# Shafts

## One End Stepped & Tapped / One End Threaded & Stepped / One End Threaded

### Shafts – One End Stepped & Tapped / One End Threaded & Stepped / One End Threaded

RoHS10

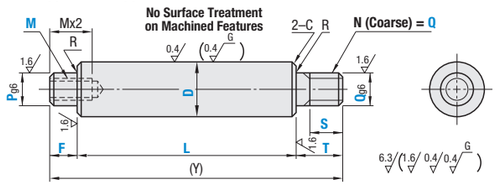
| Type: One End Stepped and Tapped – One End Threaded | | | Type: One End Stepped / One End Threaded | | | Material | Hardness | Surface Treatment |
|---|---|---|---|---|---|---|---|---|
| D Tol. g6 | D Tol. h5 | D Tol. f8 | D Tol. g6 | D Tol. h5 | D Tol. f8 | | | |
| SFAB | SFUA | — | SFNB | SFUB | — | 52100 Bearing Steel Equivalent | Effective Hardened Depth of Induction Hardened **P.199** | — |
| SSFAB | SSFUA | — | SSFNB | SSFUB | — | SUS440C (13Cr) Stainless Steel Equivalent | | |
| PSFAB | PSFUA | — | PSFNB | PSFUB | — | 52100 Bearing Steel Equivalent | 52100 Bearing Steel Equivalent 58 HRC min. SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min. | Hard Chrome Plating Plating Hardness: 750 HV min. Plating Thickness 5μ or More |
| PSSFAB | PSSFUA | — | PSSFNB | PSSFUB | — | SUS440C (13Cr) Stainless Steel Equivalent | | |
| RSFAB | — | — | RSFNB | — | — | 52100 Bearing Steel Equivalent | | Low Temperature Black Chrome Plating |
| — | — | PSFGB | — | — | PSNGB | 1045 Carbon Steel Equivalent | — | Hard Chrome Plating Plating Hardness: 750 HV min. Plating Thickness 10μ or More |
| — | — | PSSFGB | — | — | PSSNGB | 304 Stainless Steel | | |

| D Tolerance | | | |
|---|---|---|---|
| D | g6 | h5 | f8 |
| 8 | -0.005 | 0 | -0.013 |
| 10 | -0.014 | -0.006 | -0.035 |
| 12 | | | |
| 13 | -0.006 | 0 | -0.016 |
| 15 | -0.017 | -0.008 | -0.043 |
| 16 | | | |
| 18 | | | |
| 20 | -0.007 | 0 | -0.020 |
| 25 | -0.020 | -0.009 | -0.053 |
| 30 | | | |
| 35 | -0.009 | 0 | -0.025 |
| 40 | -0.025 | -0.011 | -0.064 |
| 50 | | | |

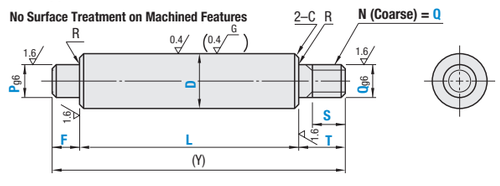
| Coarse Thread Dimensions | |
|---|---|
| M | Pitch |
| 3 | 0.5 |
| 4 | 0.7 |
| 5 | 0.8 |
| 6 | 1.0 |
| 8 | 1.25 |
| 10 | 1.5 |
| 12 | 1.75 |
| 16 | 2.0 |
| 20 | 2.5 |
| 24 | 3.0 |
| 30 | 3.5 |

- Shaft End Machined Area (Effective Thread Length + Approx. 10 mm) Annealing may lower hardness **P.199**.
- Circularity, Straightness, Perpendicularity, Concentricity, Changes in Hardness **P.198**.
- Features of Low Temperature Black Chrome Plating **P.213**.

