



CEN Reference: [BT N 9233](#)  
CENELEC Reference: [Annex 1 to BT145/DG9100/DC](#)

## **Ecodesign Mandate M/495 – Draft technical updates to Annex B – Professional refrigeration, Power transformers**

Mandate M/495 on the ecodesign of energy-related products (accepted by CEN/BT through Resolution BT C119/2011, and by CENELEC/BT through Decisions D139/063 to 066) displays a number of unique features. One of them is the fact that the mandate is a horizontal mandate covering all the product groups (or ‘Lots’) for which the EC expects CEN and CENELEC to develop Harmonised Standards under the various Ecodesign Regulations implementing the Ecodesign Directive 2009/125/EC.

For each product group, the detailed standardization request will be included in an amendment (or ‘technical update’) to the Annex B to M/495 at the time the corresponding Ecodesign Regulation is adopted at EC level. Although technical updates to Annex B will have the form of a traditional mandate, they will not be considered by the EC as mandates *per se*. However, on our side, their final version will still be submitted to both BTs and any comments received will be forwarded to the EC services.

Before the final version of an Annex B is issued to CEN and CENELEC, a draft version is discussed both informally between the responsible EC officials and the relevant CEN and CENELEC Technical Committees, and more formally within the product-specific Ecodesign Consultation Forum – ‘CF’ – convened by the EC (CFs, made up of Member States, Industry and other stakeholders, are also the place where all relevant parties have a say in the development of the Ecodesign Regulations).

CEN and CENELEC are represented in the various *product-specific* CFs through the participation of the relevant TC delegates (their involvement has been so far ensured by CCMC and will be coordinated by the CEN-CENELEC Ecodesign Coordination Group in a near future). They are also represented in the *horizontal* CF through the participation of the CCMC Programme Manager in charge of Ecodesign.

On 2013-04-25, the members of both the product-specific and horizontal CFs received two draft technical updates to the Annex B to M/495:

- **ENTR Lot 2** (Product group: **Small, medium and large power transformers**)  
*‘Details of request to CEN, CENELEC and ETSI for standardization in the field of small, medium and large power transformers’* (see Annex 2)

NOTE                    The EC officials responsible for this Lot drafted this document based on extensive feedback from CLC/TC 14 ‘Power transformers’ and CLC/TC 96 ‘Small power transformers, reactors and power supply units: Safety requirements’.

- **ENTR Lot 1** (Product group: **Professional refrigeration**)  
*'Details of request to CEN, CENELEC and ETSI for standardization in the field of professional storage cabinets, blast cabinets, condensing units and process chillers'*  
(see Annex 3)

NOTE                    The EC officials responsible for this Lot have been in close contact with the relevant TCs, i.e. mainly CEN/TC 44 'Commercial refrigerated cabinets, catering refrigerating appliances and industrial refrigeration' and CEN/TC 113 'Heat pumps and air conditioning units', which are already working on the appropriate future Harmonised Standards.

Should you wish to provide the EC with comments on these two drafts, please send your comments to Mr Alexandre della Faille de Leverghem ([adellafaille@cencenelec.eu](mailto:adellafaille@cencenelec.eu)), CCMC Programme Manager in charge of Ecodesign, **by 17 May 2013**. Your comments will be forwarded to the EC services. Once the final version of the technical updates are adopted by the EC, they will be submitted to BTs for a 4-week vote.

PRODUCT GROUP: SMALL, MEDIUM AND LARGE POWER TRANSFORMERS

## **TECHNICAL UPDATE (ANNEX B OF M/495)**

### **DETAILS OF REQUEST TO CEN, CENELEC AND ETSI FOR STANDARDIZATION IN THE FIELD OF SMALL, MEDIUM AND LARGE POWER TRANSFORMERS IN SUPPORT OF COMMISSION REGULATION XXX/XXX (ENTR LOT 2)**

#### **1. BACKGROUND**

##### **1.1. Legal Basis**

The legal basis for this technical update is represented by the Commission Regulation xxx/xxx implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for small, medium and large power transformers.

##### **1.2. The aim of the technical update**

The Regulatory Committee established by Directive 2009/125/EC of the European Parliament and of the Council is expected to endorse in 2013 a Draft Commission Regulation implementing the Directive with regard to eco-design product information and minimum energy efficiency requirements for small, medium and large power transformers.

