LONGTIME®

CERTIFICATION STANDARDS

AUTOMATIC COFFEE MACHINE

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I. INTRODUCTION

Based on the standards of the NF EN 45550 series and in coherence with the NF EN 45552 and NF EN 45554 standards, the LONGTIME® specific reference documents specify the elements relating to the study of the robustness, reliability and reparability of the associated product family.
All the qualitative, semi-quantitative or quantitative data are the result of a research and consultation process, as required by the standards in force, and take into account the bibliographical references (scientific studies, regulations, standards, etc.) and all the stakeholders involved.) and all stakeholders, namely: marketers (manufacturers, importers, distributors), their suppliers and/or subcontractors, product experts (repairers, installers, professional testers), spare parts professionals, reconditioners, consumers, consumer associations, environmental associations and all stakeholders who can contribute, subject to added value and the availability of networks and information.
The definition of the pre-requisites in terms of quality, energy threshold, emission thresholds, classification of the parts as well as the definition of the thresholds of the scales are the result of the analysis of the consultations carried out and the taking into account of the best eco-design practices available on the market.
The specific LONGTIME® standards are revised at the latest every 3 years.

LONGTIME®'s vision

This project is part of a dynamic societal movement with the desire to go ahead of the regulations. This label is made by citizens, for citizens. It brings the certainty that the product bearing the label is made for a long term use, as 80% of the consumers wish and that it is economically repairable.
LONGTIME® is a simple, strong and efficient tool, created to inform the consumer concerned about the global impact of his purchases, but also the consumer who wants to acquire a product with a fair longevity/price ratio. It also tends to put on the front of the stage the manufacturers anxious to propose products whose lifespan is optimized.

Label's goals

The aim of this approach is to encourage a different type of consumption, thus aiming to produce differently. Almost all citizens want a transformation of the consumer society with a real change of technical-economic paradigm in order to consume better and more sustainably.
The ecological interest is of course major, we have on a world scale multiplied in a few decades our consumption of raw materials to exceed today, 60 billion tons per year. The label influences the preservation of planetary resources, by a better use of them and the reduction of waste.
Intuitively, therefore, buying a product with a longer lifespan limits the use of our planet's resources, reduces over-consumption and allows us to get away from disposable products and waste. It is not a question of looking for "immortal" products but of fighting against the short life span of products.
Extending the life of a fully automatic household coffee machine by a few years can reduce the results of indicators in those categories of life cycle impacts that depend

mainly on the production phases upstream of use.
In the other impact categories, the benefit of extending the lifecycle will largely depend on the energy efficiency of the replacement product, given that the average lifespan of fully automatic household espresso machines is estimated at 10 years.
Thus, replacing an automatic espresso coffee machine before (10 years) can be advantageous from an environmental point of view under certain conditions and in particular if the new machine presents a significant improvement of the energy efficiency, both on the electrical consumption and on the losses of coffee linked to the grinding. (at least between 5 and 25% compared to the previous product).

Scope of application

The label is applicable to different product families as soon as there is an assembly of parts. LONGTIME® tends to cover domestic appliances, electronics, portable electrical appliances, furniture, leisure equipment, professional equipment... The range of products is therefore very wide but excludes the automobile, textile products (except leather goods), food, cosmetics and chemicals.

Organization of the repository

The criteria are classified on several levels of requirement:

KO	These criteria must be met in order to qualify for the label after the initial audit (year N).
Major	These criteria must be met at least 80% during the audit. They will lead to the implementation of corrective actions to reach 100% in year N+1.
Minor	These criteria must be met at least 50% of the time during the audit. They will lead to the implementation of corrective actions to reach 80% in year N+1 and 100% in year N+2.

The criteria are broken down into several categories and each criteria presentation follows the following scheme:

Criteria category

Number and name of the criteria

Requirement level

Cross-cuting criteria

❖ Product Specific Requirement (PSR)

Mean of proof

Control system

The evaluation of the respect of the criteria of the standard is carried out by an approved and independent control body.
Each criterion is evaluated according to a compliant/non-compliant approach
More details on the control system in the labeling process are available on the LONGTIME® labeling conditions online.

II. Definition of the product scope

The standard "Automatic espresso coffee machine electrodomestic" is dedicated to espresso machines equipped with an autonomous heat source and a reserve of coffee packaged in the form of beans and powered only. The automatic espresso machines are equipped with a coffee grinder and a water tank and generally deliver one or two cups of coffee thanks to the automation of all the steps of the espresso making process and by using a brewing technology under pressure.

