

VESSELS UNDER PRESSURE REGULATIONS

VUP

Government Notice R.1591 of 4 October 1996

The Minister of Labour has, under section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), after consultations with the Advisory Council for Occupational Health and Safety, made the regulation in the Schedule.

SCHEDULE

Definitions

1. In these regulations "the Act" means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), and any expression to which a meaning has been assigned in the Act shall have the meaning so assigned and, unless the context indicates otherwise -

"boiler" means any apparatus to convert continuously any liquid into steam, vapour or gas at a pressure higher than that due to the atmosphere and where the heat is derived from a source other than steam or the ambient temperature of the atmosphere, and includes any superheater or economiser which is an integral part of a boiler or is separately fired therefrom, but does not include such an apparatus, superheater or economiser in which the product of the design pressure in pascal and the volume in cubic metres is less than the figure 15 000;

"design pressure" means the pressure used in the design formulae to determine the dimensions of the component parts of a vessel under pressure;

"flammable liquid" means any liquid which produces a vapour that forms an explosive mixture with air, and includes any liquid with a closed-cup flash-point of less than 55 °C;

"gas fuel" means liquefied petroleum gas, any coal produced gas or natural gas;

"gas fuel system" means an assembly of tubes, pipes or similar ducts, fittings and valves for the process and conveyance of a gas fuel, excluding a boiler, pressure vessel or portable gas container connected to the system;

"gauge pressure" means the pressure in excess of that due to the atmospheric pressure;

"hand-held fire extinguisher" means a rechargeable container which has a fire extinguishing substance that is expelled by the action of internal pressure for the purposes of extinguishing a fire;

"hazardous chemical substance" means a substance defined as such in regulation 1 of the Regulations for Hazardous Chemical Substances published under Government Notice No. R. 1179 of 25 August 1995;

"maximum permissible operating pressure" means the maximum gauge pressure at which a vessel under pressure may be operated;

"modification" means any change from the original design criterion of the vessel under pressure and "modify" has a corresponding meaning;

"portable gas container" means any cylinder or other vessel of which the water capacity by volume is at least 0,5 litres, but does not exceed 1200 litres and which is intended for the storage and conveyance of compressed, liquefied or dis-solved gases;

"pressure vessel" means any vessel of which the interior or jacket is under pressure or in which a cushion of gas or vapour can form above the liquid at a pressure in excess of that of the atmosphere, including a diving bell, but does not include -

- (a) a boiler;
- (b) a vessel in which the pressure is exerted by a liquid the temperature of which does not

exceed the boiling point of the liquid at atmospheric pressure and in which a cushion of gas or vapour cannot form above the liquid;

(c) the working cylinders or chambers of a steam, heat or air engine;

(d) a vessel under pressure which forms an integral operating part of a motor vehicle or locomotive running on railway lines;

(e) a portable gas container;

(f) a pressurised system;

(g) a vessel of which the product of the design pressure in pascal and the capacity in cubic metres is less than the figure 15 000;

(h) a vessel of which the design pressure is less than 40 000 pascal gauge pressure;

(i) a vessel with a nominal internal diameter of less than 150 mm; or

(j) a hand-held fire extinguisher;

"pressurised system" means an assembly of vessels under pressure and includes connections by pipes or similar ducts, fittings and valves which operate under gauge pressure equal to or greater than 40 000 pascal for the process and conveyance of a flammable liquid, hazardous chemical substance, saturated steam or superheated steam;

"provincial director" means the provincial director as contemplated in regulation 1 of the General Administrative Regulations published under Government Notice No. R. 1449 of 6 September 1996 as amended;

"repair" means a repair to any part subjected to pressure from a vessel under pressure that requires the application of heat or welding, or the replacement of more than 20% of expanded tubes in a boiler or pressure vessel at any one time and "repairing" has a corresponding meaning;

"SABS 1475" means the Standard Specification for the Production of Reconditioned Fire-fighting Equipment, SABS 1475, Part 1: Portable Fire Extinguishers, published by the South African Bureau of Standards (SABS);

"SABS 0227" means the Code of Practice for The Evaluation of the Technical Competence of Inspection Authorities for the Certification of Vessels under Pressure, SABS 0227, published by the South African Bureau of Standards (SABS); and

"vessel under pressure" means a vessel which operates under pressure and includes a boiler, pressure vessel, pressurised system or portable gas container.

