DRAFT COMMUNIQUE ON ECO-DESIGN REQUIREMENTS FOR WELDING EQUIPMENT (SGM:2020/…)

Objective

ARTICLE 1- (1) The object of this Communique is to establish eco-design requirements for placing on the market and/or putting into service of electric mains operated welding equipments related to implementation of the Regulation on Ecodesign Requirements for Energy-Related Products entered into force by Cabinet Decree dated 23/6/2010 and numbered 2010/643.

Scope

ARTICLE 2- (1) This Communique shall apply to welding equipment using one or more of the following welding and allied processes:

a) manual metal arc welding;
b) shielded metal arc welding;
c) self-shielded flux-cored welding;
ç) flux cored arc welding;
d) metal active gas and metal inert gas welding;
e) tungsten inert gas welding;
f) plasma arc cutting.

(2) This Communique shall not apply to welding equipment using the following welding and allied processes:

a) submerged arc welding,
b) limited-duty arc welding,
c) resistance welding,
ç) stud welding.

Legal Basis

ARTICLE 3- (1) This Communique has been prepared on the basis of the Law No. 4703 of 29/6/2001 on the Preparation and Implementation of Technical Legislation on Products and Presidential Decree No. 1 on the Presidency Organization published in the Official Gazette No. 30474 dated 10/7/2018

Definitions

ARTICLE 4- (1) For the purposes of this Communiqué, in addition to the definitions in the Regulation on Ecodesign Requirements for Energy-Related Products;

a) ‘EU’ means European Union,

b) ‘Flux cored arc welding’ means a welding process that uses composite tubular filler metal electrodes consisting of a metal sheath and a core of various powdered materials, producing an extensive slag cover on the face of a weld bead. The use of external shield gas(es) may or may not be required,

c) ‘Ministry’ means Ministry of Industry and Technology,

ç) ‘Resistance welding’ means a thermo-electrical process in which heat is generated at the interface of the parts to be joined by passing an electrical current through the parts for a precisely controlled time and under a controlled pressure. No consumables such as welding rods or shielding gases are required,

d) ‘Equivalent model’ means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer or authorised representative or importer as another model with a different model identifier,

e) ‘Welding equipment’ means products that are used for manual, automated or semi-automated welding, brazing, soldering or cutting (or all of the above) via arc welding and allied processes, and that is stationary or transportable, and consists of linked parts or components, at least one of which moves and which are joined together to produce coalescence of metals by heating them to the welding temperature (with or without the application of pressure) or by the application of pressure alone, with or without the use of filler metal, and with or without the use of shielding gas(es), using appropriate tools and techniques, resulting in a product of defined geometry;

f) ‘Self-shielded flux-cored welding’ means a wire welding process in which a continuous hollow-wire electrode is fed through the welding gun into the weld joint without the need to use an external shielding gas to protect the weld pool from contamination. Instead of an external shielding gas, a flux compound within the hollow wire reacts with the welding arc to form a gas that protects the weld pool,

g) ‘Shielded metal arc welding’ means an arc-welding process whereby coalescence is produced by heating with an electric arc between a covered metal electrode and the work-piece and work area. Shielding is obtained from decomposition of the electrode covering. Pressure is not used and filler metal is obtained from the electrode,

ğ) ‘Shielding gas’ (also referred to as ‘secondary gas’) means a gas that does not pass through the orifice of the nozzle, but instead passes around the nozzle and forms a shield around the electric arc,

h) ‘Manual metal arc welding’ means an arc-welding process with a coated electrode where the operator’s hand controls the travel speed of the welding operation and the rate at which the electrode is fed into the electric arc;