The Regulation will require that the measurement and calculation procedures for establishing energy performance shall be reliable, accurate and reproducible and take into account the generally recognized state of the art, in order to ensure comparable measurement and calculation procedures for the product types in the scope of the Regulations and to facilitate market surveillance activities.

The aim of this technical update is to identify the needs for (a) harmonized standard(s) which cover(s) these requirements. The harmonized standard(s) shall incorporate relevant measurement and calculation methods, including measurement and calculation methods set out in Commission Communications which have been published for that purpose in the Official Journal of the European Union.

## 2. DESCRIPTION OF THE WORK

The Commission requests CEN, CENELEC and ETSI to elaborate (a) reliable, accurate and reproducible European standard(s), which take(s) into account the generally recognized state of the art, and/or to adopt or adapt existing European and international standards for small, medium and large power transformers laying down procedures and methods of measuring the levels of load and no load losses for small and medium power transformers and the peak efficiency of large power transformers. The standard(s) have also to include the necessary definitions of the product types and of the parameters to be measured and/or calculated.

The draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to small, medium and large power transformers' is meant to be consistent with the EN standard on three-phase medium voltage transformers 50 Hz, with highest voltage for equipment not exceeding 36 kV currently under development by CENELEC TC 14. This EN standard is supposed to supersede EN 50541-1 and EN 50464-1. Therefore, for the purposes of the draft Commission Regulation and the prospective harmonized standards, the following definitions are relevant:

- (1) “General purpose small power transformer” means a power transformer with a highest voltage for equipment not exceeding 1 kV.
- (2) “Medium power transformer” means a power transformer with a high voltage for equipment higher than 1 kV, but not exceeding 36 kV and a rated power equal or higher than 5 kVA but lower than 40 MVA.
- (3) “Large power transformer” means a power transformer with a high voltage for equipment exceeding 36 kV and a rated power equal or higher than 5 MVA.
- (4) Peak efficiency means...

The standardization tasks covered by this technical update are as follows:

- (1) to ensure that the prospective harmonized standard(s) provide(s), where appropriate, revised and/or new definitions at least for the types and main characteristics , including the parameters to be included in the 'Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to small, medium and large power transformers';
- (2) to ensure that the prospective harmonized standard(s) provide(s) procedures and methods to measure and calculate at least the following aspects: (a) the load losses, (b) the no load losses;
- (3) to extend existing or under development standard(s) for medium power transformers to include single-phase models for the purposes of calculating load and no-load losses;
- (4) to ensure that the prospective harmonized standard(s) build(s) on existing standards by taking into account improved measurement and calculation methods to better reflect the state of the art at European and international level.
- (4) to ensure compliance with the efficiency levels identified in the draft Ecodesign Regulation on professional refrigeration products;
- (5) to ensure that the prospective harmonized standard(s) include(s) tolerances, as defined in the draft Ecodesign Regulation on small, medium and larger power transformers;

CEN, CENELEC, ETSI are expected to organize to organize the standardization work in such a way that the scope of the prospective harmonized standard(s) is fully consistent with the draft Commission Regulation. Given that an EN standard for medium power transformers is in advanced state of development, it would be advisable to elaborate separate, complementary standards for small and large power transformers. CENELEC TC 96 and TC 14 are already active in these respective products.

Verification procedure for market surveillance purposes:

- to ensure that the prospective harmonized standard(s) identify(ies) and control(s) the sources of variability influencing measurement uncertainties to be considered for market surveillance purposes;
- to provide values for measurement uncertainties for the purposes of the verification procedure for the measured parameters taking into account the different sources of variability to be considered when a specific product is taken from the market and measured for market surveillance purposes;
- to verify if, in order to reduce the impact of variability to the system, the standard(s) should include specific criteria to be met by laboratories involved in the verification of the declared data (e.g. quality management system, qualification system, personnel training...).
- to recommend that the tolerances set out in the Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for small, medium and large power transformers shall not have to be used by manufacturers to systematically place on the market products and/or put them into service that are not compliant with the requirements of the above-mentioned regulation.

### Template for test report:

- to define a template for a test report indicating the information to be declared by the manufacturers to fulfill at least the eco-design requirements set out by the Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for small, medium and large power transformers.

### **3. EXECUTION OF THE WORK**

CEN, CENELEC and ETSI are requested to communicate to the Commission, **within 4 months** of the reception of this technical update, a work plan for the execution of the above mentioned standardisation tasks, indicating the standard(s) requiring revision or amendment, and the new standard(s) that would need to be developed, if any, including the proposed timetable for the completion of the proposed standard(s).

