

# IBR Regulations

## **Summary**

# Chapters

- CHAPTER I** GENERAL REQUIREMENTS, APPLICATION OF STANDARD CONDITIONS AND EXCEPTION THERETO
- CHAPTER II** MATERIAL OF CONSTRUCTION STEEL PLATES, RIVETS, SECTION AND BARS IN CARBON STEEL
- CHAPTER III** CONSTRUCTION AND WORKMANSHIP GENERAL
- CHAPTER IV** REGULATIONS FOR DETERMINING THE WORKING PRESSURE TO BE ALLOWED ON VARIOUS PARTS OF BOILERS OTHER THAN FUSION WELDED AND SEAMLESS FORGED DRUM
- CHAPTER V** FUSION WELDED AND SEAMLESS FORGED DRUMS FOR WATER TUBE BOILERS AND SUPERHEATERS
- CHAPTER VI** VALVES, GAUGES AND AUXILIARIES
- CHAPTER VII** BOILER AND SUPERHEATER TUBES, HEADERS AND OTHER PARTS TUBES
- CHAPTER VIII** STEAM PIPES AND FITTINGS
- CHAPTER IX** REGULATIONS FOR THE REGISTRATION OF BOILERS AND INSPECTION OF BOILERS AND STEAM PIPES
- CHAPTER IXA** SAFETY OF PERSONS INSIDE BOILERS
- CHAPTER X** ELECTRODE BOILERS GENERAL, REQUIREMENTS
- CHAPTER XI** STANDARD CONDITION FOR THE DESIGN AND CONSTRUCTION OF ECONOMISERS FEED PIPES, FEED HEATERS AND OTHER SIMILAR VESSELS
- CHAPTER XII** SHELL TYPE BOILERS OF WELDED CONSTRUCTION

**CHAPTER XIII** QUALIFICATION TESTS FOR WELDERS ENGAGED IN WELDING BOILERS AND  
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SITE IN INDIA AND IN REPAIRING BOILERS AND STEAM-PIPES BY WELDING  
**CHAPTER XIV** MINIATURE BOILERS NEW LINE CENTRAL  
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**\*\*\* Study details of the above from**

**[dipp.nic.in/boiler\\_rules\\_updated/contents1.htm](http://dipp.nic.in/boiler_rules_updated/contents1.htm)**

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# Preliminary

Regulation No.	Title
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- |    |   |
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| 1. | Short Title, Extent, Application and Commencement |
| 2. | Definitions                                       |

# CHAPTER I

## Regulation    Title No.

- 3.      General requirements, Application of standard conditions and exception thereto
- 3A.    Inspection of Boiler to comply into any Foreign Code
- 4.      Standard Requirements
- 4A.    Application for recognition
- 4B.    Scrutiny of applications by Evaluation Committee
- 4C.    Recognition of a firm as Competent Authority, Inspection Authorities etc.
- 4D.    Validity of Certificate of recognition
- 4E.    Renewal of Certificate of recognition
- 4F.    Application for registration of existing Competent Authority etc.
- 4G.    Appeal
- 4H.    Function of Evaluation Committee
- 5.      Modification of Formulae
- 5A.    Material not fully identified
- 6.      Standard Specifications for Materials
- 7.      Registration of Second Hand Boilers
- 8.      Welding

## CHAPTER II

### MATERIAL OF CONSTRUCTION – STEEL PLATES, RIVETS, SECTION AND BARS IN CARBON STEEL

#### Regulation Title

#### No.

9. Process of Manufacture
10. Chemical Analysis
11. Freedom from Defects etc.
12. Rolling Margin
13. Testing and Inspection
- 13A.
- 13B. Testing & Certification of Semi-skilled Steel for which all tests not carried out in a steel plant
14. Selection of Test pieces
15. Tensile Test pieces
16. Tensile Test
17. Number of Tensile Test
18. Dump Tests
19. Bend Tests- Cold Bends
20. Number of bend Tests
21. Manufactured Rivets

Regulation No.	Title
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- |     |                                  |
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| 23. | Branding                         |
| 24. | Defacing of Rejected Material    |
| 25. | Facilities for Inspection        |
| 26. | Steel not produced where rolled  |
| 27. | Maker's Certificate              |



# WROUGHT IRON STAY AND RIVET BARS

**Regulation Title**  
**No.**

- |     |   |
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| 29. | Manufactured Rivets Tests   |
| 30. | Stay Bars   |
| 31. | Stay Bars-Bend Tests  |
| 32. | Special Iron for Screw Stays for Fire-Boxes and Combustion Chambers |

