

To be published in the Gazette of India, Part-II, Section 3, Sub-Section (i)]

Government of India
Ministry of Commerce and Industry
(Department of Industrial Policy and Promotion)
Central Boilers Board

New Delhi, dated the 12th March, 2007.

Notification

G.S.R. 46 :- Whereas certain draft regulations further to amend the Indian Boiler Regulations, 1950 were published, as required by sub-section (1) of section 31 of the Indian Boilers Act, 1923 (5 of 1923), in Part-II, section 3, sub-section (i) of the Gazette of India dated the 11th November, 2006, vide notification of the Government of India in the Ministry of Commerce and Industry (Department of Industrial Policy and Promotion) (Central Boilers Board), number G.S.R. 274, dated the 30th October, 2006 for inviting objections and suggestions from all persons likely to be affected thereby till the expiry of the period of forty-five days from the date on which the copies of the said Gazette notification were made available to the public;

And whereas the copies of the said Gazette were made available to the public on the 28th November, 2006;

And whereas no objections or suggestions have been received within the specified period in respect of the amendments contained in this notification;

Now, therefore, in exercise of the powers conferred by section 28 of the Indian Boilers Act, 1923, the Central Boilers Board hereby makes the following regulations further to amend the Indian Boiler Regulations, 1950, namely:-

1. (1) These regulations may be called the Indian Boiler (Amendment) Regulations, 2007.

(2) They shall come into force on the date of the publication in the Official Gazette.

2. In the Indian Boiler Regulations, 1950 (hereinafter referred to as the said regulations), in regulation 4, in sub-clause (iii) of clause (c), the following shall be inserted, namely:-

“Note:-For pressure parts, assembly drawings of boiler capacity 200 MW and above, the scale to be used is 1:50 for drum and 1:100 for General Assembly drawing.”.

3. For regulation 39 of the said regulations, the following regulation shall be substituted, namely:-

“39. FLATTENING TEST.-

- (1) A section of the tubes not less than 63 mm in length shall be flattened cold between two parallel flat surfaces to a distance between the plates (H) as calculated by the formula given below, without showing any sign of a crack or flaw.

$$H = \frac{(1+e)t}{e + t/d}$$

Where t = specified thickness of tube (mm)

D=specified outside dia of the tube (mm)

e= a constant, as given below

e= 0.07 for carbon steel with max specified carbon above 0.18%

e= 0.09 for carbon steel with max specified carbon 0.18% or less

- (2)(a) During, the first step, which is a test for ductility, no crack or break, except as provided for in 39(5) below, shall occur on the inside, outside, or end surfaces in seamless tubes, or on the inside or outside surfaces of welded tubes.
- (b) During the second step which is a test for soundness, the flattening shall be continued until the specimen breaks or the opposite walls of the tube meet. Evidence of laminated or unsound material, or of incomplete weld that is revealed during the entire flattening test shall be cause for rejection.
- (3) Surface imperfections in the test specimen before flattening, but revealed during the first step of the flattening test, shall be judged in accordance with the finished requirements.
- (4) Superficial ruptures resulting from surface imperfection shall not be cause for rejection.
- (5) When low D-to-t ratio tubular products are tested, because the strain imposed due to geometry is unreasonably high on the inside surface at the six and twelve o' clock location, cracks at these locations shall not be cause for rejection if the D to t ratio is less than 10 and the carbon content of the material is more than 0.25%.”.

4. For regulation 260 of the said regulations, the following regulation shall be substituted, namely:-

“260. Tensile tests

- (a) The tensile strength of different grades of material shall be within the limits specified in clause (d) of regulation 9.
- (b) The upper yield point at room temperature shall be not less than 50% of the specified minimum tensile strength at room temperature.

(c) The breaking elongation in percentage shall be not less than $(N-R_m)/C$

Where R_m = Tensile strength at room temperature in kgf/mm^2

N = a quality index of 100 for plate thickness upto 50 mm or 95 for plate thickness over 50mm.

$C = 2.2$ for only gauge lengths of $L_o=5 d_o$ or $L_o=5.65/\sqrt{A_o}$

Where L_o = gauge length

A_o = original cross section of the rectangular test piece.

d_o = original diameter of the round test piece.

