ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	Grundfos Holding A/S
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-GRU-20260212-CBA1-EN
Issue date	20.03.2026
Valid to	19.03.2031

COMFORT 15-14 B / B T

Grundfos Holding A/S

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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General Information

Grundfos Holding A/S

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-GRU-20260212-CBA1-EN

This declaration is based on the product category rules:

Pumps for liquids and liquids with solids, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

20.03.2026

Valid to

19.03.2031

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

COMFORT 15-14 B / B T

Owner of the declaration

Grundfos Holding A/S
Poul Due Jensens Vej 7
8850 Bjerringbro
Denmark

Declared product / declared unit

1 PCS. of COMFORT 15-14 pump.

Scope:

The declaration applies to 1 piece of COMFORT 15-14 pump.

The product is produced in Ludwigsburg, Germany, and the life cycle assessment is based on data collected at the production site. Production has been modelled using annual production data from 2024.
The declaration covers the COMFORT 15-14 B and B T products.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally

Mrs Kim Allbury,
(Independent verifier)

Product

Product description/Product definition

COMFORT 15-14 pumps feature a compact design housing and high-performance permanent magnet with an integrated control unit. The spherical rotor, equipped with an impeller, ensures optimal functionality, supported by a robust single-bearing ball system. The pump housing, crafted from drinking water-approved brass, guarantees both safety and reliability. Equipped with a built-in temperature sensor, the COMFORT 15-14 pumps provide precision in maintaining water temperature. Installation is easy with the included cable for electrical connection. The user-friendly interface, made with LEDs and pushbuttons on the front, offers an intuitive platform to display and set operating times and control modes, ensuring a comfortable and energy-efficient experience for residential use.

A hot water recirculation (HWR) is an application where the system provides homeowners with instant access to hot water. Hot water in pipes gradually loses heat to its surroundings and cools down. When hot water is needed again, the cooled water between the heater and the tap must be drained, wasting time, water, and energy. A dedicated pump circulates hot water between the taps and water heater, keeping the water hot. This setup requires a dedicated recirculation line within the hot water supply system.

The declaration covers the COMFORT 15-14 B and B T products. B variants have continuous operation 24/7 mode, while T variants have temperature control mode. These pumps are all the same physical products and identical in terms of design, dimensions, bill of materials, as well as supply chain and manufacturing processes, i.e., all cradle to gate processes (A1-A3). The products are also identical in terms of distribution, reference service life, electricity consumption in use phase and end-of-life treatment.

COMFORT 15-14 products are in conformity with the following regulation, standards and specifications.

Low Voltage Directive (2014/35/EU), Standards used:
EN 60335-1-2012 + A11:2014 + A12:2017 + A13:2017 + A15:2021
EN 60355-2-51:2003 + A1:2008 + A2:2012

EMC Directive (2014/30/EU), Standards used:
EN 55014-1:2017 + A11:2020
EN 55014-2:2015
EN 61000-3-2:2014
EN 61000-3-3:2013

RoHS Directive (2011/65/EU) and (2015/863/EU), Standard used:
EN IEC 63000:2018

Application

COMFORT 15-14 pumps are efficient circulators designed for hot water recirculation in residential buildings.

Pump manufacturing

The steps of assembly process comprise:
1.Stator assembly: Pressing stator bars into back iron; Mounting coils on stator bars; Soldering of drive control electronics; Programming and testing of drive functions, Assembly of stator unit into motor housing.
2.Impeller assembly: Pre-mounting of magnet, paddle and supporting plate; Junction of impeller pre-assembly by rolled stainless steel shell; Insertion of bearing liner and drilling of bearing contour; EOL balancing check.
3.Pump assembly: Insertion of impeller on stator; Screw joint of stator and pump housing by cap nut; EOL of pre-assembled pump (electronics and hydraulics); Testing of pump control and power supply module; Mounting of pump module to pre-assembled pump and electrical connection check; Assembly of insulation shell and name plate; Packaging.

