-outlets is available from the CENELEC website. Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard		N/A
	Ireland and United Kingdom		—
25.8	In the table, the lines for 10 A and 16 A are replaced by:		N/A
	> 10 and ≤ 13 1,25		N/A
	> 13 and ≤ 16 1,5		N/A
ZB	**ANNEX ZB** (INFORMATIVE) **A-DEVIATIONS**		—
	Ireland		—
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N/A
	United Kingdom		—

IEC60335_1T - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N/A
ZC	**ANNEX ZC** (NORMATIVE) **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**		—
	A list of referenced documents in this standard		P
ZD	**ANNEX ZD** (INFORMATIVE) **IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		—
	A table with IEC and CENELEC code designations for flexible cords		N/A
ZE	**ANNEX ZE** (INFORMATIVE) **SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE**		N/A
	Requirements not applicable to the evaluated product		—
ZF	**ANNEX ZF** (INFORMATIVE) **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		—
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive) .....:	LVD	P
	In Table ZF.1 – List of standards under CLC/TC 61, replace line of EN 60335-2-38 by the following:		—
	Standard reference / To be listed under LVD (2006/95/EC) / To be listed under MD (2006/42/EC) EN 60335-2-38, Commercial electric griddles and griddle grills / ☐ / ☒ With moving parts		N/A
ZG	**ANNEX ZG** (NORMATIVE) **UV APPLIANCES**		N/A
	Requirements not applicable to the evaluated product		—
ZZ	**ANNEX ZZ** (INFORMATIVE) **COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES**		—
	Description of the relation between this European standard and the LVD (Low Voltage Directive, 2006/95/EC) and the MD (Machinery Directive, 2006/42/EC)	LVD: 2014/35/EU	P

IEC60335_1T - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

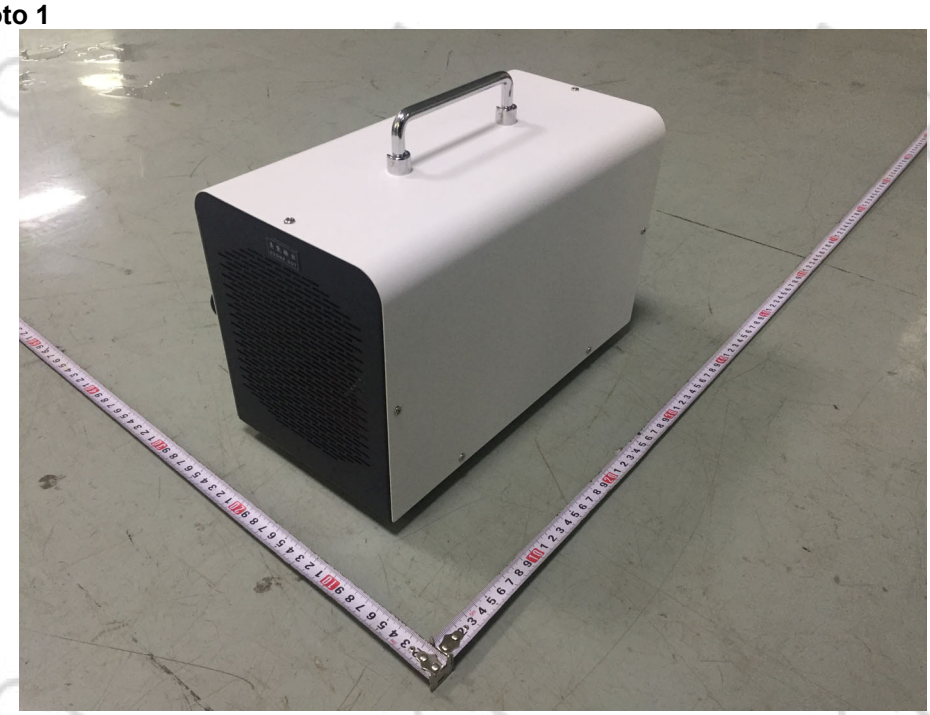
ZZA	**ANNEX ZZA (INFORMATIVE) REALATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96] AIMED TO BE COVERED**		—
	Description relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96]		P
	A table with correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]		P
ZZB	**ANNEX ZZB (INFORMATIVE) REALATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC AIMED TO BE COVERED**		—
	Description relating to Mandate for standardisation in the field of machinery “M/396” to provide one voluntary means of conforming to essential requirements of EU Directive 2006/42/EC		N/A
	A table with correspondence between this European standard and Annex I of Directive 2006/42/E [OJ No L 157]		N/A