Scope of application

2. These regulations shall apply to all users of vessels under pressure: Provided that regulation 3 shall not apply to a boiler, pressure vessel or portable gas container in use prior to 23 October 1992, and which were designed, constructed and manufactured in accordance with regulations in force at that time.

Design, construction and manufacture

3. (1) Subject to the provisions of subregulation (2), no user shall use, require or permit the use of any vessel under pressure unless -

- (a) it has been designed and constructed in

accordance with a health and safety standard incorporated into these regulations in terms of section 44 of the Act;

(b) it has been manufactured under the supervision of an approved inspection authority as contemplated in regulation 17(1)(a) or any other inspection authority outside the Republic recognised by the chief inspector; and

(c) the user is in possession of a certificate of manufacture issued by the manufacturer in which it is certified that the boiler, pressure vessel or portable gas container has been designed, constructed and tested in every respect in accordance with the standard contemplated in subregulation (1)(a): Provided that such a certificate shall be countersigned by the approved inspection authority as evidence that the design of such a boiler, pressure vessel or portable gas container has been verified and that it has been constructed and tested under their supervision in accordance with the said standard.

(2) The certificate required by subregulation (1)(c) in the case of a pressure vessel or portable gas container may refer to more than one pressure vessel or portable gas container: Provided that each pressure vessel or portable gas container has the same design pressure and dimensions, and that the product of the design pressure in pascal and the volume in cubic metres of that vessel does not exceed the figure 500 000.

Manufacturer's data plate

4. (1) Every user of a boiler or pressure vessel shall cause a manufacturer's plate with the following minimum particulars to be securely fixed in a conspicuous place to the shell of every such boiler or pressure vessel:

- (a) Name of manufacturer;
- (b) country or origin;
- (c) year of manufacture;
- (d) manufacturer's serial number;
- (e) name, number and date of the standard of design;
- (f) design gauge pressure in pascal;
- (g) maximum permissible operating pressure in pascal;
- (h) operating temperature;
- (i) capacity in cubic metres; and
- (j) mark of an approved inspection authority.

(2) No person shall remove such a manufacturer's plate or wilfully damage or alter the particulars stamped thereon, except as provided in regulation 16 (4).

Registration of a boiler

5. (1) No user shall use a boiler unless the user is in possession of a certificate of registration issued in terms of subregulation (3) for that boiler: Provided that a boiler registered with the Department prior to 23 October 1992 shall be deemed to be registered in terms of this regulation: Provided further that a boiler registered after 23 October 1992 shall on change of ownership be required to be reregistered.

(2) Any user who wishes to use a boiler shall apply to the provincial director for registration of that boiler on a form similar to Annexure 1, prior to such use: Provided that this subregulation

shall not apply in respect of the re-erection of a boiler on the same premises.

(3) On receipt of an application contemplated in subregulation (2), the provincial director shall forward such an application to an inspector who may issue a certificate of registration in the form of Part C of Annexure 1 in respect of that boiler, subject to such conditions as may be specified on the certificate.

(4) Any user of a boiler for which a certificate of registration has been issued in terms of subregulation (3) or a certificate issued by the Department prior to 23 October 1992, shall cause the certificate of registration to be made available for inspection by an inspector or on request by an approved inspection authority or a competent person.

(5) The user shall within seven days after the discovery that the certificate of registration has been lost, defaced, destroyed or any such an occurrence, apply to the provincial director in the form similar to Part A of Annexure 1 for the issue of a duplicate certificate, and affix R100 in the form of uncancelled revenue stamps to such an application. On receipt of such application the provincial director shall submit the application to an inspector who shall issue the duplicate certificate on satisfaction that the original certificate was lost, defaced or destroyed.

(6) An inspector may at any time amend, suspend or cancel a certificate of registration issued in terms of subregulation (3).

(7) Any user of a boiler shall forthwith notify the provincial director in writing when -

(a) such boiler is no longer in use;
(b) the right of control over the use of the boiler is transferred by the user to any other user, in which case the user shall also furnish the provincial director with the name and address of such new user; or

(c) the user moves the boiler to premises other than the premises reflected on its certificate of registration.

(8) A certificate of registration issued in terms of subregulation (3) shall lapse -

(a) when it is cancelled by an inspector;
(b) upon the transfer of the right of control over the use of the boiler to another user; or
(c) when a boiler is removed from the premises reflected on its certificate of registration.