NOTE: $C = 1.9$ for gauge lengths of $4\sqrt{A_o}$ for test piece of Appendix-B.

(d) – The minimum values of the stress at proof limit 0.2% at elevated temperature (E_t) may be calculated by multiplying the minimum specified tensile strength at room temperature (R_{20}) by the value of the ratio (E_t/R_{20}) given in the Table below:-

TABLE

Minimum values for the ratio of the stress at proof limit 0.2% at elevated temperature (E_t) to the minimum specified tensile strength at room temperature (R_{20}) of carbon steel boiler plates.

Temperature	*250°C	*275°C	300°C	325°C	350°C	375°C
E_t/R_{20}	0.40	0.38	0.36	0.34	0.33	0.32
Temperature	400°C	425°C				
E_t/R_{20}	0.31	0.30				

*For temperatures lower than 300°C any test required for acceptance purposes (in the absence of records of previous tests at these temperatures) shall be made at 300°C, in which case the proof stress shall be not less than value obtained by calculation from the specified minimum tensile strength at room temperature and the above proof-ratio of 0.36 for 300°C.”.

5. In regulation 376 of the said regulations, for clause (ff), the following clause shall be substituted, namely:-

“(ff) For boilers used exclusively for electric power generation, the inspection shall be carried out in accordance with the provisions of Appendix JA.”.

6. In regulation 520 of the said regulations, the following shall be inserted, namely:-

“Note.- For boilers operating at working pressure 100 kg./sq.cm. and above, feed water discharge piping for feed water system without economizer inlet isolating valve can be designed based on boiler design pressure with provision of mechanical relief device, to prevent Boiler Feed Pump (BFP) shut off pressure being communicated to the piping system and with such a feed water system, boiler shall be hydro tested upto the last isolation valve in the feed water line.”.

7. For Appendix JA to the said regulations, the following appendix shall be substituted, namely:-

“APPENDIX JA
[see regulation 376(ff)]

A. Power Utility Boilers working at a pressure 50 kg/cm² or more and upto 20 years of age

- (1) The boilers working at a pressure 50 kg/cm² or more and up to 20 years of age, generating steam for power generation shall be inspected as detailed below after the expiry of twelve months from the date of inspection carried out in accordance with the procedure provided in regulation 390 and certification of fitness shall be issued by the concerned Inspector of Boilers in the State, through inspection of the following records which shall be made available to the concerned Inspector of Boilers at least thirty days before the expiry of the operating certificate, provided he is satisfied that the boiler can be allowed to be operated for a further period of twelve months.
 - (a) Operation data for superheater and reheater temperature excursions from the output of Data Acquisition System (DAS).
 - (b) History of shut downs during the previous year with their causes and actions taken.
 - (c) Records of any Non-Destructive test carried out on the boiler pressure parts during the year.
 - (d) Water quality to the boiler is maintained up to the requirement of such boilers and on line data of the quality be provided.
 - (e) Boiler tube failure record (location, number of tubes repaired/replaced).
- (2) Inspection shall be carried out by the concerned Inspector of Boilers at the expiry of twenty-four months as provided in regulation 390. However, in case shutdown of fifteen days or more is planned any time before expiry of the certification period and after six months of the certification, the **Inspector of Boilers** shall be

duly informed so that complete inspection can be scheduled during the said shut down period.

B. Boiler working at a pressure up to 50 kg/cm² and up to 20 years of age.

- (1) The boilers working at a pressure up to 50 kg/cm² and up to 20 years of age generating steam for power generation shall be subjected to Hydraulic Test at pressure equivalent to the working pressure at the expiry of twelve months from the date of inspection carried out in accordance with the procedure provided in regulation 390 and certification of fitness by the concerned Inspector of Boilers in the State, and having satisfied with the operation records as at paragraph A, shall be allowed for running for another period of twelve months.
- (2) Inspection shall be carried out by concerned Inspector of Boilers at the expiry of twenty-four months as provided in regulation 390. However, if shutdown of fifteen days or more is planned any time before expiry of the certification period and after six months of the certification, **Inspector of Boilers** shall be duly informed so that inspection can be scheduled during the said shut down period.

