



# STANDARDIZATION IN STEEL SECTOR

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Presentation by

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# Introduction

Indian  
Standards  
Institution  
1947

BIS Act  
1986

BIS Act  
2016

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- The Indian Standards Institution (ISI) was set up in 1947.
- Bureau of Indian Standards (BIS) Act 1986 gave statutory status to BIS on 1 April 1987.
- The BIS Act of 2016 enforced on 12<sup>th</sup> October 2017 makes BIS the National Standards Body of India.

# BIS - Structure

- Headquartered at New Delhi, with Regional offices in Kolkata, Chennai, Mumbai and Chandigarh, 33 branch offices, a chain of testing laboratories and a National Institute of Training for Standardization.



# Major Activities

- Standards Formulation
- Certification
- Hallmarking
- Laboratory
- System Certification
- International Cooperation
- Training

# Standards Formulation

## Areas of Standardization & Division Councils

|                                    |                        |  |                                  |                                    |
|------------------------------------|------------------------|--|----------------------------------|------------------------------------|
| Chemical                           | Civil Engineering      | Electronics and Information Technology | Electro-technical                | Food and Agriculture               |
| Management and Systems             | Mechanical Engineering | Medical Equipment & Hospital Planning  | <b>Metallurgical Engineering</b> | Petroleum, Coal & Related Products |
| Production and General Engineering | Textiles               | Transport Engineering                  | Water Resources                  | Services                           |



# METALLURGICAL ENGINEERING DEPARTMENT (MTD) STATISTICS AT A GLANCE

| <b>Aspect</b>            | <b>No. of Standards</b> |
|--------------------------|-------------------------|
| • Product Standards      | 733                     |
| • Methods of Test        | 489                     |
| • Code of Practice       | 269                     |
| • Terminology/Dimensions | 107                     |
| • Others                 | 52                      |
| • Total                  | 1650                    |



# BENEFITS OF STANDARDIZATION IN STEEL

- BETTER COMMUNICATION
- VARIETY CONTROL
- FITNESS FOR PURPOSE
- INTERCHANGEABILITY
- INTEROPERABILITY
- SAFETY
- REPEATABILITY

‘Common minimum benchmark’ for quality and performance



# 20 SECTIONAL COMMITTEES

- MTD 3 Mechanical Testing of Metals
- MTD 4 Wrought Steel Products
- MTD 6 Pig Iron and Cast Iron
- MTD 7 Light Metals and Their Alloys
- MTD 8 Copper and Copper Alloys
- MTD 9 Lead, Zinc, Cadmium, Tin, Antimony and Their Alloys
- MTD 10 Precious Metals
- MTD 11 Welding General
- MTD 13 Ores and Raw Materials

