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# INDEX TO STEEL DESIGNATIONS

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**BUREAU OF INDIAN STANDARDS**
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

**Gr 3** *November* 1977

# INDEX TO STEEL DESIGNATIONS

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# INDEX TO STEEL DESIGNATIONS

## 0. FOREWORD

**0.1** This Index to steel designations has been brought out to facilitate the users and manufacturers in using the new system of steel designation given in IS : 1762 (Part I)-1974*.

**0.2** For the purpose, the steels have been grouped into the following six schedules as given in IS : 1570-1961†.

Schedule I — Steels specified by tensile properties but without detailed chemical composition

Schedule II — Carbon steels with specified chemical composition and related mechanical properties

Schedule III — Carbon and carbon manganese free cutting steels with specified chemical composition and related mechanical properties

Schedule IV — Alloy steels other than stainless and heat resisting steels with specified chemical composition and related mechanical properties

Schedule V — High alloy steels, stainless and heat resisting steels‡

Schedule VI — Carbon and alloy tool steels

**0.2.1** A number of Indian Standards cover grades of steel which are not included in IS : 1570-1961†. The corresponding new designations for these steels are listed in Appendix A. A list of referred standards is included in Appendix B.

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## 1. SCOPE

**1.1** This index gives the new steel designations in accordance with IS : 1762 (Part I)-1974* corresponding to the old designations given in IS : 1570-1961†.

*Code for designation of steel: Part I Based on letter symbols ( *first revision* ).

†Schedules for wrought steels for general engineering purposes.

‡Printed separately as IS : 1570 (Part V)-1972.

## SCHEDULE I STEELS SPECIFIED BY TENSILE PROPERTIES BUT WITHOUT DETAILED CHEMICAL COMPOSITION

| New Designations | Old Designations |
|---|---|
| (1) | (2) |
| Fe 290 | St 30 |
| Fe 310 | St 32 |
| Fe 330 | St 34 |
| Fe 360 | St 37 |
| Fe 380 | St 39 |
| Fe 410 | St 42 |
| Fe 430 | St 44 |
| Fe 460 | St 47 |
| Fe 490 | St 50 |
| Fe 510 | St 52 |
| Fe 540 | St 55 |
| Fe 570 | St 58 |
| Fe 620 | St 63 |
| Fe 650 | St 66 |
| Fe 770 | St 78 |
| Fe 860 | St 88 |

## SCHEDULE II CARBON STEELS WITH SPECIFIED CHEMICAL COMPOSITION AND RELATED MECHANICAL PROPERTIES

| New Designations | Old Designations |
|---|---|
| (1) | (2) |
| 4C2 | C04 |
| 5C4 | C05 |
| 7C4 | C07 |
| 10C4 | C10 |
| 14C6 | C14 |
| 15C4 | C15 |
| 15C8 | C15Mn75 |
| 20C8 | C20 |
| 25C4 | C25 |
| 25C8 | C25Mn75 |
| 30C8 | C30 |
| 35C4 | C35 |
| 35C8 | C35Mn75 |
| 40C8 | C40 |
| 45C8 | C45 |
| 50C8 | C50 |
| 50C12 | C50Mn1 |
| 55C6 | C55 |
| 55C8 | C55Mn75 |
| 60C6 | C60 |
| 65C6 | C65 |
| 70C6 | C70 |
| 75C6 | C75 |
| 80C6 | C80 |
| 85C6 | C85 |
| 98C6 | C98 |
| 113C6 | C113 |

## SCHEDULE III CARBON AND CARBON - MANGANESE FREE CUTTING STEELS WITH SPECIFIED CHEMICAL COMPOSITION AND RELATED MECHANICAL PROPERTIES

| New Designations | Old Designations |
|---|---|
| (1) | (2) |
| 10C8S10 | 10S11 |
| 14C14S14 | 14Mn1S14 |
| 25C12S14 | 25Mn1S14 |
| 40C10S18 | 40S18 |
| 13C10S25 | 13S25 |
| 40C15S12 | 40Mn2S12 |