Appurtenances

6.(1) No user shall require or permit a vessel under pressure to be used unless it is provided with all the appurtenances as required by the health and safety standard used in the design, construction and manufacture of such a vessel under pressure: Provided that alternative appurtenances other than those required by the standard shall only be fitted with the written approval of an approved inspection authority.

(2) In the absence of such a requirement in the health and safety standard used in the design, construction and manufacture of such a vessel under pressure, appurtenances shall be provided by the user as required by the approved inspection authority and those appurtenances shall be so selected, arranged and installed as to be safe for the particular purpose for which the vessel under pressure is to be used.

(3) Every user of a boiler or pressure vessel shall ensure that the boiler or pressure vessel in

use is fitted with at least one pressure gauge and the maximum permissible operating pressure shall be clearly marked with a red line on the dial of the pressure gauge.

(4) Every user of a boiler or pressure vessel shall ensure that the boiler or pressure vessel in use is fitted with at least one safety valve and such safety valve shall be kept locked, sealed or otherwise rendered inaccessible to any unauthorised person: Provided that the number and capacity of the safety valve shall be to the requirements of the design standard for the boiler or pressure vessel or as required under subregulation (2).

Automatic controls and indicators

7. Every user shall ensure that the automatic controls and indicators of a boiler, pressure vessel or pressurised system are arranged, installed, maintained and operated in accordance with the provisions of the health and safety standard used in the design and manufacture of the boiler, pressure vessel or pressurised system: Provided that in the absence of such provisions, where automatic controls and indicators are installed, they shall be selected, arranged and installed subject to the written approval of an approved inspection authority.

Access

8. The user shall cause every boiler, pressure vessel or pressurised system to be erected in such a manner that access to and exit from any chamber, flue, manhole, inspection opening, control or appurtenance is safe and unobstructed.

Door interlocks

9. Any user of a pressure vessel or pressurised system shall cause such vessel or system which for operational purposes is equipped with a removable or hinged door to be provided with an interlock or other effective means for preventing -

(a) a rise of pressure inside the pressure vessel or pressurised system before the removable or hinged door is in the fully closed and locked position; and

(b) the release of the removable or hinged door from the locked and closed position before the pressure inside the pressure vessel or pressurised system has been reduced to atmospheric pressure.

Portable gas containers

10. No user shall use or require or permit a portable gas container to be used, and no user shall fill, place in service, handle, modify, repair, inspect or test any portable gas container, other than in compliance with the standards incorporated into these regulations in terms of section 44 of the Act.

Hand-held fire extinguishers

11.(1) No user shall use, require or permit the use of a hand-held fire extinguisher unless designed, constructed, filled, recharged, reconditioned, modified, repaired, inspected or tested in accordance with a safety standard incorporated into these regulations in terms of section 44 of the Act.

(2) No person shall fill, recharge, recondition, modify, repair, inspect or test any hand-held fire extinguisher unless a holder of a permit issued by the South African Bureau of Standards in terms of SABS 1475.

Gas fuel use, equipment and systems

12.(1) No person shall handle, store or distribute a gas fuel in any manner, including the filling

of a container, other than in accordance with a health and safety standard incorporated into these regulations under section 44 of the Act.

(2) No person shall install a fixed appliance, equipment or system for gas fuel in any manner other than in accordance with a safety standard incorporated into these regulations under section 44 of the Act:

(3) No person shall install a fixed appliance, equipment or system for gas fuel as contemplated in subregulation (2), unless such person is a holder of a certificate of registration issued by an organisation approved by the chief inspector: Provided that subregulations (2) and (3) shall come into effect on 1 August 1997.

Inspection and test

13.(1) Any user of a boiler or pressure vessel shall cause, where reasonably practicable, such a boiler or pressure vessel, including the appurtenances and automatic controls and indicators, to be subjected to an internal and external inspection and a hydraulic pressure test to 1,25 times the maximum permissible operating pressure as the case maybe -

[spelling corrected by G.N.R.1 of 8 January 1999]

(a) by an approved inspection authority before commissioning after installation, re-erection or repairs; and

