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ANNEXES 1 to 5

ANNEXES

to the

COMMISSION REGULATION

**laying down ecodesign requirements for welding equipment pursuant to Directive
2009/125/EC of the European Parliament and of the Council**

{SEC(2019) 327 final} - {SWD(2019) 339 final} - {SWD(2019) 340 final}

ANNEX I
Definitions applicable for the Annexes

The following definitions shall apply:

- (1) 'power source efficiency' means the ratio, expressed in a percentage, of the output power at standardised welding conditions and standardised welding load voltages, to the highest power consumption of the power source;
- (2) 'idle state' means the operating state in which the power is switched on and the welding circuit is not energised;
- (3) 'idle state power consumption' means the power demand, in watts, in idle state;
- (4) 'power source' means a device that utilises alternating current (AC) to either power one or more AC power outputs, or which converts AC to one or more DC power outputs, for the purpose of powering a welding equipment;
- (5) 'control panel' means an overall operating interface, containing controls and indicators, between the user and the welding equipment;
- (6) 'equipment housing' means a casing intended to protect the product from the environment, including ambient humidity and possible shock impacts;
- (7) 'battery' means a device as defined in Article 3 of Directive 2006/66/EC, in the sense also of 'battery pack' or 'industrial battery or accumulator' in the same Article;
- (8) 'welding torch' means a device which delivers the welding current to the electrode, which may include transferring the current to a consumable electrode, where used, and which also delivers the shielding gas, where used, to the electric arc area;
- (9) 'gas supply hose' means a supply hose specifically designed for supply of fuel gases (such as acetylene), compressed air and shielding gases used in welding, normally consisting of a tube and a protective cover, often specific to the gas type used, and sometimes to the operating conditions;
- (10) 'gas supply regulator' means a device which reduces the higher pressure of the supplied compressed gases to the lower pressure that can be safely used in the welding equipment, often equipped with a metering valve or flowmeter to measure and/ or control gas flow;
- (11) 'welding wire drive' means a device, used to feed welding wire or filler material, that may be of the type of push, pull or a push-pull combination;
- (12) 'fan' means a rotary bladed machine used to maintain a continuous flow of gas, typically air, passing through it and acts for instance as the internal cooling system for the power source;
- (13) 'electricity supply cable' means an electric energy supply cable meeting the performance and safety requirements of internationally recognised welding cable standards;
- (14) 'professional repairer' means an operator or undertaking which provides services of repair and professional maintenance for welding equipment;
- (15) 'spare part' means a separate part that can replace a part with the same or similar function in a welding equipment.

ANNEX II
Ecodesign requirements

1. Energy efficiency requirements

From 1 January 2023, the power source efficiency of welding equipment, shall not be lower than the values set out in Table 1, and the idle state power consumption shall not exceed the values set out in Table 1.

Table 1. Power source efficiency and idle state power consumption

	Minimum power source efficiency	Maximum idle state power consumption
Welding equipment powered by three-phase power sources with direct current (DC) output	85%	50 W
Welding equipment powered by single-phase power sources with direct current (DC) output	80%	50 W
Welding equipment powered by single-phase and three-phase power sources with alternating current (AC) output	80%	50 W

Compliance with the ecodesign requirements on power source efficiency and idle state power consumption shall be assessed, measured and calculated in accordance with the methods set out in Annex III.

2. Resource efficiency requirements

From 1 January 2021, welding equipment shall meet the following requirements:

(a) Availability of spare parts

(1) Manufacturers, authorised representatives or importers of welding equipment shall make available to professional repairers at least the following spare parts for a minimum period of 10 years after the production of the last unit of a welding equipment model:

- (a) control panel;
- (b) power source(s);
- (c) equipment housing;
- (d) battery(ies);
- (e) welding torch;
- (f) gas supply hose(s);
- (g) gas supply regulator(s);

- (h) welding wire or filler material drive;
- (i) fan(s);
- (j) electricity supply cable;
- (k) software and firmware including reset software.