## SCHEDULE IV ALLOY STEELS ( OTHER THAN STAINLESS AND HEAT RESISTING STEELS ) WITH SPECIFIED CHEMICAL COMPOSITION AND RELATED MECHANICAL PROPERTIES

| New Designations | Old Designations | New Designations | Old Designations |
|---|---|---|---|
| (1) | (2) | (1) | (2) |
| 36Si7 | 37Si2Mn90 | 15Cr4Mo6 | 15Cr90Mo55 |
| 55Si7 | 55Si2Mn90 | 40Cr5Mo6 | 40Cr1Mo60 |
| 11C15 | 11Mn2 | 10Cr9Mo10 | 10Cr2Mo1 |
| 20C15 | 20Mn2 | 15Cr13Mo6 | 15Cr3Mo55 |
| 27C15 | 27Mn2 | 25Cr13Mo6 | 25Cr3Mo55 |
| 37C15 | 37Mn2 | 10Cr20Mo6 | 10Cr5Mo55 |
| 47C15 | 47Mn2 | 20Cr20Mo6 | 20Cr5Mo55 |
| 35Mn6Mo3 | 35Mn2Mo28 | 35Cr5Mo6V2 | 35Cr1Mo65V25 |
| 35Mn6Mo4 | 35Mn2Mo45 | 40Cr13Mo10V2 | 40Cr3Mo1V20 |
| 10Mo6 | 10Mo55 | 40Cr7Al10Mo2 | 40Cr2Al1Mo18 |
| 20Mo6 | 20Mo55 | 40Ni14 | 40Ni3 |
| 32Mo6 | 33Mo55 | 16Ni3Cr2 | 16Ni80Cr60 |
| 15Cr3 | 15Cr65 | 16Ni4Cr3 | 16Ni1Cr80 |
| 16Mn5Cr4 | 17Mn1Cr95 | 13Ni13Cr3 | 13Ni3Cr80 |
| 20MnCr5 | 20MnCr1 | 15Ni16Cr5 | 15Ni4Cr1 |
| 55Cr3 | 55Cr70 | 35Ni5Cr2 | 35Ni1Cr60 |
| 40Cr4 | 40Cr1 | 30Ni16Cr5 | 30Ni4Cr1 |
| 50Cr4 | 50Cr1 | 15Ni5Cr4Mo1 | 15NiCr1Mo12 |
| 102Cr4 | 103Cr1 | 15Ni7Cr4Mo2 | 15Ni2Cr1Mo15 |
| 102Cr6 | 103Cr2 | 40Ni6Cr4Mo2 | 40NiCr1Mo15 |
| 105Cr5 | 105Cr1Mn60 | 40Ni6Cr4Mo3 | 40Ni2Cr1Mo28 |
| 50Cr4V2 | 50Cr1V23 | 31Ni10Cr3Mo6 | 31Ni3Cr65Mo55 |
| 21Cr4Mo3 | 21Cr1Mo28 | 40Ni10Cr3Mo6 | 40Ni3Cr65Mo55 |
| 40Cr4Mo3 | 40Cr1Mo28 | 16Ni8Cr6Mo2 | 16NiCr2Mo20 |
| 07Cr4Mo6 | 07Cr90Mo55 | 20Ni7Mo2 | 20Ni2Mo25 |
| | | 20NiCrMo2 | 20Ni55Cr50Mo20 |

## SCHEDULE V HIGH ALLOY STEELS STAINLESS AND HEAT RESISTING STEELS

| New Designations | Old Designations |
|---|---|
| (1) | (2) |
| X04Cr13 | 04Cr13 |
| X12Cr13 | 12Cr13 |
| X20Cr13 | 20Cr13 |
| X30Cr13 | 30Cr13 |
| X40Cr13 | 40Cr13 |
| X05Cr17 | 05Cr17 |
| X15Cr16Ni2 | 15Cr16Ni2 |
| X105Cr18Mo | 105Cr18Mo50 |
| X02Cr18Ni11 | 02Cr18Ni11 |
| X04Cr18Ni11 | 04Cr18Ni11 |
| X07Cr18Ni9 | 07Cr18Ni9 |
| X10Cr17Ni7 | 10Cr17Ni7 |
| X04Cr18Ni10Ti | 04Cr18Ni10Ti20 |
| X04Cr18Ni10Nb | 04Cr18Ni10Nb40 |
| X04Cr17Ni12Mo2 | 04Cr17Ni12Mo2 |
| X02Cr17Ni12Mo2 | 02Cr17Ni12Mo2 |
| X04Cr17Ni12Mo2 | 04Cr17Ni12Mo2Ti20 |
| X10Cr17Mn6Ni4N | 10Cr17Mn6Ni4N20 |
| X15Cr25N | 15Cr25N |
| X15Cr24Ni13 | 15Cr25Ni13 |
| X20Cr25Ni20 | 20Cr25Ni20 |
| X45Cr8Si4 | 45Cr9Si4 |
| X80Cr20Si2Ni1 | 80Cr20Si2Ni1 |

