

I

(Resolutions, recommendations and opinions)

OPINIONS

COMMISSION

COMMISSION OPINION

of 7 January 2008

on interim measures taken by the government of Denmark in respect of high velocity pressure/vacuum relief valves with flame screen of model HPV manufactured by Se-won Ind Co. in the Republic of Korea

(Text with EEA relevance)

(2008/C 3/01)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Council Directive 96/98/EC of 20 December 1996 on marine equipment ⁽¹⁾, and in particular Article 13 thereof,

Whereas:

- (1) The applicable testing standards for devices to prevent the passage of flame into the cargo tanks in oil tankers (high velocity valves only) are laid down in circulars MSC 677 and MSC 1009 of the International Maritime Organisation, the latter referring to the international standard ISO 15364:2000.
- (2) By letter of 27 February 2004, the Danish Maritime Authority informed the Commission of interim measures taken by the Authority in respect of high velocity pressure/vacuum relief valves with flame screen of model HPV (hereinafter, 'the valves') manufactured by Se-won Ind Co. in the Republic of Korea (hereinafter, 'the manufacturer'), whereby any such valves installed on board ships flying the Danish flag were to be removed within a period to be specified, on the grounds of failure to comply with Article 5(1) and (2) of Directive 96/98/EC.

- (3) The letter from the Danish Maritime Authority was accompanied by a copy of two EC type-examination certificates issued by the notified body Bureau Veritas, under reference numbers 06842/A1 EC and 09149/A2 EC, both issued on 6 May 2002. Certificate number 06842/A1 EC concerned Combined High Velocity Pressure/Vacuum Relief Valve with Flame Screen of types HPV 3, 4, 5, 6 and 8, while certificate 09149/A2 EC concerned type HPV 10.
- (4) Type-approval certificate No 06842/B0 EC was issued by the Bureau Veritas on 8 May 2004 and superseded the two type-approval certificates referred to above. This new certificate concerned the 'high velocity pressure relief valve type HPV (P)-3, 4, 5, 6, 8, 10' of nominal diameter 80, 100, 125, 150, 200, 250 (units unspecified).
- (5) The Danish Maritime Authority had taken the above-mentioned interim measures following inspection of valves installed on board ships flying the Danish flag and based on the examination of the documentation submitted to it by the manufacturer, which was reported mostly to date back to 1996.
- (6) Based on this documentary examination, the Danish Maritime Authority found that: (a) the test records did not include records for the calibration of gas concentration meters, thermometers, flow meters and time recording devices; (b) no records had been provided for the concentration and temperature of the test gas throughout the test nor for the gas flow rates used; (c) no records had been provided confirming that the tests had been conducted in the specified sequence; (d) compliance with the requirement for a minimum

⁽¹⁾ OJ L 46, 17.2.1997, p. 25. Directive as last amended by Directive 2002/84/EC of the European Parliament and of the Council (OJ L 324, 29.11.2002, p. 53).