CEN, CENELEC and ETSI are requested to communicate to the Commission after **15 months** from the reception of this technical update an interim report on the progress of the tasks set out in this mandate indicating any eventual difficulties encountered and communicating details of any standard(s) that has been taken into consideration and modified to answer to the needs of the Mandate.

CEN, CENELEC and ETSI are requested to execute this technical update, according to the timetable agreed with the Commission in the work plan, but in any case not later than **20 months** from communicating the work plan.

CEN, CENELEC and ETSI are requested to draw up the work plan and execute the above mentioned tasks in close cooperation in order to ensure consistency and avoid overlapping standards.

PRODUCT GROUP: PROFESSIONAL REFRIGERATION (PROFESSIONAL STORAGE CABINETS, BLAST CABINETS, WALK-IN COLD ROOMS, CHILLERS, REMOTE CONDENSING UNITS)

## **TECHNICAL UPDATE (ANNEX B OF M/495)**

### **DETAILS OF REQUEST TO CEN, CENELEC AND ETSI FOR STANDARDISATION IN THE FIELD OF PROFESSIONAL STORAGE CABINETS, BLAST CABINETS, CONDENSING UNITS AND PROCESS CHILLERS CONDENSING UNITS UNDER COMMISSION REGULATION XXX/XXX (ENTR LOT 1)**

#### **1. BACKGROUND**

##### **1.1. Legal Basis**

The legal basis for this technical update is represented by the Commission Regulation xxx/xxx implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for professional storage cabinets, blast cabinets, condensing units and process chillers.

##### **1.2. The aim of the technical update**

The Regulatory Committee established by Directive 2009/125/EC of the European Parliament and of the Council is expected to endorse in 2013 a Draft Commission Regulation implementing the Directive with regard to eco-design requirements for professional refrigeration products including professional storage cabinets, blast cabinets, condensing units and process chillers.

The Regulation will require that the measurement and calculation procedures for establishing energy performances and other environmental impacts shall be reliable, accurate and reproducible and take into account the generally recognised state of the art, in order to ensure comparable measurement and calculation procedures for the product types in the scope of the Regulation and to facilitate market surveillance activities.

The aim of this technical update is to identify the needs for (a) harmonised standard(s) which cover(s) these requirements. The harmonised standard(s) shall incorporate relevant measurement and calculation methods, including measurement and calculation methods set out in Commission Communications which have been published for that purpose in the Official Journal of the European Union.

## 2. DESCRIPTION OF THE WORK

The Commission requests CEN, CENELEC and ETSI to elaborate (a) reliable, accurate and reproducible European standard(s), which take(s) into account the generally recognised state of the art, and/or to adopt or adapt existing European and international standards for professional storage cabinets, blast cabinets, condensing units and process chillers, laying down procedures and methods of measuring and calculating the energy consumption of these products. The standard(s) ha(ve)s also to include the necessary definitions of the product types and of the parameters to be measured and/or calculated.

The standardisation tasks covered by this technical update are as follows.

Procedures and methods for measuring and calculating the energy consumption and associated characteristics of professional storage cabinets as follows:

- (1) to ensure that the prospective harmonised standard(s) provide(s), where appropriate, revised and/or new definitions at least for the types and main characteristics of professional refrigerated storage cabinets, including the parameters to be included in the 'Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for professional storage cabinets, blast cabinets, condensing units and process chillers' and the 'Draft Commission Delegated Regulation supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of professional storage cabinets';
- (2) to ensure that the prospective harmonised standard(s) provide(s) procedures and methods to measure and calculate at least the following aspects: (a) the net storage volume ( $V_N$ ) for professional chilled cabinets and freezers; the net chilled volume ( $V_{N,REF}$ ), the net frozen volume ( $V_{N,FRZ}$ ) and the adjusted volume ( $V_A$ ) for refrigerator-freezer cabinets; (b) for all types of professional storage cabinets within the scope: the annual energy consumption (AEC), the standard annual energy consumption (SAEC), the global warming potential (GWP) of the refrigerant fluid, the sound power level;
- (3) to ensure that the prospective harmonised standard(s) build(s) on existing standards by taking into account improved measurement and calculation methods and new appliance types to better reflect the user behaviour and the state of the art at European and international level. In particular care shall be taken about:

the extension and adaptation of the standard(s), such as EN ISO 23953 and EN 441 to provide procedures and methods to measure and calculate the specific energy consumption and energy efficiency ratios of professional refrigerated storage cabinets. It is recommended that products with drawers and glass incorporated into doors are covered and that appropriated procedures and methods to measure and calculate their specific energy consumptions are provided. Harmonised standard(s) shall define any ambient conditions and cabinet door or drawer opening patterns (and combination of the two) that are necessary to reasonably simulate the real life usage of all types of cabinets included within the scope. Moreover the standard(s) shall clearly differentiate between products intended for display of content and professional storage cabinets intended for storage of foodstuff within the scope of the above mentioned Draft Commission Regulations.