(b) by a person appointed in writing by the user and who is competent to do such inspections and tests by virtue of their training, knowledge and experience in the operation, maintenance, inspection and testing of a boiler or pressure vessel within 36 months from the date of the previous internal and external inspection and hydraulic pressure test: Provided that where a pressure vessel is not subjected to corrosion, the user may dispense with the internal inspection and hydraulic pressure test subject to the written approval of an approved inspection authority: Provided further that an inspector may require a specific boiler or pressure vessel to be inspected or tested more frequently or permit a specific boiler or pressure vessel to be inspected or tested less frequently: Provided that no person shall perform internal and external inspections and hydraulic pressure tests contemplated in subregulation (1)(b) unless he or she is a holder of a certificate of registration issued by an organisation approved by the chief inspector: Provided further that this proviso shall come into effect 12 months after the publication of this regulation

[last two provisos added by G.N.R.1 of 8 January 1999]

(2) Any user of a pressurised system shall, where reasonably practicable, cause such pressurised system to be subjected to an inspection and hydraulic test by an approved inspection authority before commissioning, after installation or re-erection.

(3) Any user of a gas fuel system shall, where reasonably practicable, cause the system to be subjected to an inspection and hydraulic test by a registered person in terms of regulation 12 (3), before commissioning, after installation or re-erection.

(4) Where it is impracticable to use a liquid for the hydraulic pressure test contemplated in subregulation (1), (2) or (3), the test may, subject to the prior written approval of an approved

inspection authority, be carried out with a non-flammable gas to a pressure of 1,1 times the maximum permissible operating pressure: Provided that, where reasonably practicable, the test must be preceded by an internal inspection and on such further conditions and precautionary measures as determined by the approved inspection authority.

(5) Where an inspection or test carried out in terms of subregulation (1), (2), (3) or (4) reveals any weakness or defect whereby the safety of persons may be endangered, the weakness or defect shall be reported immediately to the user by the person carrying out the inspection or test and the user shall forthwith cease the use of the boiler, pressure vessel, pressurised system or gas fuel system until such weakness or defect has been rectified to the satisfaction of the approved inspection authority concerned or the person who carried out the inspection, as the case may be.

Record keeping

14. Any user of a vessel under pressure shall keep on the premises a record, which shall be open for inspection by an inspector and in which the results of all inspections, tests, modifications and repairs shall be recorded, dated and signed by the competent person.

Maintenance

15. (1) No user shall use, cause or permit a vessel under pressure or gas fuel system, including all automatic controls, indicators and appurtenances, to be used unless it is at all times maintained in a safe working condition and that the efficiency thereof is proved by regular testing.

(2) No user shall use, cause or permit a vessel under pressure to be used unless it is kept clean and free from any -

(a) carbonised oil or other flammable material which may ignite;

(b) substance which may cause corrosion; or

(c) substance which is liable to chemical reaction which may cause an uncontrolled rise in pressure.

Modification and repair

16. (1) Any person who intends to modify or

repair a boiler, pressure vessel or portable gas container shall cause such modification or repair to be carried out under the supervision of an approved inspection authority, as contemplated in regulation 17(1)(b).

(2) Any modifier or repairer carrying out any modification or repair, as contemplated in subregulation (1), shall issue a certificate in which the extent of the modification or repair is described and certify that such work is in accordance with a health and safety standard incorporated into these regulations: Provided that such certificate shall be countersigned by the approved inspection authority as evidence that the design of such modification or repair has been verified and that it has been modified or repaired and tested under their supervision in accordance with the said health and safety standard.

(3) Whenever it appears from an inspection or test that a boiler or pressure vessel cannot be used with safety at its maximum permissible operating pressure and the user declines to have the necessary renewals or repairs effected, the user shall ensure that -

(a) an approved inspection authority fixes a new reduced maximum permissible operating pressure; and

(b) that the boiler or pressure vessel is not used at a pressure higher than the new reduced pressure.

(4) The user shall cause the reduced maximum permissible operating pressure as calculated under subregulation (3)(a) to be marked on the manufacturer's plate on which the approved inspection authority shall also place its mark and no user shall thereafter require or permit such a boiler or pressure vessel to be used at a pressure higher than such a reduced pressure: Provided that in the case of a boiler the registration certificate together with a copy of the approved inspection authority's report shall be forwarded to the provincial director for correction.

Approved inspection authorities

17. (1) The chief inspector may approve any organisation that has been accredited in terms of -

(a) SABS 0227 Part 1 to perform the functions

regarding the certification of new vessels under pressure, inspections and testing; or

(b) SABS 0227 Part 2 to perform the functions regarding the certification of modified or repaired vessels under pressure, inspections and testing, as an approved inspection authority.