Annex EN 62233:2008			
Clause	Requirement + Test	Result - Remark	Verdict
EMF- ELECTROMAGNETICS FIELDS			
	The tested product also complies with the requirements of EN 62233:2008		P
	Limit ……100%	Measured max. :…….%	1.8%

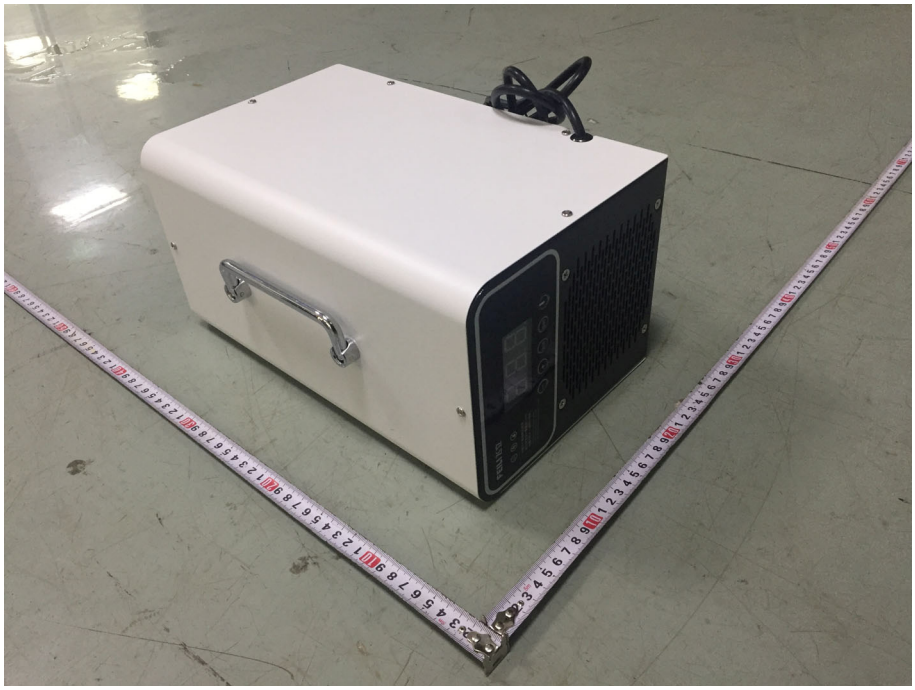
Attachment Ⅱ:

Photo-documentation

EUT Photo 1

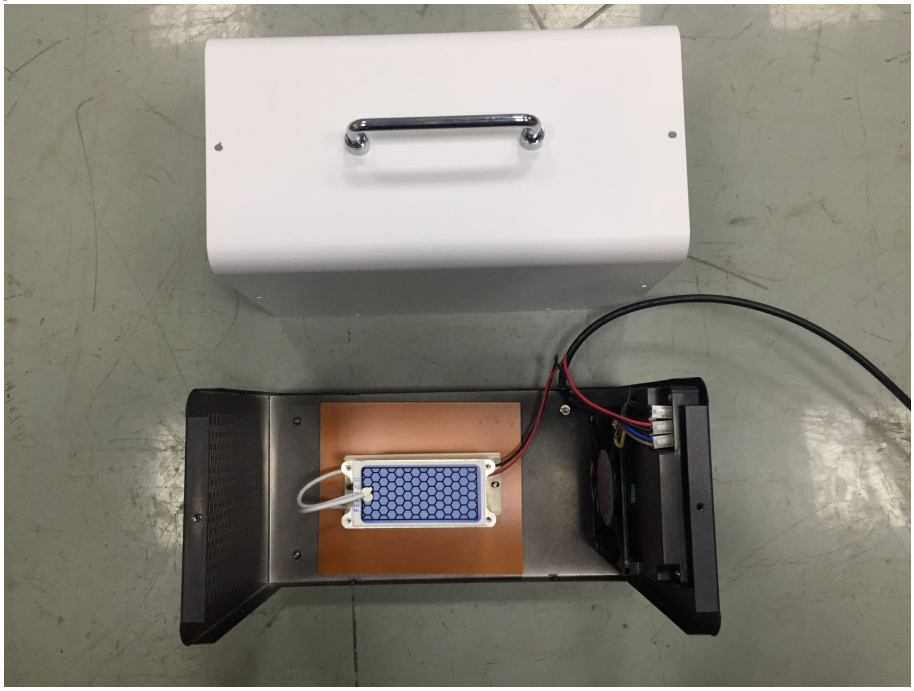


EUT Photo 2

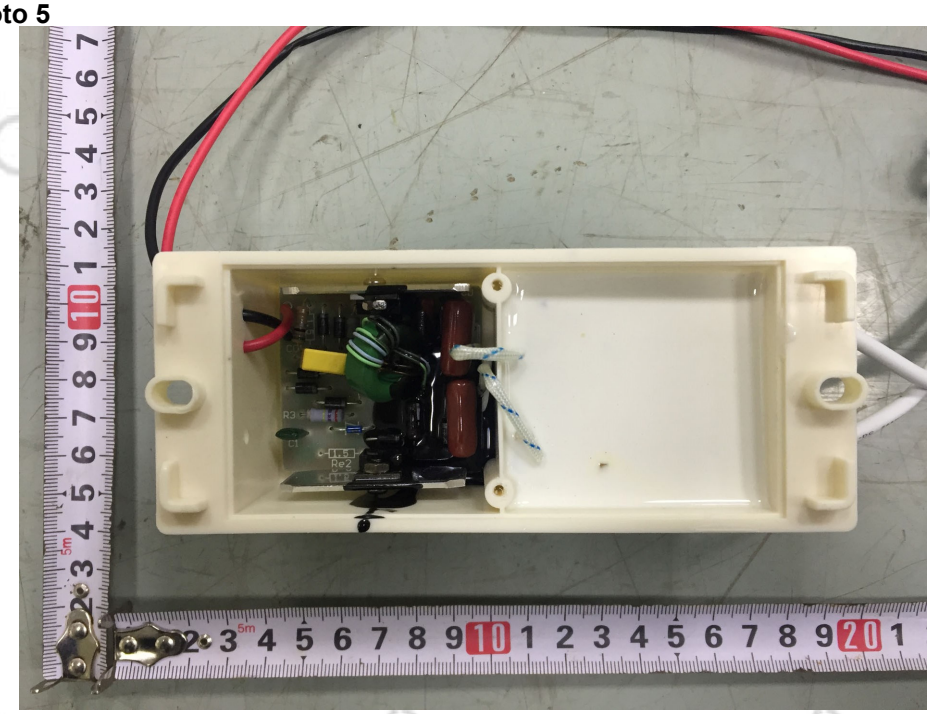


EUT Photo 3

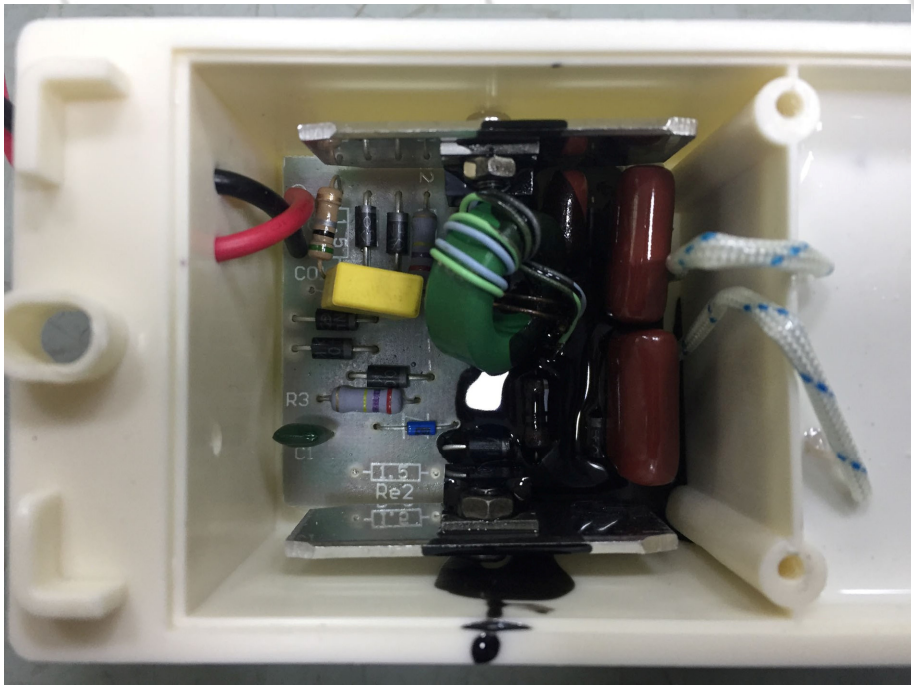
EUT Photo 4



EUT Photo 5



EUT Photo 6



※※※※※ **END OF REPORT** ※※※※※

BCTC Building & 1-2F, East of B Building, Pengzhou Industrial Park, Fuyuan 1st Road, Qiaotou, Fuyong Street, Bao'an District, Shenzhen, Guangdong, China

Certificate of Compliance

Certificate Number: BCTC2003002022C

Applicant : **Shenzhen Feili Electrical Appliance Technology Co., Ltd.**
5th floor, building L, JINGTIE science and Technology Industrial Park, No. 49, Changjiang Pu Road, Henggang street, Longgang District, Shenzhen City, Guangdong Province

Manufacturer : **Shenzhen Feili Electrical Appliance Technology Co., Ltd.**
5th floor, building L, JINGTIE science and Technology Industrial Park, No. 49, Changjiang Pu Road, Henggang street, Longgang District, Shenzhen City, Guangdong Province

Trademark : FEILI 飞立

Product : **Ozone sterilizer**
M/N : **FL-B803S, FL-803C, FL-803BT, FL-805D, FL-805N, FL-810N, FL-815N, FL-803AS, FL-805AS, FL-805QS, FL-8W, FL-8F, FL-8A, FL-8C, FL-803E,FL-803M,FL-803D,FL-803X,FL-803H,FL-803S,FL-B805N,FL-B803BT,FL-805BT**
Test Standard : **EN 60335-1:2012+A11:2014+A13:2017; EN 62233:2008;**

The EUT described above has been tested by us with the listed standards and found in compliance with the council LVD directive 2014/35/EU. It is possible to use CE marking to demonstrate the compliance with this LVD Directive. It is only valid in connection with the test report number: BCTC2003002022SN1.

CE

BCTC APPROVED Manager

Apr. 09, 2020