- efflux velocity of 30 metres per second at any time had not been documented; (e) no test records had been provided in order to establish the relationships between flow rate and pressure drop; (f) no records had been provided confirming that the fire testing had been carried out in the absence of hammering; (g) no records had been provided as regards the Maximum Experimental Safe Gap (MESG) value of the test gas used, which in the opinion of the Danish Maritime Authority made it impossible to comply with the ordering information requirements of ISO 15364; and (h) the documentation provided did not demonstrate compliance with the requirements of Sections 5 and 6 of the said standard. Furthermore, the valves inspected by the Danish authorities were reported not to comply with the requirements of the said standard in terms of valve disc indicators and drain design as well as inspection means for establishing fouling/cleaning needs.
- (7) The Danish Maritime Authority highlighted that it had witnessed the testing of this type of valves with proper gas mixtures and flow rates by two notified bodies in Denmark, and that this test had failed due to the occurrence of flash-back. The reports of these tests were however not provided and therefore their date is unknown; it would however seem that this remark of the Danish authorities referred to tests which had led them to issue a national ban against valves of this type prior to the entry into force of the Directive. In their letter, the Danish authorities confirmed that the inspection of valves bearing the wheel mark and installed on board Danish ships had shown that they were identical, or nearly identical, to the valves which they had banned in the past.
- (8) In its letter, the Danish Maritime Authority made no evaluation of potential shortcomings in the testing standards themselves, considering that the problems observed did not imply that the standards were insufficient.
- (9) Upon receipt of the letter from the Danish Maritime Authority the Commission entered into consultation with the Danish Maritime Authority, the manufacturer, the French Government as notifying Member State and the notified body having issued the EC type-examination certificates in question on the latter's behalf (hereinafter referred to collectively as 'the parties').
- (10) The manufacturer's reply to the Commission's consultation included an item by item rebuttal of the points raised by the Danish Maritime Authority in its letter of 27 February 2004. The reply included documentation comprising detailed drawings and the valves' instruction manual, as well as calibration records and records of several tests including *inter alia* efflux velocity tests, hammering tests, air leakage tests, hydrostatic pressure tests and flash-back tests.
- (11) In its answer to the Commission, Bureau Veritas did not address the Danish authorities' remarks in detail but referred to the information and documentation provided by the manufacturer and warned that the EC type-examination certificate granted to the valves referred to tests carried out by the Research Institute of Marine Engineering (RIME) in Japan.
- (12) On 19 October 2004, the Danish Maritime Authority provided a report concerning tests carried out on valves reportedly removed from a Danish ship. The said report had been issued on 8 October 2004 by the notified body Force Technology to Messrs Pres-Vac Engineering A/S, who are manufacturers of similar equipment and who would seem to have provided the specimens tested, namely two units of HPV valves of size 4. The test was carried out at unspecified facilities in accordance with circular MSC 677; it was witnessed by Force Technology, who reported the occurrence of flash-back within 50 opening cycles for both valves when tested for cargoes within explosion group IIB (thus with an MESG value of 0,65 mm).
- (13) This report was accompanied by two other reports, respectively issued to Messrs Pres-Vac Engineering A/S by the Danish Institute of Fire Technology (DBI) in 1997 and by Force Technology themselves in 2000. These institutes had each witnessed the testing of a specimen of valve of the type Se-won HPV4; both tests had been carried out by Pres-Vac Engineering with a propane gas mixture (explosion group IIA, thus with an MESG value of 0,9 mm) reportedly in accordance with circular MSC 677, and had resulted in the occurrence of flash-back; the DBI stated that it had not verified conformity between the test specimen and the manufacturers' drawings and specifications.
- (14) While there is a considerable amount of data that suggest that the valves might under certain conditions fail to meet the applicable requirements for flash back, such data cannot be considered conclusive given the uncertainty on the circumstances of the tests, as regards *inter alia* the condition of the tested valves, especially those which had been removed from ships, the testing facilities where the tests were carried out and the calibration of the instruments used.
- (15) It is however clear from the documentation provided by the manufacturer that the different tests which reportedly formed the basis for type-examination had been certified by up to seven different bodies (the University of Aachen, the Korean Institute of Machinery and Materials, RIME, Nippon Kaiji Kyokai, the American Bureau of Shipping, Lloyd's Register and Det Norske Veritas) at different points in time between 1987 and 2002.
- (16) The documentation provided by the manufacturer shows that at least part of the required tests had been carried out by itself and witnessed by the certifying bodies referred to above. In some cases, it is not possible to establish who carried out and witnessed the tests as the results are given on paper without heading and with no identification of the persons who sign. None of the documents provided attested to Bureau Veritas having carried out, witnessed itself or in any way taken part in the tests required by the applicable standards.

