



**Specification ARGB 08/02 v3**

**Belgian situation related to the application of the standard  
EN 14800**

**“Corrugated safety metal hose assemblies for the  
connection of domestic appliances using gaseous fuels”**

## 1 Scope

This document specifies the chosen options for corrugated safety metal hose assemblies according to EN14800 for the connection domestic appliances using gaseous fuels. The hose nominal diameters are DN8 and DN12, the end fitting nominal diameters are DN10 and DN15.

This document does not alter the standard EN 14800 but specifies the chosen options for the Belgian market.

## 2 Normative references

NBN D04-002 – Elastomeric flexible hoses with mechanical unions for the connection of movable domestic cooking appliances using natural gas.

NBN D51-003 - Installation pipe work for natural gas and placing of consumer appliances – General prescriptions

EN 549 - Rubber materials for seals and diaphragms for gas appliances and gas equipment

EN ISO 7-1 - Pipe threads where pressure-tight joints are made on the threads -- Part 1: Dimensions, tolerances and designation

EN ISO 228-1 - Pipe threads where pressure-tight joints are not made on the threads -- Part 1: Dimensions, tolerances and designation

KVBG 91/01 – Metalen RHT slangen voor brandbare gassen

ARGB 91/01 – Flexibles métalliques RHT pour des gaz combustibles

## 3 Specific requirements for corrugated safety metal hose assemblies for the connection of domestic appliances using gaseous fuels according to EN14800.

### A ■ § 4.2 Nominal size

The Belgian installation standard NBN D51-003 states that the minimum size of a natural gas pipe inside the building is DN12. For this reason it is recommended not to use CMG hoses DN8 in natural gas installations Note: DN8 and DN12 are allowed for LPG applications

### B ■ § 5.5.1 Flow rate - Requirements

Extract from EN 14800 § 5.5.1

*The minimum flow rate through a CMG hose assembly without the valve and when tested as followed shall be as given in Table 2.*

*The flow rate shall be determined using dry air at a pressure of 20 mbar at the given pressure drop in Table 2. Measurement shall be converted to standard conditions of a pressure of 1 013,25 mbar and a temperature of 15 °C.*

**Table 2 – Flow rate requirements**

Nominal size of hose assembly	Overall length of hose assembly	Minimum air flow rate for gases other than Type L with a pressure drop of 1 mbar	Minimum air flow rate for gas Type L with a pressure drop of 0,5 mbar
DN 8	1,0 m	0,5 m <sup>3</sup> /h	0,55 m <sup>3</sup> /h
DN 12	1,0 m	1,5 m <sup>3</sup> /h	1,2 m <sup>3</sup> /h

*The power equivalent of the gas flowing through a CMG hose assembly is also influenced by the hose length and the type of the gas family. The manufacturer shall indicate for each length the minimum power rating relating to the individual gas family.*

*NOTE Type L gas is a low calorific gas as defined in EN 437:2003, Table 1.*

In Belgium both type L and H natural gas are distributed. Therefore the ARGB demands the requirements *Minimum air flow rate for gases Type L with a pressure drop of 0,5 mbar* (forth column of table 2).

Gas appliances upto a capacity of 50 kW are often equipped with a gas thread DN15. The category of most gas appliances in Belgium is I<sub>2E+</sub>. This means that the calorific flow of these appliances is function of the inlet pressure and consequently from the pressure drops in all the elements upstream the appliance, among which the CMG hose which feeds the appliance. To ensure the proper functioning and to ensure the required calorific flow it is imperative to limit the pressure drop in all the elements upstream the gas appliances and also in the CMG hose. NBN EN 14800 specifies in § 5.5.1 that the nominal air flow through a CMG hose with size DN12 is **1,2 m<sup>3</sup>/h**, this corresponds with a maximum capacity of about **11 kW** and will cause a pressure drop of **0,5 mbar**. If the capacity of the gas appliance is higher than **20 kW** the pressure drop will be higher than 1 mbar which is not acceptable.

