

Pursuant to Article 20 paragraph 4 of the Law on Product Safety (Official Gazette of the Republic of Macedonia No. 33/06 and 63/07), the Minister of Economy adopted the following

RULEBOOK ON SIMPLE PRESSURE VESSELS

I. GENERAL PROVISIONS

Article 1

(1) This Rulebook regulates the essential requirements that the simple pressure vessels manufactured in series must fulfil prior to placing on the market or putting into service, the conformity assessment procedures, marking of the simple pressure vessels, and the conditions that the bodies participating in the conformity assessment procedure need to fulfil (hereinafter referred to „authorized inspection bodies“).

Article 2

(1) The provisions of this Rulebook shall not apply to:

- vessels specifically designed for nuclear use, failure of which may cause an emission of radioactivity,
- vessels specifically intended for installation in **or** the propulsion of ships and aircrafts: and
- fire extinguishers.

Article 3

(1) Simple pressure vessel in terms of this Rulebook means any welded vessel subjected to an internal gauge pressure greater than 0,5 bar, which is intended to contain air or nitrogen and which is not intended to be fired (hereinafter referred to as „the vessels“).

(2) Moreover,

- The parts and assemblies contributing to the strength of the vessel under pressure shall be made either of non-alloy quality steel or non-alloy aluminium or non-age hardening aluminium alloys;
- the vessel shall be made of:

-Either of a cylindrical part of circular cross-section closed by outwardly dished and/or flat ends which revolve around the same axis as the cylindrical part;

-Or two dished ends revolving around the same axis;

- The maximum working pressure of the vessel shall not exceed 30 bar and the product of the pressure and the capacity of the vessel (PS×V) shall not exceed 10 000 bar/l;

- The minimum working temperature must be no lower than minus 50 °C and the maximum working temperature shall not be higher than 300 °C for steel vessels and 100 °C for aluminium or aluminium alloy vessels.

Article 4

(1) The vessels referred to in Article 3 of this Rulebook may be placed on the market and taken into service only if they do not compromise the safety of persons, domestic animals or property, when properly installed and maintained and when used for the purposes for which they are intended.

(2) The provisions of this Rulebook shall not apply to the prescription of requirements they deemed to be necessary to ensure **that** workers are protected when using vessels, provided it does not mean the vessels are modified in a way unspecified in the provisions of this Rulebook.

II. ESSENCIAL SAFETY REQUIREMENTS

Article 5

(1) The vessels in respect of which the product of PS and V exceeds 50 bar/l must satisfy the essential safety requirements set out in Articles 6, 7, 8, and 9 of this Rulebook.

(2) Vessels in respect of which the product of PS and V is 50 bar/ l is less than or equal to 50 bar/l **or less** must be manufactured in accordance with the sound engineering practice and bear the markings as laid down in section 1 of Annex I which is integral part of this Rulebook, with the exception of conformity marking referred to in Article 27 of this Rulebook.

II.1 MATERIALS

Article 6

(1) Materials must be selected according to the intended use of **the** vessels and in accordance with paragraphs 2, 3, 4, 5, 6, 7, and 8 of this Article.

(2) The materials referred to in Article 3 of this Rulebook used for manufacturing the pressurized parts must be:

- capable of being welded,
- ductile and tough so that a rupture at minimum working temperature does not give rise to **either** fragmentation or brittle-type fracture,
- not adversely affected by aging.

(3) For steel vessels, the materials must **in** addition meet the requirements set out in paragraph 4 of this Article, and for aluminium or aluminium alloy vessels, those set out in paragraph 5 of this Article. **They must be accompanied by an** inspection slip drawn up by the producer of **the** materials as described in Article 10 paragraph 2 of this Rulebook.