(2) Manufacturers shall ensure that these spare parts can be replaced with the use of commonly available tools and without permanent damage to the equipment and the part.

(3) The list of these spare parts and the procedure for ordering them shall be publicly available on the free access website of the manufacturer, authorised representative or importer, at the latest two years after placing on the market of the first unit of a model and until the end of the availability of these spare parts.

(b) Access to repair and maintenance information

No later than two years after the placing on the market of the first unit of a model, and until the end of the period mentioned under point a.1, the manufacturer, importer or authorised representative shall provide access to the welding equipment repair and maintenance information to professional repairers in the following conditions:

1. the manufacturer's, authorised representative's or importer's website shall indicate the process for professional repairers to register for access to information; to accept such a request, manufacturers, authorised representatives or importers may require the professional repairer to demonstrate that:
 - (i) the professional repairer has the technical expertise to repair and maintain welding equipment and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point;
 - (ii) the professional repairer is covered by insurance covering liabilities resulting from its activity regardless of whether this is required by the Member State.
2. the manufacturer, authorised representative or importer shall accept or refuse the registration within 5 working days from the date of request by the professional repairer.

Once registered, a professional repairer shall have access, within one working day after requesting it, to the requested repair and maintenance information. The information may be provided for an equivalent model or model of the same family, if relevant. The available repair and maintenance information shall include:

- the unequivocal welding equipment identification information;
- a disassembly map or exploded view;
- a list of necessary repair and test equipment;
- component and diagnosis information (such as minimum and maximum theoretical values for measurement);
- wiring and connection diagrams;

- diagnostic fault and error codes (including manufacturer-specific codes where applicable);
- data records of reported failure incidents stored in the welding equipment (where applicable); and
- instructions for installation of relevant software and firmware including reset software.

Manufacturers, authorised representatives or importers may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates. A fee is reasonable if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information.

(c) Maximum delivery time for spare parts

During the period mentioned under point a.1, the manufacturer, importer or authorised representative shall ensure the delivery to professional repairers of spare parts for welding equipment within 15 working days after having received the order.

This availability may be limited to professional repairers registered in accordance with point (b).

(d) Information on the display of welding equipment

Where a display is provided for a welding equipment it shall provide indication of the use of welding wire or filler material in grams per minute or equivalent standardised units of measurement.

(e) Requirements for dismantling for material recovery and recycling while avoiding pollution

Manufacturers shall ensure that welding equipment are designed in such a way that the materials and components referred to in Annex VII to Directive 2012/19/EU can be removed with the use of commonly available tools.

Manufacturers shall fulfil the obligations laid down in point 1 of Article 15 of Directive 2012/19/EU.

3. Information requirements

From 1 January 2021, manufacturers, their authorised representatives or importers shall ensure that the following information is provided in the instruction manuals for installers and end-users, and for at least 10 years after the first unit of a welding equipment model is placed on the market, on the free-access websites of manufacturers, their authorised representatives or importers:

- (a) the product type;
- (b) the manufacturer's name, registered trade name and registered address at which they can be contacted;
- (c) the product model identifier;
- (d) the power source efficiency (in %);
- (e) the idle state power consumption (in watts);
- (f) a list of equivalent models;
- (g) information relevant to recycling and disposal at end-of-life;

- (h) a list of critical raw materials present in indicative amounts higher than 1 gram at component level, if any, and an indication of the component(s) in which these critical raw materials are present;
- (i) indicative shielding gas utilisation for representative welding schedules and programmes;
- (j) indicative welding wire or filler material utilisation for representative welding schedules and programmes.

The following information shall be provided on the rating plate of welding equipment:

- (a) the year of manufacture.

ANNEX III

Measurements methods and calculations

For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards, the reference numbers of which have been published for this purpose in the *Official Journal of the European Union*, or using other reliable, accurate and reproducible methods which take into account the generally recognised state-of-the-art, and produce results deemed to be of low uncertainty.