**One End Stepped and Tapped – One End Threaded**




**One End Stepped / One End Threaded**




| Part Number Type: One End Stepped and Tapped - One End Threaded | | Part Number Type: One End Stepped / One End Threaded | | D | 1 mm Increments L | F | T | S | P | M (Coarse Threads) | Q | (Y) Max. | R | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D Tol. g6 | D Tol. h5 | D Tol. g6 | D Tol. h5 | | | | | | | | | | | |
| SFAB | SFUA | SFNB | SFUB | 8 | 25–1096 | D Tol. g6 8≤D≤30 2≤F(T)≤Px5 D Tol. g6 D≥35 D Tol. f8/h5 2≤F≤Px4 | 2≤T≤Qx5 | (When Q≤6) S≤T-2 (When Q=8, 10) S≤T-3 (When Q≥12) S≤T-5 (Without threads) S=0 ! S=0 is only applicable to One End Stepped and Tapped, One End Threaded. ! S≥Pitchx3 | (3–)6 | 3 | 3 4 5 6 8 | 1100 | 0.3 or Less | 0.5 or Less |
| SSFAB | SSFUA | SSFNB | SSFUB | 10 | 25–1196 | | | | 6(3)–8 | 3 4 5 | (3) 4 5 6 8 10 | 1200 | | |
| PSFAB | PSFUA | PSFNB | PSFUB | 12 | 25–1396 | | | | 6(3)–10 | 3 4 5 6 | (3) (4) 5 6 8 10 12 | 1400 | | |
| PSSFAB | PSSFUA | PSSFNB | PSSFUB | 13 | 25–1396 | | | | 6(4)–11 | 3 4 5 6 8 | (4) 5 6 8 10 12 | 1400 | | |
| RSFAB | | RSFANB | | 15 | 25–1396 | | | | 6(4)–13 | 3 4 5 6 8 10 | (4) 5 6 8 10 12 | 1400 | | |
| (D≤30, l≤500, Ymax≤800) | | (D≤30, l≤500, Ymax≤800) | | 16 | 25–1396 | | | | 6(4)–14 | 3 4 5 6 8 10 | (4) 5 6 8 10 12 16 | 1400 | | |
| D Tol. f8 | | D Tol. f8 | | 18 | 25–1396 | | | | 8(5)–16 | 4 5 6 8 10 12 | 5 6 8 10 12 16 | 1400 | | |
| PSFGB | | PSNGB | | 20 | 25–1396 | | | | 8(5)–17 | 4 5 6 8 10 12 | (5) 6 8 10 12 16 20 | 1400 | | |
| PSSFGB | | PSSNGB | | 25 | 25–1396 | | | | 8(6)–22 | 4 5 6 8 10 12 16 | (6) 8 10 12 16 20 24 | 1400 | | |
| | | | | 30 | 25–1496 | | | | 9(8)–27 | 5 6 8 10 12 16 20 24 | 8 10 12 16 20 24 30 | 1500 | | 1.0 or Less |
| | | | | 35 | 25–1496 | | | | 9–32 | 5 6 8 10 12 16 20 24 | 10 12 16 20 24 30 | 1500 | 0.5 or Less | |
| | | | | 40 | 25–1496 | | | | 11–37 | 6 8 10 12 16 20 24 30 | 12 16 20 24 30 | 1500 | | |
| | | | | 50 | 25–1496 | | | | 11–47 | 6 8 10 12 16 20 24 30 | 16 20 24 30 | 1500 | | |

- P( ) and Q( ) dimensions are applicable only for D diameter tolerance with g6.
- P dimensions require M+3≤P.
- L+F dimensions require M+4 or more.
- When D=Q, specify S=T as S dimensions. However L and T dimensions have manufacturing priority and S dimension will be T-(Pitchx2).

| Part Number Type: One End Stepped and Tapped - One End Threaded | Part Number Type: One End Stepped / One End Threaded | D | 1 mm Increments L | F | T | S | P | M (Coarse Threads) | Q | (Y) Max. | R | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D Tol. g6 | D Tol. g6 | | | | | | | | | | | |
| Low Temperature Black Chrome Plating | Low Temperature Black Chrome Plating | 8 | 25-500 | 2≤F(T)≤Px5 | 2≤T≤Qx5 | (When Q≤6) S≤T-2 (When Q=8, 10) S≤T-3 (When Q≥12) S≤T-5 (Without threads) S=0 ! S=0 is only applicable to One End Stepped and Tapped, One End Threaded. ! S≥Pitchx3 | 3-6 | 3 | 3 4 5 6 8 | 800 | 0.3 or Less | 0.5 or Less |
| RSFAB | RSFNB | 10 | 25-500 | | | | 3–8 | 3 4 5 | 3 4 5 6 8 10 | 800 | | |
| (D≤30, L≤500, Ymax≤800) | (D≤30, L≤500, Ymax≤800) | 12 | 25-500 | | | | 3–10 | 3 4 5 6 | 3 4 5 6 8 10 12 | 800 | | |
| | | 13 | 25-500 | | | | 4–11 | 3 4 5 6 8 | 4 5 6 8 10 12 | 800 | | |
| | | 15 | 25-500 | | | | 4–13 | 3 4 5 6 8 10 | 4 5 6 8 10 12 | 800 | | |
| | | 16 | 25-500 | | | | 4–14 | 3 4 5 6 8 10 | 4 5 6 8 10 12 16 | 800 | | |
| | | 18 | 25-500 | | | | 5–16 | 4 5 6 8 10 12 | 5 6 8 10 12 16 | 800 | | |
| | | 20 | 25-500 | | | | 5–17 | 4 5 6 8 10 12 | 5 6 8 10 12 16 20 | 800 | | |
| | | 25 | 25-500 | | | | 6–22 | 4 5 6 8 10 12 16 | 6 8 10 12 16 20 24 | 800 | | 1.0 or Less |
| | | 30 | 25-500 | | | | 8–47 | 6 8 10 12 16 20 24 30 | 16 20 24 30 | 800 | | |

- P dimensions require M+3≤P.
- L+F dimensions require Mx4 or more.
- When D=Q, specify T=S as S dimensions. However, L and T dimensions have manufacturing priority and S dimension will be T-(Pitchx2).