- (17) Contrary to what had been stated by the notified body, according to the documents provided by the manufacturer only fire safety tests would seem to have been carried out or witnessed by the RIME in 1998.
- (18) The certificates delivered by Lloyd's Register and Det Norske Veritas would seem to have been issued in whole or in part based on documentary review. The certificate delivered by Lloyd's Register refers to compliance with this body's own type approval system; the certificate delivered by Det Norske Veritas appears to be incomplete and it is not possible to ascertain its exact purpose, although it refers to a large number of tests required by the applicable testing standards.
- (19) Only part of the tests reports provided to the Commission indicate the testing standard used; in some cases this is given in a separate explanatory document issued by the manufacturer itself.
- (20) As regards the flash-back and endurance burning tests, the manufacturer states that the valves had in fact been tested in 1987 against IMO MSC Circular 373 and that, furthermore, the valves had been subsequently modified and improved although the main components had not changed. The applicable standards contained in circular MSC 677 replaced those of circular MSC 373 in 1994, well before the entry into force of the Directive, in order, *inter alia*, to resolve a number of uncertainties concerning hammering testing and hence flash back. The manufacturer provided a number of tables preceded by the mention 'type approval test: Sewon/KIMM' and reflecting results of flashback and hammering tests which would have been carried out in 1996; these documents do not specify the standard used nor do they contain the formal elements which are indispensable to establish their relevance for the case as described in recital 16.
- (21) The calibration certificates provided by the manufacturer appear to meet the demands of the Danish authorities in that they concern all the apparatuses to which the latter referred and for a period spanning between 1995 and 1997; however it is unclear how these certificates relate to the different tests referred to in recital 15.
- (22) The information and documents provided to the Commission therefore raise reasonable doubt whether, before delivering a type-examination certificate to the manufacturer concerning the valves, the notified body Bureau Veritas had effectively ascertained that a specimen, representative of the production envisaged, complied with the provisions of the international instruments that apply; in particular, compliance with the provisions of point 4 in the Section 'EC TYPE-EXAMINATION (MODULE B)' of annex B to Directive 96/98/EC and with Section 7.1 of ISO 15364:2000 has not been sufficiently demonstrated.
- (23) The MESG is a measurable characteristic of a gas and reflects its reactivity. The documentation provided by the manufacturer indicates that the valves had been tested with a propane gas mixture, which has an MESG value of 0,9 mm. While the type-approval certificate delivered by Bureau Veritas in 2004 specifies that the valves may be used on cargo tanks of chemical tankers carrying flammable chemicals with MESG value of 0,9 mm or above, the previous certificates delivered in 2002 contained no such provision. However, the examination of the file by the Commission has shown that the technical data contained in the instruction manual provided by the manufacturer refer to an MESG value of '0,53 (group B)'. This incorrect information may be misleading for the installation designer and for the authority issuing the ship safety certificates; it is therefore likely that ships equipped with this model of valves may have been authorised to carry cargoes of group IIB, for which the valves have never been tested. This may entail a significant safety hazard, given that it becomes increasingly difficult for a flame arrestor to prevent the propagation of flame as the MESG value of the medium decreases.
- (24) Concerning compliance with Sections 5 and 6 of ISO 15364, the Danish authorities never specified their claims as regards valve disc indicators and inspection means for establishing fouling/cleaning needs, which thus never received a specific answer from the manufacturer or the notified body. However, on 28 July 2004 the Danish authorities contended, based on the drawings submitted by the manufacturer, that in violation of the provisions of ISO 15364: (a) the vacuum spindle was observed through a glass sighting tube; and (b) the drain construction vented cargo vapour horizontally.
- (25) Section 5.2 of the said standard prohibits the use of non-metallic materials, other than gaskets and seals, in the construction of pressure-retaining components of the device. Examination of the drawings provided by the manufacturer raises doubt as to whether the glass tube to which the Danish authorities refer is effectively a pressure-retaining component, or whether it should not be considered to be a seal. Therefore, based on the documentation available to the Commission, it is not possible to establish with reasonable certainty a violation of this particular requirement.
- (26) Section 6.5 of the above mentioned standard provides that the drain shall not allow vapour to escape unless the drain is equipped with suitable means to prevent the passage of flame and meets all requirements for efflux velocity and direction; while Section 6.9 provides that end-of-line devices shall be constructed to direct the efflux vertically upward under all flow rates intended by the manufacturer. The drawings provided by the manufacturer show a drain with a horizontal outlet; however, it is unclear whether, at its location, the drain can allow vapour to escape. It is therefore not possible for the Commission to confirm the Danish authorities' appraisal.
- (27) No episodes of valve malfunction have been reported to the Commission concerning this type of valves; however, every reasonable effort must be made to remove any potential threat to maritime safety,

HAS ADOPTED THIS OPINION:

Article 1

The interim measures notified by the Danish Government to the Commission by letter of 27 February 2004 in respect of valves of the model HPV manufactured by Se-won Ind Co. in the Republic of Korea are adequate and proportionate for the protection of maritime safety and are therefore justified.

Article 2

The Commission recommends that the Member States ensure that the above mentioned valves are removed from their markets until such time as a new type-examination certificate has been delivered in full compliance with the Directive requirements.

Article 3

The Commission recommends that the Member States take all appropriate action in order to guarantee the safety of ships

flying their flag which are equipped with the said valves, including at least the following measures: (a) investigating any episodes which may indicate valve malfunction, in particular as regards hammering and pressure peaks during loading and discharging; and (b) ensuring that no ships equipped with the said valves are authorised to carry cargoes with an MESH value lower than 0,9 mm.

Article 4

The Member States should as soon as possible inform the Commission and the other Member States of any measures taken pursuant to this opinion.

Done at Brussels, 7 January 2008.

For the Commission

Jacques BARROT

Vice-President