# COPPER PLATES, STAY AND RIVET BARS

**Regulation Title**  
**No.**

- 33. Plates
- 34. Stay and Rivet Bars

# COPPER, BRASS AND STEEL TUBES

**Regulation Title**  
**No.**

- |       |                    |
|-------|--------------------|
| 35(1) | Copper Tubes       |
| 35(2) | Brass Tubes        |
| 36(3) | Carbon Steel tubes |

# **COLD DRAWN SEAMLESS STEEL BOILER AND SUPER-HEATER TUBES FOR DESIGN METAL TEMPERATURES NOT EXCEEDING 454 Deg.C ( 850 Deg.F)**

## **Regulation Title No.**

- 36.
- 37. Selection of Tubes for Tests
- 38. Tensile Strength
- 39. Flattening Test
- 40. Flanging and Drift Expanding Tests
- 41. Additional Test before Rejection
- 42. Hydraulic Test

# **HOT FINISHED SEAMLESS CARBON STEEL BOILER AND SUPER-HEATER TUBES FOR DESIGN METAL TEMPERATURES NOT EXCEEDING 454 Deg.C ( 850 Deg.F )**

## **Regulation Title No.**

- 43.
- 44(a) Tensile Test
- (b) Flattening Test
- 45. Additional Tests before Rejection'
- 46. Hydraulic Test
- 47. General
- 48(a) Material
- 48(b) Heat Treatment
- 48(c ) Workmanship and tolerance
- 48(d) Selection of Tubes for testing
- 49(a) Tensile Test
- 49(b) Flattening Test
- 49 ( c) Expanding Test
- 50. Additional Tests before Rejection
- 51. Hydraulic Test

# SEAMLESS CHROMIUM-MOLYBDENUM STEEL BOILER AND SUPER-HEATER TUBES FOR DESIGN METAL TEMPERATURES NOT EXCEEDING 538 Deg.C ( 1000 Deg.F)

## Regulation Title No.

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- 53(a) Material
- 53(b) Heat Treatment
- 53( c) Workmanship and tolerance
- 53(d) Selection of Tubes for Testing
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- 54(b) Flattening Test
- 54( c) Expanding Test
- 55. Additional Tests before Rejection
- 56. Hydraulic Test
- 56A. Seamless Chromium-Molybdenum Steel Boiler and Super-heater Tubes for Design Metal Temperatures not exceeding 577 Deg.C ( 1870 Deg.F)

# **ELECTRIC RESISTANCE WELDED STEEL BOILER AND SUPERHEATER TUBES FOR DESIGN METAL TEMPERATURES NOT EXCEEDING 454 Deg.C (850Deg.F)**

## **Regulation Title**

### **No.**

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| 58(a)  | Material process   |
| 58(b)  | Manufacture  |
| 58( c) | Chemical composition   |
| 58(d)  | Thickness  |
| 58(e)  | Diameter   |
| 58(f)  | Length   |
| 59(a)  | Flattening Test  |
| 59(b)  | Flanging and Drift expanding Test  |
| 59( c) | Crush Test   |
| 59(d)  | Reverse Flattening Test  |
| 60     | Tensile Strength   |
| 61     | Tensile Strength   |
| 62.    | Test Specimen  |
| 63.    | Hydraulic Test   |
| 64.    | Number of Tests  |
| 65A.   | Cold drawn Electric-resistance Welded Steel Boiler and Superheater Tubes for Design Metal Temperatures not exceeding 454 Deg.C (850 Deg.F) |

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## Regulation Title No.

- 73. Scope
- 74. Process of Manufacture
- 75. Freedom from and Rectification of Defects
- 76. Number of Test-Provision of Test Samples
- 77. Tensile Test
- 78. Bend Tests
- 79(a) Additional Tests before Rejection
- 79(b) Hardness Test after heat treatment
- 79( c) Non-destructive tests
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# FORGED OR ROLLED PRESSURE PARTS OTHER THAN SEAMLESS DRUMS OR CARBON STEEL

## Regulation Title No.

- 81(a) Proven manufacture
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- 81(c) Freedom from and rectification of defects
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**Regulation Title**  
**No.**

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| 93.    | Additional Tests                       |

# COVERED ELECTRODES FOR METAL ARC WELDING OF MILD STEEL

## Regulation Title No.

- 94. General Requirements
- 95. Requirements for Normal Penetration Electrodes-Initial Test
- 96. Requirements for Deep Penetration Butt-Welding Electrodes-Initial Test
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- 98. Periodic Check Test
- 98A Filler Rod gas Welding of Steel

## CHAPTER III

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**Regulation Title**  
**No.**

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100	Normalising of certain Steel Plates
101	Minimum Thickness of Plates