**C ■ § 5.19.1 End fittings – requirements  
and Annex A (informative) Hose fitting design requirements for connection to  
the gas supply pipework, to the pressure reduction device of portable gas  
bottles or to domestic appliances**

Note : In Belgium domestic natural gas appliances are equipped with either- :

- ➔ male gas thread according to EN ISO 7-1: most gas appliances
- ➔ male gas thread according to EN ISO 228-1: mobile cooking appliances

The CMG hose assemblies must be adapted for this specific situation.

As flexible hose assemblies are often installed by DIY the hose assembly shall be sold in one package with the necessary transition fittings so that the hose assembly can be correctly installed in all situations.

A hose assembly shall be offered for sale in one package with the necessary transition fittings in accordance with the Belgian national standards. There are several acceptable solutions e.g.

**Solution 1 - Each packing contains at least:**

- ▶ The metal flexible hose assembly has at one end a fixed male gas thread according to EN ISO 7-1. ( to be connected to the female thread EN ISO 7-1 from the gas valve), at the other end the hose assembly has a nipple and swivel nut with metal to metal tight contact ending on a female gas thread according to EN ISO 7-1 (to be connected to the male thread EN ISO 7-1 from the gas appliance).
- ▶ Transition fitting - side gas valve: at one end a female thread EN ISO 7-1 (to be connected to the hose assembly) and at the other end a female thread EN ISO 228-1 with an integrated inextricable elastomere tightening ring according to NBN EN 549 (to be connected to the male thread EN ISO 228-1 from the gas valve).
- ▶ Transition fitting - side gas appliance: at one end a male thread EN ISO 7-1 (to be connected to the hose assembly) and at the other end a female thread EN ISO 228-1 with an integrated inextricable elastomere tightening ring according to NBN EN 549 ( to be connected to the male thread EN ISO 228-1 from the gas appliance).