## SCHEDULE VI CARBON AND ALLOY TOOL STEELS

| New Designations | Old Designations |
|---|---|
| (1) | (2) |
| 50T8 | T50 |
| 55T8 | T55 |
| 60T6 | T60 |
| 65T6 | T65 |
| 70T6 | T70Mn65 |
| 75T6 | T75 |
| 80T6 | T80Mn65 |
| 85T6 | T85 |
| 70T3 | T70 |
| 80T3 | T80 |
| 90T3 | T90 |
| 102T3 | T103 |
| 118T3 | T118 |
| 132T3 | T133 |
| T80V2 | T80V23 |
| T90V2 | T90V23 |
| T102V2 | T103V23 |
| T118Cr2V2 | T118Cr45 |
| T132Cr2V2 | T133Cr45 |
| T55Cr3 | T55Cr70 |
| T45Cr6Si4 | T45Cr1Si95 |
| T55Cr3V2 | T55Cr70V15 |
| T50Cr4V2 | T50Cr1V23 |

( *Continued* )

SCHEDULE VI CARBON AND ALLOY TOOL STEELS — *Contd*

| New Designations | Old Designations |
|---|---|
| (1) | (2) |
| T105Cr5 | T105Cr1 |
| T105Cr5Mn | T105Cr1Mn60 |
| T90Mn6WCr2 | T90Mn2W50Cr45 |
| T55Si7 | T55Si2Mn90 |
| T55Si7Mo3 | T55Si2Mn90Mo33 |
| T60Ni5 | T60Ni1 |
| T40Ni14 | T40Ni3 |
| T30Ni16Cr5 | T30Ni4Cr1 |
| T55Ni6CrMo3 | T55Ni2Cr65Mo30 |
| T40Ni6Cr4Mo3 | T40Ni2Cr1Mo28 |
| T31Ni10Cr3Mo6 | T31Ni3Cr65Mo55 |
| T40Ni10Cr3Mo6 | T40Ni3Cr65Mo55 |
| T35Cr20Mo14V3 | T35Cr5Mo1V30 |
| T35Cr20Mo14V11 | T35Cr5MoV11 |
| T35Cr20Mo14W6V3 | T35Cr5MoW1V30 |
| T40W8Cr5V2 | T40W2Cr1V18 |
| T50W8Cr5V2 | T50W2Cr1V18 |
| T105W6CrV2 | T105W2Cr60V25 |
| T110W6Cr4 | T110W2Cr1 |
| T140W15Cr2 | T140W4Cr50 |
| XT160Cr12 | T160Cr12 |
| XT215Cr12 | T215Cr12 |
| XT32W9Cr3V | T33W9CrV38 |
| XT55W14Cr3V | T55W14Cr3V45 |
| XT70W14Cr4V | T70W14Cr4V75 |
| XT122W14Co5CrV4 | T123W14Co5CrV4 |
| XT70W18Cr4V1 | T70W18Cr4V1 |
| XT75W18Co6Cr4V Mo1 | T75W18Co6Cr4 V1Mo75 |
| XT75W18Co10Cr4V2 Mo1 | T75W18Co10Cr4 V2Mo1 |
| XT82MoW6Cr4V2 | T83MoW6Cr4V2 |
| 10T4 | T10 |
| T15Cr3 | T15Cr65 |
| XTCr5Mo1V | T10Cr5Mo75V23 |
| T16Ni3Cr2 | T16Ni80Cr60 |
| T15Ni5Cr4Mo1 | T15NiCr1Mo12 |
| T16Ni8Cr6Mo2 | T16NiCr2Mo20 |

# APPENDIX A

( *Clause* 0.2.1 )

## INDEX FOR DESIGNATIONS OF STEELS WHICH ARE NOT COVERED IN IS:1570-1961 BUT ARE INCLUDED IN INDIAN STANDARDS

| Indian Standard in which Steel is Included | Designation as Given in the Standard | New Designation |
|---|---|---|
| (1) | (2) | (3) |
| IS:963 | — | 31Cr4Mo2 |
| IS:2002 | Grade 1 | 13C8* |
| | Grade 2A | 15C8* |
| | Grade 2B | 17C8* |
| IS:3445 | 55Cr1 | 55Cr5 |
| | 60Cr1 | 60Cr5 |
| | 46Ni1Cr60 | 46Ni5Cr2 |
| | 60Ni1Cr75 | 60Ni5Cr3 |
| | 88Cr2 | 88Cr6 |
| | 90Cr2 | 90Cr8 |
| | 80Cr2Ni1Mo50 | 80Cr6Ni4Mo5 |
| | 75Cr2Mo35 | 75Cr8Mo4 |
| | 85Cr2Mo12V18 | 85Cr7MoV1 |
| | 90Cr2V18 | 90Cr6V2 |
| | 90Cr2Mo25V15 | 90Cr6MoV2 |
| | 90Cr2W45 | 90Cr8W2 |
| | 80Ni3Cr2W60 | 80Ni12Cr7W2 |
| | 45NiCr2W65 | 45NiCr6W3 |
| IS:3885 (Part I and II) | 40Si2Mn90 | 40Si7 |
| IS:3945 | Grade A-N | 12C12 |
| | Grade B-N | 14C16 |
| IS:4398 | 103Cr2Mn70 | 102Cr6Mn |

