

CEN GUIDE 18

Gas Appliances and Fittings – Guidelines for the implementation of Essential Requirements of Gas Appliances Regulation 2016/426/EU in European Standards

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Foreword

This document (CEN Guide 18:2021) has been prepared by Technical Committee CEN/SFG_U "Sub Forum Gas Utilization", the secretariat of which is held by AFNOR.

This document is intended for the use of Technical Committees writing product and/or supporting standards in the field of gas appliances and fittings.

It gives guidelines for the development of standards to support the Essential Requirements of the Gas Appliances Regulation (EU) 2016/426.

As a response to the increased number of standards dealing with gas appliances and fittings not published in the Official Journal of the European Union, the relevant Gas Technical Committees have undertaken publication of guidelines for the implementation of Essential Requirements of GAR in European gas product standards, supplementing the CEN/CENELEC Internal Regulations, Part 3:2019, which sets out general principles and requirements for all European Standards.

1 Scope

This document presents guidelines for the implementation of Essential Requirements of Gas Appliances Regulation (EU) 2016/426 into hEN candidates for citation in the OJEU.

This document gives guidance that is additional to the CEN/CENELEC Internal Regulations, Part 3:2019, when this is necessary owing to the special requirements of gas appliances and fittings.

This document is intended for the drafting of gas appliances and fittings standards.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/CENELEC Internal Regulations, Part 3:2019, Principles and rules for the structure and drafting of CEN and CENELEC documents (ISO/IEC Directives Part 2:2018, modified)

EN 1672-2:2005+A1:2009, Food processing machinery — Basic concepts — Part 2: Hygiene requirements

EN 60335-2-102:2016, Household and similar electrical appliances — Safety — Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102:2004, modified)

EN 60730-1, Automatic electrical controls — Part 1: General requirements (IEC 60730-1)

EN ISO 13732-1, Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the CEN/CENELEC Internal Regulations, Part 3:2019 apply.

4 General principles

The CEN/CENELEC Internal Regulations, Part 3:2019 should be used in conjunction with this document when preparing a new standard dealing with gas appliances and fittings or revising an existing one.

In general, the standards should not repeat or paraphrase the text of other reference standards; however, for better understanding of standards, it is acceptable to repeat a basic definition, concept or the scope of the standard.

5 Principles to be considered during drafting process

5.1 Checklist to be considered during drafting process

At least the following items of the standard should be checked before filling out the Annex ZA:

- 1) Clear follow up of comments on former assessment sometimes by the TC;
- 2) Information indicating significant changes in the foreword of the revised or amended standard;
- 3) It is essential to follow rules for the use of verbal forms so that a clear distinction can be made between requirements (shall), recommendations (should), permissions (may), possibilities and capabilities (can);

- 4) All normative references dated;
- 5) State of the art¹ for fulfilling the Essential Requirement of the GAR to be taken into account;
- 6) For incorporated fittings the relevant ER have to be taken into account;
- 7) Adequate method/test to verify each requirement (e.g. visual inspection is not sufficient in all cases...);
- 8) Clear separation between requirements and test conditions in the same clause;
- 9) No requirements to the manufacturer, test laboratory, installer, etc. in a product standard;
- 10) No items concerning quality control, etc. in a product standard;
- 11) Lex Specialis: The rational use of energy essential requirement laid down in point 3.5 of Annex I to this Regulation does not apply to appliances covered by a measure adopted pursuant to Article 15 of Directive 2009/125/EC;
- 12) Requirements for parts/material coming into contact with food and water are essential, no reference to Regulation 1935/2004 as all relevant Regulations have to be applied;
- 13) No mixture of "instructions", GAR is using installation instructions for the installer, instructions for use/maintenance/servicing (intended for the user) and technical documentation (which shall make it possible to assess the product);
- 14) No "country of destination" or "Official language(s)" as GAR is only talking of "languages easily understood by consumers, appliance manufacturers, the market surveillance authorities and other end-users"² in clauses relevant for Annex ZA;
- 15) Check the numbering of the standard.

