

付表 Appendix

SI単位換算表

SI unit conversion table

●接頭辞 SI-Prefixes

| | SI-Prefixes 接頭辞 | | | SI-Prefixes 接頭辞 | | | SI-Prefixes 接頭辞 | |
|------------------|-----------------|-----------|------------------|-----------------|-----------|-------------------|-----------------|-----------|
| | Prefix 名称 | Symbol 記号 | | Prefix 名称 | Symbol 記号 | | Prefix 名称 | Symbol 記号 |
| 10 ¹⁸ | exa(エクサ) | E | 10 ² | hecto(ヘクト) | h | 10 ⁻⁹ | nano(ナノ) | n |
| 10 ¹⁵ | peta(ペタ) | P | 10 ¹ | deca(デカ) | da | 10 ⁻¹² | pico(ピコ) | p |
| 10 ¹² | tera(テラ) | T | 10 ⁻¹ | deci(デシ) | d | 10 ⁻¹⁵ | femto(フェムト) | f |
| 10 ⁹ | giga(ギガ) | G | 10 ⁻² | centi(センチ) | c | 10 ⁻¹⁸ | atto(アト) | a |
| 10 ⁶ | mega(メガ) | M | 10 ⁻³ | milli(ミリ) | m | | | |
| 10 ³ | kilo(キロ) | k | 10 ⁻⁶ | micro(マイクロ) | μ | | | |

●力,重量 Force, Weight

| N(ニュートン) kg·m/s ² | dyn(ダイン) g·cm/s ² | kgf (重量キログラム) | lbf (重量ポンド) |
|---------------------------------|---------------------------------|--------------------------|---------------------------|
| 1 | 10 ⁵ | 0.101972 | 0.224809 |
| 10 ⁻⁵ | 1 | 1.01972×10 ⁻⁶ | 0.224809×10 ⁻⁶ |
| 9.80665 | 9.80665×10 ⁵ | 1 | 2.20462 |
| 4.44822 | 4.44822×10 ⁵ | 0.453592 | 1 |

注)色付きセルはSI単位系です。 Note) Highlighted cells show SI unit.

●質量 mass

| kg(キログラム) | g(グラム) | lb(ポンド) | t(トン) | oz(オンス) |
|------------------|-----------------|--------------------------|---------------------------|------------------------|
| 1 | 10 ³ | 2.20462 | 10 ⁻³ | 35.274 |
| 10 ⁻³ | 1 | 2.20462×10 ⁻³ | 10 ⁻⁶ | 0.035274 |
| 0.453592 | 453.592 | 1 | 0.453592×10 ⁻³ | 16 |
| 1000 | 10 ⁶ | 2204.62 | 1 | 3.5274×10 ⁴ |
| 0.0283495 | 28.3495 | 0.06250 | 2.83495×10 ⁻⁵ | 1 |

注)色付きセルはSI単位系です。 Note) Highlighted cells show SI unit.

●応力 Stress

| Pa(パスカル) N/m ² | MPa(メガパスカル) N/mm ² | kgf/mm ² | kgf/cm ² |
|------------------------------|----------------------------------|--------------------------|--------------------------|
| 1 | 1×10 ⁻⁶ | 1.01972×10 ⁻⁷ | 1.01972×10 ⁻⁵ |
| 1×10 ⁶ | 1 | 1.01972×10 ⁻¹ | 1.01972×10 |
| 9.80665×10 ⁶ | 9.80665 | 1 | 1×10 ² |
| 9.80665×10 ⁴ | 9.80665×10 ⁻² | 1×10 ⁻² | 1 |

注)色付きセルはSI単位系です。 Note) Highlighted cells show SI unit.

●圧力 Pressure

| Pa(パスカル) N/m ² | MPa(メガパスカル) N/mm ² | bar | kgf/cm ² | atm | mmH ₂ O | mmHg Torr |
|------------------------------|----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | 1×10 ⁻⁶ | 1×10 ⁻⁵ | 1.01972×10 ⁻⁵ | 9.86923×10 ⁻⁶ | 1.01972×10 ⁻¹ | 7.50062×10 ⁻³ |
| 1×10 ³ | 1×10 ⁻³ | 1×10 ⁻² | 1.01972×10 ⁻² | 9.86923×10 ⁻³ | 1.01972×10 ² | 7.50062 |
| 1×10 ⁶ | 1 | 1×10 | 1.01972×10 | 9.86923 | 1.01972×10 ⁵ | 7.50062×10 ³ |
| 1×10 ⁵ | 1×10 ⁻¹ | 1 | 1.01972 | 9.86923×10 ⁻¹ | 1.01972×10 ⁴ | 7.50062×10 ² |
| 9.80665×10 ⁴ | 9.80665×10 ⁻² | 9.80665×10 ⁻¹ | 1 | 9.67841×10 ⁻¹ | 1×10 ⁴ | 7.35559×10 ² |
| 1.01325×10 ⁵ | 1.01325×10 ⁻¹ | 1.01325 | 1.03323 | 1 | 1.03323×10 ⁴ | 7.60000×10 ² |
| 9.80665 | 9.80665×10 ⁻⁶ | 9.80665×10 ⁻⁵ | 1×10 ⁻⁴ | 9.67841×10 ⁻⁵ | 1 | 7.35559×10 ⁻² |
| 1.33322×10 ² | 1.33322×10 ⁻⁴ | 1.33322×10 ⁻³ | 1.35951×10 ⁻³ | 1.31579×10 ⁻³ | 1.35951×10 | 1 |

注)色付きセルはSI単位系です。 Note) Highlighted cells show SI unit.

●動粘度 Kinematic Viscosity

| m ² /s | cSt mm ² /s | St cm ² /s |
|--------------------|---------------------------|--------------------------|
| 1 | 1×10 ⁶ | 1×10 ⁴ |
| 1×10 ⁻⁶ | 1 | 1×10 ⁻² |
| 1×10 ⁻⁴ | 1×10 ² | 1 |

注)色付きセルはSI単位系です。 Note) Highlighted cells show SI unit.