(4) For steel vessels, non-alloyed steels are used, which need to satisfy the following requirements:

a) they must be non-effervescent steel and be supplied after normalization treatment, or in an equivalent state;

b) the content **per product of carbon** must be less than 0,25% and that of sulphur and phosphorus must each be less than 0,05%;

c) they must have the following mechanical properties per product:

- **the** maximum tensile strength R_m .max must be less than 580 N/mm²;

- the elongation after rupture must be:

- If the test-pieces are taken parallel to the direction of rolling:

thickness ≥ 3 mm; $A \geq 22\%$,

thickness < 3 mm; $A_{80} \geq 17\%$,

- if the test-pieces are taken perpendicular to the direction of rolling:

thickness ≥ 3 mm; $A \geq 20\%$,

thickness < 3 mm; $A_{80} \geq 15\%$,

- the average failure energy KCV for three longitudinal test pieces at minimum working temperature, must not be less than 35J/cm². Not more than one of the three figures may be less than 35J/cm², with a minimum of 25J/cm².

In **the** case of steel used **in the** manufacture of vessels whose minimum working temperature is lower than -10°C and whose wall thickness exceeds 5 mm, this property must be checked.

(5) For aluminium vessels, non-alloy aluminium must **have an aluminium** content of at least 99,5%, and **those** alloys described in Article 2 paragraph 2 of this Rulebook, must display adequate resistance to intercrystalline corrosion at maximum working temperature. Moreover, these materials must satisfy the following requirements:

a) they must be supplied in an annealed state, and

b) must have the following mechanical characteristics per product:

- **the** maximum tensile strength R_m .max must be no more than 350 N/mm²;

- the elongation after rupture must be:

- $A \geq 16\%$ if the test pieces are taken parallel to the direction of rolling;

- $A \geq 14\%$ if the test pieces is taken perpendicular to the direction of rolling;

(6) The welding materials used to manufacture the welds on or of the vessels must be appropriate to and compatible with the materials to be welded.

(7) Accessories contributing towards the strength to the vessel (for example: bolts and nuts) must be made of a material specified in paragraph 2 of this Article, or of other kinds of steel, aluminium or an appropriate aluminium alloy compatible with materials used for the manufacture of pressurized parts. These materials must at minimum working temperature have an appropriate elongation after rupture and toughness.

(8). All unpressurized parts of welded vessels must be of materials which are compatible with that of the components to which they are welded.

II.2 VESSELS DESIGN

Article 7

(1) The manufacturer must, when designing the vessel, define the use to which it will be put, and select:

- the minimum working temperature T_{min} ,
- the maximum working temperature T_{max} ,
- the maximum working pressure PS.

(2) However, should a minimum working temperature exceeding $-10\text{ }^{\circ}\text{C}$ be selected, the quality required of the materials must be satisfied at $-10\text{ }^{\circ}\text{C}$.

(3) The manufacturer must also take into account the following provisions:

- is must be possible to inspect the inside of vessels,
- is must be possible to drain the vessels,
- the mechanical qualities shall be maintained throughout the period of use of the vessel for the intended purpose,
- the vessels shall, bearing in mind their prescribed use, be adequately protected against corrosion, and the fact that under the conditions of use envisaged
- the vessel will not be subjected to stresses likely to impair their safety in use,
- internal pressure will not permanently exceed the maximum working pressure PS, however, it may momentarily do so by up-to 10%.

(4) Circular and longitudinal seams must be made using full penetration welds or welds of equivalent effectiveness. Convex ends other than hemispherical ones shall have a cylindrical edge.

Article 8

(1) If the product of PS.V is not more than 3000 bar/l, the manufacturer to define the wall thickness of the vessel must select one of the methods described in paragraphs 4 and 5 of this Article.

(2) if the product of PS and V is more than 3000 bar/l, or if the maximum working temperature exceeds 100°C , then the wall thickness of the vessel must be determined in accordance with the methods described in paragraph 4 of this Article.

(3) The actual wall thickness of the cylindrical section and ends shall, however, be not less than 2 mm in the case of steel vessels and not less than 3 mm in the case of aluminium and alluminium alloy vessels.

(4) The minimum thickness of pressurized parts must be calculated having regard to the intensity of the stresses and to the following provisions:

- the calculation pressure to be taken into must not be less than the maximum working pressure selected,
 - The permissible general membrane stress must not exceed the lower of the values $0,6 R_{ET}$ or $0,3 R_m$.
- The manufacturer must use the R_{ET} and R_m minimum values guaranteed by the material manufacturer in

order to determine permissible stress.

However, where the cylindrical portion of the vessel has one or more longitudinal welds, made using a non-automatic welding process, the thickness calculated as above must be multiplied by the coefficient 1,15.

