

tel: +44 1298 873800  
fax: +44 1298 873801  
url: www.conformance.co.uk

Great Hucklow  
Buxton  
Derbyshire  
SK17 8RG  
England



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For the attention of:	Dr George Molteni
Company:	The Energy Group
Author:	Nick Williams
Reviewed by:	Pete Hall
Date:	Friday, 25 February 2005
Subject	Applicability of CE marking to Fossil Fuel Stabiliser.

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## 1. General Commentary

- 1.1. I understand that you market a range of devices which are intended for fitting in the fuel feed line of internal combustion engines and other fuel burning equipment. The units contain an "innovative technology" which provides fuel economy benefits.
- 1.2. The units are designed for use with liquid and gaseous fuels.
- 1.3. The units are available in a range of sizes. Sizes up to 1in (25mm) nominal diameter have taper thread fitting connections. Larger sizes have bolted flange connections.
- 1.4. This report deals only with the taper thread units up to 25mm nominal diameter.

## 2. Applicable Directives

- 2.1. Where used for road vehicle engine applications, the products are excluded from the scope of any of the CE marking directives. Other requirements may apply to vehicle applications but these are outside the scope of this report.
- 2.2. The product contains no moving parts and therefore the Machinery Directive 98/37/EC does not apply.
- 2.3. Because the product consists of a pressure containing body operating at a pressure of greater than 0.5 bar gauge, the Pressure Equipment Directive 97/23/EC applies.
- 2.4. The units contain no sources of ignition and are therefore excluded from the scope of the ATEX directive 94/9/EC

## 3. Pressure Equipment Directive

- 3.1. These products are "pressure accessories" in the terms of the Directive.

- 3.2. The first step in assessing a product for compliance with the PED is to work out which category it is in. This depends on:
  - 3.2.1. Its size in litres for vessels or nominal diameter (DN) in mm for pipework.
  - 3.2.2. Design Pressure in bar
  - 3.2.3. The pressure x size product in bar.litres or bar.mm.
  - 3.2.4. The type of fluid it is intended for use with, hazardous (group 1) or non-hazardous (group 2), and whether it is a liquid or gas at operating temperature and pressure.
  - 3.2.5. These quantities are compared to the conformity assessment tables in Annex II of the PED to determine the category of the equipment.
- 3.3. I understand that the units are rated for a test pressure of 1600 psi (110 bar). This implies a design pressure of 77 bar. The largest screw-thread connected unit has DN=25.
- 3.4. Flammable fluids such as fuels are group 1 fluids. Gaseous fluids have a higher stored energy than liquids and therefore represent the worst case.
- 3.5. According to our calculations (see page 3) this equipment falls within the Sound Engineering Practice (SEP) category.
- 3.6. According to Article 3 section 3 of the directive, products in this category should:
  - 3.6.1. be designed and manufactured in accordance with sound engineering practice in order to ensure safe use;
  - 3.6.2. be accompanied by adequate instructions for use;
  - 3.6.3. bear markings to permit identification of the manufacturer or of his authorised representative established within the Community;
  - 3.6.4. be safe;
  - 3.6.5. not carry a CE mark.
- 3.7. There is no obligation to comply with the essential health and safety requirements in the directive.
- 3.8. I must emphasize that category is determined by the product's own size only, not by the size of any other equipment it may be assembled with or attached to. Assembled systems of pressure equipment will necessarily contain components of various categories.

#### 4. Conclusion

- 4.1. For sizes up to 25mm nominal diameter, the Fossil Fuel Stabiliser does not require CE marking.

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Tel. +44 1298 873800  
 Fax. +44 1298 873801  
 Great Hucklow  
 Buxton  
 Derbyshire  
 SK17 8RG



## Directive 97/23/EEC

### Pressure Equipment Categorisation

Date	24-Feb-05		
Done by	Nick Williams		
Job No.	1136		
Document No.	05D0214		
Client	The Energy Group		
Equipment	Fossil Fuel Stabiliser		
Type(1)	V=vessel	p	
	B=Boiler		
	C=Pressure cooker		
	P=Pipework		
Fluid state (2)	Liquid (L)	g	
	Gas (G)		
Fluid group (3)	Group 1: Hazardous	1	
	Group 2: Non hazardous		
Design pressure (bar)		Nominal Diameter,DN (mm)	
77 bar		25 mm	
PS.DN	1925 bar.mm		
		Unstable gas? (Y/N) (5)	n
		Safety accessory? (Y/N) (7)	n
Max Operating temperature over 350C?(Y/N) (8)	n		
Table used	6		
Category	SEP		