●速度 Velocity

| m/s | m/min | km/h | ft/s | ft/min | mile/h |
|-------------------------|---------|----------|-----------|---------|-----------|
| 1 | 60 | 3.6 | 3.28084 | 196.850 | 2.23693 |
| 0.0166667 | 1 | 0.06 | 0.0546807 | 3.2808 | 0.0372823 |
| 0.277778 | 16.667 | 1 | 0.911344 | 54.6807 | 0.621371 |
| 0.30480 | 18.288 | 1.09728 | 1 | 60 | 0.681818 |
| 5.0800×10 ⁻³ | 0.30480 | 0.018288 | 0.0166667 | 1 | 0.0113636 |
| 0.447041 | 26.8224 | 1.60934 | 1.46667 | 88 | 1 |

●長さ Length

| m (メートル) | cm (センチメートル) | mm (ミリメートル) | μm (マイクロメートル) | nm (ナノメートル) | Å (オングストローム) | in (インチ) | ft (フィート) |
|-------------------|------------------|------------------|-----------------------|-----------------------|-----------------------|---------------------------|---------------------------|
| 1 | 100 | 1000 | 10 ⁶ | 10 ⁹ | 10 ¹⁰ | 39.3701 | 3.28084 |
| 0.01 | 1 | 10 | 10 ⁴ | 10 ⁷ | 10 ⁸ | 0.393701 | 0.0328084 |
| 0.001 | 0.1 | 1 | 10 ³ | 10 ⁶ | 10 ⁷ | 0.0393701 | 3.28084×10 ⁻³ |
| 10 ⁻⁶ | 10 ⁻⁴ | 10 ⁻³ | 1 | 10 ³ | 10 ⁴ | 39.3701×10 ⁻⁶ | 3.28084×10 ⁻⁶ |
| 10 ⁻⁹ | 10 ⁻⁷ | 10 ⁻⁶ | 10 ⁻³ | 1 | 10 | 39.3701×10 ⁻⁹ | 3.28084×10 ⁻⁹ |
| 10 ⁻¹⁰ | 10 ⁻⁸ | 10 ⁻⁷ | 10 ⁻⁴ | 0.1 | 1 | 39.3701×10 ⁻¹⁰ | 3.28084×10 ⁻¹⁰ |
| 0.0254 | 2.54 | 25.4 | 25.4×10 ³ | 25.4×10 ⁶ | 25.4×10 ⁷ | 1 | 0.0833333 |
| 0.3048 | 30.48 | 304.8 | 304.8×10 ³ | 304.8×10 ⁶ | 304.8×10 ⁷ | 12 | 1 |

硬さ換算表 Conversion Table for Hardness

| Rockwell hardness C-scale ロックウェル硬さ Cスケール | Vickers hardness ビッカース硬さ | Brinell hardness ブリネル硬さ | | Rockwell hardness ロックウェル硬さ | | Shore hardness ショア硬さ |
|---|-----------------------------|----------------------------|---|---|--|-------------------------|
| | | Standard Ball 標準球 | Tungsten Carbide Ball タングステン カーバイド球 | A-Scale Load;600N barle Pressure Piece Aスケール 荷重;600N barle圧子 | B-Scale Load;1000N 1/16-in dia. Ball Bスケール 荷重;1000N 1/16in球 | |
| HRC | Hv | HB | HB | HRA | HRB | Hs |
| 68 | 940 | — | — | 85.6 | — | 97 |
| 67 | 900 | — | — | 85.0 | — | 95 |
| 66 | 865 | — | — | 84.5 | — | 92 |
| 65 | 832 | — | 739 | 83.9 | — | 91 |
| 64 | 800 | — | 722 | 83.4 | — | 88 |
| 63 | 772 | — | 705 | 82.8 | — | 87 |
| 62 | 746 | — | 688 | 82.3 | — | 85 |
| 61 | 720 | — | 670 | 81.8 | — | 83 |
| 60 | 697 | — | 654 | 81.2 | — | 81 |
| 59 | 674 | — | 634 | 80.7 | — | 80 |
| 58 | 653 | — | 615 | 80.1 | — | 78 |
| 57 | 633 | — | 595 | 79.6 | — | 76 |
| 56 | 613 | — | 577 | 79.0 | — | 75 |
| 55 | 595 | — | 560 | 78.5 | — | 74 |
| 54 | 577 | — | 543 | 78.0 | — | 72 |
| 53 | 560 | — | 525 | 77.4 | — | 71 |
| 52 | 544 | 500 | 512 | 76.8 | — | 69 |
| 51 | 528 | 487 | 496 | 76.3 | — | 68 |
| 50 | 513 | 475 | 481 | 75.9 | — | 67 |
| 49 | 498 | 464 | 469 | 75.2 | — | 66 |
| 48 | 484 | 451 | 455 | 74.7 | — | 64 |
| 47 | 471 | 442 | 443 | 74.1 | — | 63 |
| 46 | 458 | 432 | 432 | 73.6 | — | 62 |
| 45 | 446 | 421 | 421 | 73.1 | — | 60 |
| 44 | 434 | 409 | 409 | 72.5 | — | 58 |
| 43 | 423 | 400 | 400 | 72.0 | — | 57 |
| 42 | 412 | 390 | 390 | 71.5 | — | 56 |
| 41 | 402 | 381 | 381 | 70.9 | — | 55 |
| 40 | 392 | 371 | 371 | 70.4 | — | 54 |
| 39 | 382 | 362 | 362 | 69.9 | — | 52 |
| 38 | 372 | 353 | 353 | 69.4 | — | 51 |
| 37 | 363 | 344 | 344 | 68.9 | — | 50 |
| 36 | 354 | 336 | 336 | 68.4 | (109.0) | 49 |
| 35 | 345 | 327 | 327 | 67.9 | (108.5) | 48 |
| 34 | 336 | 319 | 319 | 67.4 | (108.0) | 47 |
| 33 | 327 | 311 | 311 | 66.8 | (107.5) | 46 |
| 32 | 318 | 301 | 301 | 66.3 | (107.0) | 44 |
| 31 | 310 | 294 | 294 | 65.8 | (106.0) | 43 |
| 30 | 302 | 286 | 286 | 65.3 | (105.5) | 42 |
| 29 | 294 | 279 | 279 | 64.7 | (104.5) | 41 |
| 28 | 286 | 271 | 271 | 64.3 | (104.0) | 41 |
| 27 | 279 | 264 | 264 | 63.8 | (103.0) | 40 |
| 26 | 272 | 258 | 258 | 63.3 | (102.5) | 38 |
| 25 | 266 | 253 | 253 | 62.8 | (101.5) | 38 |
| 24 | 260 | 247 | 247 | 62.4 | (101.0) | 37 |
| 23 | 254 | 243 | 243 | 62.0 | 100.0 | 36 |
| 22 | 248 | 237 | 237 | 61.5 | 99.0 | 35 |
| 21 | 243 | 231 | 231 | 61.0 | 98.5 | 35 |
| 20 | 238 | 226 | 226 | 60.5 | 97.8 | 34 |
| (18) | 230 | 219 | 219 | — | 96.7 | 33 |
| (16) | 222 | 212 | 212 | — | 95.5 | 32 |
| (14) | 213 | 203 | 203 | — | 93.9 | 31 |
| (12) | 204 | 194 | 194 | — | 92.3 | 29 |
| (10) | 196 | 187 | 187 | — | 90.7 | 28 |
| (8) | 188 | 179 | 179 | — | 89.5 | 27 |
| (6) | 180 | 171 | 171 | — | 87.1 | 26 |
| (4) | 173 | 165 | 165 | — | 85.5 | 25 |
| (2) | 166 | 158 | 158 | — | 83.5 | 24 |
| (0) | 160 | 152 | 152 | — | 81.7 | 24 |