(5) With the experimental method, the wall thickness must be so determined as to enable the vessels to resist at ambient temperature a pressure equal to at least five times the maximum working pressure, with a permanent circumferential deformation factor of no more than 1%.

II.3. MANUFACTURING PROCESS AND PLACING IN SERVICES OF THE VESSELS

Article 9

(1) The vessels shall be constructed and subjected to production check in accordance with the design and manufacturing record referred in Article 10 of this Rulebook.

(2) Preparation of components parts (for instance: forming and chamfering) must not give rise to surface defects or cracks or changes in the mechanical characteristics likely to be detrimental to the safety of the vessels.

(3) The characteristics of welds and adjacent zones must be similar to those of the welded materials and shall be free of any surface or internal defects detrimental to the safety of the vessels.

(4) Welds must be performed by qualified welders or operators possessing the appropriate level of competences, in accordance with approved welding processes. Such approval and qualification tests must be carried out approved by authorized inspection bodies.

(5) The manufacturer must also, during manufacture, ensure consistent weld quality by conducting appropriate tests using adequate procedures. These tests must be the subject of a report.

(6) Vessels must be accompanied by the instructions drawn up by the manufacturer as referred to in Article 11 of this Rulebook.

III. TYPES OF DOCUMENTS ACCOMPANYING THE VESSELS

III.1. DESIGN AND MANUFACTURING SCHEDULE

Article 10

(1) The design and manufacturing schedule must contain a description of the techniques and operations employed in order to meet the essential requirements referred to in Article 5 of this Rulebook or the standards referred to in Article 14 of this Rulebook and, in particular:

- (a) a detailed manufacturing drawings of the vessel type;
- (b) instructions;
- © a document describing:
 - materials selected,
 - the welding processes selected,
 - the check selected,
 - any pertinent details as to the vessel design.

(2) When the procedures laid down in Articles 21, 22, 23, and 24 of this Rulebook, the schedule must also include:

- (a) the certificates relating to the suitable qualification of the welding operations and of welders or

operators;

(b) the inspection slip for the material used in the manufacture of parts and assemblies contributing to the strength of the pressure vessels;

© a on the examination and tests performed or a description of the proposed checks.

III.2. INSTRUCTIONS

Article 11

(1) The instructions must provide the following information:

- the particulars given in section 1 of Annex 1, except for the vessel' series identification;
- the intended use of the vessel;
- the maintenance and installation requirements for vessel safety.

(2) The instructions of paragraph 1 must be written in Macedonian language and its Cyrillic letter or in the languages of country of destination.

IV. PLACING VESSELS ON THE MARKET AND STANDARDS

Article 12

(1) Placing of vessels on the market and the taking into service shall not be impede, if the essential requirements of this Rulebook are satisfied.

Article 13

(1) Vessels bearing CE marking shall presume compliance with the provisions of this Rulebook including the conformity assessment procedures referred to in Articles 18 to 24 of this Rulebook.

Article 14

(1) The vessels are presumed to be in conformity with the essential safety requirements in accordance with Article 5 of this Rulebook and the adapted national standards provided in the List of Standards for simple pressure vessels, which are transposed based on the European harmonized standards.

(2) The List of Standards for simple pressure vessels is published in the Official Gazette of the Republic of Macedonia under the Law on Product Safety.

Article 15

(1) In respect of which the manufacturer has not applied or has applied only in part, the standards referred to in Article 14 of this Rulebook or for which no such standards exist, the vessels are deemed to be in compliance with the essential requirements referred to in Article 5 of this Rulebook, when after receipt of an EEC type-examination certificate, their conformity with the approved model has been certified by the affixation of the conformity marking.

Article 16

(1) When the vessels are subject to other technical regulations covering other aspects and which also provide for the affixing of conformity marking, then it shall indicate that the vessels in question are also presumed to conform to the provisions of these technical regulations.

(2) Where one or more of the technical regulations allow the manufacturer, during a transitional period, to chose which arrangements to apply, then the conformity marking shall indicate conformity only with provisions of these regulations applied by the manufacturer.

(3) In the case of paragraph 2 of this Article, the details of the applied technical regulations must be given in the documents, notices or instructions required in these technical regulations and accompanying such vessels.