1. Product scope

- Automatic espresso machine for domestic use

2. Outside product scope

- Pod espresso machine
- Semi-automatic household espresso machine (percolator)
- Professional coffee or espresso machine (CHR, Tertiary)
- Filter coffee machine (drip)
- Coffee urn
- Coffee maker with push button
- Coffee pod maker

III. Terms and definition

FMEA
Tools for Failure Mode, Effects and Criticality Analysis.

Permanent assembly
It is a set of components forming a single part or part of a product that cannot be disassembled without destroying or altering its intended use.
To remove the connection between two assemblies or parts, it is necessary to deform, degrade or destroy at least one of the parts forming the assembly. Example of permanent assembly techniques: welding, crimping, clinching, stamping, gluing and adhesives.

Usage constraint

It corresponds to the forces that apply to the part.

Routine maintenance
Maintenance recommended by the manufacturer to keep the product in optimal working condition.

Out of service
Corresponds to the break of the functional state.

IOT
Internet of Things; this function corresponds to the fact of being able to connect its product to the Internet in order to obtain additional remote control and/or regulation functions.

Not in use
It corresponds to a state of non-operation of the device.

O.S
Operating System is a set of programs that direct the use of a computer's resources by application software.

Product of "great use"
Product of very frequent use and which in case of failure causes
A significant disruption in the management of daily life: refrigerator, washing machine, boiler / water heater, telephone, computer, stove...

Non-proven technology
Whose operation brings an innovation compared to the previous technologies and whose reliability is not proven.

Criticality
Degrees of resolution of the failure. Apprehended here by the detection (diagnosis and localization) and the severity (price of the parts and/or technical difficulty of the repair) of the breakdown.

Proprietary tool
A specific tool, not commercially available and exclusively owned by one party or company, by virtue of which its use by another party (end user, customer, repairer) involves a copyright, a license and/or a cost.

External source parts
Parts external to the manufacturer's production facility, coming from an identified supplier.

Sub-assembly
A set of inseparably connected components that form a block and perform a function. The sub-assembly can be separated from the product.

Step

Operation leading to the removal of a part, fixture(s) or a tool change.

« General public » tools
Common tools, for general use, available to any public in classic distribution.
cf: EN 45554 standard tool list - screwdriver for slotted head, crosshead or internal 6-lobe screws, wrench for hexagon socket screws, combination wrench, universal pliers, half-round nose pliers, diagonal cutting pliers, multi-socket pliers, vice grip pliers, universal terminal stripping and crimping pliers, lever, tweezers, steel-headed hammer, universal knife (cutting pliers with retractable blade), multimeter, voltage tester, soldering iron, glue gun, magnifying glass.

« Experienced public » tools
Tools requiring skills for their use and whose cost can represent a brake (torque wrench, soldering iron...).

« Professional » tools
Tools requiring specific knowledge or conditions of use and whose acquisition cost represents an investment.

Coffee group
The coffee group is the heart of the machine, it is in charge of reproducing the extraction manually managed by the baristas by infusing the hot water through the compacted coffee cake thanks to an electronic control. The adjustment and maintenance of the coffee group allow the production of a high quality coffee. Also called percolation chamber, percolation unit, percolation group, brewer, brewing group, or dispensing group...all these terminologies refer to the same unit.

IV. Priorisation by categories of parties

List of parts and prioritization representative of the target product group but not exhaustive.

1. Functional parts

Parts related to the operation or use of the product.

- Electrical and electronic assembly
  - EEPROM type read-only memory
  - Switches
  - Lights, indicators (diodes)
  - Connection plates
  - Phase terminal block
  - Relay
  - Button or On-Off switch coffee machine
  - Power supply cable
  - Interference suppression coil

- Hydraulic assembly
  - Water tank valve
  - Water tank presence switch / sensor
  - Water tank minimum level switch
  - Hose
  - Nozzles (coffee, foam, hot water, milk...)
  - Anti-burn rubber for steam tube
  - Drainer (structure) / Drip tray
  - Float for drip tray
  - Contactor / sensor for drip tray presence
  - Maximum level switch / sensor for drip tray
  - Heating module for cup heater (PTC)

- Percolation unit assembly
  - Coffee bean container
  - Coffee bean container lid (including seal)
  - Grinder adjustment knob (fineness of grind)
  - Step switch (grind setting)
  - Ground coffee compartment
  - Ground coffee compartment presence switch
  - Mechanical valve
  - Contactor / sensor for the position of the brewing unit (lower, upper)

- Control unit (start, settings, programs...)
  - Control knob, (touch, mechanical)
  - Program selector, timer
  - Switch

- Sealing and stabilizing element for mechanical connections :
  - Gaskets (black, green, orange)
  - Fitting (brass, Bakelite, clip)
  - Spring

2. Esthetic parts

- Not identified according to the definition of the LONGTIME® standards.