(2) Application for approval for an organisation as contemplated in subregulation (1), must be accompanied by a valid certificate issued by the South African Bureau of Standards in terms of SABS 0227 Part 1 and or Part 2.

(3) The chief inspector may at any time withdraw any approval of an approved inspection authority, subject to the provisions of section 35 of the Act.

Offences and penalties

18. Any person who contravenes or fails to comply with the provisions of regulation 3(1), 4, 5(1), 5(2), 5(4), 5(5), 5(7), 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 or 16 shall be guilty of an offence and is on conviction liable to a fine or to imprisonment for a period not exceeding twelve months and, in the case of a continuous offence, to an additional fine of R200 for each day on which the offence continues or additional imprisonment of one day for each day on which the offence continues: Provided that the period of such additional imprisonment does not exceed 90 days.

Repeal of regulations and annexures

19. The following regulations, notices and annexures are hereby repealed:

(a) Notice of the incorporation of the safety standard published under Government Notice No. R. 2357, dated 25 November 1988;

(b) Vessels under Pressure Regulations, 1992, Annexure 1 and the schedule published under Government Notice No. R. 2919, dated 23 October 1992; and

(c) Correction notice published under Government Notice No. R. 78 dated 22 January 1993.

Short title

20. These regulations shall be called the Vessels Under Pressure Regulations, 1996.

Government Notice R.798 of 4 October 1996

NOTICE OF EXEMPTION IN TERMS OF SECTION 40(1) OF THE OCCUPATIONAL HEALTH & SAFETY ACT, 1993

Under section 40 (3)(b) of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), I, Faiza Salie, appointed as chief inspector in terms of section 27(1) of the said Act, and by virtue of the power delegated to me by the Minister of Labour in terms of section 42(1) of the Act, hereby grant exemption in terms of section 40 (1) to persons presently occupied with the activities described under regulation 11 (2) of the Vessels Under Pressure Regulations, 1996 published under Government Notice No. R.1591 of 4 October 1996, from the obligation of being holders of a permit issued by the South African Bureau of Standards in terms of SABS 1475 for a period of twelve (12) months, from the date of the commencement of the said regulations: Provided that such persons submit a written application for the required permit to the South African Bureau of Standards within six (6) months from the date of this notice.

F. SALIE Chief Inspector

Government Notice R.1017 of 1 August 1997

NOTICE OF EXEMPTION IN TERMS OF SECTION 40(1) OF THE OCCUPATIONAL HEALTH & SAFETY ACT, 1993

Under section 40 (3)(b) of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), I, Faiza Salie, appointed as chief inspector in terms of section 27(1) of the said Act, and by virtue of the power delegated to me by the Minister of Labour in terms of section 42(1) of the Act, hereby grant exemption in terms of section 40(1) to persons who perform installation work for the gas fuels, coal produced or natural gas as described under regulation 12(3) of the Vessels Under Pressure Regulations, 1996, published under Government Notice No. R.1591 of 4 October 1996, from the obligation of being holders of a certificate of registration issued by an organisation approved by the chief inspector for a period of twelve (12) months from 1 August 1997.

F. SALIE Chief Inspector

ANNEXURE 1
OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
[Regulation 5(2) of the Vessels under Pressure Regulations]
REGISTRATION OF A BOILER

A. APPLICATION FOR REGISTRATION OF A BOILER/DUPLICATE CERTIFICATE

TO: Provincial Director
Department of Labour
FROM: (Postal address)
Tel.
Fax.

I (user)(legal persona), hereby apply for registration / duplicate registration certificate of a boiler, particulars of which are reflected in Part B below.

Signature of applicant Date
Name of Applicant (In Block Letters) Designation of Applicant

B. PARTICULARS OF BOILER

- 1. Physical address of installation
2. Type of boiler
3. Name of manufacturer
4. Country of origin
5. Year of manufacture
6. Manufacturer's serial number
7. Name, number and date of the standard of design
8. Design gauge pressure in pascal
9. Maximum permissible operating pressure in pascal
10. Operating temperature
11. Source of energy (oil, coal, gas, electricity or nuclear)
12. Steaming capacity of boiler kg's of steam per hour from and at 100° C
13. Name of approved inspection authority (during manufacture)
14. Copy of manufacturer's certificate shall be attached
15. Copy of approved inspection authority's commissioning report shall be attached

FOR OFFICE USE ONLY

C. BOILER REGISTRATION CERTIFICATE

The boiler of which the particulars appear in Part B has this day been registered with official number. Permission is hereby granted to use the boiler at a maximum permissible operating pressure of kPa.