This certificate is for the exclusive use of BCTC's client and is provided pursuant to agreement between BCTC and its client. BCTC's responsibility and liability are limited to the terms and conditions of the agreement. The observation and test results referenced from this certificate are relevant only to the sample tested. This Certificate by itself does not imply that the material, product, or service is or has ever been a BCTC certification program.

Tel: 400-788-9558 or 0755-32936262
Http://www.bctc-lab.com

ispezione e analisi dei guasti

STATO APPARATO	ANALISI CAUSE	VERIFICARE RIPARAZIONE
Il dispositivo non risulta alimentato	Se la spina accendisigari è allentata o se la presa non è alimentata	1. La spina è in buone condizioni 2. Sostituire il cavo di alimentazione o collegare a un alimentatore AC/DC 3. la temperatura dell'auto è superiore a 40°C
Non esce ozono	1. il circuito interno è rotto a causa di una caduta accidentale 2. La spia del tasto ON/OFF è di colore viola 3. L'indicatore del pulsante di avvio è attivo	1. Rimuovere il corpo in acciaio e controllare il circuito. 2. Riavviare l'apparato
Ci sono scariche elettriche sul corpo in acciaio	1. L'aria è troppo umida 2. Il telaio ha acqua all'interno e all'esterno	Rimuovere il corpo in acciaio e asciugare l'umidità ventilando in ambiente secco
Fusibile all'interno del dispositivo interrotto	1. Un cortocircuito 2. All'interno presenza di umidità	1. Sostituire il fusibile con uno nuovo di uguale amperaggio. 2. L'umidità deve essere rimossa con un panno secco e con ventilazione naturale

Norma di riferimento: GB 28232-2011

Gli apparati al cui interno verrà riscontrata una percentuale di umidità superiore al 75%, funzionamento improprio o errata alimentazione, saranno esclusi da qualsiasi intervento in garanzia e non darà diritto ad alcun tipo di risarcimento.