材料の化学成分

Material Chemical Composition

| Category 材料分類 | Std. No. 規格番号 | Designation 記号 | Chemical Composition (化学成分) % | | | | | | | | | | |
|--|------------------|-------------------|-------------------------------|-----------|-----------|--------|--------|-------|-----------|-----------|----|---------------|-----------------------|
| | | | C | Si | Mn | P | S | Ni | Cr | Mo | Al | others その他 | |
| Carbon Steels for machine structural use 機械構造用 炭素鋼 | JIS G 4051 | S40C | 0.37~0.43 | 0.15~0.35 | 0.60~0.90 | ≤0.030 | ≤0.035 | ≤0.20 | ≤0.20 | | | | Cu≤0.30 Ni+Cr≤0.35 |
| | | S45C | 0.42~0.48 | 0.15~0.35 | 0.60~0.90 | ≤0.030 | ≤0.035 | ≤0.20 | ≤0.20 | | | | Cu≤0.30 Ni+Cr≤0.35 |
| | | S50C | 0.47~0.53 | 0.15~0.35 | 0.60~0.90 | ≤0.030 | ≤0.035 | ≤0.20 | ≤0.20 | | | | Cu≤0.30 Ni+Cr≤0.35 |
| | | S53C | 0.50~0.56 | 0.15~0.35 | 0.60~0.90 | ≤0.030 | ≤0.035 | ≤0.20 | ≤0.20 | | | | Cu≤0.30 Ni+Cr≤0.35 |
| | | S55C | 0.52~0.58 | 0.15~0.35 | 0.60~0.90 | ≤0.030 | ≤0.035 | ≤0.20 | ≤0.20 | | | | Cu≤0.30 Ni+Cr≤0.35 |
| Structural Steels with specified hardening bands 焼入性保証 構造用鋼材 | JIS G 4052 | SCM415H | 0.12~0.18 | 0.15~0.35 | 0.55~0.95 | ≤0.030 | ≤0.030 | ≤0.25 | 0.85~1.25 | 0.15~0.30 | | | |
| | | SCM420H | 0.17~0.23 | 0.15~0.35 | 0.55~0.95 | ≤0.030 | ≤0.030 | ≤0.25 | 0.85~1.25 | 0.15~0.30 | | | |
| | | SCM435H | 0.32~0.39 | 0.15~0.35 | 0.55~0.95 | ≤0.030 | ≤0.030 | ≤0.25 | 0.85~1.25 | 0.15~0.35 | | | |
| | | SCM440H | 0.37~0.44 | 0.15~0.35 | 0.55~0.95 | ≤0.030 | ≤0.030 | ≤0.25 | 0.85~1.25 | 0.15~0.35 | | | |
| | | SCM445H | 0.42~0.49 | 0.15~0.35 | 0.55~0.95 | ≤0.030 | ≤0.030 | ≤0.25 | 0.85~1.25 | 0.15~0.35 | | | |
| Chrome - molybdenum Steel クロム モリブデン 鋼材 | JIS G 4105 | SCM415 | 0.13~0.18 | 0.15~0.35 | 0.60~0.85 | ≤0.030 | ≤0.030 | ≤0.25 | 0.90~1.20 | 0.15~0.30 | | | Cu≤0.30 |
| | | SCM418 | 0.16~0.21 | 0.15~0.35 | 0.60~0.85 | ≤0.030 | ≤0.030 | ≤0.25 | 0.90~1.20 | 0.15~0.30 | | | Cu≤0.30 |
| | | SCM420 | 0.18~0.23 | 0.15~0.35 | 0.60~0.85 | ≤0.030 | ≤0.030 | ≤0.25 | 0.90~1.20 | 0.15~0.30 | | | Cu≤0.30 |
| | | SCM430 | 0.28~0.33 | 0.15~0.35 | 0.60~0.85 | ≤0.030 | ≤0.030 | ≤0.25 | 0.90~1.20 | 0.15~0.30 | | | Cu≤0.30 |
| | | SCM435 | 0.35~0.38 | 0.15~0.35 | 0.60~0.85 | ≤0.030 | ≤0.030 | ≤0.25 | 0.90~1.20 | 0.15~0.30 | | | Cu≤0.30 |
| | | SCM440 | 0.38~0.43 | 0.15~0.35 | 0.60~0.85 | ≤0.030 | ≤0.030 | ≤0.25 | 0.90~1.20 | 0.15~0.30 | | | Cu≤0.30 |
| | | SCM445 | 0.43~0.48 | 0.15~0.35 | 0.60~0.85 | ≤0.030 | ≤0.030 | ≤0.25 | 0.90~1.20 | 0.15~0.30 | | | Cu≤0.30 |

| Category 材料分類 | Std. No. 規格番号 | Designation 記号 | Chemical Composition (化学成分) % | | | | | | | | others その他 |
|-------------------------------|------------------|-------------------|-------------------------------|--------|--------|----------|-------------|-------------|-------------|-----------|---------------|
| | | | C | Si | Mn | P | S | Ni | Cr | Mo | |
| Stainless Steels ステンレス鋼 | JIS G 4303 | SUS303 | ≤0.15 | ≤1.00 | ≤2.00 | ≤0.20 | ≥0.15 | 8.00~10.00 | 17.00~19.00 | ≤0.60 | |
| | | SUS304 | ≤0.08 | ≤1.00 | ≤2.00 | ≤0.045 | ≤0.030 | 8.00~10.50 | 18.00~20.00 | | |
| | | SUS316 | ≤0.08 | ≤1.00 | ≤2.00 | ≤0.045 | ≤0.030 | 10.00~14.00 | 16.00~18.00 | 2.00~3.00 | |
| | | SUS317 | ≤0.08 | ≤1.00 | ≤2.00 | ≤0.045 | ≤0.030 | 11.00~15.00 | 18.00~20.00 | 3.00~4.00 | |
| | | SUS440A | 0.60~0.75 | ≤1.00 | ≤1.00 | ≤0.040 | ≤0.040 | | 16.00~18.00 | ≤0.75 | |
| | | SUS440B | 0.75~0.95 | ≤1.00 | ≤1.00 | ≤0.040 | ≤0.030 | | 16.00~18.00 | ≤0.75 | |
| | | SUS440C | 0.95~1.20 | ≤1.00 | ≤1.00 | ≤0.040 | ≤0.030 | | 16.00~18.00 | ≤0.75 | |
| | | SUS630 | ≤0.07 | ≤1.00 | ≤1.00 | ≤0.040 | ≤0.030 | 3.00~5.00 | 15.50~17.50 | | |
| SUS631 | ≤0.09 | ≤1.00 | ≤1.00 | ≤0.040 | ≤0.030 | 6.5~7.75 | 16.00~18.00 | | | | |