3. Priority parts

Functional parts but characterized by proven criticality in the event of malfunction or failure (sometimes called critical parts).

- Hydraulic assembly
  - Water pump (bracket, damper)
  - Flow meter
  - Thermoblock / Boiler / Heating circulator (resistance, Klixon type thermostat)
  - Multi-way solenoid valve

- Set Brew unit
  - Grain mill wheels
  - Crusher transmission or drive mechanism
  - Grain grinder electric motor
  - Coffee group drive mechanism (transmission kit, pulley, belt, worm)
  - Coffee group electric motor
  - Coffee group positioning switch (lower, upper)

- Electrical and electronic assembly
  - Power electronic cards
  - Electronic control boards
  - Electronic control module
  - Electronic display board
  - Electronic display module
  - Analog or digital display (display)
  - Electric motor capacitor (start, permanent)

4. Consumable parts

Parts intended to be replaced, subject to wear and tear during use of the device.

- Hydraulic assembly
  - Water tank filter
  - Limescale filter / Anti-scale magnet ring

5. Vulnerable parts

Parts exposed to a high user accidental breakage rate.

- Not identified according to the definition of the LONGTIME® standards.

6. Accessories

Elements that are useful for the functioning of an object without being part of it.

- Not identified according to the definition of the LONGTIME® standards

7. Maintenance parts

Parts requiring maintenance at regular intervals recommended in order to keep the product in optimal working condition.

- Hydraulic assembly
  - Water reservoir

- Set Brew unit

- Coffee group (injector, body, brewing piston, piston drive)
- Collection tray (marc)
- Drip tray

8. Security features

Regroups all the active and passive parts necessary to protect against risks related to the use of the product.

- Electrical and electronic assembly
  - Management, regulation of the water heater system with temperature sensor (CTN type) or thermostat
  - Torque limiter
  - Position or safety sensor or contactors (Hall effect sensor type, microswitch, microswitch, etc.)

9. Covering elements

Includes all of the product trim parts, such as covers, to protect the internal components from the outside.

- Machine body assembly:
  - Frame
  - Pedestal, stand, base
  - Feet
  - Facade
  - Control panel
  - Bonnet, lids, trim panels (front/rear, side, top/bottom)
  - side supports
  - Ground coffee compartment cover

V. ACCESSIBILITY SCALES

The scale has 3 levels :

A	≤3 steps | ≤ 10 min | every user | general public tools
B	≤ 15 steps | ≤ 15 min | experienced user or repairer | tools for the general public, tools for the experienced public
C	≤ 15 steps | ≤ 20 min | experienced user or repairer | tools for the general public, tools for the experienced public, professional tools

VI. Eligibility

Commitment of the candidate

The applicant's eligibility for quality certification must be consistent with its existing values and strategies.

The company has not been accused or found responsible (information / material evidence, subpoena) for ethical violations, commercial practices clearly contrary to quality and ethics (practice of programmed obsolescence, industrial espionage, tax fraud) or major environmental during the last 10 years or considerable and adapted efforts have been put in place to: repair the damage caused, avoid its recurrence, reduce its impacts.

The manufacturer has all the necessary rights on the products and is the only holder of the property rights of any kind on the products including in particular as regards the drawings and models, patents and marks relating to it.

The products are not subject to any dispute of any kind from any third party.

The products are not likely to offend public order or morality, to provoke protests from third parties, or to contravene legal provisions in force.

For the marketing of products, the manufacturer agrees to its obligations and strictly complies with all legal provisions (directives, regulations, standards, laws) relating to the protection of human health, safety and environmental protection in force in the geographical areas of distribution of the products and in relation to its product categories. For the European Economic Area, the products must thus obey the European legislation and be in conformity with the "CE" marking for the products concerned.

VII. Label criteria

1. Environmental and/or energetic performance

PR.1. Health, safety and environmental protection

Criteria Pre-requisite

Within the framework of respect for human health, the safety of persons and installations and the protection of the environment, the producer proves that it deploys actions according to a level of requirement that complies at least with the prerogatives of the European directives 2011/65/EU and (EC) No 1907/2006 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

- The materials of the automatic espresso machines intended to come into direct or indirect contact with foodstuffs, including water, are compatible with food use and comply at least with Regulation (EC) No 1935/2004.

Method of proof: For products distributed in geographical areas potentially covered by regulatory prerogatives establishing requirements similar to the European market for limiting the use of certain hazardous substances in EEE, evidence of compliance with these regulatory requirements shall be used as a means of evidence in meeting the RSPs of this criterion where necessary.