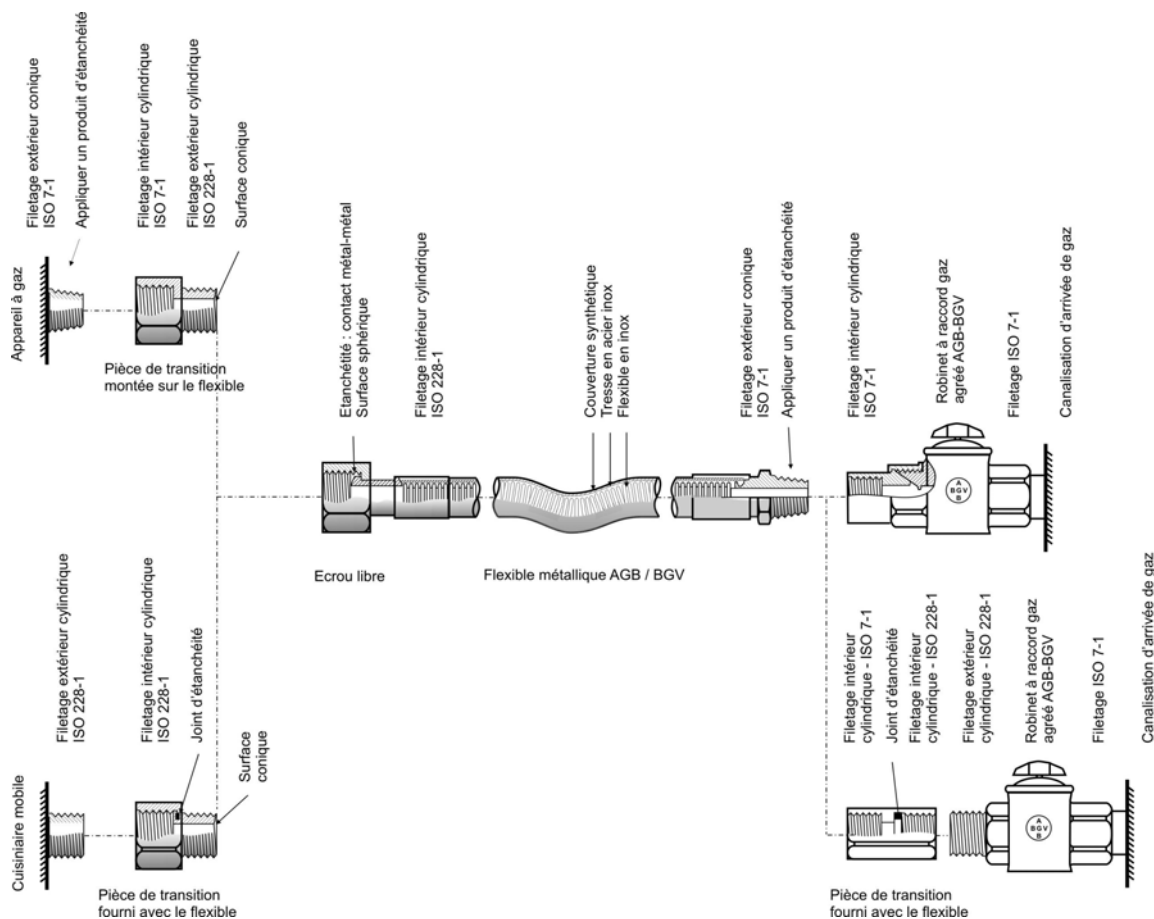


Figure 1: solution 1

**Solution 2 - Each package contains at least:**

- ▶ The metal flexible hose assembly has at both ends a nipple and a female swivel nut with thread EN ISO 228-1 with an integrated inextricable elastomer tightening ring according to NBN EN 549 (to be connected at one side to the male thread EN ISO 228-1 from the gas valve and at the other side to the male thread EN ISO 228-1 from the gas valve).
- ▶ Transition fitting - side gas valve: at one end a male thread EN ISO 228-1 (to be connected to the hose assembly) and at the other end a male thread EN ISO 7-1 (to be connected to the female thread EN ISO 7-1 from the gas valve).
- ▶ Transition fitting - side gas appliance: at one end a male thread EN ISO 228-1 (to be connected to the hose assembly) and at the other end a female thread EN ISO 7-1 (to be connected to the male thread EN ISO 7-1 from the gas appliance).

Important note: In this configuration hose assembly together with its transition fittings must endure with success the high temperature resistance test (see EN 14800 § 5.12).