| Category 材料分類 | Std. No. 規格番号 | Designation 記号 | Chemical Composition (化学成分) % | | | | | | | | | | |
|--|------------------|-------------------|-------------------------------|-----------|-----------|--------|--------|----|-----------|-----------|---|---------------|--|
| | | | C | Si | Mn | P | S | Pb | Cr | Mo | W | others その他 | |
| Alloy Tool Steels 合金工具鋼鋼材 | JIS G 4404 | SKS 2 | 1.00~1.10 | ≤0.35 | ≤0.80 | ≤0.030 | ≤0.030 | | 0.50~1.00 | | | 1.00~1.50 | |
| | | SKS 3 | 0.90~1.00 | ≤0.35 | 0.90~1.20 | ≤0.030 | ≤0.030 | | 0.50~1.00 | | | 0.50~1.00 | |
| | | SKS 4 | 0.45~0.55 | ≤0.35 | ≤0.50 | ≤0.030 | ≤0.030 | | 0.50~1.00 | | | 0.50~1.00 | |
| High Carbon Chromium Bearing Steels 高炭素クロム 軸受鋼 | JIS G 4805 | SUJ 1 | 0.95~1.10 | 0.15~0.35 | ≤0.50 | ≤0.025 | ≤0.025 | | 0.90~1.20 | ≤0.08 | | | |
| | | SUJ 2 | 0.95~1.10 | 0.15~0.35 | ≤0.50 | ≤0.025 | ≤0.025 | | 1.30~1.60 | ≤0.08 | | | |
| | | SUJ 3 | 0.95~1.10 | 0.40~0.70 | 0.90~1.15 | ≤0.025 | ≤0.025 | | 0.90~1.20 | ≤0.08 | | | |
| | | SUJ 4 | 0.95~1.10 | 0.15~0.35 | ≤0.50 | ≤0.025 | ≤0.025 | | 1.30~1.60 | 0.10~0.25 | | | |

| Category 材料分類 | Std. No. 規格番号 | Designation 記号 | Chemical Composition (化学成分) % | | | | | | | others その他 | |
|---------------------|------------------|-------------------|-------------------------------|---------|-------|---------|---------------|----|----|---------------|-----------------------------|
| | | | Cu | Pb | Fe | Sn | Zn | Mn | Ni | | |
| Copper alloy 銅合金 | JIS H 3270 | C5191B | | | | 5.5~7.0 | | | | | P;0.03~0.35 Cu+Sn+P≥99.5 |
| | JIS H 3260 | C3604W | 57.0~61.0 | 1.8~3.7 | ≤0.50 | | Remains 残部 | | | | Fe+Sn≤1.2 |

| Category 材料分類 | Std. No. 規格番号 | Designation 記号 | Chemical Composition (化学成分) % | | | | | | | | | |
|---------------------|------------------|-------------------|-------------------------------|---------|-------|----|------|---------|---------|------|-------|---------------|
| | | | Cu | Zn | Al | Mn | Ni | Pb | Sn | Fe | Si | others その他 |
| Copper alloy 銅合金 | JIS H 5111 | BC6 | 82.0 ~87.0 | 4.0~6.0 | ≤0.01 | | ≤1.0 | 4.0~6.0 | 4.0~6.0 | ≤0.3 | ≤0.01 | |

材料に関するJISと関連外国規格

Comparison with other country's standard for material

| Japan Industrial Standard;JIS 日本工業規格 | | | ISO (国際規格) | USA (アメリカ) | UK (英国) | Germany (ドイツ) | France (フランス) |
|---|------------------|-------------------|------------------|---------------|---------------------|------------------|------------------|
| Category 材料分類 | Std. No. 規格番号 | Designation 記号 | | | | | |
| Carbon Steels for Machine structural use 機械構造用 炭素鋼 | JIS G 4051 | S40C | C40/C40E4/C40M2 | AISI 1040 | EN-C40,C40E,C40R | | |
| | | S45C | C45/C45E4/C45M2 | AISI 1045 | EN-C45,C45E,C45R | | |
| | | S50C | C50/C50E4/C50M2 | AISI 1049 | EN-C50,C50E,C50R | | |
| | | S53C | — | AISI 1053 | — | — | — |
| | | S55C | C55/C55E4/C55M2 | AISI 1055 | EN-C55,C55E,C55R | | |
| Structural Steels with specified hardenable bands 焼入性保証 構造用鋼材 | JIS G 4052 | SCM415H | — | — | — | — | — |
| | | SCM420H | — | — | 708H20 | — | — |
| | | SCM435H | 34CrMo4/34CrMoS4 | AISI 4137H | — | — | — |
| | | SCM440H | 42CrMo4/42CrMoS4 | AISI 4140H | EN-42CrMo4/42CrMoS4 | | |
| | | SCM445H | — | AISI 4147H | — | — | — |
| Chrome - molybdenum Steel クロム モリブデン 鋼材 | JIS G 4105 | SCM415 | — | — | — | — | — |
| | | SCM418 | 18CrMo4/18CrMoS4 | — | — | — | — |
| | | SCM420 | — | — | 708M20 | — | — |
| | | SCM430 | — | AISI 4130 | — | — | — |
| | | SCM435 | 34CrMo4/34CrMoS4 | AISI 4137 | — | — | — |
| | | SCM440 | 42CrMo4/42CrMoS4 | AISI 4140 | EN-42CrMo4/42CrMoS4 | | |
| | | SCM445 | — | AISI 4147 | — | — | — |

