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, the 7th August, 2006.

Notification

G.S.R.201 .- Whereas the 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 15th April, 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. 81, dated the 10th April, 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 4th May, 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 (Second Amendment) Regulations, 2006.

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

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

"(vii) For such boilers having a capacity of 20 Tons per hour and above which are required to be assembled at site, the mountings may be supplied separately. All boilers of capacity less than 20 Tons per hour shall carry all the mountings or fittings certificates in respective forms with details mentioned in Form III, issued at the time of manufacture of boilers.";

3. In the said regulations, in regulation 4D, for the words “three years”, the words “five years” shall be substituted.

4. In the said regulations, in regulation 154, in sub-clause (i) of clause (a), the following Note shall be inserted at the end, namely:-

“Note: For Carbon Steel material having a maximum Carbon content of 0.25%, the Post Weld Heat Treatment requirement for tubes welded to Header is not mandatory when all the following conditions are fulfilled, namely:-

(a) The outer diameter (OD) of tubes is not more than 51 MM;
(b) The outer diameter of the Header is not more than 219.1 MM;
(c) The Header thickness is not more than 13 MM;
(d) A minimum pre-heat of 100 °C is applied.”;

5. In the said regulations, for regulation 166, the following regulation shall be substituted, namely:-

“Internal doors:- Internal doors shall be of wrought steel in accordance with Chapter II and constructed in accordance with the following:-

(a) doors shall be formed to fit closely to the internal joint surface and should be fitted with studs, nuts and crossbars;
(b) doors for circular opening larger than 250mm or elliptical/rectangular opening larger than 250mm x 175mm shall have two studs but for opening of 250mm x 170mm or less only one stud may be fitted. Doors for opening not larger than 123mm x 90mm may have the stud forged integrally with door;
(c) doors studs shall be of welding quality steel having a minimum specified tensile strength of not less than 360N/mm² and those for manholes shall be not less than 30mm;

They shall be fixed in any of the following way:-

(1) screwed through the plate and fillet welded on inside;
(2) fillet welded each side of the plate with a leg length of not less than 10mm;
(3) attached to the door by an intermediate plate or lugs so that the strength of the attachment is not less than the strength of the studs and the studs are prevented from turning; or
(4) provided with an integrated collar and be riveted or screwed onto the door plate and be prevented from turning in which case the strength of the attachment shall be not less than the strength of the studs;

(d) door spigot when the door is in the central position shall have a clearance of approximately 105mm all around and at no point shall the clearance exceed 3mm. The spigot depth shall be sufficient to trap the gasket;

(e) the nuts shall be of appropriate material compatible to that of bolts and be placed on the seating surface;

(f) the cross-bars shall be of substantial proportions and of mild or wrought steel.

Note:- Eye bolts of suitable legs on the door plate or headed bolts engaging with slotted sections on the door plate may be used instead of studs.

The minimum calculated thickness of the door of the flat plat construction (i.e. unstiffened made from one plate shall be not less than that determined by the following formula:-

$$t = \frac{0.35\ P x d^2 + W}{f}$$ for a circular door

$$t = \frac{0.35\ P\ (2-a/b)\ x\ a^2 + W}{f}$$ for an elliptical door

where,

t is the minimum calculated thickness of the flat door (in mm)

P is the working pressure of boiler (in N/mm²)

d is the diameter of the opening to which the door is fitted, if round (in mm)

a is the minor axis of the opening to which the door is fitted if elliptical (in mm)

b is the major axis of the opening to which the door is fitted, if elliptical (in mm)

W is the full load capacity of one stud (effective stud area X design stress value at design temperature) in (N)

f is the maximum allowable stress of the plate at the design temperature (in N/mm²)

Note: A design stress of value of 50N/mm² may be used for carbon steel bolts for design temperature not exceeding 300 ºC.";

6. In the said regulations, in regulation 269, after form III F, the following Form shall be added at the end, namely:-

"Form III G

Certificate of manufacture and test of Forgings/Castings (Semis)
(Regulation 269 of the Indian Boiler Regulations, 1950)

Name of Part _____ Quantity:

_____ Serial Nos.:

Maker's Name & Address

Intended Working Pressure (kg/cm^2)						
Corresponding maximum temperature (°C)						

Drawing No. Description Quantity
1.
2.
3.
4.
5.

Identification Marks:

Forgings/Casting process:

6. RAW MATERIAL

Size:
Specification :

Maker:

Certificate No.
Heat No./Cast No.

7. FINISHED MATERIAL

Size : Pouring Heat No.:

Specificataion:

Heat Treatment

Process: Temperature Soaking

Cooling Media Batch No.