OFFICIAL STAMP

SIGNATURE OF INSPECTOR

ISSUE OF DUPLICATE BOILER REGISTRATION CERTIFICATE

REVENUE STAMP FOR DUPLICATE CERTIFICATE

Date

SIGNATURE OF INSPECTOR

Consult regulation 5(5) for fee payable for a duplicate boiler registration certificate

Government Notice R. 1625 of 4 October 1996

INCORPORATION OF HEALTH AND SAFETY STANDARDS: VESSELS UNDER PRESSURE REGULATIONS

Under section 44 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), I, Tito Titus Mboweni, Minister of Labour, after consultation with the Advisory Council for Occupational Health and Safety, hereby incorporate in the Vessels Under Pressure Regulations, 1996, the health and safety standards specified in the Schedule.

T.T. MBOWENI
Minister of Labour

SCHEDULE

1. Regulation 3.(1)(a)	
AUSTRALIA	
Australian Standards, standard specifications	
AS 1200	Boilers & pressure vessels
AS 1210	Unfired pressure vessels - Advanced design & construction
AS 1228	Boilers: water tube type
AS 1777	Aluminium cylinders for compressed gases - seamless 0.1 kg to 130 kg
AS 1797	Boilers: Fire tube, shell & miscellaneous
AS 2470	Steel cylinders for compressed gasses welded 11kg to 150kg
AS 2527	Cylinders for dissolved acetylene
AS 2873	Carbon-manganese steel cylinders for compressed gases, seamless: 0,1 kg to 500 kg
AS 2874	High tensile Carbon-manganese steel cylinders for compressed gases, seamless: 0,1 kg to 500 kg
AS 2875	Alloy steel cylinders for compressed gases, seamless: 0,1 kg to 500 kg
AS 2971	Serially produced pressure vessels
AS 3577	Steel cylinders for compressed gases, welded: 150kg to 500kg
AS B10	High carbon steel cylinders for the storage & transport of permanent gases
AS B11	High carbon steel cylinders for the storage & transport of high pressure liquefiable gases
AS B12	Low carbon steel cylinders for the storage & transport of medium pressure liquefiable gases
AS B111	Manganese steel cylinders for the storage & transport of high pressure liquefiable gases
AS B113	High tensile carbon-manganese steel cylinders for the storage & transport of permanent gases & high pressure liquefiable gases
AS B114	Alloy steel cylinders for the storage & transport of permanent gases & high pressure liquefiable gases
AS B239	Welded steel cylinders for compressed gases of capacity over 10 litres up to and including 130 litres
CANADA	
Canadian Transport Commission Regulations	
TC 4BA	Welded or Brazed cylinders made of definitely prescribed steels
TC 4BW	Welded steel cylinders made of definitely prescribed steels with electric-arc welded longitudinal seam
FRANCE	
NFE 31-001	Boilers operating with solid, liquid or gases fuels
NFA49-901	Gas cylinders - seamless steel cylinders for compressed, liquified or dissolved gases
NC: 1969	French code for the manufacture of unfired pressure vessels: Design rules
GERMANY	
German Institute of Standards, standard specifications	
DIN 2918	Stationary shell boilers of welded construction. (Other than water tube boilers)
DIN 4661	Gas cylinders, welded steel gas cylinders, at test pressure 30 atu
DIN 4663	Compressed gas containers; seamless aluminium alloy cylinders, rated for 250 Bars & 300 Bar test pressure
DIN 4664	Compressed gas containers; seamless steel gas cylinders
DIN 4680	Steel fixed size pressure vessels for LPG; For above ground installations, dimensions & equipment
DIN 28020	Horizontal pressure vessels of 0,63 up to 25 cubic metres capacity
DIN 28021	Horizontal pressure vessels of 6,3 up to 100 cubic metres storage capacity
DIN 28022	Vertical pressure vessels; vessels for intermediate storage 0,063 up to 25 cubic metres for use in chemical process engineering
AD-MERKBLAETTER	
Technical Rules for Pressure Vessels (TRB), Druckbehvo & all sections	
Technical Rules for Steam Boilers (TRD), Dampfkv & all sections	
INTERNATIONAL	
International Standards Organisation, standard specifications	
ISO 831	Rules for the construction of stationary boilers
ISO 3807	Dissolved Acetylene cylinder - Basic Requirements
ISO 4705	Refillable seamless steel gas cylinders
ISO 4706	Refillable welded steel gas cylinders
ISO 5730	Stationary shell boilers of welded construction. (Other than water tube boilers)
EEC 87-404	Directive for the construction of simple pressure vessels
EEC 84-525	Directive for the construction of seamless, steel gas cylinders
EEC 84-526	Directive for the construction of seamless, unalloyed aluminium & aluminium alloy gas cylinders
EEC 84-527	Directive for the construction of welded unalloyed steel gas cylinders
EN 50 052	Cast Aluminium Alloy Enclosures for Gas filled High Voltage Switchgear & Control gear
EN 286-1	Simple unfired presue vessels designed to contain air nitrogen; Part 1 Design & manufacture of simple pressure vessels
EN303-PT1	Heating Boilers - Heating boilers with forced draught burners - Terminology, general requirements, testing & marking
EN303-PT2	Heating Boilers - Heating boilers with forced draught burners - Special requirements for boilers with atomising oil burners
Luxfer Limited, standard specification	
Luxint	Luxfer gas cylinder specification: For the manufacture of aluminium cylinders