| Japan Industrial Standard;JIS 日本工業規格 | | | ISO (国際規格) | USA (アメリカ) | UK (英国) | Germany (ドイツ) | France (フランス) |
|--|------------------|-------------------|------------------|-------------------|--------------|------------------|------------------|
| Category 材料分類 | Std. No. 規格番号 | Designation 記号 | | | | | |
| Stainless Steels ステンレス鋼 | JIS G 4303 | SUS303 | TR15510(1997)-13 | ASTM-S 30300 | 303 S 31 | X10CrNiS 189 | Z8 CNF 18.09 |
| | | SUS304 | TR15510(1997)-6 | ASTM-S 30400 | 304 S 31 | X5CrNi 1810 | Z7CN 18.09 |
| | | SUS316 | TR15510(1997)-26 | ASTM-S 31600 | 316 S 31 | X5CrNiMo17122 | Z7CND 17.11-02 |
| | | SUS317 | — | ASTM-S 31700 | 317 S 16 | — | — |
| | | SUS440A | — | ASTM-S 44002 | EN-1.4109 | | |
| | | SUS440B | — | ASTM-S 44003 | — | — | — |
| | | SUS440C | — | ASTM-S 44004 | EN-1.4125 | | Z100CD17 |
| | | SUS630 | TR15510(1997)-58 | ASTM-S 17400 | — | — | Z7CNU 17.04 |
| SUS631 | TR15510(1997)-59 | ASTM-S 17700 | — | — | X7CrNiAl 177 | Z9CNA 17.07 | |
| Alloy Tool Steels 合金工具鋼鋼材 | JIS G 4404 | SKS 2 | 105WCr1 | — | — | 105WCr6 | 105WCr5 |
| | | SKS 3 | — | — | — | — | — |
| | | SKS 4 | — | — | — | — | — |
| High Carbon Chromium Bearing Steels 高炭素クロム 軸受鋼 | JIS G 4805 | SUJ 1 | — | ASTM 51100 | — | — | — |
| | | SUJ 2 | 100Cr6 | ASTM 52100 | — | 100Cr6 | 100Cr6 |
| | | SUJ 3 | 100CrMnSi4-4 | ASTM A 485 Grade1 | — | — | — |
| Copper alloy 銅合金 | JIS H 3270 | C5191B | CuSn6 | — | PB103 | CuSn6 | — |
| | JIS H 3260 | C3604W | CuZn 39 PB 3 | — | — | CuZn 39 PB 3 | — |
| | JIS H 5111 | BC6 | — | ASTM-C 83600 | LG2 | CuSn 5 ZnPb | — |

Appendix table

Appendix table

常用するはめあいの寸法公差

Fits tolerances for frequent use JIS B 0401

●穴で用いる寸法許容差 Fit tolerances of normal holes

Unit(単位): μm

| Dimensional division 基準寸法の区分 | | Fit tolerance grade for holes 穴の公差域クラス | | | | | | | | | | | | | | | |
|---------------------------------|-------------|---|--------------|--------------|-------------|-------------|-------------|------------|------------|------------|------------|------------|----------|----------|----------|----------|-----------|
| over を超え | up to 以下 | D8 | D9 | D10 | E7 | E8 | E9 | F6 | F7 | F8 | G6 | G7 | H6 | H7 | H8 | H9 | H10 |
| — | 3 | +34 +20 | +45 +20 | +60 +20 | +24 +14 | +28 +14 | +39 +14 | +12 +6 | +16 +6 | +20 +6 | +8 +2 | +12 +2 | +6 0 | +10 0 | +14 0 | +25 0 | +40 0 |
| 3 | 6 | +48 +30 | +60 +30 | +78 +30 | +32 +20 | +38 +20 | +50 +20 | +18 +10 | +22 +10 | +28 +10 | +12 +4 | +16 +4 | +8 0 | +12 0 | +18 0 | +30 0 | +48 0 |
| 6 | 10 | +62 +40 | +76 +40 | +98 +40 | +40 +25 | +47 +25 | +61 +25 | +22 +13 | +28 +13 | +35 +13 | +14 +5 | +20 +5 | +9 0 | +15 0 | +22 0 | +36 0 | +58 0 |
| 10 | 14 | +77 +50 | +93 +50 | +120 +50 | +50 +32 | +59 +32 | +75 +32 | +27 +16 | +34 +16 | +43 +16 | +17 +6 | +24 +6 | +11 0 | +18 0 | +27 0 | +43 0 | +70 0 |
| 14 | 18 | | | | | | | | | | | | | | | | |
| 18 | 24 | +98 +65 | +117 +65 | +149 +65 | +61 +40 | +73 +40 | +92 +40 | +33 +20 | +41 +20 | +53 +20 | +20 +7 | +28 +7 | +13 0 | +21 0 | +33 0 | +52 0 | +84 0 |
| 24 | 30 | | | | | | | | | | | | | | | | |
| 30 | 40 | +119 +80 | +142 +80 | +180 +80 | +75 +50 | +89 +50 | +112 +50 | +41 +25 | +50 +25 | +64 +25 | +25 +9 | +34 +9 | +16 0 | +25 0 | +39 0 | +62 0 | +100 0 |
| 40 | 50 | | | | | | | | | | | | | | | | |
| 50 | 65 | +146 +100 | +174 +100 | +220 +100 | +90 +60 | +106 +60 | +134 +60 | +49 +30 | +60 +30 | +76 +30 | +29 +10 | +40 +10 | +19 0 | +30 0 | +46 0 | +74 0 | +120 0 |
| 65 | 80 | | | | | | | | | | | | | | | | |
| 80 | 100 | +174 +120 | +207 +120 | +260 +120 | +107 +72 | +126 +72 | +159 +72 | +58 +36 | +71 +36 | +90 +36 | +34 +12 | +47 +12 | +22 0 | +35 0 | +54 0 | +87 0 | +140 0 |
| 100 | 120 | | | | | | | | | | | | | | | | |