Technical Data

The performance data of the product according to the harmonised norms, based on the harmonisation provisions above apply.
The relevant technical specifications according to the *PCR Part B* are given in the table below.

Constructional data

Name	Value	Unit
Frequency	50/60	Hz
Voltage	230	V
Pumped liquid	water	-
Head max.	1.18	m
Flow range max	0.75	m^3/h
Nominal capacity	7	W
Average power	3.99	W

Performance data of the product according to the harmonised standards, based on provisions for harmonisation.
The COMFORT 15-14 products have no energy efficiency class or index.

Base materials/Ancillary materials

Name	Value	Unit
Copper and brass	52.3	%
Magnet Nd	0.2	%
Paper	4.8	%
Electronics	11.9	%
Plastics	9.9	%
Rubber	0.7	%
Stainless steel	2.6	%
Steel	6.2	%
Cardboard	11.3	%
Plastic film	0.1	%
TOTAL	100	%

REACH

This product/article contains substances listed in the *ECHA candidate list* (date: 10.06.2022) exceeding 0.1 percentage by mass: **yes**

Information on the concentration in the partial article(s) is available by searching for articles notified under the listed 'SCIP Number' in ECHA's SCIP-database: https://echa.europa.eu/scip-database.

A list of respective substances of very high concern (SVHC), their CAS-number, and corresponding SCIP number is provided in the following table.

CAS number	SVHC	SCIP number
119-47-1	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	08e861e5-deb3-472d-b235-ca4257891b05
7439-92-1	Lead	

List of SVHCs found in at least one partial article (component).

Reference service life

In agreement with the Europump (2024) guideline, a reference service life of 10 years was assumed for the purpose of this study, for estimating the energy consumption during the use stage of the pump.

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece (pcs.) of COMFORT 15-14 pump and it includes packaging.

Declared unit

Mass includes packaging.

Name	Value	Unit
Declared unit	1	pce.
Mass reference	1.02	kg/pce
Conversion factor [Mass/Declared Unit]	1.02	

...

System boundary

This EPD is Cradle-To-Grave and Module D. The system boundaries of the EPD follow the modular approach in *EN 15804*.
The EPD follows additional requirements for Electrical and Electronic Equipment using energy in module B6 of the use stage (ECO Platform).

Production and installation (A1-A5)

Modules A1-A3 refer to the product stage and include raw materials extraction and processing, transportation, and the manufacturing process. The product stage is included in this study, and according to *EN 15804:2019 + A2* the system boundary with nature is set to include those processes that provide the material and energy inputs into the system and the following manufacturing, transport up to the factory gate as well as the processing of waste arising from those processes. The assembly of the product, as well as the packaging, are also included in A1-A3. Wastes and losses are included in the modules where they occur according to the polluter pays principle and the modular approach of *EN 15804:2019+A2*

Module A4 regards the transportation from the production site to the regional distribution centre, and finally to the construction and product application site. Module A5 refers to the installation process of the pump including the transportation of packaging waste to the treatment site and the waste treatment of packaging. The use of energy during installation is negligible for the selected functional unit.

Use stage (B1-B7):

In this study, all use stage modules are assessed, though B1, B2 and B7 are assessed to be zero. The modules B3, B4 and B5 are declared as "MNR" (module not relevant) according to the PCR-B.
Contributions to operational energy use during the use stage (B6) come from the electricity consumption of the product. The total electricity consumption over the reference service lifetime is assessed by calculating the average power input using a specified load profile, control factor and multiplying by the number of running hours per year and the number of years of the RSL.
For the use stage (B6), the European Average electricity grid mix has been used.