ITALY

Higher Institute for Accident Prevention & Safety at Work
{Istituto Superiore per la Prevenzione e la Sicurezza del Lavoro}

ISPESL rules

VSR Rules Collection (Raccolta VSR) concerning design rules for pressure vessels

VSG Rules

Collection (Raccolta VSR) concerning design rules for boilers

JAPAN

Japanese Industrial Standards

JIS B8201 Construction of steel boilers for land use
JIS B8233 Refillable welded steel gas cylinders for liquefied petroleum gas
JIS B8235 Refillable welded steel gas cylinders for liquefied fluoro carbon
JIS B8240 Construction of pressure vessels for refrigeration
JIS B8241 Seamless steel cylinders
JIS B8243 Construction of pressure vessels

UNITED KINGDOM

British Standards Institution, standard specifications

BSEN286-1 Simple unfired pressure vessels designed to contain air or nitrogen - design, manufacture & testing
BS 399 High carbon steel cylinders for the storage & transport of permanent gases
BS 400 Low carbon steel cylinders for the storage & transport of permanent gases
BS 401 Steel cylinders for the storage & transport of liquefied gases
BS 537 Lancashire & Cornish boilers of riveted construction
BS 609 Horizontal multitubular boilers of riveted construction
BS 665 Vertical cross tube boilers of riveted construction
BS 761 Vertical multitubular boilers of riveted construction
BS 779 Specification for cast iron boilers for central heating & indirect hot water supply (Rated output 44 kW & above)
BS 1113 Design & manufacture of water tube steam generating plant
BS 1307 Gas-fired boilers & waste-heat boilers (with or without auxiliary firing)
BS 1894 Specification for the design & manufacture of electric boilers of welded construction
BS 1971 Specification for corrugated furnaces for shell boilers
BS 2790 Specification for design & manufacture of shell boilers of welded construction
BS 3023 Corrugated furnaces & smoke tubes for marine boilers
BS 4994 Specification of the Design & Construction of vessels & tanks in Reinforced Plastics
BS 5045 Specification for seamless transportable gas containers. Parts: 1, 2 & 3
BS 5169 Fusion welded steel air receivers
BS 5500 Specification for unfired fusion welded pressure vessels
BS 6061 Specification for transportable acetylene containers
BS 7005 Specification for design & manufacture of carbon steel unfired pressure vessels for use in vapour compression refrigeration systems
BS 7122 Specified for welded steel tanks for road transport of liquefied gases

Lloyds Register, standard specifications

Lloyds Rules & Regulations for the design & construction or use of boilers, pressure vessels, pressurised systems or portable gas containers

UNITED STATES OF AMERICA

American Society of Mechanical Engineers, standard specifications

ASME Section I Power Boilers
ASME Section III Rules for the construction of nuclear power plant components - code for concrete reactor vessels & containments
ASME Section IV Low-pressure Heating Boilers
ASME Section VIII Unfired Pressure Vessels (Divisions 1 & 2)

ASME Section X Fibreglass-reinforced plastic pressure vessels
ASME Part B31 Pressurised piping systems:

Part 1: Power piping

Part 3: Chemical plant & petroleum refinery piping

Part 4: Liquid transportation systems for hydrocarbons, liquid petroleum gas, anhydrous ammonia & alcohols

Part 5: Refrigeration piping

Part 8: Gas transmission & distribution piping systems

American Petroleum Institute, standard specifications

API 620 Design & construction of large, welded, low pressure storage tanks

United States, Department of Transport Regulations: Code of Federal Regulations, Title 49

DOT 4BW Welded steel cylinders made of definitely prescribed steels with electric-arc welded longitudinal seam. Including DOT 4BA

DOT 39 Non reusable - non refillable cylinder

DOT 8 Welded steel cylinders made of definitely prescribed steels for the transportation of acetylene

DOT E-10-320 Welded steel cylinders made of definitely prescribed steels electric-arc welded longitudinal seam for the transportation of acetylene

DOT 4E Welded aluminium cylinders made of definitely prescribed aluminium

The Association of American Railroads

Section C, Part III - Specifications for Tank Cars, M1002

Hartford Steam Boiler Inspection & Insurance Company

HSB-ARS-86 Standard for air receivers

Tubular Exchange Manufacturers Association, Inc (TEMA) rules SOUTH AFRICA**South African Bureau of Standards, standards specification**

SABS 50 The design & manufacture of seamless steel cylinders for high & low pressure service
SABS 099 The construction of air receivers
SABS 219 The design & manufacture of welded steel cylinders for low pressure service
SABS 220 Dissolved acetylene cylinders
SABS 1571 Transportable rechargeable fire extinguishers
South African Bureau of Standards, codes of practice
SABS 019 Portable metal containers for compressed gases: Basic design criteria, use & maintenance

2. Regulation 10**SOUTH AFRICA****South African Bureau of Standards, codes of practice**

SABS 019 Portable metal containers for compressed gases: Basic design criteria, use & maintenance:

3. Regulation 11**SOUTH AFRICA****South African Bureau of Standards, standard specification**

SABS 810 Portable rechargeable fire extinguishers - Dry powder type extinguishers
SABS 889 Portable rechargeable fire extinguishers - Water type extinguishers
SABS 1151 Portable rechargeable fire extinguishers - Halogenated hydrocarbon type extinguishers
SABS 1475 The production of reconditioned fire-fighting equipment
SABS 1567 Portable rechargeable fire extinguishers - CO₂ type extinguishers
SABS 1573 Portable rechargeable fire extinguishers - Foam type extinguishers

South African Bureau of Standards, codes of practice

SABS 0105 The classification, use & routine maintenance of fire-fighting appliances - Part 1: Portable fire extinguishers

4. Regulation 12

UNITED STATES OF AMERICA

American Society of Mechanical Engineers, standard specifications

ASME Part B31 Pressurised piping systems:

Part 3 - Chemical plant & petroleum refinery piping

Part 4 - Liquid transportation systems for hydrocarbons, liquid petroleum gas, anhydrous ammonia & alcohols

Part 8 - Gas transmission & distribution piping systems

American National Standards Institute

ANSI Z223.1 National Fuel Gas Code

SOUTH AFRICA

South African Bureau of Standards, codes of practice

SABS 087 Handling, Storage & Distribution of Liquefied Petroleum Gas in Domestic, Commercial & Industrial Installations

Part I: Consumer Liquefied Petroleum Gas Cylinder Installations

Part II: Installations in Mobile Units & Small Non-Permanent Buildings

Part III: Bulk Liquefied Petroleum Gas Storage & Allied Facilities at Consumer's Premises

Part IV: Transportation of Liquefied Petroleum Gas in Bulk by Road

Part V: Liquefied Petroleum Gas as Engine Fuel

Part VI: Retail outlet & similar Liquefied Petroleum Gas Filling Sites for Small Containers

Part VIII: The Fuelling of Fork Lift Trucks & Other Liquefied Petroleum Gas Operated Vehicles

SABS 1539

Appliances operating on liquefied petroleum gas - Portable & mobile appliances - Safety aspects

* (d) the insertion after subregulation (1) of the following proviso:

Reg 13

"Provided that no person shall perform internal and external inspections and hydraulic pressure tests contemplated in subregulation (1) (b) unless he or she is a holder of a certificate of registration issued by an organisation approved by the chief inspector. Provided further that this proviso shall come into effect 12 months after the publication of this regulation."