Unit(単位): μm

| Dimensional division 基準寸法の区分 | | Fit tolerance grade for holes 穴の公差域クラス | | | | | | | | | | | | | | | |
|---------------------------------|-------------|---|-------|-----------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|------------|-------------|------------|------------|
| over を超え | up to 以下 | JS6 | JS7 | K6 | K7 | M6 | M7 | N6 | N7 | N8 | N9 | P6 | P7 | P8 | P9 | R7 | S7 |
| — | 3 | ±3 | ±5 | 0 -6 | 0 -10 | -2 -8 | -2 -12 | -4 -10 | -4 -14 | -4 -18 | -4 -29 | -6 -12 | -6 -16 | -6 -20 | -6 -31 | -10 -20 | -14 -24 |
| 3 | 6 | ±4 | ±6 | +2 -6 | +3 -9 | -1 -9 | 0 -12 | -5 -13 | -4 -16 | -2 -20 | 0 -30 | -9 -17 | -8 -20 | -12 -30 | -12 -42 | -11 -23 | -15 -27 |
| 6 | 10 | ±4.5 | ±7.5 | +2 -7 | +5 -10 | -3 -12 | 0 -15 | -7 -16 | -4 -19 | -3 -25 | 0 -36 | -12 -21 | -9 -24 | -15 -37 | -15 -51 | -13 -28 | -17 -32 |
| 10 | 14 | ±5.5 | ±9 | +2 -9 | +6 -12 | -4 -15 | 0 -18 | -9 -20 | -5 -23 | -3 -30 | 0 -43 | -15 -26 | -11 -29 | -18 -45 | -18 -61 | -16 -34 | -21 -39 |
| 14 | 18 | | | | | | | | | | | | | | | | |
| 18 | 24 | ±6.5 | ±10.5 | +2 -11 | +6 -15 | -4 -17 | 0 -21 | -11 -24 | -7 -28 | -3 -36 | 0 -52 | -18 -31 | -14 -35 | -22 -55 | -22 -74 | -20 -41 | -27 -48 |
| 24 | 30 | | | | | | | | | | | | | | | | |
| 30 | 40 | ±8 | ±12.5 | +3 -13 | +7 -18 | -4 -20 | 0 -25 | -12 -28 | -8 -33 | -3 -42 | 0 -62 | -21 -37 | -17 -42 | -26 -65 | -26 -88 | -25 -50 | -34 -59 |
| 40 | 50 | | | | | | | | | | | | | | | | |
| 50 | 65 | ±9.5 | ±15 | +4 -15 | +9 -21 | -5 -24 | 0 -30 | -14 -33 | -9 -39 | -4 -50 | 0 -74 | -26 -45 | -21 -51 | -32 -78 | -32 -106 | -30 -62 | -42 -72 |
| 65 | 80 | | | | | | | | | | | | | | | | |
| 80 | 100 | ±11 | ±17.5 | +4 -18 | +10 -25 | -6 -28 | 0 -35 | -16 -38 | -10 -45 | -4 -58 | 0 -87 | -30 -52 | -24 -59 | -37 -91 | -37 -124 | -73 -41 | -93 -66 |
| 100 | 120 | | | | | | | | | | | | | | | | |

Unit(単位): μm

●軸で用いる寸法許容差 Fit tolerances of normal shafts

Unit(単位): μm

| Dimensional division 基準寸法の区分 | | Fit tolerance grade for shafts 軸の公差域クラス | | | | | | | | | | | | | | | |
|---------------------------------|-------------|--|--------------|-------------|-------------|-------------|------------|------------|------------|------------|------------|------------|----------|----------|----------|----------|----------|
| over を超え | up to 以下 | d8 | d9 | e7 | e8 | e9 | f6 | f7 | f8 | g5 | g6 | g7 | h5 | h6 | h7 | h8 | h9 |
| — | 3 | -20 -34 | -20 -45 | -14 -24 | -14 -28 | -14 -39 | -6 -12 | -6 -16 | -6 -20 | -2 -6 | -2 -8 | -2 -12 | 0 -4 | 0 -6 | 0 -10 | 0 -14 | 0 -25 |
| 3 | 6 | -30 -48 | -30 -60 | -20 -32 | -20 -38 | -20 -50 | -10 -18 | -10 -22 | -10 -28 | -4 -9 | -4 -12 | -4 -16 | 0 -5 | 0 -8 | 0 -12 | 0 -18 | 0 -30 |
| 6 | 10 | -40 -62 | -40 -76 | -25 -40 | -25 -47 | -25 -61 | -13 -22 | -13 -28 | -13 -35 | -5 -11 | -5 -14 | -5 -20 | 0 -6 | 0 -9 | 0 -15 | 0 -22 | 0 -36 |
| 10 | 14 | -50 -77 | -50 -93 | -32 -50 | -32 -59 | -32 -75 | -16 -27 | -16 -34 | -16 -43 | -6 -14 | -6 -17 | -6 -24 | 0 -8 | 0 -11 | 0 -18 | 0 -27 | 0 -43 |
| 14 | 18 | | | | | | | | | | | | | | | | |
| 18 | 24 | -65 -98 | -65 -117 | -40 -61 | -40 -73 | -40 -92 | -20 -33 | -20 -41 | -20 -53 | -7 -16 | -7 -20 | -7 -28 | 0 -9 | 0 -13 | 0 -21 | 0 -33 | 0 -52 |
| 24 | 30 | | | | | | | | | | | | | | | | |
| 30 | 40 | -80 -119 | -80 -142 | -50 -75 | -50 -89 | -50 -112 | -25 -41 | -25 -50 | -25 -64 | -9 -20 | -9 -25 | -9 -34 | 0 -11 | 0 -16 | 0 -25 | 0 -39 | 0 -62 |
| 40 | 50 | | | | | | | | | | | | | | | | |
| 50 | 65 | -100 -146 | -100 -174 | -60 -90 | -60 -106 | -60 -134 | -30 -49 | -30 -60 | -30 -76 | -10 -23 | -10 -29 | -10 -40 | 0 -13 | 0 -19 | 0 -30 | 0 -46 | 0 -74 |
| 65 | 80 | | | | | | | | | | | | | | | | |
| 80 | 100 | -120 -174 | -120 -207 | -72 -107 | -72 -126 | -72 -159 | -36 -58 | -36 -71 | -36 -90 | -12 -27 | -12 -34 | -12 -47 | 0 -15 | 0 -22 | 0 -35 | 0 -54 | 0 -87 |
| 100 | 120 | | | | | | | | | | | | | | | | |

Unit(単位): μm

| Dimensional division 基準寸法の区分 | | Fit tolerance grade for shafts 軸の公差域クラス | | | | | | | | | | | | | | | |
|---------------------------------|-------------|--|------|-------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|-------------|--------------|------------|--|
| over を超え | up to 以下 | js5 | js6 | js7 | k5 | k6 | k7 | m5 | m6 | n6 | p6 | r6 | s6 | t6 | u6 | x6 | |
| — | 3 | ±2 | ±3 | ±5 | +4 0 | +6 0 | +10 0 | +6 +2 | +8 +2 | +10 +4 | +12 +6 | +16 +10 | +20 +14 | — | +24 +18 | +26 +20 | |
| 3 | 6 | ±2.5 | ±4 | ±6 | +6 +1 | +9 +1 | +13 +1 | +9 +4 | +12 +4 | +16 +8 | +20 +12 | +24 +15 | +27 +19 | — | +31 +23 | +36 +28 | |
| 6 | 10 | ±3 | ±4.5 | ±7.5 | +7 +1 | +10 +1 | +16 +1 | +12 +6 | +15 +6 | +19 +10 | +24 +15 | +28 +19 | +32 +23 | — | +37 +28 | +43 +34 | |
| 10 | 14 | ±4 | ±5.5 | ±9 | +9 +1 | +12 +1 | +19 +1 | +15 +7 | +18 +7 | +23 +12 | +29 +18 | +34 +23 | +39 +28 | — | +44 +33 | +51 +45 | |
| 14 | 18 | | | | | | | | | | | | | | | | |
| 18 | 24 | ±4.5 | ±6.5 | ±10.5 | +11 +2 | +15 +2 | +23 +2 | +17 +8 | +21 +8 | +28 +15 | +35 +22 | +41 +28 | +48 +35 | — | +54 +41 | +67 +54 | |
| 24 | 30 | | | | | | | | | | | | | | | | |
| 30 | 40 | ±5.5 | ±8 | ±12.5 | +13 +2 | +18 +2 | +27 +2 | +20 +9 | +25 +9 | +33 +17 | +42 +26 | +50 +34 | +59 +43 | +64 +48 | +76 +60 | — | |
| 40 | 50 | | | | | | | | | | | | | | | | |
| 50 | 65 | ±6.5 | ±9.5 | ±15 | +15 +2 | +21 +2 | +32 +2 | +24 +11 | +30 +11 | +39 +20 | +51 +32 | +60 +41 | +72 +53 | +85 +66 | +106 +87 | — | |
| 65 | 80 | | | | | | | | | | | | | | | | |
| 80 | 100 | ±7.5 | ±11 | ±17.5 | +18 +3 | +25 +3 | +38 +3 | +28 +13 | +35 +13 | +45 +23 | +59 +37 | +73 +51 | +93 +71 | +113 +91 | +146 +124 | — | |
| 100 | 120 | | | | | | | | | | | | | | | | |