The End-of-Life stage (C1-C4)

The End-of-Life stage (C1-C4) Modules C1-C4 refer to the End-of-life stage. A product reaches the end-of-life of its service life when it no longer provides any functionality. This life cycle stage includes all activities from the end-of-life of the control valve until all materials and components are processed, reused, recycled, or disposed of. C1 regards the dismantling of the pump, and this module is a manual activity. C2 regards the transport to waste processing, C3 refers to the processing (shredding) of waste for recycling, and C4 refers to waste disposal: landfilling and incineration. The End-of-Life assumption is that 95 % is collected as electronic waste, while 5 % goes to landfill. The specific amounts are shown in the scenarios section.

Beyond system boundary (D):

Module D refers to the burdens and benefits beyond the system boundaries. According to *EN15804:A2+2019*, module D includes the reuse, recovery and/or recycling potentials, expressed in net impacts and benefits. Contributions to module D come from waste incineration processes in A1-A3, A5 and C4 as well as material (metal) recycling in C3. The specific fractions and net flows are shown in the scenarios section.

Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Europe

Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

Data quality

The primary database used for background data is *Sphera (*version 2025.2, year 2025), while *Ecoinvent* (version 3.11, year 2025) served as a secondary database. All relevant data have good or very good time, geographical and technological representativeness according to EN 15804+A2, Annex E, Table E.1 method.

Emission factor of electricity mix

A residual grid mix for Germany with a GWP-total of 0.879 kgCO2-eq/kWh was applied for the product assembly process in Germany.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The biogenic carbon content quantifies the amount of biogenic carbon in a construction product leaving the factory gate, and it will be separately declared for the product and for any accompanying packaging, as required by the *PCR Part A*. The carbon content of cardboard and paper is assumed to be 0.43 kg C, meaning 43 % of the paper and cardboard packaging is biogenic carbon. Overall, there is an amount of weight-% Carbon in the product leaving the factory gate and has to be considered.

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic carbon content in product	0.02	kg C
Biogenic carbon content in accompanying packaging	0.05	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

Transport from the gate to the site (A4)

Name	Value	Unit
Litres of fuel	1,7	l/100 tkm
Transport distance	1510	km
Capacity utilisation (including empty runs)	61	%
Wastage during distribution	-	%

Installation into the building (A5)

Name	Value	Unit
Packaging waste for incineration (LDPE film)	0,001	kg
Packaging waste for incineration (Paper/Cardboard)	0.116	kg

Reference Service Life (RSL): For pump products like the declared unit, an RSL of 10 years can be assumed according to the guideline by Europump (2024). Therefore, to facilitate building reference calculations, an RSL of 10 years is declared. The pump running conditions during the service life are partially specified in the PCR-B: The number of running hours per year is assumed to be 3625 h according to the guideline Europump (2024). The pump load profile for calculating the average power input during operation is specified in the PCR-B according to the first two columns of the following table, while the third column results when scaling with the annual running hours:

Load profile Q in % of $Q_{100\%}$	Time in % of annual operating hours	Time (h) per year
100	6	217
75	15	544
50	35	1269
25	44	1595

According to Europump (2024), for applications with variable load and where the pump can be adapted to this load there will be reduced energy consumption compared to a calculation for a static load. These savings can be reflected by a control factor. The control factor is derived from the power consumption at the 4 load points. It combines the flow-time profile, control method and part load efficiency into one number. The control factor of COMFORT 15-14 pumps is 0.57.

Reference service life

Name	Value	Unit
Life Span according to the manufacturer	10	a

Operational energy use (B6)

Name	Value	Unit
Average power input	3.99	W
Annual running hours	3625	h
Annual electricity consumption	14.46	kWh

End of life (C1-C4)