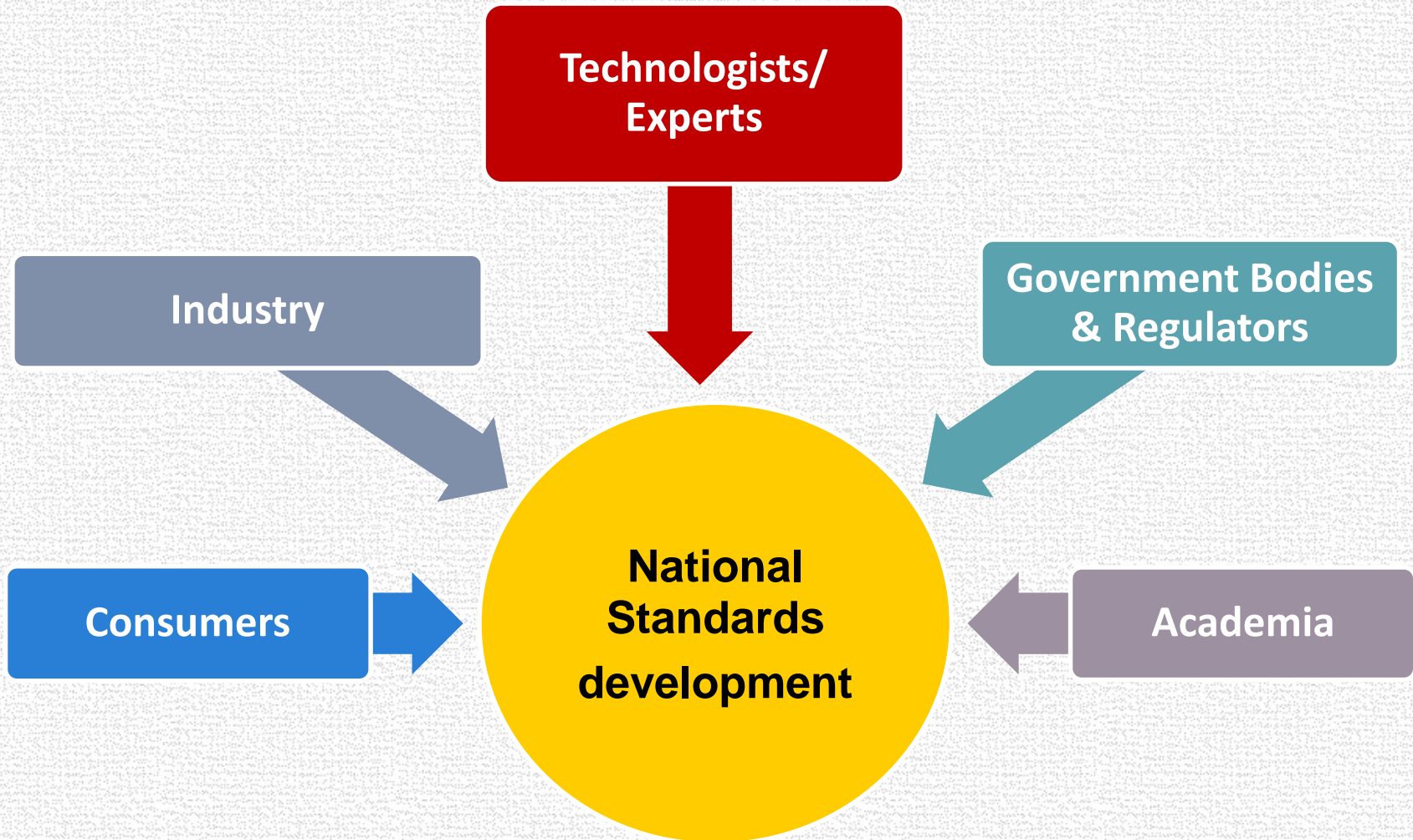


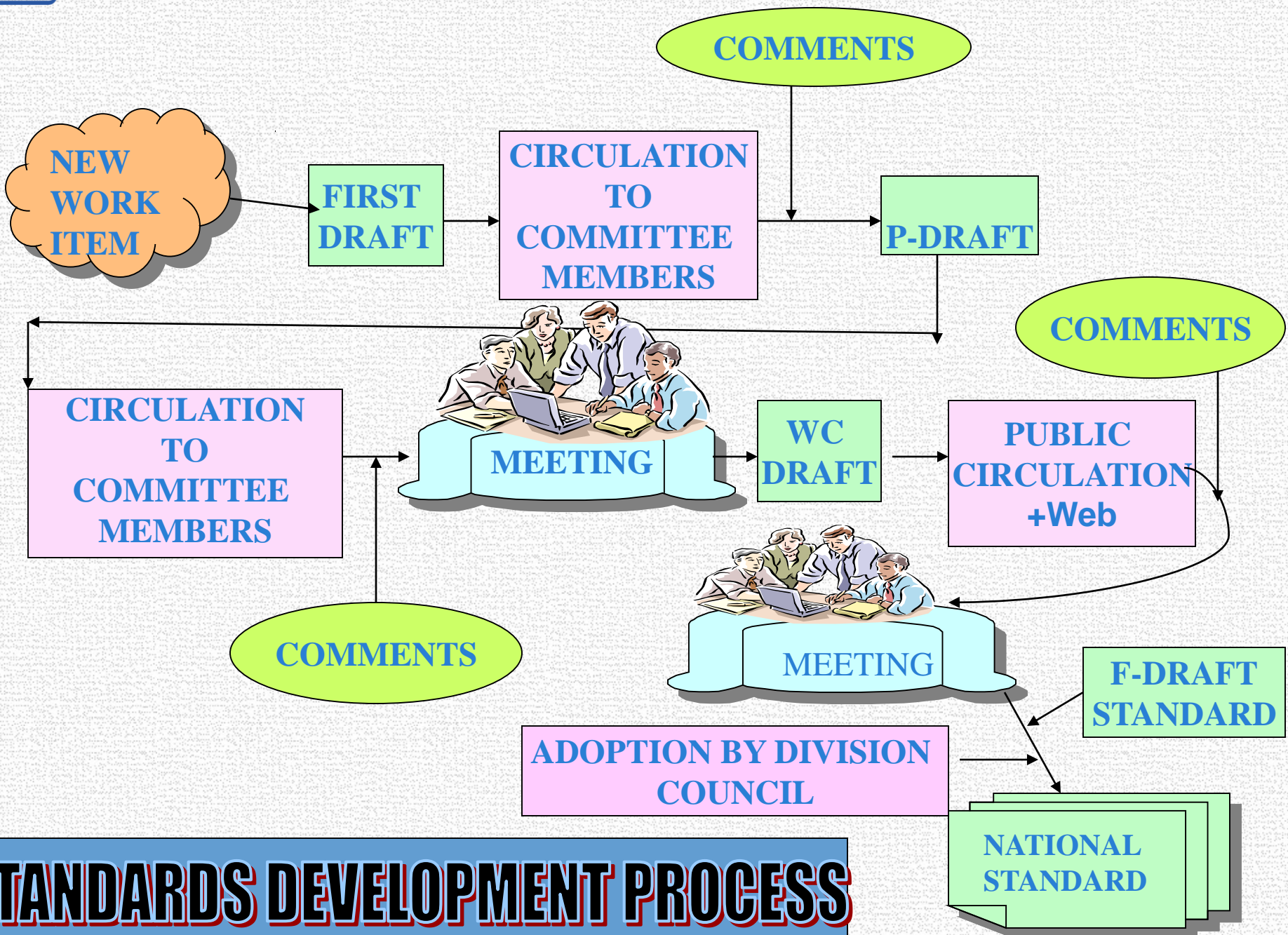


# 20 SECTIONAL COMMITTEES

- MTD 14 Foundry and Steel Casting
- MTD 15 Refractories
- MTD 16 Alloy Steels and Forgings
- MTD 19 Steel Tubes, Pipes and Fittings
- MTD 21 Non-Destructive Testing
- MTD 22 Metallography and Heat Treatment
- MTD 24 Corrosion protection
- MTD 25 Powder Metallurgical Materials and products
- MTD 26 Industrial Fuel Fired Furnaces
- MTD 33 Nanotechnologies
- MTD 34 Methods of Chemical Analysis

# Stakeholders in National Standards development





# STANDARDS DEVELOPMENT PROCESS



# REVIEW OF STANDARDS

- Every Indian standard shall be taken up for review at least once in five years
- Review of Standards may give rise to any of the following conclusions:
  - Continuing without any change to the standard (**Reaffirmation**),
  - **Revision of the Standard**
  - **Amendment** to the standard,
  - Necessity of **withdrawal** of the standard, and



# INTERNATIONAL STANDARDIZATION

## **P Membership**

ISO Committees.....59

IEC Committee .....01

## **0 Membership**

ISO Committees.....26



# MAJOR SECTORS IN WHICH BIS STANDARDS ARE USED

- Automobile sector (IS 513, IS 5986, IS 1079, IS 2062, IS 1875, IS 7283, IS 6911),
- Construction sector (IS 1786, IS 432, IS 1785, IS 6003, IS 6006, IS 2062, IS 277, IS 15103, IS 3502, IS 6911)
- Railways ( IS 11587, IS 3195, IS 3885, IS 432, IS 6911 ),
- White goods (IS 513, IS 1079, IS 277, ),
- Food packaging (IS 1993),
- Boilers and pressure vessels (IS 2002, IS 2041),
- Electrical steel for transformers, motors ( IS 648, IS 3014, IS 16585, IS 15391), Cylinders (IS 6240, IS 15914),
- Coated steel for construction and white goods ( IS 277, IS 14246, IS 15965),
- Mechanical springs for automobile and engineering goods ( IS 4454 Part 1 & 2),



