

Shafts

Standard & Precision Type / Both Ends Threaded

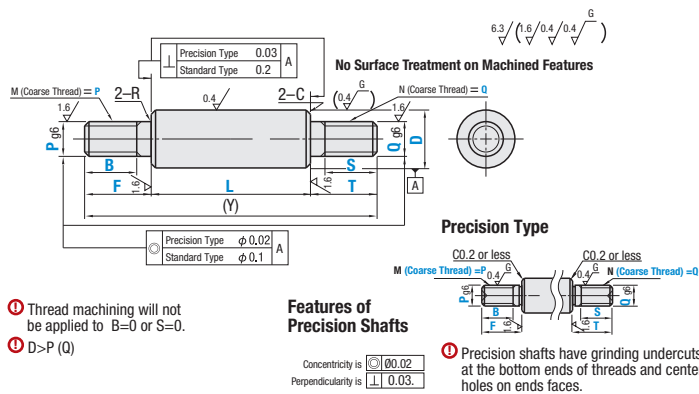
Shafts – Standard & Precision Type / Both Ends Threaded



RoHS10

- Annealing caused by machining wrench flats and shaft end threading (effective thread length + approx. 10 mm) may lower hardness. P.199
- Circularity, Straightness, Perpendicularity Concentricity, Changes in Hardness P.198.
- Features of Low Temp. Black Chrome Plating P.213.
- For Threaded Shafts with Undercuts, please see P.234.

Precision Type	Type			Material	Hardness	Surface Treatment
	D Tol. g6	D Tol. g6	D Tol. h5			
VFBM	SFAM	SFUM	—	52100 Bearing Steel Equivalent	Effective Hardened Depth of Induction Hardened P.199	—
VSFBM	SSFAM	SSFUM	—	SUS440C (13Cr) Stainless Steel Equivalent		
VPFBM	PSFAM	PSFUM	—	52100 Bearing Steel Equivalent	52100 Bearing Steel Equivalent 58 HRC min. SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min.	Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 5 μ or More
VPSFBM	PSSFAM	PSSFUM	—	SUS440C (13Cr) Stainless Steel Equivalent		
VRBM	RSFAM	—	—	52100 Bearing Steel Equivalent	—	Low Temperature Black Chrome Plating
—	—	—	PSFGM	1045 Carbon Steel Equivalent		
—	—	—	PSSFGM	304 Stainless Steel	—	Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 10 μ or More



D	D Tolerance		
	g6	h5	f8
4	—	—	—
5	-0.004	0	—
6	-0.012	-0.005	-0.010
8	-0.005	0	-0.013
10	-0.014	-0.006	-0.035
12	—	—	—
13	—	—	—
15	-0.006	0	-0.016
16	-0.017	-0.008	-0.043
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	—	—	—

Part Number Type	D	L	1 mm Increment		P, Q	(Y) Max.	R	C	Coarse Thread Dimensions	
			F, T	B, S					M, N	Pitch
Precision Type D Tolerance g6	5	25-292	2 ≤ F ≤ Px5 2 ≤ T ≤ Qx5	B, S (When P ≤ 6) B ≤ F-2 (When P = 8, 10) B ≤ F-3 (When P ≥ 12) B ≤ F-5 (When Q ≤ 6) S ≤ T-2 (When Q = 8, 10) S ≤ T-3 (When Q ≥ 12) S ≤ T-5 (When without threads) B=0 S=0 Ⓟ B (S) ≥ Pitchx3	3	300	0.2 or Less	0.2 or Less	3	0.5
	6	25-292			3 4	300			4	0.7
	8	25-292			3 4 5 6	300			5 6 8 10	0.8
	10	25-340			4 5 6 8	350			5 6 8 10 12	1.0
	12	25-340			5 6 8 10	350			5 6 8 10 12 16	1.25
	13	25-340			5 6 8 10 12	350			5 6 8 10 12 16	1.5
	15	25-340			5 6 8 10 12 16	350			6 8 10 12 16 20	1.75
	16	25-340			6 8 10 12 16	450			8 10 12 16 20 24	2.0
	18	25-340			8 10 12 16 20 24	450			—	2.5
	20	25-440			—	450			—	3.0
25	25-440	—	450	—	3.5					
30	25-440	—	450	—	—					

- Shafts have grinding undercuts at the bottom of threads.
- Shaft ends may have centering holes.
- When B=0 and/or S=0, no threading.
- D > P(Q)