- (4) to ensure compliance with the efficiency levels identified in the draft Ecodesign Regulation on professional storage cabinets, blast cabinets, condensing units and process chillers;
- (5) to ensure that the prospective harmonised standard(s) include(s) tolerances, as defined in the draft Ecodesign Regulation on professional storage cabinets, blast cabinets, condensing units and process chillers and in the draft Delegated Regulation on energy labelling for professional storage cabinets;

Procedures and methods for measuring and calculating the energy performances and associated characteristics of blast cabinets as follows:

- (1) to ensure that the prospective harmonised standard(s) provide(s), where appropriate, revised and/or new definitions at least for the types and main characteristics of blast cabinets, including the parameters to be included in the 'Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for professional storage cabinets, blast cabinets, condensing units and process chillers;
- (2) to ensure that the prospective harmonised standard(s) provide(s) procedures and methods to measure and calculate at least the following aspects: (a) for all types of blast cabinets within the scope: full load capacity, temperature cycle, energy consumption per kg of foodstuff and per temperature cycle; (b) in addition for integral equipment: the refrigerant charge; (c) in addition for equipment designed to be used with a remote condensing unit: intended refrigerant charge when used with a recommended condensing unit.
- (3) to ensure that the prospective harmonised standard(s) build(s) on existing standards by taking into account improved measurement and calculation methods and new appliance types to better reflect the user behaviour and the state of the art at European and international level. In particular care shall be taken about:  
  
the extension and adaptation of the standard(s), such as NF AC D40-003 to provide procedures and methods to measure and calculate the specific energy consumption of blast cabinets.
- (4) to ensure that the prospective harmonised standard(s) include(s) tolerances, as defined in the draft Ecodesign Regulation on professional storage cabinets, blast cabinets, condensing units and process chillers.

Procedures and methods for measuring and calculating the energy consumption and associated characteristics of condensing units as follows:

- (1) to ensure that the prospective harmonised standard(s) provide(s), where appropriate, revised and/or new definitions at least for the types and main characteristics of condensing units, including the parameters to be included in the 'Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for professional storage cabinets, blast cabinets, condensing units and process

chillers;

- (2) to ensure that the prospective harmonised standard(s) provide(s) procedures and methods to measure and calculate at least the following aspects: (a) for all types of condensing units within the scope: the cooling capacity and the coefficient of performance (COP). For condensing units with a rated cooling capacity higher than 5kW at medium temperature and 2kW at low temperature, the seasonal energy performance ratio (SEPR) and the annual electricity consumption;
- (3) to ensure that the prospective harmonised standard(s) build(s) on existing standards and methodologies developed by manufacturers by taking into account improved measurement and calculation methods and any new appliance type to better reflect the user behaviour and the state of the art at European and international level. In particular, care shall be taken about the following point:
  - For the purpose of measuring the SEPR, to consider the extension and adaptation of the standard(s) EN13215 and EN14825. It is recommended that the methodology developed by the Joint Industry Expert Group and used to produce the data supporting the drafting of Regulation xxx/xxx is carefully considered. It is available on the website of DG Enterprise and industry<sup>1</sup>. Harmonised standard(s) shall define the formula to calculate the SEPR and any conditions which are necessary to reasonably stimulate the real life usage of all types of condensing units included within the scope, such as in particular part load ratios, air dry bulb temperature at the outdoor heat exchanger, saturated evaporating temperature at the indoor heat exchanger and typical degradation of energy efficiency caused by cycling at part load conditions depending on the type of capacity control.
- (4) to ensure compliance with the efficiency levels identified in the draft Ecodesign Regulation on professional storage cabinets, blast cabinets, condensing units and process chillers;
- (5) to ensure that the prospective harmonised standard(s) include(s) tolerances, as defined in the draft Ecodesign Regulation on professional storage cabinets, blast cabinets, condensing units and process chillers;