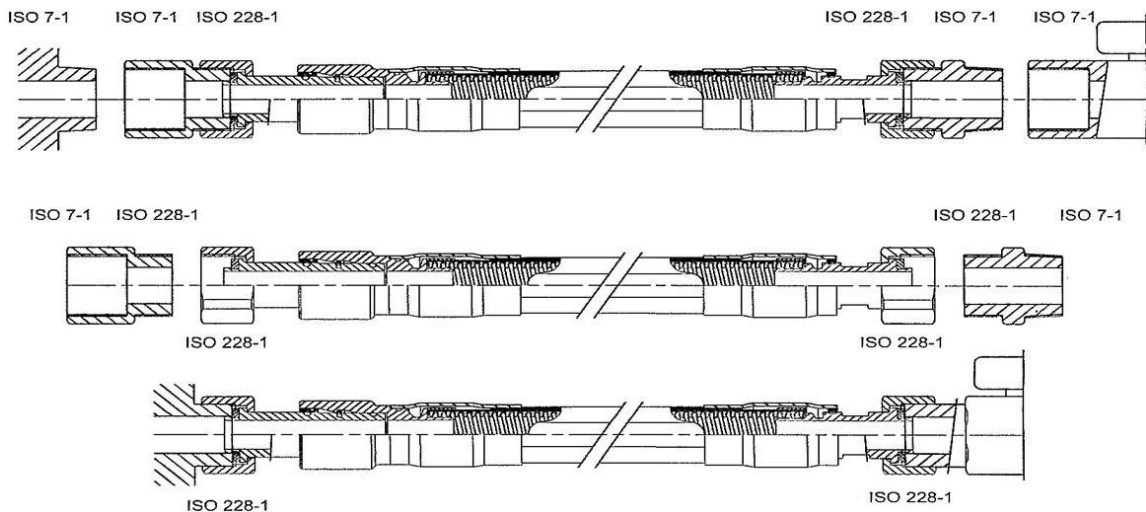
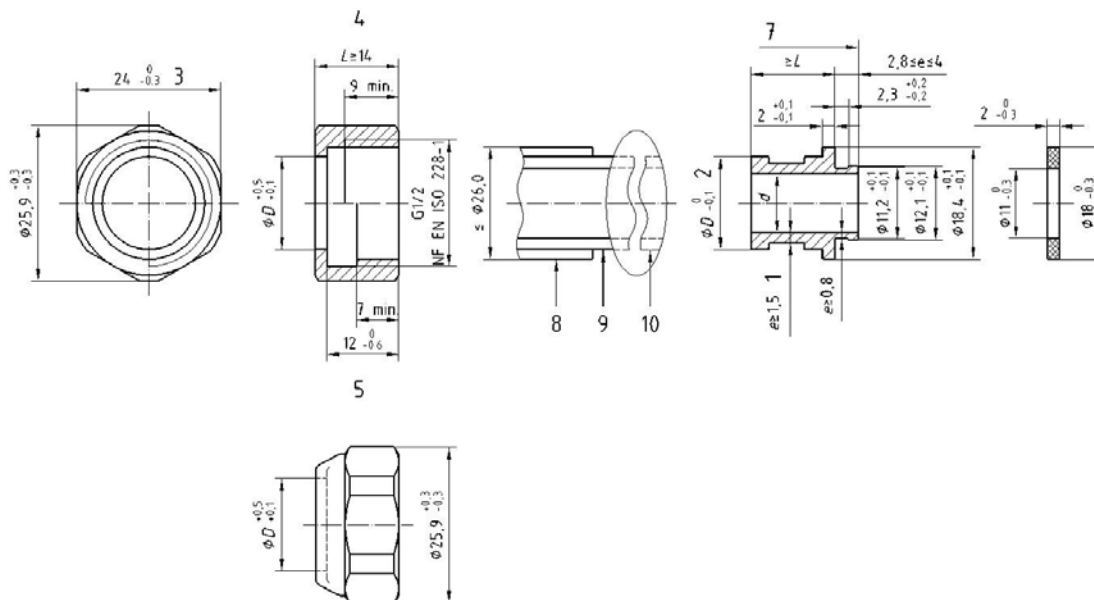


Figure 2: solution 2

Alternative solutions must be approved by the ARGB.



Dimensions without tolerances shall be within  $\pm 0,1$  mm. Shapes and dimensions without specification are under manufacturer's initiative.

### Nipple

Raw material: metal resisting corrosion

- (1) Size equal or greater than the height of the swivel nut. Angles will be edge cut to avoid any damage to the gasket.
- (2)  $D \leq 15,7$  mm
- (3) The upper face shall allow the use of a spanner and remains accessible after the swivel nut is mounted.

### Swivel nut

Raw material: metal withstanding corrosion

The swivel nut screwed shall have at least 3 threads engaged.