- The water tanks made of plastic comply with the requirements of Regulation (EU) No. 10/2011 and ban the use of bisphenol A.

Method of proof: Composition of the tank evaluated by the Control Body mandated during the audit.

- For large companies (> 5000 employees), the main site(s) involved in the production of the product has (have) a certification linked to an international environmental management standard.

Method of proof: ISO14001:2015 certification issued by an accredited third-party inspection body.

PR.2. Energy efficiency

Criteria Pre-requisite

Within the framework of the reduction of impacts related to energy consumption or pollution emissions, the producer demonstrates the environmental and/or energy performance of its products.
It proves that it deploys actions according to a level of requirement that complies, at the very least, with the prerogatives of the European directives and/or regulations (EU) 2009/125/EC (including its implementing measures) on the ecodesign of energy-related products and (EU) 2017/1369 (including the delegated regulations) on the energy labeling of products, if the product applying for the LONGTIME® label is concerned.

Method of proof: For products distributed in geographical areas potentially covered by regulatory prerogatives establishing requirements for energy efficiency, eco-design and energy labelling similar to the European market, the proof of compliance with these regulatory requirements will serve as a mode of proof in the PSR compliance of this criterion if necessary.

- The automatic espresso machines are equipped with an energy management system resulting in a maximum consumption of 0.5 Watt/h. :
  - An automatic extinguishing device
  - And/or a deep sleep device
  - And/or a user-accessible power switch

- Automatic espresso machines with a "keep warm" function have a device to deactivate this function automatically must not consume more than 35W/h before deactivation.

- Automatic espresso machines, when not in use, have a maximum consumption equivalent to :
  - Maximum 1 Watt/h when it provides information (time, water temperature, error code)
  - Maximum 2Watt/h in IOT

Method of proof: technical specification present in the Product Database on Conformity and containing the technical documentation referred to in Article 12(5) of REGULATION (EU) 2017/1369

- The energy consumption of the appliances eligible for the label comply with a minimum energy class A and meet the median consumption threshold of the class: 65 kWh/year.

Method of proof: The energy class and consumption per hour must be determined according to EN60661:2014.

- Automatic espresso machines have an effective maintenance and descaling incentive mechanism for the user by taking into account the water hardness.

- The manufacturer shall clearly inform the user about the usage scenario(s) that will minimize the energy consumption of the machine and shall make explicit the differences in consumption between the different operating modes (ready to run, deep standby, complete stop...).

Method of proof: Eco-design measures evaluated by the Control Body appointed during the audit.

PR.3 End-of-life management of equipment

Criteria Pre-requisite

As part of the management of end-of-life equipment, the producer proves that it deploys actions for the recovery, reclamation and effective treatment of used smartphones according to a level of requirement that complies at least with the prerogatives of the European directives 2012/19/EU of July 4, 2012 on the prevention and treatment of waste according to the target product group.

Method of Proof: In geographic distribution areas covered by regulatory prerogatives establishing product collection and recycling requirements, evidence of compliance with those regulatory requirements will serve as the mode of proof in meeting the PSR of this criterion if necessary.

2. Conception

I.1.1. State of the art and technical solutions

KO criteria

The builder identifies and records in a technical sheet the constraints of use of the product and its various parts. He justifies the choice of reliable and qualitative design and technical solutions with regard to these constraints.

General methods of proof of the criterion: Visual inspection by a third party auditor appointed during the in-situ audit, supplemented by a set of data appropriate to the sub-criteria:

- *CE marking database*
- *Supplier quality data (technical specification sheet, iso 9001:2015, certification...)*
- *Test data (external/internal) for qualification, performance, aging, wear, endurance, resistance to limit conditions.*
- *Any documentation/software to support compliance such as:*
  - *Internal product data sheet*
  - *Functional analysis tool*
  - *Design study (operation, materials, usage constraints)*
  - *Performance and endurance tests*
  - *Qualification phase and test*
  - *Study of failure rates*
  - *Application of product-related test standards:*
  - *EN 60335-2-15:2016 (Household and similar electrical appliances - Safety - Part 2-15: Particular requirements for appliances for heating liquids.*
  - *EN 60335-2-14:2006 and amendments (Household and similar electrical appliances - Safety - Part 2-14: Particular requirements for kitchen machines).*
  - *EN 60661:2014 Methods of measuring the performance of coffee makers for household use*
  - *EN 60068-2-38:2009 (resistance of components to temperature and humidity)*