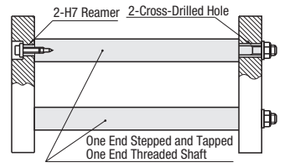
# Shafts

## One End Stepped & Tapped / One End Threaded & Stepped / One End Threaded, *continued*

**Part Number Example**

| Part Number | - | L | - | F | - | P | - | M | - | T | - | S | - | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFNB20 | - | 400 | - | F25 | - | P16 | | | - | T35 | - | S25 | - | Q16 |
| SFAB20 | - | 400 | - | F25 | - | P16 | - | M10 | - | T35 | - | S25 | - | Q16 |

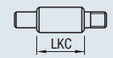
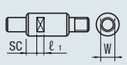
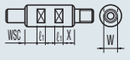
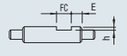
**Application Example**

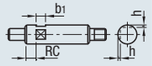
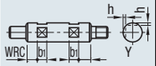
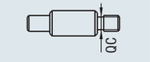



**Part Number Alterations**

| Part Number | - | L | - | F | - | P | - | M | - | T | - | S | - | Q (QMC / QMS) | - | (LKC...etc.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFAB20 | - | 400 | - | F25 | - | P16 | - | M10 | - | T35 | - | S25 | - | Q16 | - | LKC-QC |

Alteration Details **P.200**

| Alterations | Code | Spec. |
|---|---|---|
|  | LKC | Alteration to L dimension tolerance<br>**Ordering Code:** LKC<br>⊗ Not applicable when D-P (Q)≤2<br>L dimensions can be specified in 0.1 increments for LKC.<br>! L<200 ⟶ L±0.03<br>200≤L<500 ⟶ L±0.05<br>L≥50 ⟶ L±0.1 |
|  | SC | Wrench Flats at One Location<br>**Ordering Code:** SC5<br>SC=1 mm Increment<br>! SC+ℓ1≤L<br>SC≥0<br>⊗ Not available in combination with WSC<br>D: 8, 10, 12, 13, 15, 16, 18, 20 → W: 7, 8, 10, 11, 13, 14, 16, 17 → ℓ1: 8, 10 |
|  | WSC | Wrench Flats at Two Locations<br>**Ordering Code:** WSC12-X8<br>WSC, X = 1 mm Increment<br>! WSC+X+ℓ1x2<L<br>! WSC (X)≥0<br>⊗ Orientation between wrench flat features is random. Not available in combination with SC<br>D: 25, 30, 35, 40, 50 → W: 22, 27, 30, 36, 41 → ℓ1: 15, 20 |
|  | FC | Set Screw Flat at One Location<br>**Ordering Code:** FC10-E8<br>FC, E = 1 mm Increment<br>! FC≤3xD<br>! When 1.5xD<FC, FC≤L/2<br>! E=0 or E≥2<br>⊗ Not available in combination with WFC<br>D: 8–18 → h: 1; 20–40 → h: 2; 50 → h: 3 |

| Alterations | Code | Spec. |
|---|---|---|
|  | WFC | Set Screw Flats at Two Locations<br>**Ordering Code:** WFC10-A8-E20<br>WFC, A, E = 1 mm Increment<br>! WFC≤3xD<br>! When 1.5xD<WFC, 2WFC≤L/2<br>! A (E)=0 or A (E)≥2<br>⊗ Orientation between set screw flats is random. Not available in combination with FC.<br>D: 8–18 → h: 1; 20–40 → h: 2; 50 → h: 3 |
|  | RC | 90° Set Screw Flat at One Location<br>**Ordering Code:** RC10<br>**Application Notes:** Applicable to D=10–30<br>⊗ Not available in combination with WRC<br>For details, see Shaft Alteration Overview, **P.200**. |
|  | WRC | 90° Set Screw Flats at Two Locations<br>**Ordering Code:** WRC10-Y10<br>**Application Notes:** Only applicable to D=10–30<br>⊗ Not available in combination with RC.<br>⊗ Orientation between set screw flats is random.<br>For details, see Shaft Alteration Overview, **P.200**. |
|  | QC | Undercut<br>**Ordering Code:** QC<br>**Application Notes:** Applicable to M=6 or more<br>⊗ Not Applicable to D=Q<br>For details, see Shaft Alteration Overview, **P.200**. |
|  | QMC<br>QMS | Change to Fine Thread<br>**Ordering Code:**<br>QMC14 (Q is changed to QMC)<br>QMS14 (Q is changed to QMS)<br>For details, see Shaft Alteration Overview, **P.200**. |

- Please see Alteration Guides for details if provided. **P.200**
- When selecting multiple alteration additions, the distance between machined areas should be greater than 2 mm. **P.201**
- Alterations may lower hardness. **P.199**