Article 17

(1) Where it is find that vessels bearing the CE marking and used in accordance with their intended

purpose might compromise the safety of persons, domestic animals or property, then it shall take all appropriate measures to withdraw those products from the market or to prohibit or restrict their being placed on the market.

(2) For the measures undertaken in compliance with Article 17, paragraph 2 of the Law on Product Safety, the Ministry of Economy shall immediately inform the European Commission of any such measures indicating the reasons of its decision and whether the non-conformity, is a result of:

- (a) failure to meet the essential requirements referred to in Article 5 of this Rulebook where the vessel does not meet the standards referred to in Article 14 of this Rulebook;
- (b) incorrect application of the standards referred to in Article 14 of this Rulebook;
- (c) shortcomings in the standards themselves referred to in Article 14 of this Rulebook;

V. CONFORMITY ASSESSMENT PROCEDURES

Article 18

(1) Prior to production of pressure vessels of which the product PS and V exceeds 50 bar/l, and are:

(a) manufactured in accordance with the standards referred to in Article 14 of this Rulebook, the manufacturer or his authorized representative having a head office in the Republic of Macedonia, shall at his own choice:

- either inform the authorized inspection body, which after examining the design and manufacturing schedule referred to in Article 10 of this Rulebook shall draw up a certificate of adequacy attesting that the scheduled production is satisfactory, or

- submit a prototype vessel for type-examination in accordance with Article 20 of this Rulebook;

(b) not be manufactured or only partly, in accordance with the standards referred to in Article 14 of this Rulebook, the manufacturer or his authorized representative having a head office in the Republic of Macedonia must submit a prototype vessel for the type-examination, in accordance with the provisions referred to in Article 20 of this Rulebook.

(2) The vessels manufactured in accordance with the standards referred to in Article 14 of this Rulebook or with the approved prototype shall prior to their being placed on the market, be are subject:

(a) to the verification referred to in Article 21 of this Rulebook, where the product of PS and V exceeds 3000 bar/l and

(b) at the choice of the manufacturer, where the product of PS and V does not exceed 3000 bar/litre but exceeds 50 bar/l:

- either declaration of conformity referred to in Article 22 of this Rulebook; or
- to the verification referred to in Article 21 of this Rulebook.

(3) The records and correspondence relating to the certification procedures referred to in paragraphs 1 and 2 of this Article shall be drafted in Macedonian language and its Cyrillic letter.

Article 19

(1) The authorized inspection body fulfilling the conditions to carry out conformity assessment referred to in Articles 25 and 26 of this Rulebook may be authorized for one or for the three procedures of conformity assessment of vessels;

- verification of a type in accordance with the provisions of Article 20 of this Rulebook;
- verification in accordance with provisions referred to in Article 21 of this Rulebook;
- declaration of conformity in accordance with Article 22, 23 and 24 of this Rulebook.

(2) The authorized inspection body that fulfills the assessment conformity procedures must have a unique

identification number of the body.

V.1. TYPE EXAMINATION

Article 20

(1) The type-examination is a procedure by which the authorized inspection body ascertains and certifies that a prototype vessel satisfies the provisions of this Rulebook, which apply to it.

(2) The application for type-examination shall be lodged by the manufacturer or by his authorized representative having a head office in the Republic of Macedonia, with a single authorized inspection body in respect of a prototype vessel or of a prototype representing a family of vessels. The application shall include:

- the name and the address of the manufacturer or of his authorized representative having a head office in the Republic of Macedonia and the place of manufacture of the vessels.
- the design and manufacturing schedule referred to in Article 10 of this Rulebook.

It shall be accompanied by a vessel which is a representative of the production envisaged.

The authorized inspection body in carrying out the type-examination shall examine not only the design and manufacturing schedule in order to check their conformity, but also the vessel submitted. When examining the vessel, the authorized inspection body shall:

- (a) verify that the vessel has been manufactured in conformity with the design and manufacturing schedule and may safely be used under its intended working conditions;
- (b) perform appropriate examinations and tests to check that the vessel complies with the essential requirements applicable to it.