❖ General resistance to operating and environmental conditions

- Protection of internal components against aggression (dust, coffee residue, humidity, water...)
  - Protection of electrical and electronic components
  - Dimensioning and choice of materials adapted to environmental constraints
  - Product design and/or selection of watertight or damage-resistant components (watertight compartment, optimization of the location of sensitive components, components insensitive to corrosion, etc.)
- Conclusive durability of ferrous and non-ferrous materials under operating conditions, especially for parts, percolation unit, hydraulic system, internal mobility elements, fastening system:
  - Hot water
  - Humidity
  - Food residues
  - Dust
- Protection against scale formation

- Maintenance indicator
- Descaling or maintenance program

- Protection against aggression

Method of proof: Characterization of processes and coatings by technical data, wear and aging tests.

- Durability of electronic components:
  - Resistance of components to operating conditions
  - Durability of capacitors (permanent, start-up): Class B minimum (10000 hours)
  - Reliability of position sensors (Hall effect sensor recommended)
  - Thermal regulation (ventilation & cooling) and efficient protection against overheating (ventilation, spacing, heat sink...) of components
  - Sealing of electrical and electronic contacts ensured by the product design or by design elements compatible with the objectives of promoting reparability
  - Robustness of control modules with high resistance to repeated handling

Method of proof: Characterization of parts and processes by technical data, wear and aging tests.

- Durability of the hydraulic system:
  - Resistance of the system to pressure and heat stress
    - Hose materials and sizing adapted to thermal (hot water) and mechanical (pressure) constraints according to their functions and locations
    - Seals adapted to thermal (hot water) and/or mechanical (pressure) constraints according to their functions and locations
  - Resistance of the system to the constraints of use, particularly to limescale and microparticles
    - Filter upstream of the hydraulic circuit
    - Fixing elements adapted to thermal (hot water) and mechanical (pressure) constraints
  - Robustness and reliability of the hydraulic system's main components
    - Heating system (thermobloc, boiler, heating circulator)
    - Water pump
    - Flow meter

- Durability of the percolation unit:
  - Resistance of the percolation unit to frictional wear
    - Materials of the worms, pinions, belts showing a high resistance to wear
    - Long-term lubrication method to prevent wear phenomena
    - Robust materials of the grinding wheel and its drive mechanism
  - Resistance of the percolation unit to moisture and heat
    - Highly corrosion-resistant materials including the fastening mechanisms
    - Materials of the coffee unit (brewing chamber) with excellent resistance to thermal expansion/contraction.
  - Reliability of the electric motors and their components (bean grinder motor and coffee group drive motor)

- Resistance and protection of the electric motor from external influences with consistent protection class
- Protection against overheating
- Cooling fan
- Thermal management by safety element

Method of proof: Characterization of materials and components, by technical data, quality certificate, wear and aging test.

❖ Management of exogenous failures :
- Protection of the system against the risks of severe scaling
- Protection against the risks of spillage (overflow type, end of extraction, cleaning cycle...)

❖ Specific measures in favor of repair:
- No serialization practices
- Intuitive diagnostic interfaces for failure modes

I.1.2. Production

Major criteria

The manufacturer justifies processes allowing him to control and maintain a constant quality of manufacture and assembly in the production.

❖ The major site(s) related to the production of the product has a certification related to an international quality management standard.

Method of proof: ISO9001:2015 certification by an approved third-party inspection body.

I.1.3. Consumable parts and accessories

Major criteria

Consumable parts, accessories and parts requiring regular maintenance comply with the accessibility scale A.

❖ Accessibility scale limited to 3 steps and 5 minutes

<u>Consumable parts:</u>
- Hydraulic assembly :
  - Water tank filter
  - Limescale filter / Anti-limescale magnet ring

<u>Accessory parts :</u>
- Not identified according to the definition of the LONGTIME® reference system

Maintenance parts :

- Hydraulic assembly :
  - Water tank

- Percolation unit assembly :
  - Coffee unit (injector, body, brewing piston, piston drive)
  - Collection tray (grounds)
  - Drip tray

Method of proof: Visual inspection and demonstration in real time to the control body appointed during the on-site audit.

I.1.4. Safety elements

KO criteria

The replacement and/or resetting of product and/or user safety elements is provided for by the manufacturer. These elements respect the accessibility scale B.

❖ Accessibility scale limited to 10 steps and 15 minutes

- Electrical and electronic assembly
  - Management, regulation of the water heater system with temperature sensor (CTN type) or thermostat
  - Torque limiter
  - Position or safety sensor or contactors (Hall effect sensor type, microswitch, microswitch, etc.)

Method of proof: Visual inspection and demonstration in real time to the control body appointed during the on-site audit.