5.2 Implementation of Essential Requirements

For the implementation of Essential Requirements of Gas Appliances Regulation (UE) 2016/426, the following Table 1 gives some guidelines.

¹ FAQ document from Member States : <u>https://ec.europa.eu/growth/sectors/pressure-gas/gas-appliances/regulation_en</u>

² GAR, chapter II, article 7, 6) and 7) : <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016R0426</u>

Essential Requirements ANNEX I of Regulation (EU) 2016/426	WG 8 proposals - Clause(s)/sub-clause(s) of this EN - Type of clauses to be addressed in the standard	WG 8 proposals Remarks - Notes (general for all TCs)	WG 8 proposals Explanation and examples
PRELIMINARY OBSERVATIONS:			
1. The essential requirements laid down in this Regulation are compulsory.			
2. The essential requirements are to be interpreted and applied in such a way as to take into account the state of the art and current practice at the time of design and manufacture as well as technical and economic considerations which are consistent with a high degree of energy efficiency and of health and safety protection.			
1. GENERAL REQUIREMENTS			
 1.1. Appliances shall be so designed and constructed as to operate safely and present no danger to persons, domestic animals or property, when normally used. Fittings shall be so designed and constructed as to fulfil correctly their intended purpose when incorporated into an appliance or assembled to constitute an appliance. 	Reference shall be given to clauses indicating normal use	The standard supports this ER. In addition, all relevant ER as referenced for ER 2 up to 3.7 shall be concerned	This ER is dealing with "normal use".
1.2. The manufacturer is under an obligation to analyse the risks in order to identify those which apply to his appliance or fitting. He shall then design and construct it taking into account its risk assessment.	No clauses reference	No remarks	The standard is based on a risk assessment (see CEN/CENELEC Internal Regulations and Blue Guide), e.g. the foreword could explain the risk assessment approach during the drafting of the standard.

Table 1 — Guidelines to implement Essential Requirements of GAR (EU) 2016/426

Essential Requirements ANNEX I of Regulation (EU) 2016/426	WG 8 proposals - Clause(s)/sub-clause(s) of this EN - Type of clauses to be addressed in the standard	WG 8 proposals Remarks - Notes (general for all TCs)	WG 8 proposals Explanation and examples
 1.3. In selecting the most appropriate solutions, the manufacturer shall apply the principles set out below, in the following order: (a) eliminate or reduce risks as far as possible (inherently safe design and construction); (b) take the necessary protection measures in relation to risks that cannot be eliminated; (c) inform users of the residual risks due to any shortcomings of the protection measures adopted and indicate whether any particular precautions are required. 	No clauses reference	No remarks	The standard is based on a risk assessment (see CEN/CENELEC Internal Regulations and Blue Guide), e.g. the foreword could explain the risk assessment approach during the drafting of the standard.
1.4. When designing and constructing the appliance, and when drafting the instructions, the manufacturer shall envisage not only the intended use of the appliance, but also the reasonably foreseeable uses.	No clauses reference	No remarks	This general requirement has to be considered during the drafting of this standard.
1.5. All appliances shall:	Refer to clauses that indicate presence of instructions and notices	See ER 1.6.1, ER 1.6.2, ER 1.6.3	
(a) be accompanied by instructions for installation intended for the installer;			see ER 1.6.1
(b) be accompanied by instructions for use and servicing, intended for the user;			see ER 1.6.2

Essential Requirements ANNEX I of Regulation (EU) 2016/426	WG 8 proposals - Clause(s)/sub-clause(s) of this EN - Type of clauses to be addressed in the standard	WG 8 proposals Remarks - Notes (general for all TCs)	WG 8 proposals Explanation and examples
(c) bear appropriate warning notices, which shall also appear on the packaging.			see ER 1.6.3
1.6.1. The instructions for installation intended for the installer shall contain all the instructions for installation, adjustment and servicing required to ensure that those operations are correctly performed so that the appliance may be used safely. The instructions for installation intended for the installer shall include also information on the technical specifications of the interface between the appliance and its installation environment allowing its correct connection to the gas supply network, the supply of auxiliary energy, the combustion air supply and the flue gas evacuation system.	Refer to the clauses containing the requirements the instructions for installation for the installer	No remarks	Specific clauses given details on installations and adjustment (information on the technical specifications of the interface between the appliance and its installation environment, correct connection to the gas supply network, the supply of auxiliary energy, the combustion air supply and the flue gas evacuation system) and other requirements covered by other clauses. The risk assessment of the appliance may reveal that there is a need for additional instructions not covered by the risk assessment made for this standard.