# MTD 4 Wrought Steel Products Sectional Committee

- **SCOPE** - Standardization in the field of steel and wrought steel products
- Examples of Standards Formulated by this Committee:-
- [IS 2830 : 2012](#) Carbon steel cast billet ingots, billets, blooms and slabs for re-rolling into steel for general structural purposes - Specification
- [IS 2062 : 2011](#) Hot Rolled Medium and High Tensile Structural Steel
- [IS 2831 : 2012](#) Carbon Steel Cast Billet Ingots, Billets, Blooms and Slabs For Re-rolling into Structural Steel (Ordinary Quality)-
- [IS 10748 : 2004](#) Hot-rolled Steel Strip for Welded Tubes and Pipes
- [IS 513 1 : 2016](#) Cold reduced low carbon steel sheets and strips
- [IS 277 : 2018/](#) Galvanized Steel Strips and Sheets (Plain & Corrugated)- Specification (Seventh Revision)
- [IS 280 : 2006](#) Mild Steel Wire for General Engineering Purposes
- [IS 7887 : 1992](#) Mild steel wire rods for general engineering purposes
- [IS 1079 : 2017/](#) Hot Rolled Carbon Steel Sheet, Plate and Strip - Specification



# MTD 16 Alloy Steels and Forgings Sectional Committee

- **SCOPE** - Standardization in the field of alloy & special steels and forging
- Important standards Formulated by this Committee:-
- IS 6911 : 2017 Stainless steel plate, sheet and strip - Specification (Second Revision)
- IS 15997 : 2012 Low Nickel Austenitic Stainless Steel Sheet and Strip for Utensils and Kitchen Appliances - Specification
- IS 5522 : 2014 Stainless Steel Sheets and Strips for Utensils Specification
- IS 11169 : Part 1 : 1984 Steels for cold heading/cold extrusion application Part 1 Wrought carbon and low alloy steels
- IS 2004 : 1991 Carbon steel forgings for general engineering purposes
- IS 4398 : 1994 Carbon-chromium Steel for the Manufacture of Balls, Rollers and Bearing Races
- IS 4432 : 1988 Case Hardening Steels
- IS 6527:1995 Stainless steel wire rod





# Steel standards under Mandatory Certification

| Sr No | Sectional Committee                     | Number of standards | Order  |
|-------|---|---------------------|--|
| 1     | MTD 4, Wrought Steel                    | 36                  | Steel and Steel Products (Quality Control) Order, 2018                   |
| 2     | MTD 6, Pig Iron and Cast Iron           | 2                   | Ductile Iron Pressure Pipes and Fittings (Quality Control) Order, 2009   |
| 3     | MTD 16, Alloy Steels and Forgings       | 8                   | Steel and Steel Products (Quality Control) Order, 2018                   |
| 4     | MTD 19, Steel Tubes, Pipes and Fittings | 3                   | Mild Steel Tubes (Quality Control) order, 1978 and Amendment Order, 1983 |
| 5     | CED 54, Reinforcement for concrete      | 9                   | Steel and Steel Products (Quality Control) Order, 2018                   |



# Standards under revision

Following standards are under revision

- IS 6527 : 1995 Stainless Steel Wire Rod
- IS 6528 : 1995 Stainless Steel Wire
- IS 6603 : 2001 Stainless Steel Bars and Flats
- IS 4824 : 2006 Bead Wire For Tyres
- IS 11169 ( Part 1) : 1984 Steels for cold heading cold extrusion application - Part1- Wrought carbon and low alloy steels
- IS 7494 :1981 Steel for valves of internal combustion engines
- IS 7291:1981 High speed steels
- IS 3748:1990 Tool and Die steel
- IS 2041 : 2009 Steel Plates for Pressure Vessels used at moderate and low temperature – Specification
- IS 3039 : 1988 Structural steel for construction of hulls of ship
- IS 1875 : 1992 Carbon steel billets, blooms, slab and bars for forging
- IS 11587 : 1986 Structural weather resistant steel



