

【材料数据】JIS和国际标准材料对照表1

机械结构碳素钢、合金钢类

| 日本工业规格 | | 国外规格相关钢型 | | | | | | |
|---------------------------------------|----------|-------------------------|------------------------------------|-------------------------------|----------------------------------|----------------------------------|-------------------------------|------------------|
| 规格编号 名称 | 牌号 | GB | ISO 683/1,10,11 ^{a)} | AISI SAE | 870 Part1,3 88 EN 10083-1,2 | DIN EN 10084 DIN EN 10083-1,2 | NF A35-551 NF EN 10083-1,2 | ГОСТ 4543 |
| JIS G 4051 机械结构用 碳素钢 | S10C | 10 | C10 | 1010 | 040A10 045A10 045M10 | C10E C10R | XC10 | — |
| | S12C | — | — | 1012 | 040A12 | — | XC12 | — |
| | S15C | 15 | C15E4 C15M2 | 1015 | 055M15 | C15E C15R | — | — |
| | S17C | 15 | — | 1017 | — | — | XC18 | — |
| | S20C | 20 | — | 1020 | 070M20 C22 C22E C22R | C22 C22E C22R | C22 C22E C22R | — |
| | S22C | 20 | — | 1023 | — | — | — | — |
| | S25C | 25 | C25 C25E4 C25M2 | 1025 | C25 C25E C25R | C25 C25E C25R | C25 C25E C25R | — |
| | S28C | 25 | — | 1029 | — | — | — | 25 Γ |
| | S30C | 30 | C30 C30E4 C30M2 | 1030 | 080A30 080M30 C30E C30R | C30 C30E C30R | C30 C30E C30R | 30 Γ |
| | S33C | 30 | — | — | — | — | — | 30 Γ |
| | S35C | 35 | C35 C35E4 C35M2 | 1035 | C35 C35E C35R | C35 C35E C35R | C35 C35E C35R | 35 Γ |
| | S38C | 35 | — | 1038 | — | — | — | 35 Γ |
| | S40C | 40 | C40 C40E4 C40M2 | 1039 1040 | 080M40 C40 C40E C40R | C40 C40E C40R | C40 C40E C40R | 40 Γ |
| | S43C | 40 | — | 1042 1043 | 080A42 | — | — | 40 Γ |
| | S45C | 45 | C45 C45E4 C45M2 | 1045 1046 | C45 C45E C45R | C45 C45E C45R | C45 C45E C45R | 45 Γ |
| S48C | 45 | — | — | 080A47 | — | — | 45 Γ | |
| S50C | 50 | C50 C50E4 C50M2 | 1049 | 080M50 C50 C50E C50R | C50 C50E C50R | C50 C50E C50R | 50 Γ | |
| S53C | 50 | — | 1050 1053 | — | — | — | 50 Γ | |
| S55C | 55 | C55 C55E4 C55M2 | 1055 | 070M55 C55 C55E C55R | C55 C55E C55R | C55 C55E C55R | — | |
| S58C | 55 | C60 C60E4 C60M2 | 1059 1060 | C60 C60E C60R | C60 C60E C60R | C60 C60E C60R | 60 Γ | |
| S09CK | 08 | — | — | 045A10 045M10 | C10E XC10 | — | — | |
| S15CK | 15 | — | — | — | C15E XC12 | — | — | |
| S20CK | 20 | — | — | — | C15E XC18 | — | — | |
| JIS G 4106 机械结构用 锰钢及锰硅 钢 | SMn420 | 20Mn2 | 22Mn6 | 1522 | 150M19 | — | — | — |
| | SMn433 | 30Mn2 | — | 1534 | 150M36 | — | — | 30 Γ 2 35 Γ 2 |
| | SMn438 | 35Mn2 | 36Mn6 | 1541 | 150M36 | — | — | 35 Γ 2 40 Γ 2 |
| | SMn443 | 40Mn2 | 42Mn6 | 1541 | — | — | — | 40 Γ 2 45 Γ 2 |
| | SMn420 | 20CrMn | — | — | — | — | — | — |
| JIS G 4202 镍铬钼钢 | SACM645 | 38CrMoAl | 41CrAlMo74 | — | — | — | — | — |
| | SMn420H | 20Mn2 | 22Mn6 | 1522H | — | — | — | — |
| JIS G 4052 保证淬火性 能的结构钢 (中碳钢) | SMn433H | 30Mn2 | — | — | — | — | — | — |
| | SMn438H | 35Mn2 | 36Mn6 | 1541H | — | — | — | — |
| | SMn443H | 30Mn2 | 42Mn6 | 1541H | — | — | — | — |
| | SMn420H | — | — | — | — | — | — | — |
| | SMn443H | — | — | — | — | — | — | — |
| | SCr415H | — | — | — | — | 17Cr3 17CrS3 | — | 15X |
| | SCr420H | 20CrH | 20Cr4 20CrS4 | 5120H | — | — | — | 20X |
| | SCr430H | — | 34Cr4 34CrS4 | 5130H 5132H | 34Cr4 34CrS4 | 34Cr4 34CrS4 | 34Cr4 34CrS4 | 30X |
| | SCr435H | — | 34Cr4 34CrS4 37Cr4 37CrS4 | 5135H | 37Cr4 37CrS4 | 37Cr4 37CrS4 | 37Cr4 37CrS4 | 35X |
| | SCr440H | 40CrH | 37Cr4 37CrS4 41Cr4 41CrS4 | 5140H | 41Cr4 41CrS4 | 41Cr4 41CrS4 | 41Cr4 41CrS4 | 40X |
| | SCM415H | — | — | — | — | — | — | — |
| | SCM418H | — | 18CrMo4 18CrMoS4 | — | — | 18CrMo4 18CrMoS4 | — | — |
| | SCM420H | 20CrMnMoH | — | 708H20 | — | — | — | — |
| | SCM435H | — | 34CrMo4 34CrMoS4 | 4135H 4137H | 34CrMo4 34CrMoS4 | 34CrMo4 34CrMoS4 | 34CrMo4 34CrMoS4 | — |
| | SCM440H | — | 42CrMo4 42CrMoS4 | 4140H 4142H | 42CrMo4 42CrMoS4 | 42CrMo4 42CrMoS4 | 42CrMo4 42CrMoS4 | — |
| SCM445H | — | — | 4145H 4147H | — | — | — | — | |
| SCM822H | — | — | — | — | — | — | — | |
| SNC415H | 12CrNi2 | — | — | — | — | — | — | |
| SNC631H | 30CrNi3 | — | — | — | — | — | — | |
| SNC815H | 12CrNi3 | 15NiCr13 | — | 655H13 | 15NiCr13 | — | — | |
| SNCM220H | 20CrNiMo | 20NiCrMo2 20NiCrMoS2 | 8617H 8620H 8622H | 805H17 805H20 805H22 | — | 20NiCr2 | — | |
| SNCM420H | — | — | 4320H | — | — | — | — | |