I.1.5. Vulnerable parts

KO criteria

Vulnerable parts are defined in the PSR. The replacement of these parts respects the accessibility scale B.

❖ Accessibility scale limited to 5 steps and 15 minutes

- Not identified according to the definition of the LONGTIME® reference system

I.1.6. Not in use

Minor criteria

The manufacturer identifies the consequences of not using the product and must inform the consumer in the recommendations for use of the minimum use necessary for the proper functioning of the product.

- Applicable: Risk of scaling
  Consistent duration of non-use: 15 days

Method of proof: Evaluated by the control body commissioned during the audit on the basis of user manuals

I.1.7. Non-proven technology

KO criteria

The manufacturer shall provide information on the proportion of unproven technology in its product. It must provide the means implemented to guarantee its reliability or ensure that the normal use of the product does not depend on this technology.

- IOT function

Method of proof : Real-time demonstration to the inspection body during the on-site audit.

I.1.8. External source parts

Minor criteria

The manufacturer shall keep records of externally sourced parts purchased and/or subcontracted. He must provide information on their origin and quality.

I.1.9. Reliability plan

Minor criteria

The manufacturer provides his own FMEA or internal audit and identifies the changes implemented to improve the reliability and/or repairability of the product. Corrections or improvements already made to the product are reported.

I.1.10. Sub-assembly

Major criteria

The design of the product must only use sub-assemblies on technical justification or on proof of reliability.

Without technical justification, the sub-assemblies must be the subject of a reconditioning and/or standard exchange route or the manufacturer must demonstrate the economic interest for the user.

3. Evolutivity

I.2.1. Software

Major criteria

The manufacturer shall ensure that the original performance of its product is maintained during O.S. updates without time limit. The manufacturer identifies and records the means he uses to monitor the maintenance of these post-maj performances.

4. Traceability

I.3.1. Study and failure rate

Minor criteria

The manufacturer provides failure rates and/or indicators to monitor the reliability of the product at least until the last unit of the model concerned is put on the market.

❖ Special attention will be given to the following failures:

- Hydraulic failure:
  - Pump (de-primed, tampered with internal pump seal, worn ball, power supply)
  - Altered pipes or hoses (cut, scaled, bent, mechanical properties of the hoses not adapted, too small size)
  - Blocked tank valve
  - Faulty flow meter
  - Leakage (unsuitable seal properties or too small a size)
  - Failure of the position or presence sensors

- Failure of the percolation unit:
  - Drive system failure (premature wear of drive mechanism, screw, belt, pinion)
  - Failure of the position or presence sensors
  - Sealing failure (unsuitable seal properties or too small a size)

- Failure of the electric motor(s)
  - Starting or permanent capacitor out of order
  - Power supply electronic board out of order
  - Poor quality or faulty armature insulation
  - Inadequate motor power
  - Worn, broken or failed brushes (universal motor)

- Ceramic valve fault (motor)

- Thermal control failure :
  - Temperature sensor (NTC) faulty
  - Boiler or resistance faulty
  - Electronic control board faulty

- Electronic failure
  - Short circuit (electronic board, component, printed circuit)
  - Electronic display board or board component out of order
  - Display module malfunctioning (backlight, LED...)
  - Control device failure (buttons, touch system, electronic board, programmer)

I.3.2. Identification number

Minor criteria

The manufacturer uses a number or method of identification on each product.

5. Disassembling

II.1.1. Packaging of the product

KO criteria

The body of the product is removable and allows access to the internal components in accordance with accessibility scale B. Permanent assemblies are not permitted unless justified by the nature or use of the product.

- Accessibility scale limited to 5 steps and 10 minutes

  - Machine Body Assembly :
    - Faceplate
    - Control panel
    - Hood, covers (side, top)
    - Side Supports
    - Cover panels (rear, side)

- Permanent assembly not justifiable, not allowed.
- In the case of assembly by clips, verification of the quality of the clips and the availability of the location information.

Method of Proof: Compliance with the disassembly criterion will be established during the in-situ audit by an approved auditor.

II.1.2. Access to functional parts

Major criteria

The accessibility of the functional rooms cannot exceed the accessibility scale C.