Name	Value	Unit
Collected as mixed construction waste	0.906	kg
Transportation distance (C2)	200	km
Steel for recycling	0.060	kg
Copper for recycling (incl. brass)	0.508	kg
Stainless steel for recycling	0.026	kg
Plastics for incineration (incl. rubber)	0.103	kg
Electronics for incineration w/energy	0.116	kg
Paper for incineration	0.049	kg
Landfilling	0.045	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
A1, incineration w/energy recov. thermal energ	0.015	MJ
A5, incineration w/energy recov. thermal energy	0.463	MJ
A5, incineration w/energy recov. electric energy	0.255	MJ
C3, steel for recycling (net amounts)	0.058	kg
C3, stainless steel for recycling (net amounts)	0.002	kg
C3, copper for recycling (net amounts)	0.035	kg
C4, incineration w/energy recov. thermal energy	1.11	MJ
C4, incineration w/energy recov. electric energy	0.604	MJ

LCA: Results

Characterization model: *EN 15804:*2012+A2:2019, EF 3.1.
The LCA results in module B6 are given for 10 years.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	MNR	MNR	MNR	X	X	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1PCS of COMFORT 15-14 pump

Parameter	Unit	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	4.38E+00	1.4E-01	1.94E-01	0	0	4.63E+01	0	0	1.64E-02	1.72E-02	3.82E-01	-4.07E-01
GWP-fossil	kg CO_2 eq	4.62E+00	1.38E-01	8.09E-03	0	0	4.57E+01	0	0	1.62E-02	1.7E-02	2.86E-01	-4.06E-01
GWP-biogenic	kg CO_2 eq	-2.59E-01	7.08E-04	1.86E-01	0	0	4.7E-01	0	0	8.3E-05	1.74E-04	9.61E-02	-1.47E-04
GWP-luluc	kg CO_2 eq	1.11E-02	1.47E-03	1.66E-05	0	0	1.51E-01	0	0	1.72E-04	5.6E-05	2.87E-05	-7.27E-04
ODP	kg CFC11 eq	3.22E-09	2.36E-14	2.31E-14	0	0	1.04E-09	0	0	2.77E-15	3.86E-13	4.3E-14	-1.53E-11
AP	mol H^+ eq	3.81E-02	8.95E-04	5.32E-05	0	0	1E-01	0	0	1.05E-04	3.72E-05	2.51E-04	-2.58E-03
EP-freshwater	kg P eq	8.17E-05	3.84E-07	7.28E-09	0	0	9.77E-05	0	0	4.5E-08	3.63E-08	2E-07	-3.91E-07
EP-marine	kg N eq	3.85E-03	4.43E-04	2.03E-05	0	0	2.4E-02	0	0	5.2E-05	8.91E-06	1.17E-04	-2.29E-04
EP-terrestrial	mol N eq	4.06E-02	4.81E-03	2.49E-04	0	0	2.69E-01	0	0	5.64E-04	9.99E-05	1.34E-03	-2.5E-03
POCP	kg NMVOC eq	1.22E-02	8.46E-04	5.14E-05	0	0	5.96E-02	0	0	9.92E-05	2.21E-05	3.03E-04	-7.61E-04
ADPE	kg Sb eq	6.67E-04	9.47E-09	3.39E-10	0	0	9.5E-06	0	0	1.11E-09	3.53E-09	6.46E-10	-9.71E-05
ADPF	MJ	6.6E+01	1.82E+00	6.57E-02	0	0	9.32E+02	0	0	2.14E-01	3.46E-01	1.77E-01	-5.33E+00
WDP	m^3 world eq deprived	1.25E+00	6.51E-04	2.07E-02	0	0	1.15E+01	0	0	7.64E-05	4.25E-03	4.68E-02	-9.15E-02