Non utilizzare il prodotto diversamente da quanto indicato in "Generatore di Ozono O_3 Portatile-istruzioni per l'utilizzo", l'uso improprio del prodotto solleva l'importatore dalle responsabilità civili e penali. Il "Generatore di Ozono O_3 Portatile" non è un giocattolo. Non usare con tensioni di alimentazione diverse da quella indicata in "caratteristiche tecniche".

Il prodotto rientra nella categoria dei rifiuti elettrici ed elettronici e deve essere smaltito secondo le normative vigenti.

AUTODIS ITALIA

Importato da: General Auto Srl
Via Prof. Filippo Manna, 31
80013 Casalnuovo di Napoli (NA) – Italia
Tel. +39 081 5228490

MADE IN PRC

3O MED

GENERATORE DI OZONO O_3 PORTATILE

ISTRUZIONI PER L'UTILIZZO

Questo prodotto viene utilizzato per l'igienizzazione delle autovetture in generale, agisce sterilizzando un volume chiuso, all'igienizzazione contro la formaldeide, virus in generale e assorbe i cattivi odori, ecc.

avvertenze

IL DISPOSITIVO DEVE ESSERE AVVIATO IN ASSENZA DI PERSONE O ANIMALI ALL'INTERNO DELL'ABITACOLO DOVE È PRESENTE IL GENERATORE DI OZONO, alla fine del processo, APRIRE I FINESTRINI E AERARE PER 10 MINUTI, SOLO PICCOLE QUANTITÀ DI OZONO (O_3) SONO TOLLERATE DAL CORPO UMANO

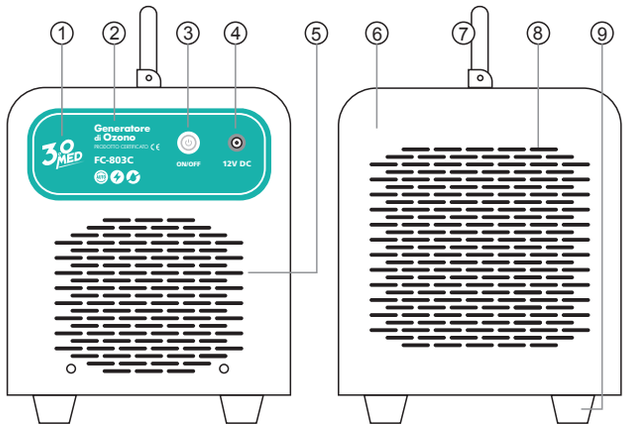
- Si prega di effettuare il processo di ozonizzazione in condizioni di umidità ambiente inferiore al 75%.
- Severamente vietato l'apertura dell'apparecchio a tecnici non autorizzati o non specialisti del settore elettrico.
- L'apparato teme l'umidità per cui deve essere conservato in un luogo asciutto.
- L'apparato non utilizzato da oltre due mesi deve essere aperto da tecnici specializzati per effettuare una ventilazione dei componenti in un luogo asciutto al fine di rimuovere tutti i possibili segni di umidità.
- La vita utile dell'unità di generazione dell'ozono è di 20.000 ore di utilizzo

installazione

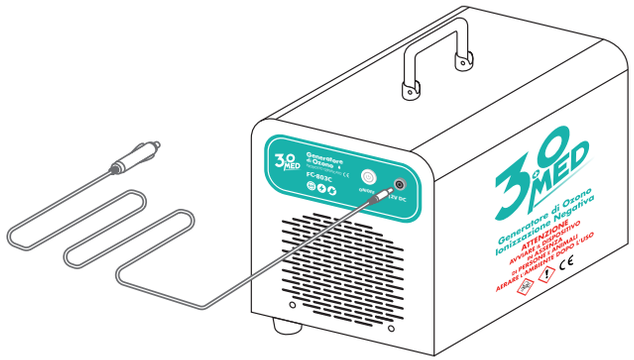
- Assicurarsi che la presa accendisigari sia in buone condizioni ed eroghi la potenza elettrica necessaria, in alternativa, utilizzare alimentatore AC/DC incluso nella confezione (art. XM803AL)
- Questo apparato utilizza l'ingresso di alimentazione da 12V