- Accessibility scale limited to 15 steps and 20 minutes

  - Electrical and electronic assembly
    - EEPROM type read-only memory
    - Switches
    - Lights, indicators (diodes)
    - Connection plates
    - Phase terminal block
    - Relay
    - Button or On-Off switch coffee machine
    - Power supply cable
    - Interference suppression coil

  - Hydraulic assembly :
    - Water tank valve
    - Water tank presence switch / sensor
    - Water tank minimum level switch
    - Hose
    - Nozzles (coffee, foam, hot water, milk...)
    - Anti-burn rubber for steam tube
    - Drainer (structure) / Drip tray
    - Float for drip tray
    - Contactor / sensor for drip tray presence
    - Maximum level switch / sensor for drip tray
    - Heating module for cup heater (PTC)

  - Percolation unit assembly :
    - Coffee bean container
    - Coffee bean container lid (including seal)
    - Grinder adjustment knob (fineness of grind)
    - Step switch (grind setting)
    - Ground coffee compartment
    - Ground coffee compartment presence switch
    - Mechanical valve
    - Switch / sensor for brewing unit position (lower, upper)

  - Control unit (start-up, settings, programs, etc.):
    - Control button, (touch, mechanical)
    - Program selector, timer
    - Switch

  - Element for sealing and stabilizing mechanical connections:

- Seals (black, green, orange)
- Fitting (brass, Bakelite, clip)
- Spring

Mode of proof: Visual inspection and real-time demonstration to the mandated inspection body during the on-site audit.

II.1.3. Access to priority parts

Major criteria

Access to priority rooms meets accessibility scale B or has a reliability plan in place.

- Accessibility scale limited to 10 steps and 15 minutes

  - Hydraulic assembly:
    - Water pump (bracket, damper)
    - Flow meter
    - Thermoblock / Boiler / Heating circulator (resistance, Klixon type thermostat)
    - Multi-way solenoid valve

  - Set Brew unit:
    - Grain mill wheels
    - Crusher transmission or drive mechanism
    - Grain grinder electric motor
    - Coffee group drive mechanism (transmission kit, pulley, belt, worm)
    - Coffee group electric motor
    - Coffee group positioning switch (lower, upper)

  - Electrical and electronic assembly:
    - Power electronic cards
    - Electronic control boards
    - Electronic control module
    - Electronic display board
    - Electronic display module
    - Analog or digital display (display)
    - Electric motor capacitor (start, permanent)

- The fixings of the different priority parts of the product having both a mechanical and electrical function must be removable and reusable (Class A standard EN45554:2020)

In the case that the fixing system cannot be reused, it must be provided with the replacement part in order to ensure the resolution of the failure or maintenance scenario.

Mode of proof: Visual inspection and real-time demonstration to the mandated inspection body during the on-site audit.

II.1.4. Sub-assembly connectors (internal parts)

Major criteria

Replacement subassembly connectors must not interfere with the repair of the product.

- All the connector fixing elements must be at least removable (class B standard EN45554:2020).

Mode of proof: Visual inspection and real-time demonstration to the mandated inspection body during the on-site audit.

II.1.5. Batteries

KO criteria

The manufacturer justifies a solution for the replacement of the batteries of the devices with autonomous operation.

- Not Applicable

II.1.6. Disassembly tools

Major criteria

No proprietary tools are required to disassemble the product, except for regulatory justification.

- As no regulations have been identified, the use of proprietary tools in terms of reparability is prohibited. A tolerance is allowed for tools made available by the company to all interested parties without conditions.

Method of proof: Evaluated by the control body appointed during the on-site audit.

- The list of tools for repairability of this product group shall be in accordance with the list in table A2 of EN 45554:2020 plus basic tools specific to the target product group.
  - Puller of bearings and/or bearings that may exist in electric motors or transmission systems
  - Extractor of seals

- Tolerance allowed for proprietary tools supplied on request at no extra cost with the spare part.

Method of proof: Evaluated by the mandated Inspection Body during the in-situ audit.

6. Documentation

II.2.1. Exploded view

Major criteria

The manufacturer makes available to users directly or indirectly through its partners or its network, diagram(s) or exploded view(s) of the product as well as a nomenclature of parts and sub-assemblies of the product.

II.2.2. Exploded view

Minor criteria

The manufacturer references and delivers more specific exploded views to help identify and name a part.

II.2.3. Default code

Major criteria

The user and repairer fault codes must be present in the respective documentation and/or accessible on the manufacturer's website.

II.2.4. Repair manual

Minor criteria

The manufacturer shall make available to repairers the information necessary to repair the product OR shall provide evidence of economically viable alternatives for the end user.

- All the documents necessary for the resolution of the failure scenarios must be exhaustive and accessible - Class A Table A.10 of the EN45554 standard for all the professionals of the sector (approved or not approved) and as a priority:
  - A disassembly diagram or an exploded view
  - A technical manual with instructions on how to solve the failure scenarios
  - A list of the necessary repair and test equipment
  - Component and diagnostic information (such as minimum and maximum theoretical values for measurements)
  - Wiring and connection diagrams
  - Error and diagnostic codes (including manufacturer-specific codes, if applicable)
  - Instructions for installing relevant software and firmware, including reset software
  - Information on how to access failure incident data if it is stored in the product

Method of proof: Visual inspection and real-time demonstration to the mandated inspection body during the documentary audit or on-site audit.