Procedures and methods for measuring and calculating the energy consumption and associated characteristics of process chillers as follows:

- (1) to ensure that the prospective harmonised standard(s) provide(s), where appropriate, revised and/or new definitions at least for the types and main characteristics of process chillers, including the parameters to be included in the 'Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for professional storage cabinets, blast cabinets, condensing units and process chillers;
- (2) to ensure that the prospective harmonised standard(s) provide(s) procedures and methods to measure and calculate at least the following aspects: (a) for all types of process chillers within the scope: the cooling capacity, the energy efficiency ratio (EER), the seasonal energy performance ratio (SEPR), the cooling capacity and the annual electricity consumption;

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<sup>1</sup> [http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/product-groups/freezing/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/product-groups/freezing/index_en.htm)

- (3) to ensure that the prospective harmonised standard(s) build(s) on existing standards and methodologies developed by manufacturers by taking into account improved measurement and calculation methods and any new appliance type to better reflect the user behaviour and the state of the art at European and international level. In particular care shall be taken about:

for the purpose of measuring the SEPR, consider the extension and adaptation of the standard(s) EN14511 and EN14825. It is recommended that the methodology developed by the Joint Industry Expert Group and used to produce the data supporting the draft Regulation is carefully considered; it is available on the website of DG Enterprise and Industry webpage<sup>1</sup>. Harmonised standard(s) shall define the formula to calculate the SEPR and any conditions which are necessary to reasonably simulate the real life usage of all types of chillers included within the scope, such as in particular part load ratios, inlet air or water temperatures at the outdoor heat exchanger, inlet and outlet brine or water temperatures at the indoor heat exchanger, and typical degradation of energy efficiency caused by cycling at part load conditions depending on the type of capacity control. Moreover the standard(s) shall clearly differentiate between products intended for industrial processes and products intended for air conditioning.

- (4) to ensure compliance with the efficiency levels identified in the draft Ecodesign Regulation on professional storage cabinets, blast cabinets, condensing units and process chillers;
- (5) to ensure that the prospective harmonised standard(s) include(s) tolerances, as defined in the draft Ecodesign Regulation on professional storage cabinets, blast cabinets, condensing units and process chillers;

Verification procedure for market surveillance purposes:

- to ensure that the prospective harmonised standard(s) identify(ies) and control(s) the sources of variability influencing measurement uncertainties to be considered for market surveillance purposes;
- to provide values for measurement uncertainties for the purposes of the verification procedure for the measured parameters taking into account the different sources of variability to be considered when a specific product is taken from the market and measured for market surveillance purposes;
- to verify if, in order to reduce the impact of variability to the system, the standard(s) should include specific criteria to be met by laboratories involved in the verification of the declared data (e.g. quality management system, qualification system, personnel training...).
- to recommend that the tolerances set out in the Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for condensing units shall not have to be used by manufacturers to systematically place on the market products and/or put them into service that are not compliant with the requirements of the above-mentioned regulation.

- concerning professional storage cabinets, to ensure that possible methods and approaches proposed to calculate the energy consumption of variants of cabinets within a family based on the testing of a representative model do not exempt manufacturers from taking the full responsibility for the declared performances of these variants.

Template for test report:

- to define a template for a test report indicating the information to be declared by the manufacturers to fulfill at least the eco-design requirements set out by the Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for professional storage cabinets, blast cabinets, condensing units and process chillers.

### **3. EXECUTION OF THE WORK**

CEN, CENELEC and ETSI are requested to communicate to the Commission, within 2 months of the reception of this technical update, a work plan for the execution of the above mentioned standardisation tasks, indicating the standard(s) requiring revision or amendment, and the new standard(s) that would need to be developed, if any, including the proposed timetable for the completion of the proposed standard(s).

CEN, CENELEC and ETSI are requested to communicate to the Commission after 12 months from the reception of this technical update an interim report on the progress of the tasks set out in this mandate indicating any eventual difficulties encountered and communicating details of any standard(s) that has been taken into consideration and modified to answer to the needs of the Mandate.

CEN, CENELEC and ETSI are requested to execute this technical update, according to the timetable agreed with the Commission in the work plan, but in any case not later than 16 months from communicating the work plan.

CEN, CENELEC and ETSI are requested to draw up the work plan and execute the above mentioned tasks in close cooperation in order to ensure consistency and avoid overlapping standards.