istruzioni per l'utilizzo

- L'autovettura deve essere ferma con il freno di stazionamento inserito.
- Collegare una estremità del cavo di alimentazione alla presa elettrica o accendisigari e l'altra all'ingresso 12V DC (4)
- Premere il pulsante ON/OFF (3) e attendere che la spia lampeggi, il processo d'igienizzazione con ozono è automatico e impiega 10 minuti poi un altro processo di ionizzazione negativa purificherà l'aria per altri 10 minuti e alla fine il dispositivo si arresterà.
- Durante il processo d'igienizzazione tenere aperte le bocchette del sistema di ventilazione e l'abitacolo vettura con le porte chiuse. Qualora le condizioni lo permettano, avviare il sistema di climatizzazione della vettura con la funzione di riciclo interno attiva.
- Rimuovere l'apparato dal veicolo solo dopo aver aerato l'abitacolo per 10 min.
- In caso di malfunzionamento, indossando una maschera FFP2, premere il tasto ON/OFF per arrestare il sistema manualmente



1. **Pannello di utilizzo**
2. **Etichette di avvertenza pericolo**
3. **Tasto avvio e spia**
4. **Plug alimentazione 12V**
5. **Entrata dell'aria**
6. **Corpo in acciaio inox**
7. **Maniglia pieghevole**
8. **Uscita di ozono**
9. Supporti



caratteristiche tecniche

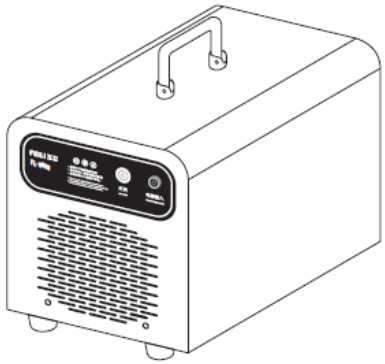
CODICE ART.	FL-803C
PRODUZIONE OZONO	3g/H
CONCENTRAZIONE OZONO	15-20mg/L
IONIZZAZIONE NEGATIVA	20.000.000/m^3
VOLUME DI UTILIZZO	90 m^3
ALIMENTAZIONE (VOLTS)	220V AC / 12V DC
CONSUMO (AMPERE)	6.5A
POTENZA (WATTS)	60/70W
TIPO DI SORGENTE	ARIA
DIMENSIONI	260x150x160mm
PESO NETTO	4 kg

Manufacturer: Shenzen Feili Electrical Appliance Technology Co., Ltd, 5th floor, building I, JINGTIE Science and Tecnology Industrial Park, No.49, Chagjiang Pu Road, Henggang street, Longgang District, Shenzen City, Guandong Province, China

PRODOTTO CERTIFICATO CE

DICHIARAZIONE DI CONFORMITÀ
Direttiva 2014/35/UE

Società Importatrice:	General Auto S.r.l. Sede: Via Prof. Filippo Manna, 31 – 80013 Casalnuovo (NA) P.iva 00326830635 Mail: info@ggroup.eu
Sito produttivo:	Shenzhen feili made electrical Technology co., LTD Company address: longgang district of shenzhen of Guangdong post to Yangtze river Po lu 49, Beijing iron industrial park in L building



Il sottoscritto Marco Carini, in qualità di legale rappresentante della Società General Auto Srl con sede legale in Napoli – 80143, Calata Trinità Maggiore 53, P.I./CF 04888011212 e uffici a Casalnuovo di Napoli (NA) 80018, Via Prof. Filippo Manna,31

DICHIARA

sotto la propria responsabilità, che il prodotto "Generatore di Ozono Ionizzazione Negativa portatile"**,** fabbricato dal produttore di cui sopra con relativo Fascicolo tecnico **"FT. FL-803C",** è stato analizzato come prescritto nel in Art. 8 della Direttiva 2014/35/UE e ne deriva quanto segue:

Nome di fabbrica del modello:	FL-803C
Marchio di importazione:	3.0 MED
Conformità alla Direttiva Europea:	2014/35/ UE
Norme Tecniche applicate per la progettazione e fabbricazione:	EN 60335-1:2012 +A11:2014+A13:2017 EN 62233:2008
Dichiarazione di conformità:	BCTC2003002022C

Il prodotto di cui sopra rispetta i requisiti essenziali di sicurezza stabiliti in Allegato I della Direttiva Europea 2014/35/UE come dichiarato dal produttore con il relativo Certificato CE.
Per reclami e segnalazioni sul prodotto, inviare mail all'Indirizzo *info@ggroup.eu* indicando il numero di lotto riportato sulla confezione e relativa segnalazione.

NAPOLI, lì_____

Legale rappresentante
Marco Carini