Unit(単位): μm

加工寸法の普通許容差 General tolerances

● 削り加工寸法の普通許容差 General tolerances for linear dimensions JIS B 0405 Unit(単位): mm

| Tolerance grade 公差等級 | | Dimensional division 基準寸法の区分 | | | | | |
|----------------------|-----------------|-------------------------------------|-------------------------------|---------------------------------|-------------------------------------|---------------------------------------|---|
| Symbol 記号 | Remark 説明 | 0.5 or over up to 3 0.5以上 3以下 | over 3 up to 6 3を超え 6以下 | over 6 up to 30 6を超え 30以下 | over 30 up to 120 30を超え 120以下 | over 120 up to 400 120を超え 400以下 | over 400 up to 1000 400を超え 1000以下 |
| f | Fine 精級 | ±0.05 | ±0.05 | ±0.1 | ±0.15 | ±0.2 | ±0.3 |
| m | Medium 中級 | ±0.1 | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 |
| c | Coarse 粗級 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | ±1.2 | ±2 |
| v | Very coarse 極粗級 | — | ±0.5 | ±1 | ±1.5 | ±2.5 | ±4 |

● 面取り部の長さ寸法に対する許容差 General tolerances for chamfer dimensions JIS B 0405 Unit(単位): mm

| Tolerance grade 公差等級 | | Dimensional division 基準寸法の区分 | | |
|----------------------|-----------------|-------------------------------------|-------------------------------|-----------------|
| Symbol 記号 | Remark 説明 | 0.5 or over up to 3 0.5以上 3以下 | over 3 up to 6 3を超え 6以下 | over 6 6を超える |
| f | Fine 精級 | ±0.2 | ±0.5 | ±1 |
| m | Medium 中級 | ±0.2 | ±0.5 | ±1 |
| c | Coarse 粗級 | ±0.4 | ±1 | ±2 |
| v | Very coarse 極粗級 | ±0.4 | ±1 | ±2 |

● 角度寸法の許容差 General tolerances for angular dimensions JIS B 0405

| Tolerance grade 公差等級 | | Length division of shorter side formed angle(mm) 対象とする角度の短い方の辺の長さの区分(mm) | | | | |
|----------------------|-----------------|--|-----------------------------------|-------------------------------------|---------------------------------------|---------------------|
| Symbol 記号 | Remark 説明 | up to 10 10以下 | over 10 up to 50 10を超え 50以下 | over 50 up to 120 50を超え 120以下 | over 120 up to 400 120を超え 400以下 | over 400 400を超える |
| f | Fine 精級 | ±1° | ±30' | ±20' | ±10' | ±5' |
| m | Medium 中級 | ±1° | ±30' | ±20' | ±10' | ±5' |
| c | Coarse 粗級 | ±1°30' | ±1° | ±30' | ±15' | ±10' |
| v | Very coarse 極粗級 | ±3° | ±2° | ±1° | ±30' | ±20' |

面積・重心・断面2次モーメント Area·Center of gravity·Moment of Inertia of area

| Cross section 断面 | Sectional area 断面積 A | Distance to center of gravity 重心の距離 e | Moment of Inertia of area 断面2次モーメント I | Section modulus 断面係数 Z=I/e |
|------------------|--------------------------------|--|---|--|
| | bh | $\frac{h}{2}$ | $\frac{bh^3}{12}$ | $\frac{bh^2}{6}$ |
| | h ² | $\frac{h}{2}$ | $\frac{h^4}{12}$ | $\frac{h^3}{6}$ |
| | h ² | $\frac{h}{2} \sqrt{2}$ | $\frac{h^4}{12}$ | $0.1179h^3 = \frac{\sqrt{2}}{12} h^3$ |
| | $\frac{bh}{12}$ | $\frac{2}{3} h$ | $\frac{bh^3}{36}$ | $\frac{bh^2}{24}$ |
| | $\frac{3\sqrt{3}}{2} r^2$ | $\sqrt{\frac{3}{4}} r$ | $\frac{5\sqrt{3}}{16} r^4$ | $\frac{5}{8} r^3$ |
| | $\frac{3\sqrt{3}}{2} r^2$ | r | $\frac{5\sqrt{3}}{16} r^4$ | $\frac{5\sqrt{3}}{16} r^3$ |
| | 2.828r ² | 0.924r ² | $\frac{1+2\sqrt{2}}{6} r^4$ | 0.6906r ³ |
| | 0.8284a ² | $b = \frac{a}{1+\sqrt{2}}$ | 0.0547a ⁴ | 0.1095a ³ |
| | $\pi r^2 = \frac{\pi d^2}{4}$ | $\frac{d}{2}$ | $\frac{\pi d^4}{64} = \frac{\pi r^4}{4}$ | $\frac{\pi d^3}{32} = \frac{\pi r^3}{4}$ |
| | πab | a | $\frac{\pi}{4} ba^3$ | $\frac{\pi}{4} ba^2$ |
| | $\frac{\pi}{2} r^2$ | e ₁ =0.4244r e ₂ =0.5756r | $\left(\frac{\pi}{8} - \frac{8}{9\pi}\right) r^4$ | z ₁ =0.2587r ³ z ₂ =0.1908r ³ |
| | $\frac{\pi}{4} r^2$ | e ₁ =0.4244r e ₂ =0.5756r | 0.055r ⁴ | z ₁ =0.1296r ³ z ₂ =0.0956r ³ |
| | b(H-h) | $\frac{H}{2}$ | $\frac{b}{12} (H^3-h^3)$ | $\frac{b}{6H} (H^3-h^3)$ |
| | A ² -a ² | $\frac{A}{2}$ | $\frac{A^4-a^4}{12}$ | $\frac{1}{6} \frac{A^4-a^4}{A}$ |
| | $\frac{\pi}{4} (d_2^2-d_1^2)$ | $\frac{d_2}{2}$ | $\frac{\pi}{64} (d_2^4-d_1^4)$ $= \frac{\pi}{4} (R^4-r^4)$ | $\frac{\pi}{32} \left(\frac{d_2^4-d_1^4}{d_2}\right)$ $= \frac{\pi}{4} \frac{R^4-r^4}{R}$ |