ı) ‘Metal active gas welding’ means a gas metal arc welding process whereby coalescence is produced by heating with an arc between a continuous filler metal (consumable) electrode and the workpiece area. Shielding is obtained entirely from an externally supplied gas, or gas mixture, that is active,

i) ‘Metal inert gas welding’ means a gas metal arc welding process whereby coalescence is produced by heating with an arc between a continuous filler metal (consumable) electrode and the workpiece area. Shielding is obtained entirely from an externally supplied gas, or gas mixture, that is inert,

j) ‘Model identifier’ means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer’s, authorised representative’s or importer’s name,

k) ‘Plasma arc cutting’ means an arc cutting process that uses a constricted arc and removes the molten metal in a high velocity jet of ionised gas (plasma gas) issuing from the constricting orifice. Plasma arc cutting is a direct-current electrode-negative process,

l) ‘Plasma gas’ (also referred to as ‘orifice gas’ or ‘cutting gas’) means a gas directed into the torch to surround the electrode, which becomes ionised by the arc to form a plasma and issues from the torch nozzle as the plasma jet,

m) ‘Stud welding’ means a welding process in which a metal stud or a similar part is joined (manually, in automated or in semi-automated way) to a workpiece using an arc of electricity to heat both parts,

n) ‘Limited-duty arc welding’ means arc welding and allied processes that are not for industrial and professional applications and,

1) use single-phase public low-voltage input,
2) if engine driven, do not exceed an output power of 7,5 kVA;
3) do not require arc-striking and stabilising devices, liquid cooling systems or gas consoles for operation,

o) ‘Submerged arc welding’ means an arc welding process that uses an arc or arcs exceeding 600 amperes between a bare metal electrode or electrodes and the weld pool. The

arc and molten metal are shielded by a blanket of granular flux on the workpieces. No pressure is applied and the process uses filler metal from the electrode and sometimes from a supplementary source such as a welding rod, flux or metal granules,

ö) 'Tungsten inert gas welding' means an arc welding process whereby coalescence is produced by heating with an arc between a single tungsten (non-consumable) electrode and the workpiece area. Shielding is obtained from a gas or gas mixture. Pressure may or may not be used and filler metal may or may not be used,

(2) Additional definitions are set out in Annex I.

Ecodesign Requirements

ARTICLE 5- (1) The ecodesign requirements set out in Annex II shall apply from the date of the entry into force of this Communique.

Conformity assessment

ARTICLE 6- (1) The conformity assessment procedure referred to in Article 10 of the Regulation on Ecodesign Requirements for Energy-Related Products shall be the internal design control system set out in Annex-IV, or the management system set out in Annex-V, to that Regulation.

(2) For the purposes of conformity assessment pursuant to Article 10 of the Regulation on Ecodesign Requirements for Energy-Related Products, the technical documentation file shall contain a copy of the product information provided in accordance with Annex-II, points 2 and 3, and the details and results of the calculations set out in Annex-III to this Communique.

(3) Where the information in the technical documentation for a particular model has been obtained:

a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer, or both;

the technical documentation shall include the details of such calculation, the assessment undertaken by the manufacturer to verify the accuracy of the calculation and, where appropriate, the declaration of identity between the models of different manufacturers. The technical documentation shall include a list of all equivalent models, including the model identifiers.

Verification procedure for market surveillance purposes

ARTICLE 7- (1) The Ministry shall apply the verification procedure described in Annex-IV of this Communique when performing the market surveillance checks referred to in point 2 of Article 5 of the Regulation on Ecodesign Requirements for Energy-Related Products.

Circumvention and software updates

ARTICLE 8- (1) The manufacturer, authorised representative or importer shall not place on the market products designed to be able to detect they are being tested (e.g. by recognizing the test conditions or test cycle), and to react specifically by automatically altering their performance during the test with the aim of reaching a more favourable level for any of the parameters declared by the manufacturer, importer or authorised representative in the technical documentation or included in any of the documentation provided.

(2) The energy consumption of the product and any of the other declared parameters shall not deteriorate after a software or firmware update when measured with the same test standard originally used for the declaration of conformity, except with explicit consent of the end-user prior to the update. No performance change shall occur as result of rejecting the update.

(3) A software update shall never have the effect of changing the product's performance in a way that makes it non-compliant with the ecodesign requirements applicable for the declaration of conformity.