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 1.6.2. The instructions for use and servicing intended for the user shall contain all the information required for safe use and in particular shall draw the user's attention to any restrictions on use. The manufacturers shall note in the instructions where additional care is needed or where it would be advisable that any of the above work be carried out by a professional. This shall be without prejudice to national requirements to that effect. The manufacturer of the appliance shall include in the instructions accompanying the appliance all necessary information for adjustment, operation and maintenance of the fittings as part of the finished appliance, as appropriate. 	Refer to the clauses containing the requirements the instructions for use and servicing for the user	No remarks	Specific clauses given details on instructions for use and servicing (all the information required for safe use and in particular shall draw the user's attention to any restrictions on use, additional care is needed or where it would be advisable that any of the above work be carried out by a professional, necessary information for adjustment, operation and maintenance of the fittings as part of the finished appliance, as appropriate) and other requirements covered by other clauses. The risk assessment of the appliance may reveal that there is a need for additional instructions not covered by the risk assessment made for this standard.

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1.6.3. The warning notices on the appliance and its packaging shall clearly state the type of gas to be used, the gas supply pressure, the appliance category and any restrictions on use, in particular the restriction whereby the appliance shall be installed only in areas where there is sufficient ventilation so as to ensure that the risks presented by it are minimised.	Refer to the clauses containing the required information	No remarks	Specific clauses given details on warning notices on the appliance and its packaging (state the type of gas to be used, the gas supply pressure, the appliance category and any restrictions on use (sufficient ventilation)) and other requirements covered by other clauses. (bold words could be used in the standard, although they have been copied from the regulation). The risk assessment of the appliance may reveal that there is a need for additional instructions not covered by the risk assessment made for this standard. The risk assessment of the appliance may reveal that there is a need for additional warning notices not covered by the risk assessment made for this standard.
1.7. The instructions for incorporation of the fitting into an appliance or its assembly in order to constitute an appliance and for its adjustment, operation and maintenance shall be provided with the fittings concerned as part of the EU declaration of conformity	For fittings, refer to the clauses containing the required information. For appliances, indicate "not covered"	For fittings: no remarks For appliances: "This standard covers appliances and does not cover fittings."	Instructions for the incorporation of the fitting into the appliance by the manufacturer
2. MATERIALS			

Essential Requirements ANNEX I of Regulation (EU) 2016/426	WG 8 proposals - Clause(s)/sub-clause(s) of this EN - Type of clauses to be addressed in the standard	WG 8 proposals Remarks - Notes (general for all TCs)	WG 8 proposals Explanation and examples
Materials for appliances or fittings shall be appropriate for their intended purpose and shall withstand the mechanical, chemical and thermal conditions to which they will foreseeably be subjected.	Refer to the clauses containing the required information	No remarks	Specific requirements are addressed in this standard following the risk analysis of the TC (intended purpose and shall withstand the mechanical, chemical, and thermal conditions)
3. DESIGN AND CONSTRUCTION			
The obligations arising for appliances from the essential requirements set out in this point apply also to fittings, as far as relevant.	Leave empty	Leave empty	Only for explanation
3.1. General			
3.1.1. Appliances shall be so designed and constructed that, when normally used, no instability, distortion, breakage or wear likely to impair their safety may occur.	Refer to the clauses containing the required information	No remarks	Specific requirements are addressed in this standard following the risk analysis of the TC. Examples: Materials and thickness, Combustion products evacuation duct, Resistance of materials to pressure, Mechanical resistance and stability of ducts, terminal and fitting pieces, Requirements for plastic in the combustion product evacuation ducts, terminals and fitting pieces for mCHP appliances, Requirements for elastomeric seals and elastomeric sealants in the combustion product evacuation