# **SHELL ANGLE RINGS, BUTT-STRAPS ETC.**

## **Regulation Title No.**

- 102. Cylindrical Shells
- 103. Position of Longitudinal Seams
- 104. Circumferential and End Seams
- 105. Angles Ring
- 106. Thickness of Shell Angle Rings
- 107. Welded Shell Plates
- 108. Longitudinal Seams
- 109. Butt-Straps
- 110. Thinning of Butt-Straps
- 111. Alternative Construction
- 112. Local Welding of Butt-Seams

# END PLATES

## Regulation Title No.

- 113. Flat End Plates
- 114. Strengthening of Flat end Plate at Manhole
- 115. End Plates in Steam Spaces
- 116. Hemispherical Crowns
- 117. Dished End and Crown Plates
- 118. Tube Plates
- 119. Parts of Flat Tube Plates within the Tube Nests
- 120. Flanging of End Plates

# FURNACES

## Regulation Title No.

- 121. Furnaces in General
- 122. Furnaces of Horizontal Boilers
- 123. Furnaces of Vertical Boilers
- 124. Longitudinal Seams
- 125. Fusion welded Longitudinal Seams
- 126. Furnace Crown
- 127. Cross Tubes
- 128. Uptakes
- 129. Loco type Fireboxes
- 129A Welded Joints to Copper Fire Boxes

# STAYS

## Regulation Title No.

- 130. Bar Stays
- 131. Longitudinal Stays
- 132. Nuts and washers for Stays
- 133. Jointed Stays
- 134. Diagonal Bar or Rod Stays



# SCREWED STAYS

**Regulation Title**  
**No.**

- 135. Screwed Stays
- 136. Axial Drilling
- 137. Stay Nuts
- 138. Spacing of end stays-allowance for curves etc.

# GIRDER STAYS

Regulation Title  
No.

139. Girder Stays for Firebox and Combustion Chamber Crowns

# GUSSET STAYS

**Regulation Title**  
**No.**

- 140. Gusset Stays
- 141. Breathing Space
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# BOILER TUBES SUBJECT TO EXTERNAL PRESSURE

**Regulation Title**  
**No.**

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- 146. Fitting of Plain Tubes

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**Regulation Title**  
**No.**

- 147. Screw Threads of Stay Tubes
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- 150. Load on Stay Tubes

# BOILER AND SUPERHEATER TUBES SUBJECT TO INTERNAL PRESSURE

**Regulation Title**  
**No.**

- 151. Steel Tubes
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- 153. Copper Tubes

# HEADERS, MUD BOXES ETC.OF WATER TUBE BOILERS

Regulation Title  
No.

154.

## STAND PIPES, PADS ETC.

**Regulation Title**  
**No.**

- 155. Stand Pipes and Pads
- 156. Design of Stand Pipes
- 157. Pressed Plate Saddles
- 158. Seatings for Mountings
- 159. Attachment of Mountings
- 160. Insufficient Thickness of End Plates
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# MANHOLES, MUDHOLES ETC.

Regulation Title

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| 169. | Compensation Rings to Manhole                              |
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# RIVETING

Regulation Title  
No.

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Regulation Title  
No.

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Regulation No.	Title
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| 177. | Methods of calculating the strength of Riveted joints |
| 178. | When Pitch exceed maximum allowed                     |
| 179. | Butt straps and spacing of Rivets below requirements  |
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| 183. | Maximum Pitch of Rivets in Longitudinal joints        |
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| 185. | Circumferential and end seams of water tube Boilers   |
| 186. | Compensation for Manholes and other openings          |
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# DISHED END PLATES

**Regulation Title**  
**No.**

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Marginal seams or flanges
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# STAYS

Regulation No.	Title
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- |      |  |
|------|--|
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| 203. | Stresses in Steel jointed stays  |
| 204. | Stay Tubes   |
| 205. | Stays in Tension and compression   |
| 206. | Measurement of stayed Areas in the end Plates of Locotype and Vertical Boilers |
| 207. | Gusset Stays   |
| 208. | Bolts and Studs  |

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## Regulation Title No.

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|------|--|
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| 210. | Parts to be stayed   |
| 211. | Minimum thickness and cross section  |
| 212. | Holding Power of Plain Tubes   |
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# BOILER AND SUPERHEATER TUBES SUBJECT TO INTERNAL PRESSURE

Regulation Title  
No.

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# HEADERS AND SECTION BOXES OF WATER TUBE BOILERS

Regulation Title  
No.

217.

# BOILER TUBES (SMOKE) SUBJECT TO EXTERNAL PRESSURE

**Regulation Title**  
**No.**

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219. Brass and Copper Tubes

# FURNACES

Regulation Title  
No.