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1PCS of COMFORT 15-14 pump

Parameter	Unit	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4	D
PERE	MJ	2.4E+01	1.38E-01	1.75E+00	0	0	6.37E+02	0	0	1.61E-02	2.37E-01	7.78E-01	-1.4E+00
PERM	MJ	2.48E+00	0	-1.74E+00	0	0	0	0	0	0	0	-7.38E-01	0
PERT	MJ	2.65E+01	1.38E-01	1.44E-02	0	0	6.37E+02	0	0	1.61E-02	2.37E-01	3.99E-02	-1.4E+00
PENRE	MJ	6.29E+01	1.82E+00	1.09E-01	0	0	9.32E+02	0	0	2.14E-01	3.46E-01	3.01E+00	-5.33E+00
PENRM	MJ	3.15E+00	0	-4.3E-02	0	0	0	0	0	0	0	-2.84E+00	0
PENRT	MJ	6.6E+01	1.82E+00	6.57E-02	0	0	9.32E+02	0	0	2.14E-01	3.46E-01	1.77E-01	-5.33E+00
SM	kg	6.04E-01	0	0	0	0	0	0	0	0	0	0	9.63E-02
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0
FW	m^3	3.77E-02	6.8E-05	4.87E-04	0	0	4.95E-01	0	0	7.97E-06	1.84E-04	1.1E-03	-2.24E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1PCS of COMFORT 15-14 pump

Parameter	Unit	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4	D
HWD	kg	7.92E-03	7.32E-11	2.71E-11	0	0	1.22E-06	0	0	8.59E-12	4.52E-10	7.88E-11	-1.55E-06
NHWD	kg	3.69E-01	2.55E-04	5.18E-03	0	0	7.22E-01	0	0	2.99E-05	2.68E-04	9.57E-02	7.22E-02
RWD	kg	2.43E-03	3.44E-06	2.64E-06	0	0	1.47E-01	0	0	4.04E-07	5.46E-05	6.59E-06	-2.33E-04
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0

MFR	kg	0	0	0	0	0	0	0	0	0	5.93E-01	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	2.55E-01	0	0	0	0	0	0	0	6.04E-01	0
EET	MJ	1.48E-02	0	4.63E-01	0	0	0	0	0	0	0	1.11E+00	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1PCS of COMFORT 15-14 pump

Parameter	Unit	A1-A3	A4	A5	B1	B2	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	3.43E-07	3.9E-09	2.86E-10	0	0	8.27E-07	0	0	4.58E-10	3.07E-10	1.42E-09	-2.3E-08
IR	kBq U235 eq	2.94E-01	4.95E-04	4.13E-04	0	0	2.43E+01	0	0	5.8E-05	9.02E-03	9.85E-04	-3.92E-02
ETP-fw	CTUe	3.21E+01	2.37E+00	3.91E-02	0	0	1.57E+02	0	0	2.78E-01	7.1E-02	1.08E-01	-1.52E+00
HTP-c	CTUh	1.47E-08	3.2E-11	1.51E-12	0	0	1.48E-08	0	0	3.76E-12	1.4E-11	7.23E-12	-4.57E-10
HTP-nc	CTUh	6.89E-08	1.79E-09	3.32E-11	0	0	3.12E-07	0	0	2.1E-10	9.2E-10	3.42E-10	-2.74E-09
SQP	SQP	3.43E+01	8.07E-01	2.1E-02	0	0	3.73E+02	0	0	9.46E-02	1.39E-01	4.32E-02	-2E+00

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'.
This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care, as the uncertainties on these results are high, as there is limited experience with the indicator.

References

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

IBU 2022

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.1, Berlin: Institut Bauen und Umwelt e.V., 2022 www.ibu-epd.com

Low Voltage Directive

2014/35/EU

EN 60335-1

EN 60335-1:2012/A11:2014/A13:2017/A15:2021, Household and similar electrical appliances – Safety – Part 1: General requirements

EN 60335-2-51

EN 60335-2-51:2003-03 + A1:2008 + A2:2012, Household and similar electrical appliances – Safety –Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

EMC Directive

2014/30/EU

EN 55014-1

EN 55014-1:2017/A11:2020, Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission

EN 55014-2

EN 55014-2:2015, Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity – Product family standard (CISPR 14-2:2015)

EN 61000-3-2

EN 61000-3-2:2014, Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current =16 A per phase)

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