| 日本工业规格 | | 国外规格相关钢型 | | | | | | | |
|------------------------------|------------------|---------------------|------------------------------------|---|--|----------------------------------|-------------------------------|-----------------|-------------|
| 规格编号 名称 | 牌号 | GB | ISO 683/1,10,11 ^{a)} | AISI SAE | 870 Part1,3 88 EN 10083-1,2 | DIN EN 10084 DIN EN 10083-1,2 | NF A35-551 NF EN 10083-1,2 | ГОСТ 4543 | |
| JIS G 4102 镍铬钢 | SNC236 | 40CrNi | — | — | — | — | — | 40XH | |
| | SNC415 | 12CrNi2 | — | — | — | — | — | — | |
| | SNC631 | 30CrNi3 | — | — | — | — | — | 30XH3A | |
| | SNC815 | 12Cr2Ni4 | 15NiCr13 | — | 655M13 | 15NiCr13 | — | — | |
| JIS G 4103 镍铬钼钢 | SNCM220 | 20CrNiMo | 20NiCrMo2 20NiCrMoS2 | 8615 8617 8620 8622 | 805A20 805M20 805A22 805M22 | 20NiCrMo2 20NiCrMoS2 | 20NiCr2 | — | |
| | SNCM240 | — | 41CrNiMo2 41CrNiMoS2 | 8637 8640 | — | — | — | — | |
| | SNCM415 | — | — | — | — | — | — | — | |
| | SNCM420 | — | — | 4320 | — | — | — | 20NiCr20NiMo | |
| | SNCM431 | — | — | — | — | — | — | — | |
| | SNCM439 | — | — | 4340 | — | — | — | — | |
| | SNCM447 | — | — | — | — | — | — | — | |
| | SNCM516 | — | — | — | — | — | — | — | |
| | SNCM625 | — | — | — | — | — | — | — | |
| | SNCM630 | — | — | — | — | — | — | — | |
| | SNCM815 | — | — | — | — | — | — | — | |
| | JIS G 4104 铬钢 | SCr415 | 15Cr | — | — | — | 17Cr3 17CrS3 | — | 15X 15XA |
| | | SCr420 | 20Cr | 20Cr4 20CrS4 | 5120 | — | — | — | 20X |
| | | SCr430 | 30Cr | 34Cr4 34CrS4 | 5130 5132 | 34Cr4 34CrS4 | 34Cr4 34CrS4 | 34Cr4 34CrS4 | 30X |
| | | SCr435 | 35Cr | 34Cr4 34CrS4 37Cr4 37CrS4 | 5132 | 37Cr4 37CrS4 | 37Cr4 37CrS4 | 37Cr4 37CrS4 | 35X |
| SCr440 | | 40Cr | 37Cr4 37CrS4 41Cr4 41CrS4 | 5140 | 530M40 41Cr4 41CrS4 | 41Cr4 41CrS4 | 41Cr4 41CrS4 | 40X | |
| SCr445 | | 45Cr | — | — | — | — | — | 45X | |
| SCM415 | | 15CrMo | — | — | — | — | — | — | |
| SCM418 | | — | 18CrMo4 18CrMoS4 | — | — | 18CrMo4 18CrMoS4 | — | 20XM | |
| SCM420 | | 20CrMo | — | 708M20 | — | — | — | 20XM | |
| SCM421 | | 20CrMnMo | — | — | — | — | — | — | |
| SCM430 | 30CrMo | — | 4131 | — | — | — | 30XM 30XMA | | |
| SCM432 | — | — | — | — | — | — | — | | |
| SCM435 | 35CrMo | 34CrMo4 34CrMoS4 | 4137 | 34CrMo4 34CrMoS4 | 34CrMo4 34CrMoS4 | 34CrMo4 34CrMoS4 | 35XM | | |
| SCM440 | 40CrMnMo | 42CrMo4 42CrMoS4 | 4140 4142 | 708M40 709M40 42CrMo4 42CrMoS4 | 42CrMo4 42CrMoS4 | 42CrMo4 42CrMoS4 | — | | |
| SCM445 | — | — | 4145 4147 | — | — | — | — | | |
| SCM822 | — | — | — | — | — | — | — | | |
| JIS G 4107 高温合金钢 螺栓材料 | SNB7 | — | 42CrMo4 42CrMoS4 | 4140 4142 4145 | 708M40 709M40 42CrMo4 ^{b)} | 42CrMo4 ^{b)} | 42CrMo4 ^{b)} | — | |
| | SMB16 | — | — | — | 40CrMo4-6 ^{b)} 40CrMo4-6 ^{b)} | 40CrMo4-6 ^{b)} | 40CrMo4-6 ^{b)} | — | |
| JIS G 4108 特种合金钢 螺栓用棒材 | SNB21-1~5 | — | — | — | — | — | — | — | |
| | SNB22-1~5 | — | 42CrMo4 42CrMoS4 | 4142H | — | 42CrMo4 ^{b)} | — | — | |
| | SNB23-1~5 | — | — | 4340H | — | — | — | — | |
| SNB24-1~5 | — | — | — | 4340 | — | — | — | | |