Appendix table

Appendix table

テクニカルデータシート

KSSでは、お客様のご要望により、ボールねじの選定を行います。ボールねじを選定する上で、できるだけ詳しい使用条件をご提示ください。より正確な選定が可能となります。
以下のテクニカルデータシートを活用していただければ、より迅速な選定が可能になります。

テクニカルデータシート

| | | | | | | |
|--|--|---|-------------|----|-----------|----|
| 日 時 | / | / | ご担当者 | | | |
| 貴社名 | | | | | | |
| TEL | | | E-mail | | | |
| 業 種 | <input type="checkbox"/> 半導体 <input type="checkbox"/> 液晶 <input type="checkbox"/> 測定器 <input type="checkbox"/> ステージ <input type="checkbox"/> 光学機器 <input type="checkbox"/> 食品機械 <input type="checkbox"/> 医療機器 <input type="checkbox"/> 航空・宇宙関連 <input type="checkbox"/> 自動車 <input type="checkbox"/> 軍事 <input type="checkbox"/> その他() | | | | | |
| 製品種類 | <input type="checkbox"/> ボールねじ <input type="checkbox"/> 送りねじ <input type="checkbox"/> レジンリードスクリュー <input type="checkbox"/> モータ付きボールねじ <input type="checkbox"/> アクチュエータ <input type="checkbox"/> その他() | | | | | |
| ご使用条件 | 装置名 | | 軸 径(mm) | | リード(mm) | |
| | ご使用箇所 | | 精度等級 | | すきま(μm) | |
| | 姿 勢 | <input type="checkbox"/> 水平 <input type="checkbox"/> 垂直 <input type="checkbox"/> ()度 | ストローク(mm) | | 潤 滑 | |
| | 環境温度 | <input type="checkbox"/> 常温 <input type="checkbox"/> その他()度 | 荷重(最大・常用) | | 速度(最高・常用) | |
| | 特記事項 | | | | | |
| ご要求精度 | 絶対位置決め | μm | 繰り返し位置決め | μm | ロストモーション | μm |
| ●運転パターン/速度線図● <input type="checkbox"/> 必須項目 <input type="checkbox"/> オプション <p>移動時間 <input type="text"/> sec</p> <p>加速時間 <input type="text"/> sec</p> <p>減速時間 <input type="text"/> sec</p> <p>停止時間 <input type="text"/> sec</p> <p>整定時間 <input type="text"/> sec</p> <p>mm</p> <p>負荷トルク: <input type="checkbox"/>1パルス送り運転(μm)</p> <p>安全率: <input type="checkbox"/>三角駆動 <input type="checkbox"/>自起動運転</p> | | | | | | |
| メモ | | | | | | |
| <input type="checkbox"/> ボールねじ寿命計算依頼 <input type="checkbox"/> ボールねじ選定依頼 <input type="checkbox"/> モータ選定依頼 <input type="checkbox"/> その他() | | | | | | |
| 計算寿命 | (時間・日・年) | | 推奨ボールねじ/モータ | | | |
| 受付No. | | | | | | |

Technical Data Sheet

As customer's request, KSS selects Ball Screws. For selection of Ball Screws, please let us know detail of usage condition as much as possible and it enables precise selection.
Prompt selection can be possible by using technical data sheet below.

Technical data sheet

| | | | | | | |
|---|--|---|------------------------------|----|------------------|----|
| Date | / | / | Person in charge | | | |
| Company Name | | | | | | |
| Telephone No. | | | E-mail address | | | |
| Industry Field | <input type="checkbox"/> Semiconductor <input type="checkbox"/> LCD <input type="checkbox"/> Measuring Equipment <input type="checkbox"/> Stage <input type="checkbox"/> Optical <input type="checkbox"/> Food <input type="checkbox"/> Medical <input type="checkbox"/> Aero space <input type="checkbox"/> Automobile <input type="checkbox"/> Military affairs <input type="checkbox"/> Others () | | | | | |
| Products | <input type="checkbox"/> Ball Screw <input type="checkbox"/> Lead Screw <input type="checkbox"/> Resin Lead Screw <input type="checkbox"/> Direct Motor Drive Ball Screw <input type="checkbox"/> Actuator <input type="checkbox"/> Others() | | | | | |
| Operating Condition | Machine Name | | Shaft dia. (mm) | | Lead (mm) | |
| | Application | | Accuracy Grade | | Axial play (μm) | |
| | Position | <input type="checkbox"/> Hor. <input type="checkbox"/> Vert. <input type="checkbox"/> () deg | Travel (mm) | | Lubrication | |
| | Operating Temp. | <input type="checkbox"/> Room Temp. <input type="checkbox"/> Others() deg | Load (max/mean) | | Speed (max/mean) | |
| | Remarks | | | | | |
| Reqd. accuracy | Absolute Positioning | μm | Repeatability | μm | Lost motion | μm |
| ●Operating Pattern● <input type="checkbox"/> Crucial items <input type="checkbox"/> Optional Items <p>Movement time <input type="text"/> sec</p> <p>Acceleration time <input type="text"/> sec</p> <p>Deceleration time <input type="text"/> sec</p> <p>Halt time <input type="text"/> sec</p> <p>Settling time <input type="text"/> sec</p> <p>mm</p> <p>Load Torque : <input type="checkbox"/>1 pulse feed operation (μm)</p> <p>Safety factor : <input type="checkbox"/>Triangle drive motion <input type="checkbox"/>Starting operation</p> | | | | | | |
| Memorandum | | | | | | |
| Request items | <input type="checkbox"/> Ball Screw life time <input type="checkbox"/> Ball Screw Model selection <input type="checkbox"/> Motor Model selection <input type="checkbox"/> Others () | | | | | |
| Calculated Ball Screw Life | (hours/days/years) | | Recommended Ball Screw/Motor | | | |
| Registered No. | | | | | | |