ANNEX IV

Verification procedure for market surveillance purposes

The verification tolerances defined in this Annex relate only to the verification of the measured parameters by Member State authorities and shall not be used by the manufacturer, importer or authorised representative as an allowed tolerance to establish the values in the technical documentation or in interpreting these values with a view to achieving compliance or to communicate better performance by any means.

Where a model has been designed to be able to detect it is being tested (e.g. by recognizing test conditions or test cycle), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in this Regulation or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models shall be considered not compliant.

When verifying the compliance of a product model with the requirements laid down in this Regulation pursuant to Article 3(2) of Directive 2009/125/EC, for the requirements referred to in this Annex, the authorities of the Member States shall apply the following procedure:

1. The Member State authorities shall verify one unit of the model.
2. The model shall be considered to comply with the applicable requirements where the following conditions are met:
 - (a) the values given in the technical documentation pursuant to point 2 of Annex IV to Directive 2009/125/EC (declared values), and, where applicable, the values used to calculate these values, are not more favourable for the manufacturer, importer or authorised representative than the results of the corresponding measurements carried out pursuant to paragraph (g) thereof; and
 - (b) the declared values meet any requirements laid down in this Regulation, and any required product information published by the manufacturer, importer or authorised representative does not contain values that are more favourable for the manufacturer, importer or authorised representative than the declared values; and
 - (c) when the Member State authorities check the unit of the model, they find that the manufacturer, importer or authorised representative has put in place a system that complies with the requirements in the second paragraph of Article 6; and
 - (d) when the Member State authorities check the unit of the model, it complies with the requirement in the third paragraph of Article 6, the resource efficiency requirements in point 2 of Annex II and the information requirements in point 3 of Annex II; and
 - (e) when the Member State authorities test the unit of the model, the determined values (the values of the relevant parameters as measured in testing and the values calculated from these measurements) comply with the respective verification tolerances as given in Table 2.
3. Where the results referred to in points 2(a), 2(b), 2(c) or 2(d) are not achieved, the model and all equivalent models shall be considered not to comply with the Regulation.

4. Where the result referred to in point 2(e) is not achieved, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more equivalent models.
5. The model shall be considered to comply with the applicable requirements if, for these three units, the arithmetical mean of the determined values complies with the respective verification tolerances given in Table 2.
6. Where the result referred to in point 5 is not achieved, the model and all equivalent models shall be considered not to comply with the Regulation.
7. The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission immediately after a decision has been taken on the non-compliance of the model according to points 3 or 6.

The Member State authorities shall use the measurement and calculation methods set out in Annex III.

The Member State authorities shall only apply the verification tolerances that are set out in Table 2 and shall only use the procedure described in points 1 to 7 for the requirements referred to in this Annex. For the parameters in Table 2, no other verification tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

Table 2 — Verification tolerances

<i>Parameters</i>	<i>Verification tolerances</i>
Power source efficiency (%)	The determined value* shall not be lower than the declared value by more than 2%.
Idle state power consumption (watt)	The determined value* shall not exceed the declared value by more than 10%.

*in the case of three additional units tested as prescribed in point 4, the determined value means the arithmetical mean of the values determined for these three additional units.

ANNEX V
Benchmarks

The following benchmarks are identified for the purpose of Part 3, point 2 of Annex I to Directive 2009/125/EC.

The best available technology on the market, at the time of entry into force of this Regulation, for the environmental aspects that were considered significant and are quantifiable is indicated below.

Table 3 Benchmarks for power source efficiency and idle state power consumption

Product type	Power source efficiency	Maximum idle state power consumption
Welding equipment powered by three-phase power sources with direct current (DC) output	92%	10 W
Welding equipment powered by single-phase power sources with direct current (DC) output	90%	10 W
Welding equipment powered by single-phase and three-phase power sources with alternating current (AC) output	83%	10 W