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			ducts, terminals and fitting pieces
3.1.2. Condensation produced at the start-up and/or during use shall not affect the safety of appliances.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Examples: Any disposal and material requirements for the flue system requirements.
3.1.3. Appliances shall be so designed and constructed as to minimise the risk of explosion in the event of a fire of external origin	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Examples: internal design of the appliance to prevent gas leakage after exposure to fire.
			Some appliances require a defined gas leak in case of fire to prevent explosion of the gas carrying system (LPG bottles/cylinders)

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3.1.4. Appliances shall be so designed and constructed that water and inappropriate air penetration into the gas circuit does not occur.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Examples: Soundness clauses of the gas circuit, design construction
3.1.5. In the event of a normal fluctuation of auxiliary energy, appliances shall continue to operate safely.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Examples: combustion parameters under specific test conditions, supervisory sensors
3.1.6. Abnormal fluctuation or failure of auxiliary energy or its restoration shall not lead to an unsafe situation.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Examples: For voltages outside the normal voltage range, the devices shall either continue to ensure safety or cause safety shutdown.
3.1.7. Appliances shall be so designed and constructed as to obviate any gas-related risks due to hazards of electrical origin. As far as relevant, the results of the conformity assessment in relation to the safety requirements of Directive 2014/53/EU of the European Parliament and of the Council (1) or the safety objectives of Directive 2014/35/EU of the European Parliament and of the Council (2) shall be taken into account.	Refer to the clauses containing the required information	If not covered, specify: "Hazards from radio equipment according to the RED are not covered in this standard"	Refer to EN 60335-2-102:2016 for appliances Refer to EN 60730-1 (and probably some parts) for fittings - Refer to applicable safety electronical standards for specific requirements

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3.1.8. Appliances shall be so designed and constructed as to obviate any gas-related risks due to hazards originating from electromagnetic phenomena. As far as relevant, the results of the conformity assessment in relation to the electromagnetic compatibility requirements of Directive 2014/53/EU or Directive 2014/30/EU of the European Parliament and of the Council (3) shall be taken into account.	Refer to the clauses containing the required information	If not covered, specify: "Hazards from radio equipment according to the RED are not covered in this standard"	Refer to EN 60335-2-102:2016 for appliances Refer to EN 60730-1 (and probably some parts) for fittings - Refer to applicable safety electronical standards for specific requirements
3.1.9. All pressurised parts of an appliance shall withstand the mechanical and thermal stresses to which they are subjected without any deformation affecting safety.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Examples: Resistance of materials to pressure
3.1.10. Appliances shall be so designed and constructed that failure of a safety, controlling or regulating device may not lead to an unsafe situation.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Examples: Requirements for adjusting, control and safety devices - control assessed according to GAR and risk analysis of the whole appliance (references to the relevant standards)
3.1.11. If an appliance is equipped with safety and controlling devices, the functioning of the safety devices shall not be overruled by that of the controlling devices.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC.

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3.1.12. All parts of appliances which are set or adjusted at the stage of manufacture and which should not be manipulated by the user or the installer shall be appropriately protected.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC.
3.1.13. Levers and other controlling and setting devices shall be clearly marked and give appropriate instructions so as to prevent any error in operation/use. Their design shall be such as to preclude accidental operation.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC.
3.2. Unburned gas release			
3.2.1. Appliances shall be so designed and constructed that the gas leakage rate is not dangerous.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. In any situation.
3.2.2. Appliances shall be so designed and constructed that gas release at any state of operation is limited in order to avoid a dangerous accumulation of unburned gas in the appliance.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Appliance in operation.
3.2.3. Appliances intended to be used in indoor spaces and rooms shall be so designed and constructed as to prevent the release of unburned gas in all situations which could lead to a dangerous accumulation of unburned gas in such spaces and rooms.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Applicable for appliances that are not room sealed (e.g. cooking appliances, type B appliances, etc.) Not applicable for appliances