C. Boilers working at a pressure 50 kg/cm² or more, and more than 20 years of age.

- (1) Boiler working at a pressure 50 kg/cm² or more and more than 20 years of age, generating steam for power generation, shall be subjected to Hydraulic test at a pressure 1.25 times the working pressure at the expiry of twelve months from the date of inspection as provided in regulation 390 and certification of fitness by the concerned Inspector of Boilers in the State, and having satisfied the conditions and requirements as at paragraph A, shall be allowed running for another period of twelve months.
- (2) Inspection shall be carried out by the concerned Inspector of Boilers at the expiry of twenty-four months as provided in regulation 390. However, if shut down of fifteen days or more is planned any time before expiry of the certification period and after six months of the certification, Inspector of Boilers shall be duly informed so that inspection can be scheduled during the said shut down period.

D. Boiler working at a pressure up to 50 kg/cm² and more than 20 years of age:

Boiler working at a pressure up to 50 kg/cm² and more than 20 years of age shall continue to be subjected to inspection every year as provided in regulation 390.”.

V.K. GOEL
Secretary, Central Boilers Board
(F. No.6(7)/2006-Boilers)

Note:- The principal regulations were published in the Gazette of India, Part II, section 3(ii) vide S.O. 600, dated the 15th September, 1950 and subsequently amended vide notifications –

- (i) G.S.R. 178, dated the 24th March, 1990;
- (ii) G.S.R. 179, dated the 24th March, 1990;
- (iii) G.S.R. 488, dated the 9th October, 1993;
- (iv) G.S.R. 516 dated the 23rd October, 1993;
- (v) G.S.R. 634 dated the 25th December, 1993;
- (vi) G.S.R. 107 dated the 26th February, 1994; Errata G.S.R. 223 dated the 14th May, 1994;
- (vii) G.S.R. 250 dated the 4th June, 1994;
- (viii) G.S.R. 402 dated the 13th August, 1994;
- (ix) G.S.R. 427 dated the 20th August, 1994;
- (x) G.S.R. 562 dated the 12th November, 1994;
- (xi) G.S.R. 607 dated the 10th December, 1994;
- (xii) G.S.R. 83 dated the 25th February, 1995;
- (xiii) G.S.R. 93 dated the 4th March, 1995;
- (xiv) G.S.R. 488 dated the 9th November, 1996;
- (xv) G.S.R. 582 dated the 28th December, 1996;
- (xvi) G.S.R. 59 dated the 25th January, 1997;
- (xvii) G.S.R. 117 dated the 1st March, 1997;
- (xviii) G.S.R. 172 dated the 29th March, 1997.
- (xix) G.S.R. 221 dated the 21st November, 1998.
- (xx) G.S.R. 131 dated 1st May, 1999.
- (xxi) G.S.R. 139 dated 8th May, 1999. Errata G.S.R. 201 dated 7th April, 2001.
- (xxii) G.S.R. 237 dated 31st July, 1999.
- (xxiii) G.S.R. 345 dated 23rd October, 1999.
- (xxiv) G.S.R. 397 dated 14th October, 2000
- (xxv) G.S.R. 219 dated 14th April, 2001.
- (xxvi) G.S.R. 496 dated 8th September, 2001
- (xxvii) G.S.R. 672 dated 15th December, 2001.
- (xxviii) G.S.R. 127 dated 13th April, 2002
- (xxix) G.S.R. 407 dated 22nd November, 2003.
- (xxx) G.S.R. 201 dated 19th June, 2004.
- (xxxi) G.S.R. 203 dated 19th June, 2004
- (xxxii) G.S.R. 265 dated 7th August, 2004
- (xxxiii) G.S.R. 32 dated 29th January, 2005
- (xxxiv) G.S.R. 66 dated 26th February, 2005.
- (xxxv) G.S.R. 67 dated 26th February, 2005.
- (xxxvi) G.S.R. 423 dated 24th December, 2005.
- (xxxvii) G.S.R. 27 dated 4th February, 2006.
- (xxxviii) G.S.R. 201 dated 12th August, 2006.
- (xxxviii) G.S.R. 280 dated 18th November, 2006.

To
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