*IS:2002 does not specify manganese content for these grades. The designation is, therefore, based on the normally accepted average values of manganese for such grades.

| Indian Standard in Which Steel is Included | Designation as Given in the Standard | New Designation |
|---|---|---|
| (1) | (2) | (3) |
| IS : 4454 (Part I) | Grade 1 | 62C8 |
| | Grade 2 | 72C6 |
| | Grade 3 | 88C6 |
| | Grade 4 | 88C6 |
| IS : 4454 (Part II) | SW | 65C8 |
| | VW | 65C8 |
| IS : 4454 (Part III) | 1S & 1D | 50Cr4V2 |
| | 2S & 2D | 55Cr3 |
| IS : 4454 (Part IV) | Grade 1 | X10Cr18Ni9 |
| | Grade 2 | X04Cr17Ni7Al1 |
| IS : 4882 | — | 05C4 |
| IS : 5489 | C28 | 28C6 |
| IS : 5522 | 04Cr19Ni9 | X04Cr18Ni9 |
| | 07Cr19Ni9 | X07Cr18Ni9 |
| IS : 6240 | Grade A | 12C4 |
| | Grade B | 15C8 |
| IS : 7226 | 120Cr35 | 120Cr1 |
| | 110Cr35W2 | 110W9Cr1 |
| IS : 7291 | T72W18Cr4V1 | XT72W18Cr4V1 |
| | T75W18Co5Cr4V1Mo70 | XT75W18Co5Cr4MoV1 |
| | T80W20Co12Cr4V2Mo70 | XT80W20Co12Cr4V2Mo1 |
| | T125WCo10CrMo4V3 | XT125WCo10CrMo4V3 |
| | T83W6Mo5Cr4V2 | XT83W6Mo5Cr4V2 |
| | T81W6CoMo5Cr4V2 | XT81W6CoMo5Cr4V2 |
| | T110Mo10Co8Cr4W1 | XT110Mo10Co8Cr4W2 |
| IS : 7494 | 53Cr21Mn9Ni4N44 | X53Cr21Mn9Ni4N |
| IS : 7557 | — | 18C8 |

# APPENDIX B

( *Clause* 0.2.1 )

## LIST OF REFERRED STANDARDS

IS:

963-1958 Chrome-molybdenum steel ( bars and rods for aircraft purposes )

2002-1962 Steel plates for boilers

3445-1966 Forged steel rolls

3885 (Part I)-1966 Steel for the manufacture of laminated springs ( railway rolling stock ), Part I Flat sections

3885 (Part II)-1969 Steel for the manufacture of laminated springs ( railway rolling stock ), Part II Rib and groove sections

3945-1966 Steel for naval purposes

4398-1972 Carbon chromium steel for the manufacture of balls rollers and bearing races

4454 (Part I)-1975 Steel wires for cold formed springs, Part I Patented and cold drawn wires — unalloyed ( *first revision* )

4454 (Part II)-1975 Steel wires for cold formed springs, Part II Oil-hardened and tempered spring steel wire and valve spring wire — unalloyed ( *first revision* )

4454 (Part III)-1975 Steel wires for cold formed springs, Part III Oil-hardened and tempered steel wires — alloyed ( *first revision* )

4454 (Part IV)-1975 Steel wires for cold formed springs, Part IV Stainless spring steel wires for normal corrosion resistance ( *first revision* )

4882-1968 Low carbon steel wire for rivets for use in bearing industry

5489-1969 Carbonizing steel for use in bearing industry

5522-1969 Stainless steel sheets, coils and circles for utensils and hospitalware

6240-1971 Hot rolled steel sheets for the manufacture of low pressure gas cylinders

7226-1974 Cold rolled medium, high carbon and low alloy steel strip for general engineering purposes

7291-1974 High speed tool steel

7494-1974 Steel for valves for internal combustion engines

7557-1974 Steel valves for internal combustion engines

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| R14 Yudhister Marg, C Scheme, JAIPUR 302005 | 6 34 71<br>6 98 32 |
| 117/418 B Sarvodaya Nagar, KANPUR 208005 | 21 68 76<br>21 82 92 |
| Patliputra Industrial Estate, PATNA 800013 | 6 23 05 |
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