- 220. Plain Furnaces of Horizontal Boilers
- 221. Corrugated Furnaces of Horizontal Boilers
- 222. Plain Furnaces of Vertical Boilers
- 223. Hemispherical Furnaces of Vertical Boilers
- 224. Corrugated Fireboxes of Vertical Boilers
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Regulation Title  
No.

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# PATENTS FIREBOX ROOFS OF LOCOTYPE BOILERS

Regulation Title

No.

230. Marshall Type

231. Garret Type

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# FUSION WELDED AND SEAMLESS FORGED DRUMS FOR WATER TUBE BOILERS AND SUPERHEATERS

Regulation Title  
No.

233. General Requirements

# MATERIALS OF CONSTRUCTION

Regulation Title  
No.

234. Materials for Fusion Welded Boiler Drums



# SEAMLESS FORGED DRUMS

## Regulation Title No.

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| 237. | Freedom from Defects             |
| 238. | Heat Treatment                   |
| 239. | Mechanical Tests                 |
| 240. | Selection of Test Pieces         |
| 241. | Additional Test before Rejection |
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# TUBES, PIPES IN BOILERS, HEADERS AND STEEL CASTINGS

**Regulation Title**  
**No.**

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# FUSION WELDED DRUMS

## Regulation Title

### No.

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| 248. | Equipment of Workshop                                   |
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| 257. | Mechanical Test and Test Plates for Fusion Welded Seams |
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| 271. | Permissible working stresses for shells of Boiler and integral Superheater Drums and Headers |
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**Regulation No.**   **Title**

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Regulation Title

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## CHAPTER VI

### VALVES, GAUGES AND AUXILIARIES

**Regulation Title**  
**No.**

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Regulation Title  
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**Regulation Title**  
**No.**

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## Regulation Title

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294.	Over Pressure of safety Valves		
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307.	Materials.	308.	Dimensions
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# STOP VALVES

Regulation Title  
No.

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Regulation Title

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**Regulation Title**  
**No.**

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Regulation Title  
No.

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## CHAPTER VII

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Regulation Title

No.

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**Regulation Title**  
**No.**

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Regulation Title  
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Regulation Title  
No.

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## Regulation Title No.

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- 350. Steel Pipes
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# FLANGES

## Regulation Title No.

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**Regulation Title**  
**No.**

- 361. Wrought Bends
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## Regulation Title No.

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- 369. Reducing Valve
- 370. Flexibility
- 371. Pipe work supports
- 372. Drainage
- 373. Freedom from Rust and other Foreign Matter
- 374. Test Pressures

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# REGULATIONS FOR THE REGISTRATION OF BOILERS AND INSPECTION OF BOILERS AND STEAM PIPES

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| 375. | General   |
| 376. | Preparations for Inspection                                     |
| 377. | Hydraulic Test of Boilers for Registration                      |
| 378. | Preparation of Hydraulic Tests                                  |
| 379. | Procedure of Hydraulic Tests                                    |
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<b>Regulation No.</b>	<b>Title</b>
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**No.**

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395.	Submission of Plans of Steam Pipes
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## CHAPTER IX-A

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| 409. | Seatings for Mounting                           |
| 410. | Flanges-Thickness and Drilling                  |
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# FUSION WELDED BOILERS

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416. Construction and Workmanship

# TESTS FOR CLASS I FUSION WELDED SEAMS

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| 417. | Selection of Test Pieces                         |
| 418. | Tensile Test                                     |
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| 423. | Heat Treatment                                   |
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| 426. | Welds and Compensation for Manholes and Branches |
| 427. | Manholes and other openings in shells            |
| 428. | Dished end Plates with Pressure on Concave side  |
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| 430. | Thickness of Angle Rings                         |
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| 432. | Seatings and Mountings                           |
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## STANDARD CONDITION FOR THE DESIGN AND CONSTRUCTION OF ECONOMISERS, FEED PIPES, FEED HEATERS AND OTHER SIMILAR VESSELS

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528.	Memorandum of Inspection Book
529.	Registration Book
530.	Grant of Certificate
531.	Casual Visits
532.	Economiser Rating
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534.	Engraving of Registry Number
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### SHELL TYPE BOILERS OF WELDED CONSTRUCTION

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| 537. | Materials of Construction                              |
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| 544. | Circularity  |
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- 558. Methods of welding
- 559. Types of welded Shell Seams
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- 561. Tests on Welded Seams
- 562. Heat Treatment
- 563. Classification of Fusion welded Boilers
- 564. Shells
- 565. Horizontal Shelves of Tube Plates Forming Part of the Shell
- 566. Dished End Plates for Lancashire and Cornish Boilers
- 567. Dished Ends subject to Internal Pressure
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- 568. Dished Ends subject to External Pressure
- 569. Hemispherical Crowns
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