(4) If the prototype complies with the provisions applicable to it, the authorized inspection body shall draw up an type-examination certificate which shall be forwarded to the applicant. That certificate shall state the conclusions of the examination, indicate any conditions to which its issue may be subject and be accompanied by descriptions and drawings necessary for identification of the approved prototype.

The other authorized inspection bodies may obtain a copy of the type-examination certificate and, on a reasoned request a copy of the design and manufacturing schedule and the reports on the examinations and tests carried out.

(5) The authorized inspection body which refuses to issue a type-examination certificate shall so inform the other authorized inspection bodies. The authorized inspection body which withdraws the type-examination certificate shall inform the competent state authority, giving the reasons for the decision.

V.2. VERIFICATION

Article 21

Verification is the procedure whereby a manufacturer or his authorized representative having a head office in the Republic of Macedonia ensures and declares that the vessels which have been checked in accordance with paragraph 3 of this Article are in conformity to the type described in the type-examination certificate or with the design and manufacturing schedule referred to in Article 10 of this Rulebook having received a certificate of conformity.

(2) The manufacturer shall take all necessary measures for the manufacturing process to ensure that the vessels conform to the type described in the type-examination certificate or to the design and manufacturing schedule referred to in Article 10 of this Rulebook. The manufacturer or his authorized representative having a head office in the Republic of Macedonia shall affix the CE marking to each vessel and draw up a declaration of conformity.

(3) The authorized inspection body shall carry out appropriate examinations and tests in order to check the conformity of the vessels with the requirements laid down in the provisions of this Rulebook by

examination and testing of vessels in accordance with the following procedures:

(a) The manufacturer shall present his vessels in the form of uniform batches and shall take all necessary measures in order that the manufacturing process ensures the uniformity of each batch produced.

(b) These batches shall be accompanied by the EC type-examination certificate referred to in Article 20 of this Rulebook, or where the vessels are not manufactured in accordance with an approved prototype, by the design and manufacturing schedule referred to in Article 10 of this Rulebook. In this case, the authorized inspection body shall, prior to verification examine the schedule in order to certify its conformity.

© When a batch is examined, the authorized inspection body shall ensure that the vessels have been manufactured and checked in accordance with the design and the manufacturing schedule and perform a hydrostatic test or a pneumatic test of equivalent effect on each vessel in the batch at a pressure P_h equal to 1,5 times the vessel design pressure in order to check its soundness. The pneumatic test, shall be subjected to acceptance of the test safety procedure by the authorized inspection body in which the test is performed.

Moreover, the authorized inspection body shall carry out tests on test-pieces taken from a representative production test-piece or from a vessel, as the manufacturer chooses, in order to examine the weld quality. The tests shall be carried out on longitudinal welds. However, where differing weld techniques are used for longitudinal and circular welds, the tests shall be repeated on the circular welds.

For the vessels referred to in Article 8, paragraph 5 of this Rulebook, these tests on the test-pieces shall be replaced by a hydrostatic test on five vessels taken at random choice from each batch in order to check that they conform to the requirements of Article 5 of this Rulebook.

(d) In case of accepted batches, the authorized inspection body shall affix, or cause to be affixed, its identification number to each recipient and draw up a written certificate of conformity related to the tests carried out. All recipient in the bath may be placed on the market except for those have not successful undergone a hydrostatic test or a pneumatic test. If a batch is rejected, the authorized inspection body or the competent state authority, shall take appropriate measures to prevent the putting on the market of that batch. In the event of frequent rejection of batches, the authorized inspection body may suspend the statistical verification. The manufacturer may, under the responsibility of the authorized inspection body, affix the latter's identification number during the manufacturing process.

(e) The manufacturer or his authorized representative having a head office in the Republic of Macedonia must ensure the conformity certificates issued by the authorized inspection body to be available, if requested.

V.3. DECLARATION OF CONFORMITY

Article 22

(1) A manufacturer fulfilling the obligations arising out in Article 23 of this Rulebook shall affix the marking provided for in Article 26 of this Rulebook to vessel which he declares to be in conformity:

- to the design and manufacturing schedule documentation referred to in Article 10 of this Rulebook and on which a certificate of conformity has been draws up, or
- an approved prototype.