Part Number Type	D	L	1 mm Increment		P, Q	(Y) Max.	R	C		
			F, T	B, S						
Standard Type D Tol. g6	4	25-296	2 ≤ F ≤ Px5 2 ≤ T ≤ Qx5	B, S (When P ≤ 6) B ≤ F-2 (When P = 8, 10) B ≤ F-3 (When P ≤ 12) B ≤ F-5 (When Q ≤ 6) S ≤ T-2 (When Q = 8, 10) S ≤ T-3 (When Q ≥ 12) S ≤ T-5 (When without threads) B=0 S=0 Ⓟ B (S) ≥ Pitchx3	3	300	0.2 or Less	0.2 or Less		
	5	25-396			3 4	400			4	—
	6	25-896			3 4 5	900			5 6 8 10	—
	8	25-1096			3 4 5 6	1100			5 6 8 10 12	—
	10	25-1196			(3) 4 5 6 8	1200			5 6 8 10 12 16	—
	12	25-1396			(3) (4) 5 6 8 10	1400			5 6 8 10 12 16	—
	13	25-1396			(4) 5 6 8 10 12	1400			5 6 8 10 12 16	—
	15	25-1396			(4) 5 6 8 10 12	1400			5 6 8 10 12 16	—
	16	25-1396			(4) 5 6 8 10 12	1400			6 8 10 12 16 20 24	—
	18	25-1396			(4) 5 6 8 10 12	1400			8 10 12 16 20 24	—
	20	25-1396			(5) 6 8 10 12 16	1400			10 12 16 20 24 30	—
	25	25-1396			(6) 8 10 12 16 20 24	1400			12 16 20 24 30	—
	30	25-1496			8 10 12 16 20 24	1500			16 20 24 30	—
	35	25-1496			—	1500			—	—
	40	25-1496			—	1500			—	—
50	25-1496	—	1500	—	—					

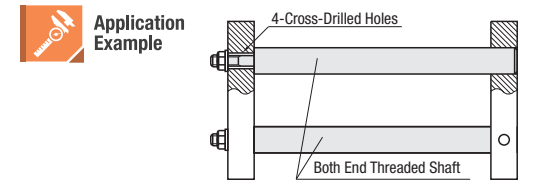
- P () and Q () dimensions are applicable only for D diameter tolerance with g6.
- When B=0 and/or S=0, no threading.
- D > P(Q)

Shafts

Standard & Precision Type / Both Ends Threaded, continued

Part Number Example

Part Number	L	F	B	P	T	S	Q
SFAM20	300	F30	B20	P8	T20	S15	Q10
VFBM15	200	F28	B16	P6	T17	S12	Q12



Part Number Alterations

Part Number	L	F	B	P (PMC / PSC)	T	S	Q (QMC / QMS)	LKC...etc.
SFAM30	300	F40	B40	P20	T50	S40	Q16	LKC

Alterations	Code	Spec.
	LKC	Alteration to L Dimension Tolerance Ordering Code: LKC Application Notes: Applicable when L=200 or less for precision type Ⓟ Not applicable when D-P (Q) ≤ 2 L dimensions can be specified in 0.1 mm increment for LKC. L < 200 → L ± 0.03 200 ≤ L < 500 → L ± 0.05 L ≥ 500 → L ± 0.1
	WSC	Wrench Flats at Two Locations Ordering Code: WSC12-X8 Application Notes: Applicable to D=6 and over. WSC, X = 1 mm increment Ⓟ WSC-X+ℓ, x2 < L Ⓟ WSC (X)=0 or WSC (X) ≥ 1 Ⓟ Orientation between wrench flat features is random.
	FC	Set Screw Flat at One Location Ordering Code: FC10-E8 Application Notes: Ⓟ Not applicable to precision shafts. FC, E = 1 mm increment Ⓟ FC ≤ 3xD Ⓟ When 1.5xD < FC, FC ≤ L/2 Ⓟ E=0 or E ≥ 2 Ⓟ Not available in combination with WFC
	WFC	Set Screw Flats at Two Locations Ordering Code: WFC8-A8-E4 Application Notes: Ⓟ Not applicable to precision shafts. WFC, A, E = 1 mm increment Ⓟ WFC ≤ 3xD Ⓟ When 1.5xD < WFC, 2WFC ≤ L/2 Ⓟ A (E)=0 or A (E) ≥ 2 Ⓟ Orientation between set screw flats is random. Not available in combination with FC.

Alterations	Code	Spec.
	RC	90° Set Screw Flat at One Location Ordering Code: RC10 Application Notes: Only applicable to D=10-30 Ⓟ Not applicable to precision type Ⓟ Not available in combination with WRC
	WRC	90° Set Screw Flats at Two Locations Ordering Code: WRC10-Y10 Application Notes: Only applicable to D=10-30 Ⓟ Not applicable to precision shafts Ⓟ Not available in combination with RC. Ⓟ Orientation between set screw features is random.
	PMC PMS QMC QMS	Change to Fine Threads Ordering Code: PMC14 (P is changed to PMC) PMS14 (P is changed to PMS) QMC14 (Q is changed to QMC) QMS14 (Q is changed to QMC)
	PC QC	PC: Adds undercut(s) on P dimension area. QC: Adds undercut(s) on Q dimension area. Ordering Code: PC Ⓟ Undercut width = F(T)-B(S) Ⓟ For detailed undercut dimensions, see P.200. Application Notes: Applicable to M=6 or more. Ⓟ Only D ≥ 8 is applicable. Ⓟ Not applicable to D=Q and D=P.

- Please see Shaft Alteration Overview 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