II.2.5. Fault diagnosis software

Minor criteria

Fault diagnosis software packages shall be free of charge after the end of the full warranty period with respect to the end of manufacture of the product.

7. Spare parts

II.3.1. Nomenclature

Major criteria

All spare parts or subassemblies are uniquely named and coded to facilitate identification and ordering of parts.

II.3.2. Availability time

KO criteria

The manufacturer commits in its GTC or via commercial communication to the availability of spare parts or replacement parts for the product for a minimum of 5 to 10 years from the date the last unit of the model concerned was put on the market. The minimum availability time required is determined in the PSR.

- Availability of spare parts 10 years minimum (Class A - Long-term accessibility. Table A9 according to EN 45554)

Method of proof: General conditions of sale.

II.3.3. Time of supply

Minor criteria

For functional parts or sub-assemblies, the manufacturer has a minimum reserve to meet the probability of demand for said part OR justifies a supply process within the same time frame.

II.3.4. Spare parts prices

Major criteria

The terms of purchase of spare parts are detailed (average price, distribution network, etc.). The manufacturer makes every effort to limit the total price of functional parts to the maximum recommended selling price of the product.

The value of one of these functional parts may not exceed the fixed percentage of the maximum recommended selling price of the product.

- Percentage fixed at 25%. A tolerance is allowed for parts whose unit cost price exceeds 25%.
- All replacement parts must be accessible.

Method of proof: Visual inspection and real time demonstration to the mandated control body during the documentary audit or the in situ audit.

II.3.5. Price of shipping costs

Minor criteria

The manufacturer delivers the spare parts at the actual cost of shipping and preparation or offers alternative solutions that reduce the cost of receiving the spare parts.

8. After sales-services under warranty

II.4.1. Customer service contact

Minor criteria

The maximum time for opening an after sales service file should not exceed 2 working days.

II.4.2. Customer service network

Major criteria

The manufacturer provides the end user with an after-sales service network in line with its direct distribution network.

II.4.3. Repair policy

Major criteria

Repair must take priority over replacement.

9. Out-of-warranty after sales service

II.5.1. After-sales service network

Minor criteria

The user benefits from means facilitating the repair of his product out of warranty. To take charge of the product to be repaired, the manufacturer must allow the user to benefit from its distribution and repair network.

10. Free long-term warranty

III.1.1. Warranty period

KO criteria

The warranty period with presumption of anteriority of the defect is determined in the PSR. This period cannot be less than 24 months.

- 24 months minimum

Method of proof: Evaluated by the control body commissioned during the audit on the basis of the user manuals

III.1.2. Warranty conditions (beyond the legal period of conformity)

Major criteria

For the categories of product considered of "great utility", the manufacturer provides the provision of a replacement good to the user during the period of immobilization of the product for repair.

- Product not considered of great use.

III.1.3. Exclusion of warranty

Major criteria

Warranty exclusions must not be abusive with respect to the normal use of the product. They will be defined in the PSR.

- Warranty exclusions that can be identified as abusive:
  - Limescale
  - Surface micro-scratch

Method of proof: Evaluated by the control body commissioned during the audit on the basis of the user manuals

III.1.4. Warranty assignment

Major criteria

The manufacturer sets up a transferable warranty system.

III.1.5. Original packaging

Minor criteria

The return of the original packaging cannot be required for the warranty to be honored.

11. Use and maintenance advices

III.2.1. Usage informations provided

Major criteria

The manufacturer delivers with the product a manual with advice on the use and maintenance of the product. This information must be exhaustive and relevant in order to reduce the exogenous failure rate.

- The manufacturer clearly makes the user aware, via the manual and/or its website, of the responsible use of the machine
  - Maintenance
  - Use
  - Valuation of consumables
  - Repair

Method of proof: Visual inspection and demonstration in real time to the mandated inspection body during the documentary audit or the in situ audit (physical and/or digital user manual).

III.2.2. Usage informations provided

Major criteria

The use and maintenance advice booklet is clear, simple and accessible (adapted font size, vocabulary, language and print quality), in order to be easily understood by the end users.

III.2.3. Informations access

Minor criteria

Information on the use and maintenance of the property must be available in digital form on request or freely available on the manufacturer's website.

VIII. Acknowledgements

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