By this declaration of conformity procedure the manufacturer becomes subject to surveillance, in cases where the product of PS and V exceeds 200 bar/l.

(2) The purpose of surveillance is to ensure, as required by Article 24 paragraph 2 of this Rulebook, that the manufacturer duly fulfils the obligations arising out of Article 23, paragraph 2 of this Rulebook. Surveillance shall be performed by authorized inspection body which issued the type-examination certificate referred to in Article 20 of this Rulebook where the vessels have been manufactured in accordance with the approved prototype or, if this is not the case, by the authorized inspection body, to which the design and manufacturing schedule was sent in accordance with Article 18, paragraph 1 section

(a) item 1 of this Rulebook.

Article 23

(1) Where a manufacturer makes use of the procedure referred to in Article 22 of this Rulebook, he must, before commencing manufacture, send the authorized inspection body which issued the type-examination certificate or the certificate of conformity, a document describing the manufacturing process and all of the pre-determined systematic measures taken to ensure conformity of the pressure vessels to the standards referred to in Article 14 of this Rulebook or the approved prototype. This document shall include:

(a) a description of the means of manufacture and checking appropriate to the construction of vessels;

(b) an inspection document describing the appropriate examinations and tests to be carried out during the manufacture, together with the procedures and the frequency with which they are to be performed;

© an undertaking to carry out the examinations and tests in accordance with the inspection document referred to above and to have a hydrostatic test or, a pneumatic test carried out on each vessel manufactured at a test pressure equal to 1,5 times the design pressure. These examinations and tests shall be carried out under the responsibility of qualified staff who are sufficiently independent from production personnel, and shall be covered by a report.

(d) the addresses of the place of manufacture and storage and the date on which the manufacture is to commence.

(2) In addition, when the product of PS and V exceeds 200 bar/l, the manufacturers shall authorize access to the said places of manufacture and storage by the authorized inspection body for surveillance, for inspection purposes, and shall allow that body to select samples of vessels, and shall provide it with all necessary information, and in particular:

-the design and manufacturing schedule;

-the inspection report;

-the type-examination certificate or certificate of conformity, where appropriate; and

-a report on the examinations and tests carried out.

Article 24

(1) The authorized inspection body which issued the type-examination certificate or the certificate of conformity must, before the date on which any manufacture begins, examine both the document referred to in Article 23, paragraph 1 of this Rulebook and the design and manufacturing schedule referred to in Article 10 of this Rulebook in order to certify their conformity where the vessels are not manufactured in accordance with an approved prototype.

(2) In addition, where the product of PS and V exceeds 200 bar/l, the authorized inspection body must during the manufacture :

- ensure that the manufacturer actually checks series-produced vessels in accordance with Article 23 paragraph 1, section © of this Rulebook;

- take random samples at the places of manufacture or at place of storage of vessels for inspection purposes.

A copy of the inspection report shall be forwarded by the authorized inspection body to the competent state authority and upon the request also of other authorized inspection bodies.

VI. CONDITIONS TO BE FULFILLED BY THE AUTHORIZED INSPECTION BODIES PARTICIPATING IN CONFORMITY ASSESSMENT PROCEDURE

Article 25

(1) The authorized inspection body, its director and the staff responsible for carrying out the verification tests shall not be the designer, manufacturer, suppliers or installer of vessels which they inspect, nor the authorized representative of any of those parties. They shall not become directly involved in the design,

construction, marketing or maintenance of the vessels, nor represent the parties engaged in these activities. This does not preclude the possibility of exchanges of technical information between the manufacturer and the authorized inspection body.

(2) The authorized inspection body and its staff must carry out the verification tests with the highest degree of professional integrity and technical competency and must be free from all pressures and inducements particularly financial, which might influence their judgement or the results of the inspection, especially from persons or groups of persons with an interest in the result of verifications.

(3) The authorized inspection body must have at its disposal the necessary staff in accordance with Article 26 of this Rulebook and possess the necessary facilities to enable it to perform properly the administrative and technical tasks connected with verification; it must also have access to the equipment required for special verification.

(4) The staff responsible for inspection must have:

- sound technical and professional training;
- satisfactory knowledge of the requirements of the tests they carry out and adequate experience of such tests.
- the ability to draw up the certificates, records and reports required to authenticate the performance of the tests.