- (4) Height of the hex at least equal to the depth of the threading.
- (5) In case of existing groove the useable part of the threading has to be 7 mm as a minimum.
- (6) When a groove is designed, the diam. of the groove shall be equal to  $21^{+0,5}_{-0}$  mm.
- (7) The gasket must be inextricable from the nipple

Figure 3 : Nipple and swivel nut with ISO228-1 thread

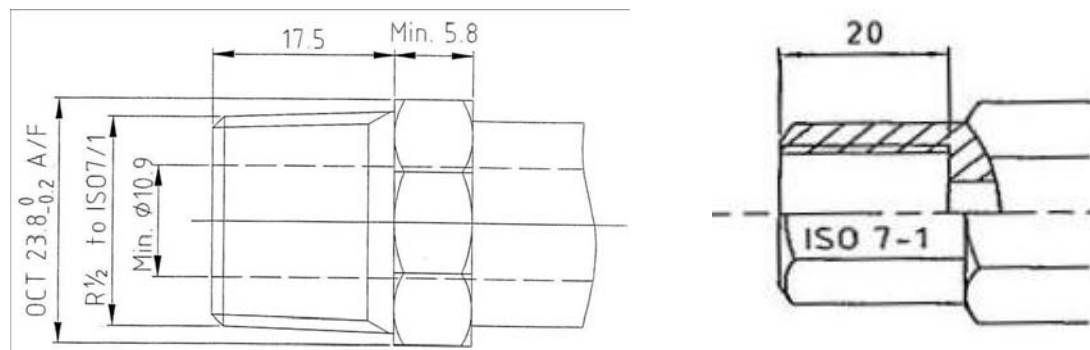


Figure 4: Male and female thread according tot ISO 7-1

## D ■ § 6.4 Installation instructions

► In the package of each individual metal hose assembly installation instructions shall be added in the three Belgian national languages: Dutch, French and German.

► Apart from the compulsory instructions mentioned in EN14800 § 6.4 the installation instruction should preferably contain following elements:

- Country of destination: Belgium
- Clear instructions in order to ensure a correct installation in the different situations (see here above – comments on § 5.19.1).
- CMG hoses of size DN8 are fit for LPG appliances but not fit for natural gas appliances.
- For natural gas, the use of a CMG hose of size DN12 is limited to appliances of capacity of 20 kW (1,5 m<sup>3</sup>/h)

## E ■ § 6.5 Packaging

The packaging shall contain all the necessary transition fittings in order that the CMG hose can be connected to:

Side gas valve → male gas thread according to EN ISO 228-1 or female gas thread according to EN ISO 7-1

Side gas appliance → male gas thread according to EN ISO 7-1 or EN ISO 228-1:

## F ■ § ZA.3 CE Marking and labelling

Extract from EN 14800 § ZA3

*Information under a) shall be engraved, impressed or embossed on a metallic part of the CMG hose assembly,*

*Information under b) shall be permanently fixed to or marked on the CMG hose assembly;*

*Information under c) if not already fixed or marked on the CMG hose assembly it shall be given on accompanying commercial documents. In addition, all the information to accompany CE marking shall be shown together in one place, which may be the most convenient i.e. the commercial documentation.*

*a) The last two digits of the year of manufacture:*

- *identifying mark of the producer;*
- *lot code of production.*

*b) identification number of the certification body:*

- *gas type(s);*
- *the direction of the gas flow if applicable;*
- *reference to this European Standard, i.e. EN 14800.*

*Additional indications are permitted, as long they do not interfere with above markings.*

*c) name or identifying mark and registered address of the producer:*

- *number of the EC Certificate;*
- *description of the product: generic name, type, material, dimensions and intended use;*
- *"No performance determined" for characteristics where this is relevant;*
- *a standard designation which shows all of the relevant characteristics;*
- *whether suitable or not for use in areas subjected to reaction to fire regulations.*

*"The "No performance determined" (NPD) option may not be used where the characteristic is subject to a threshold level. Otherwise, the NPD option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State of destination. Figure ZA.1 gives an example of the information to be given on the product, label, packaging and/or commercial documents.*

In order to make it undeniably clear that a CMG hose is fit for the Belgian market following marking shall be additionally engraved, impressed or embossed on a metallic part of the CMG hose assembly:

DN 8 CMG hose

**België-Belgique** butaan/butane – propaan/propane DN8

DN 12 CMG hose

**België-Belgique** aardgas/gaz naturel - butaan/butane – propaan/propane DN12