8. CHEMICAL COMPOSITION :

%C	%Si	%Mn	%S	%P	%Cr	%Ni	%Mo	%V					

9. PHYSICAL TEST RESULTS

Y.S. (kg/mm^2)	U.T.S. (kg/mm^2)	% Elongation	Bend Test	Flow lines/ Macro	Hardness	N.D.T.			
						Radiography	D.P.T.	M.P.T.	U.T.

10. MICROSTRUCTURE:

Strike out whichever is not applicable.

Certified that the particulars entered herein by us are correct.

The part/parts has/have been designed and constructed to comply with the Indian Boiler Regulations for a working pressure/working pressures of _____and finally inspected on the day of _____ in presence of our responsible representative whose signature is appended hereunder:

Maker's Representative Maker

Designation:

Name :
Designation : Office Seal:

We have satisfied ourselves that forgings/castings (Semis) have been constructed and tested in accordance with the requirements of the Indian Boiler Regulations, 1950. We further certify that the particulars entered herein are correct.

Name and Designation of the Inspecting Officer who Witnessed the test.	Name and Signature of Inspecting Authority
Place:	Place:
Date:	Date:";

7. In the said regulations, after regulation 278, the following regulation shall be inserted, namely:-

"278A. Internal doors:- Internal doors shall be of wrought steel in accordance with chapter II and constructed in accordance with the following:-

(a) doors shall be formed to fit closely to the internal joint surface and should be fitted with studs, nuts and crossbars;

(b) doors for circular opening larger than 250mm or elliptical/rectangular opening larger than 250mm x 175mm shall have two studs but for opening of 250mm x 170mm or less only one stud may be fitted. Doors for opening not larger than 123mm x 90mm may have the stud forged integrally with door;

(c) doors studs shall be of welding quality steel having a minimum specified tensile strength of not less than 360N/mm^2 and those for manholes shall be not less than 30mm;

They shall be fixed in any of the following way:-

(1) screwed through the plate and fillet welded on inside.

(2) Fillet welded each side of the plate with a leg length of not less than 10mm;

(3) attached to the door by an intermediate plate or lugs so that the strength of the attachment is not less than the strength of the studs and the studs are prevented from turning; or

(4) provided with an integrated collar and be riveted or screwed onto the door plate and be prevented from turning in which case the strength of the attachment shall be not less than the strength of the studs;

(d) door spigot when the door is in the central position shall have a clearance of approximately 105mm all around and at no point shall the clearance exceed 3mm. The spigot depth shall be sufficient to trap the gasket;

(e) the nuts shall be of appropriate material compatible to that of bolts and be placed on the seating surface;

(f) the cross-bars shall be substantial proportions and of mild or wrought steel.

Note:- Eye bolts of suitable legs on the door plate or headed bolts engaging with slotted sections on the door plate may be used instead of studs.

The minimum calculated thickness of the door of the flat plat construction (i.e. unstiffened made from one plate shall be not less than that determined by the following formula:-

$$t = \frac{0.35\ P \times d^2 + W}{f}$$ for a circular door

$$t = \frac{0.35\ P\ (2-a/b) \times a^2 + W}{f}$$ for an elliptical door

where,

t is the minimum calculated thickness of the flat door (in mm)

P is the working pressure of boiler (in N/mm²)

d is the diameter of the opening to which the door is fitted, if round (in mm)

a is the minor axis of the opening to which the door is fitted, if elliptical (in mm)

b is the major axis of the opening to which the door is fitted, if elliptical (in mm)

W is the full load capacity of one stud (effective stud area X design stress value at design temperature) in (N)

f is the maximum allowable stress of the plate at the design temperature (in N/mm²)

Note: A design stress of value of 50N/mm² may be used for carbon steel bolts for design temperature not exceeding 300 ºC.";

8. In the said regulations, in regulation 337, after sub-regulation (g), the following sub regulation shall be inserted, namely:-

"(h) The finning of the tubes by any method duly approved by the Inspecting Authority and subsequently inspected and certified by them shall be accepted.".

9. In the said regulations, in regulation 385, the following shall be added at the end, namely:-

"Inspection fee for Super-heater, Re-heater and Feed water heater shall be charged at the same rate as the registration fee.

The surface area of Super heater and Re-heater shall be included in the surface area of the Boiler for the purpose of charging the fee only.";

10. In the said regulations, in regulation 392, after clause (p), the following clause shall be inserted, namely:-

"(q) Categorisation of the Repairers.
The categorisation of the Repairer shall be as follows:

(i) IIIrd class < Boiler Pressure 17.5kg/cm²
(ii) IInd class > Boiler Pressure 17.5 kg/cm² to < 40kg/cm²
(iii) Ist class > Boiler Pressure 40kg/cm² to < 100kg/cm²
(iv) Special Class > Boiler Pressure 100 kg/cm².";

11. In the said regulations, for regulation 554, the following regulation shall be substituted, namely:-

"Manhole frames, mouthpieces and doors. – Manhole frames, mouthpieces, doors or cover plates shall be of mild steel. Frames shall be oval and where of the flanged type shall be formed to bed closely to the shell and provide a flat jointing surface to the door. Alternatively, raised circular mouthpieces may be fitted externally and where of the flanged type shall be bedded closely to the shell.