(5) The authorized inspection body must ensure impartiality of its staff in carrying out inspection and their remuneration must neither depend on the number of the test carried out or the results of the tests.

(6) The authorized inspection body must take out liability insurance unless its liability is assumed by the State in accordance with national law, or the State itself is directly responsible for the tests.

(7) The staff of the authorized inspection body is bound to observe professional secrecy with regard to all information gained in carrying out its tasks (except vis-a-vis the competent administrative authorities of the State in which its activities are carried out) under this Rulebook or any provision of national law giving effect to it.

Article 26

(1) The authorized inspection body shall have full time employees, at least three skilled personnels involved in the conformity assessment process as follows:

- Two graduated engineers in mechanical engineering and/or metallurgy having at least three years experience in works related to assessment of adequacy and examination of vessels; and
- one mechanical technician employed having at least three years experience in works related to assessment of adequacy and examination of vessels.

VII. „CE" MARKING OF CONFORMITY

Article 27

(1) The „CE" marking and the inscription provided for in Annex 1, section 1 shall be affixed in a visible, easily legible and indelible form to the vessel or to a data plate attached to the vessel in such a way that it cannot be removed.

(2) The „CE" conformity marking shall consist of the initials „CE" in the form shown in the specimen provided in Annex 1. The „CE" marking shall be followed by the distinguishing number referred to in Article 19, paragraph 2 of this Rulebook of the authorized inspection body responsible for EC verification or EC surveillance.

(3) On the vessels no affixing of marking to which the natural and legal entities may give wrong quiding in relation to the meaning and form of „CE" marking. The vessels or the data plates may be affixed also with any other marking, if this may not reduce the visibility and legibility of „CE" marking.

Article 28

(1) In case where establishes that the „CE" marking has been affixed unduly, the manufacturer or his authorized representative having a head office in the Republic of Macedonia shall be obliged to make the product in conformity with the provisions related to the „CE" marking.

(2) In the case of paragraph 1 of this Article, where the non-conformity continues, all appropriate measures must be taken to restrict or prohibit the placing on the market of the product or to ensure withdrawal of the product from the market in accordance with the procedures laid down in Article 17 of this Rulebook.

VIII. PROVISIONAL AND FINAL PROVISIONS

Article 29

(1) The provisions of this Rulebook which relate to „CE" marking shall apply in time of accession of the Republic of Macedonia in the European Union or entering into force of an appropriate protocol on conformity assessment with the European community and appointing (notification) of authorized inspection body from the Republic of Macedonia in the European Commission.

Article 30

(1) Before accession of the Republic of Macedonia in the European Union, the manufacturers of vessels may place vessels on the market without affixing the mark of conformity or the „CE" marking, if they are produced in the Republic of Macedonia and satisfy the essential requirements laid down in the provisions of this Rulebook.

(2) In the case of paragraph 1 of this Article, the manufacturer of vessels shall, by the authorized inspection body in the Republic of Macedonia, to ensure vessels certificate of conformity in accordance with the procedures of conformity assessment laid down in the provisions of this Rulebook, and having regarded the national standards.

(3) The Certificate of conformity issued in accordance with paragraph 2 of this Article shall replace the marking of conformity and it shall be kept by the manufacturer of vessels as long as 10 years after the manufacture of the last vessel. A copy of the certificate of conformity verified by the manufacturer of vessels shall be accompanied by a documentation for each vessel.

Article 31

(1) In time of accession of the Republic of Macedonia in the European Union or entering into force of the appropriate protocol on conformity assessment with the European Union in terms of this Rulebook, the following terms shall be used:

- „An authorized representative having a head office in the European Union or in the Republic of Macedonia" instead of „authorized representative having a head office in the Republic of Macedonia";
- „EC declaration of conformity" instead of „Declaration of conformity";
- „EC type-examination" instead of „ examination of type";
- „EC type-examination certificate" instead of certificate of type examination";
- „CE marking" instead of „mark of conformity";
- „EC verification" instead of „verification".

(2) By applying the provisions of this Rulebook relating to the CE markings and by notification of a body from the Republic of Macedonia in the European Commission, in terms of this Rulebook shall be used the terms as follows:

- „CE marking" instead of „mark of conformity";
- „notified body" instead of authorized inspection body".