# New standards being formulated

- Electro-galvanized steel sheet,
- Wear and abrasion resistant steel,
- Steel for API pipes,
- Stainless steel pipes and tubes.
- Coated steel other than electrogalvanized.
- Raw material for Electrical steel
- New Standard on thin magnetic steel strip for use at medium frequencies - Both for CRNO and CRGO
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# Recently revised important standards

|   |                          |   |
|---|--------------------------|---|
| 1 | IS 277 : 2018            | Galvanized Steel Strips and Sheets (Plain & Corrugated)- Specification (Seventh Revision) |
| 2 | IS 513 (Part 1 & 2):2016 | Cold Reduced carbon steel sheet and strip   |
| 3 | IS 1079 : 2017           | Hot Rolled Carbon Steel Sheet, Plate and Strip - Specification                            |
| 4 | IS 1608 (Part 1):2018    | Metallic Materials — Tensile Testing Part 1 Method of Test at Room Temperature            |
| 5 | IS 6911 : 2017           | Stainless steel plate, sheet and strip - Specification (Second Revision)                  |
| 6 | IS 5986 : 2017           | Hot Rolled Steel Sheet, Plate and Strip for Forming and Flanging Purposes - Specification |
| 7 | IS 11513 : 2017          | Hot Rolled Carbon Steel Strip for Cold Rolling Purposes - Specification                   |



# Expectation from Industry

- Timely scrutiny and comments on draft Indian Standards at various standard formulation stages.
- Support any study or R & D work being undertaken for development of Indian Standards.
- Implementation of Indian Standard in their respective area.
- Don't wait for standards to come in mandatory certification for providing comments and taking BIS licence.



Thank You





# STEEL RELATED COMMITTEES

| Committee              | Name                         | Number of Standards |           | Harmonized | Relevant ISO/TC        | Membership |
|------------------------|------------------------------|---------------------|-----------|------------|------------------------|------------|
|                        |                              | Total               | Mandatory |            |                        |            |
| <a href="#">MTD 3</a>  | Mechanical Testing of Metals | 75                  | -         | 42         | ISO/TC 164             | P          |
| <a href="#">MTD 4</a>  | Wrought Steel Products       | 120                 | 36 + 8    | 11         | ISO/TC 17<br>IEC TC 68 | P          |
| <a href="#">MTD 16</a> | Alloy Steels and Forgings    | 115                 | 8 + 5     | 2          | ISO/TC 17              | P          |





# Quality Control Orders on Iron and Steel Products (1)

- 53 steel products under mandatory BIS certification as per QCO issued by Ministry of Steel
- 3 standards on steel tubes and pipes under mandatory BIS certification as per QCO issued by Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises
- 2 standards on cast and ductile iron pipes/fittings under mandatory BIS certification as per QCO issued by DIPP (now DPIIT), Ministry of Commerce and Industry

- Draft QCO has been circulated by Ministry of Steel for 13 more steel products proposed to be brought under mandatory BIS certification.



# Product certification

| Total number of Steel standards under certification    |                         |   | 89        |                |
|--|-------------------------|---|-----------|----------------|
| Total number of licences granted against MTD standards |                         |   | 2949      |                |
| Sr No  | IS Number               |   | Committee | No of licences |
| 1  | <u>IS 2830</u>          | Cast Billet, Ingots   | MTD 4     | 565            |
| 2  | <u>IS 2062</u>          | Structural steel  | MTD 4     | 368            |
| 3  | <u>IS 1161</u>          | Steel tubes for structural purpose                          | MTD 19    | 130            |
| 4  | <u>IS 1239 : Part 1</u> | Steel tubes for water, gas, steam                           | MTD 19    | 130            |
| 5  | <u>IS 4923</u>          | Hot rolled hollow sections                                  | MTD 19    | 126            |
| 6  | <u>IS 2831</u>          | Ingots, billets and blooms for low tensile structural steel | MTD 4     | 100            |
| 7  | <u>IS 3601</u>          | Steel tubes for mechanical & engineering applications.      | MTD 19    | 97             |
| 8  | <u>IS 6911</u>          | Stainless steel plate, sheet and strip                      | MTD 16    | 53             |