注 1)BS EN 10259
2)DIN 1654 Part 4
3)DIN 17240
4)NF EN 10259
5)ISO683-1, 10, 11已作为JIS G 7501, G 7502, G 7503发行了JIS的翻译版。

ISO: International Organization for Standardization(国际标准化组织)
AISI: American Iron and Steel Institute(美国钢铁协会)
SAE: Society of Automotive Engineers(汽车技术协会)
BS: British Standards(英国标准)
DIN: Deutsches Institut für Normung(德国标准协会)
EN: European Standards(欧洲标准化委员会)
NF: Norme Française(法国国家标准)
ГОСТ: 前苏联的国家标准

工具钢名称

| | | |
|----------|---------|---|
| 一般结构用热轧钢 | SS400 | Steel(钢) · Structure · 400N/mm ² |
| 机械结构用碳素钢 | S45C | Steel · 0.45% <u>C</u> |
| 镍铬钢 | SCM435 | Steel · <u>Cr</u> · <u>Mo</u> 435 |
| 镍铬钼钢 | SNCM220 | Steel · <u>Ni</u> · <u>Cr</u> · <u>Mo</u> 220 |
| 碳素工具钢 | SK105 | Steel · <u>工具</u> · 105种 (IJSK3) |
| 合金工具钢 | SKS3 | Steel · <u>工具</u> · Special · 3种 |
| 合金工具钢 | SKD11 | Steel · <u>工具</u> · Dies · 11种 |
| 高速工具钢 | SKH51 | Steel · <u>工具</u> · High Speed · 51种 |
| 高碳素铬轴承钢 | SUJ2 | Steel · <u>Use</u> · 轴承 · 2种 |
| 不锈钢 | SUS304 | Steel · <u>Use</u> · Stainless · 304种 |
| 灰铸铁 | FC250 | Ferrum(铁) · Cast · 250N/mm ² |