- „identification number of the notified body" instead of „identification number of authorized inspection body". The identification number of the notified body is the number given by the European Commission.

Article 32

(1) This Rulebook will enter into force following the day of their publication in the Official Gazette of the Republic of Macedonia.

No. 25-3237/
26.11.2007

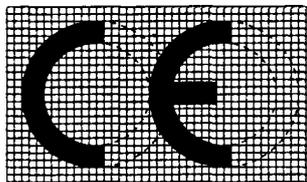
Minister of Economy,
Vera Rafajlovska sgd.

ANNEX 1

1. „CE" MARKING AND INSCRIPTIONS

(a) „CE" conformity marking

- The „CE" conformity marking shall consist of the initials „CE" in the following form:



- If „CE" marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.
- The various components of the „CE" marking must have substantially the same dimension, which may not be less than 5 mm.

(b) Inscriptions

The vessel or the data plate must bear at least the following information:

- the maximum working pressure (PS in bar)
- the maximum working temperature (Tmax in °C)
- the minimum working temperature (Tmin in °C)
- the capacity of the vessel (V in l)
- the name or mark of manufacturer
- the type and serial or batch identification of the vessel
- the last two digits of the year in which the „CE" marking was affixed.

Where the data plate is used, it must be so designed so that it can not be reused and must include a vacant space to enable other information to be provided.

2. DEFINITIONS AND SYMBOLS

2.1. Definitions

2.1. Definitions

- (a) The design pressure 'P' is the gauge pressure chosen by the manufacturer and used to determine the thickness of the pressurized parts.
- (b) The maximum working pressure 'P' is the maximum gauge pressure which may be exerted under normal conditions of use.
- (c) The minimum working temperature Tmin is the lowest stabilized temperature in the wall of the

vessel under normal conditions of use.

(d)The maximum working temperature T_{max} is the highest stabilized temperature which the wall of the vessel may attain under normal conditions of use.

(e)The yield strength 'RET' is the value at the maximum working temperature T_{max}
 -of the upper yield point R_{eH} , for a material with both a lower and an upper yield point,
 -or of the proof stress $R_{p0,2}$,
 -or of the proof stress $R_{p1,0}$ in the case of non-alloy aluminium.

(f)Families of vessels:

Vessels form part of the same family if they differ from the prototype only in diameter, provided that the permissible requirements referred to in Article 8, paragraph 4 or paragraph 5 of this Rulebook are complied with and/or in the length of their cylindrical portion within the following limits:

-where the prototype has one or more shell rings in addition to the ends, variants in the family must have at least one shell ring,

-where a prototype has just two dished ends, variants in the family must have no shell rings.

Variations in length causing the apertures and/or penetrations to be modified must be shown in the drawing for each variant.

(g)A batch of vessels consists at the most of 3 000 vessels of the model of the same type.

(h)There is series manufacture within the meaning of this Rulebook if more than one vessel of the same type is manufactured during a given period by a continuous manufacturing process, in accordance with a common design and using the same manufacturing processes.

(i)Inspection slip: document by which the producer certifies that the products delivered meet the requirements of the order and in which he sets out the results of the routine in-plant inspection test, in particular chemical composition and mechanical characteristics performed on products made by the same production process as the supply, but not necessarily on the products delivered.

2.2 Symbols

A	elongation after rupture ($L_0=5,65\sqrt{S_0}$)	%
A	80 mm elongation after rupture($L_0=80$ mm)	%
KCV	rupture energy	J/cm ²
P	design pressure	bar
PS	working pressure	bar
P_h	hydrostatic or pneumatic test pressure	bar
$R_{p0,2}$	proof stress at 0,2%	N/mm ²
R_{ET}	yield strengeth at max. working temperatur	N/mm ²
R_{eH}	upper yield point	N/mm ²
R_m	tensile strength	N/mm ²
T_{max}	maximum working temperature	°C
T_{min}	minimum working temperature	°C

V	capacity of the vessel	L
$R_{m,ma}$	maximum tensile strength	N/mm ²
$R_{p1,0}$	proof stresss 1,0%	N/mm