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			designed to be used outdoor only.
3.2.4. Appliances designed and constructed to burn gas containing carbon monoxide or other toxic components shall not present a danger to the health of persons and domestic animals exposed.	If applicable, refer to the clauses containing the required information	If applicable, no remarks. If not applicable, not covered by the present standard.	It could be applicable for some town gases and recirculation of combustion products (e.g. forced draught burners) If not applicable, the use of toxic gases is not covered.
3.3. Ignition			
Appliances shall be so designed and constructed that, when normally used, ignition and re-ignition is smooth and cross-lighting is assured.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC (e.g. Ignition – Cross lighting – Flame stability)
3.4. Combustion			
3.4.1. Appliances shall be so designed and constructed that, when normally used, the combustion process is stable and combustion products do not contain unacceptable concentrations of substances harmful to health.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC (e.g. Ignition – Cross lighting – Flame stability, Air proving device, Combustion,)

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3.4.2. Appliances shall be so designed and constructed that, when normally used, there will be no accidental release of combustion products.	If applicable, refer to the clauses containing the required information Not applicable for flueless appliances	If applicable, no remarks If not applicable, "not applicable for flueless appliances"	Specific requirements following the risk analysis of the TC (e.g. soundness of the combustion circuit)
3.4.3. Appliances connected to a flue for the dispersal of combustion products shall be so designed and constructed that in abnormal draught conditions there is no release of combustion products in a dangerous quantity into the indoor spaces or rooms concerned.	If applicable, refer to the clauses containing the required information Not applicable for type A appliances	If applicable, no remarks If not applicable, "not covered by the present standard"	Specific requirements following the risk analysis of the TC (e.g. soundness of the combustion circuit, draught requirements)
3.4.4. Appliances shall be so designed and constructed that, when normally used, they do not cause a concentration of carbon monoxide or other substances harmful to health, such as they would be likely to present a danger to the health of persons and domestic animals exposed	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC. Applicable for all appliances (e.g. combustion)
3.5. Rational use of energy: Appliances shall be so designed and constructed as to ensure rational use of energy, reflecting the state of the art and taking into account safety aspects.	Refer to the clauses containing the required information	No remarks	There might be <i>Lex Specialis</i> (ErP Regulation).

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3.6. Temperature			
3.6.1. Parts of appliances which are intended to be installed or placed in close proximity to surfaces shall not reach temperatures which present a danger.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC (e.g. Limiting temperature of the test panels and the floor, external temperature of the ducts, instructions). This ER covers installation of appliances
3.6.2. The surface temperature of parts of appliances intended to be handled during normal use shall not present a danger to the user.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC (e.g. touchable knobs, handles, surfaces that are likely to be touched during handling)
3.6.3. The surface temperatures of external parts of appliances, with the exception of surfaces or parts which are associated with the transmission of heat, shall not under operating conditions present a danger to the health and safety of persons exposed and in particular to children and elderly people, for whom an appropriate reaction time shall be taken into account.	Refer to the clauses containing the required information	No remarks	Specific requirements following the risk analysis of the TC (e.g. applicable to professionals only, reaction time of children and elderly, see EN ISO 13732-1)

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3.7. Contact with food and water intended for human consumption Without prejudice to Regulations (EC) No 1935/2004 (4) and (EU) No 305/2011 (5) of the European Parliament and of the Council, materials and parts used in the construction of an appliance which may come into contact with food or water intended for human consumption as defined in Article 2 of Council Directive 98/83/EC (6), shall not impair quality of the food or water	If applicable, refer to the clauses containing the required information	If applicable, no remarks If not applicable, "not covered by the present standard"	Specific requirements following the risk analysis of the TC. Not applicable to appliances such as radiant heaters, patio heaters, Water intended for human consumption = potable/drinking water Not applicable to grey water used for example for flushing, for washing-machine, Such standard as EN 1672- 2:2005+A1:2009 "with same requirements or with modifications relevant of characteristics of appliances" could be used.

Bibliography

[1] Guidance sheets GAD/GAR : <u>https://ec.europa.eu/docsroom/documents/34021</u>