Benchmarks

ARTICLE 9- (1) The benchmarks for the best-performing products and techniques available on the market at the time this Communique is adopted are set out in Annex V.

Consultation Forum

ARTICLE 10- (1) The Ministry shall participate in meetings of the Consultation Forum with respect to this Communique established by the European Commisssion to assess whether it is appropriate to set specific ecodesign requirements with regard to stricter limits to power source efficiency and idle state power consumption, the emissions to air associated with the use of welding equipment, additional resource efficiency requirements for the products in accordance with the objectives of the circular economy, products using submerged arc welding, limited duty arc welding, resistance welding and stud welding processes and to expand the scope of this Communique to professional machine tools, and in particular set specific ecodesign requirements for machine tools with regard to minimum efficiency values in non-processing, standby and other low power modes.

Compliance with the European Union Legislation

ARTICLE 11- (1) This Communiqué has been prepared within the framework of harmonization with the EU legislation on the basis of Commission Regulation dated 1 October 2019 numbered (EU) 2019/1784 laying down ecodesign requirements for welding equipment pursuant to Directive 2009/125/EC of the European Parliament and of the Council.

Entry into force

ARTICLE 12- (1) This Communique enters into force on its publication in the Official Gazette.

Enforcement

ARTICLE 13- (1) The provisions of this Communique shall be enforced by the Minister of Industry and Technology.

ANNEX-I

DEFINITIONS APPLICABLE FOR THE ANNEXES

In addition to the definitions in the Communiqué;

(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 4 of Regulation on Control of Waste Batteries and Accumulators published in the Official Gazette dated 31/8/2004 and numbered 25569 as accumulator, battery and rechargeable battery,

(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 continuos flow of gases such as air, 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 the date of entry into force of this Communique, 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 2.a.1 of this Annex, 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. (Reference to an official registration system as professional repairer 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.

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 2.a.1 of this Annex, 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 2.b of this Annex.

(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 point 3 of Article 14 of Regulation on the Control of Waste Electrical and Electronic Equipment published in the Official Gazette dated 22/05/2012 and numbered 28300 can be removed with the use of commonly available tools.

Manufacturers shall fulfil the obligations laid down in point 1 of Article 20 of Regulation on the Control of Waste Electrical and Electronic Equipment.

3. Information requirements

From the date of entry into force of this Commique, 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 AND CALCULATIONS

For the purposes of compliance and verification of compliance with the requirements of this Communique, 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 Communique 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 Communique pursuant to point 2 of Article 5 of the Regulation on Ecodesign Requirements of Energy-Related Products, for the requirements referred to in this Annex, the Ministry shall apply the following procedure:

1. The Ministry 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 the Regulation on Ecodesign Requirements for Energy-Related Products (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 Communique, 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 Ministry check the unit of the model, it find that the manufacturer, importer or authorised representative has put in place a system that complies with the requirements in the second point of Article 9 of this Commique,

(d) When the Ministry check the unit of the model, it complies with the requirement in the third point of Article 9 of this Commique, the resource efficiency requirements in point 2 of Annex II and the information requirements in point 3 of Annex II,

(e) When the Ministry 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) of this Annex are not achieved, the model and all equivalent models shall be considered not to comply with the Commique.

4. Where the result referred to in point 2(e) of this Annex is not achieved, the Ministry 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 of this Annex is not achieved, the model and all equivalent models shall be considered not to comply with the Commique.

7. The Ministry shall provide all relevant information to the Commission and to the relevant authorities of the Member States through the Ministry of Trade without delay after a decision is taken on non-compliance of the model according to points 3 and 6 of this Annex.

The Ministry shall use the measurement and calculation methods set out in Annex III.

The Ministry 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

Parameters	Verification tolerances
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, articles 2,3 and 4 of Annex I to the Regulation on Ecodesign Requirements for Energy-Related Products.

The best available technology on the market, at the time of entry into force of this Communique, 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