Wherever practicable, the frame shall be attached to the inside of the shell with the shorter axis parallel to the longitudinal centre line of the boiler. In all cases where the shell thickness exceeds 9/16 inch, oval frames or circular mouthpieces shall be fitted.

Oval frames and externally raised circular mouthpieces shall be either:-

(a) Formed in one piece without weld, or
(b) Formed from a suitable rolled section and forge-welded, or fabricated by fusion welding, provided they are stress-relieved by heat-treatment after welding and before attaching to the boiler unless the whole boiler is to be subjected to heat-treatment on completion.

Welds shall be positioned so that they are located on the transverse centre line of the boiler (see Regulation 556).

The joining flanges of mouthpieces and covers shall be machined on the face and edges and on the bearing surface for the bolts. Bolts and nuts shall be machined where in contact with the flanges and the joints should be formed inside and outside the pitch line or pitch circle of the bolts to preclude the possibility of flange distortion. Cover plates shall be dished outwards to a depth of approximately one-eighth of the internal diameter of the frame.

All edges shall be machined or flame-cut by machine (See Regulation 541).

Forms or manhole frames and attachments are shown in Figures XII/52, XII/53, XII/54, XII/55 and XII/56.";

12. In the said regulations, after regulation 554, the following regulation shall be inserted, namely:-

"554A. "Internal doors:- Internal doors shall be of wrought steel in accordance with Chapter II and constructed in accordance with the following:-

(a) doors shall be formed to fit closely to the internal joint surface and should be fitted with studs, nuts and crossbars;
(b) doors for circular opening larger than 250mm or elliptical/rectangular opening larger than 250mm x 175mm shall have two studs but for opening of 250mm x 170mm or less only one stud may be fitted. Doors for opening not larger than 123mm x 90mm may have the stud forged integrally with door;
(c) doors studs shall be of welding quality steel having a minimum specified tensile strength of not less than 360N/mm² and those for manholes shall be not less than 30mm;

They shall be fixed in any of the following way:-

1. screwed through the plate and fillet welded on inside;
2. fillet welded each side of the plate with a leg length of not less than 10mm;
3. attached to the door by an intermediate plate or lugs so that the strength of the attachment is not less than the strength of the studs and the studs are prevented from turning; or
4. provided with an integrated collar and be riveted or screwed onto the door plate and be prevented from turning in which case the strength of the attachment shall be not less than the strength of the studs;

(d) door spigot when the door is in the central position shall have a clearance of approximately 105mm all around and at no point shall the clearance exceed 3mm. The spigot depth shall be sufficient to trap the gasket;

(e) the nuts shall be of appropriate material compatible to that of bolts and be placed on the seating surface;

(f) the cross-bars shall be of substantial proportions and of mild or wrought steel.

Note:- Eye bolts of suitable legs on the door plate or headed bolts engaging with slotted sections on the door plate may be used instead of studs.

The minimum calculated thickness of the door of the flat plat construction (i.e. unstiffened made from one plate shall be not less than that determined by the following formula:-

$$t = \frac{0.35\ P\ x d^2 + W}{f}$$ for a circular door

$$t = \frac{0.35\ P\ (2-a/b)\ x\ a^2 + W}{f}$$ for an elliptical door

where,

t is the minimum calculated thickness of the flat door (in mm)

P is the working pressure of boiler (in N/mm^2)

d is the diameter of the opening to which the door is fitted, if round (in mm)

a is the minor axis of the opening to which the door is fitted, if elliptical (in mm)

b is the major axis of the opening to which the door is fitted, if elliptical (in mm)

W is the full load capacity of one stud (effective stud area X design stress value at design temperature) in (N)

f is the maximum allowable stress of the plate at the design temperature (in N/mm^2)

Note: A design stress of value of $50N/mm^2$ may be used for carbon steel bolts for design temperature not exceeding 300 ºC.";

13. In the said regulations, in regulation 561, in clause (a), for the words "In the case of shell plates upto and including 16 feet in length the test plate may be located at one end only", the words "In the case of shell plates, the test plate may be located at one end only" shall be substituted.

File No. 6(10)/2005-Boilers

(V. K. GOEL)
Secretary, Central Boilers Board

Note:- The principal regulations were published in the Gazette of India 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 the13th August, 1994;
(ix) G.S.R. 427 dated the 20th August, 1994;
(x) G.S.R. 562 dated the12th November, 1994;
(xi) G.S.R. 607 dated the10th 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.

To
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