Shafts

Both Ends Threaded with Undercuts

High Precision Linear Shafts for High Precision Assembly
Features: Perpendicularity ⊥0.03

P.239

For products uncovered by the e-Catalog Standards, see P.131.

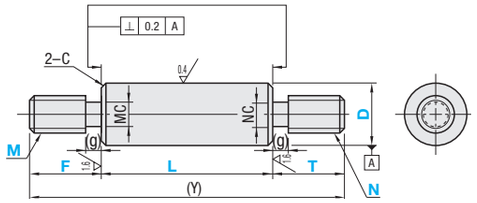
■For High Precision Linear Shafts with high perpendicular precision of the shaft end (⊥ 0.03), see P.239.

Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm). P.142
L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness P.141
Features of Low Temp. Black Chrome Plating P.156

Type D Tol. g6	Type D Tol. h5	Type D Tol. f8	M Material	H Hardness	S Surface Treatment
SAFM	SFMU	-	SUJ2 Equivalent	Effective Hardened Depth of Induction Hardening P.142	-
SSAFM	SSFMU	-	SUS440C or 13Cr stainless		
PSAFM	PSFMU	-	SUJ2 Equivalent		Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 5μ or More
PSSAFM	PSSFMU	-	SUS440C or 13Cr stainless	SUJ2 Equivalent 58HRC~ SUS440C or 13Cr stainless 56HRC~	
RSAFM	-	-	SUJ2 Equivalent		Low Temp. Black Chrome Plating
-	-	PSAGM	S45C Equivalent	-	Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 10μ or More
-	-	PSSAGM	SUS304		

For plated products, the surface roughness of D part is 0.4/; and for unplated products, it is 0.4/ G.
6.3/ (1.6/ 0.4/ 0.4/ G)

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



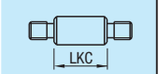
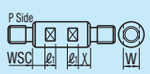
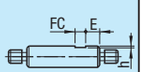
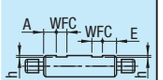
Part Number Type		D	1mm Increments L	F, T	Selection M, N (Coarse)	(Y) Max.	C
(D Tol. g6) SAFM SSAFM PSAFM PSSAFM RSAFM	(D Tol. h5) SFMU SSFMU PSFMU PSSFMU	8	25~ 990	5≤F≤Mx3 5≤T≤Nx3	6	800	0.5 or Less
(D≤30,L≤500,Ymax≤800)		10	25~ 990		6 8	800	
(D Tol. f8) PSAGM PSSAGM		12	25~1190		6 8 10	1000	
		13	25~1190		6 8 10 12	1000	
		15	25~1190		6 8 10 12	1000	
		16	25~1190		6 8 10 12	1200	
		18	25~1190		6 8 10 12 16	1200	
		20	25~1190		6 8 10 12 16	1200	1.0 or Less
		25	25~1190		8 10 12 16 20 24	1200	
		30	25~1490		8 10 12 16 20 24	1500	
		35	25~1490		10 12 16 20 24 30	1500	
		40	25~1490	F-(g)≥Pitchx3 T-(g)≥Pitchx3	12 16 20 24 30	1500	
		50	25~1490		16 20 24 30	1500	

Coarse Thread Undercut Dimensions

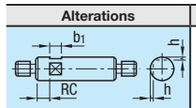
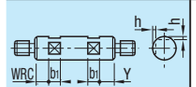
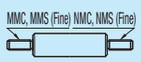
M N	Pitch	MC NC	(g)
6	1.0	4.4	2
8	1.25	6.0	3
10	1.5	7.7	
12	1.75	9.4	4
16	2.0	13.0	
20	2.5	16.4	5
24	3.0	19.6	
30	3.5	25.0	

Ordering Example: Part Number - L - F - M - T - N

Alterations: Part Number - L - F - M(MMC, MMS) - T - N - (LKC ~ etc.)
SAFM30 - 300 - F40 - M20 - T48 - N16 - LKC

Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance Ordering Code LKC L dimensions can be specified in 0.1mm 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 WSC, X = 1mm Increment WSC+X+ℓ1x2<L WSC(X)≥0 Orientation between two set screw flats is not coplanar. D: 8, 10, 12, 13, 15, 16, 18 — W: 7, 8, 10, 11, 13, 14, 16 — ℓ1: 8 D: 20, 25, 30, 35, 40, 50 — W: 17, 22, 27, 30, 36, 41 — ℓ1: 10, 15, 20
	FC	Set Screw Flat at One Location Ordering Code FC10-E8 FC, A=1mm Increment D≤30:FC≤5xD, D≥35:FC≥3xD A=0 or A≥2 Not available in combination with WFC. D: 8~18 — h: 1; 20~40 — h: 2; 50 — h: 3
	WFC	Set Screw Flats at Two Locations Ordering Code WFC8-A8-E4 WFC, A, E=1mm Increment D≤30:WFC≤5xD, D≥35:WFC≥3xD A(E)=0 or A(E)≥2 Orientation between set screw flats is not coplanar. Not available in combination with FC. D: 8~18 — h: 1; 20~40 — h: 2; 50 — h: 3

Alteration Details P.143

Alterations	Code	Spec.
	RC	90-deg. Set Screw Flat at One Location Ordering Code RC10 Application Notes Only applicable to D=10 ~ 30. Not available in combination with WRC.
	WRC	90-deg. Set Screw Flats at Two Locations Ordering Code WRC10-Y10 Application Notes Only applicable to D=10~30. Not available in combination with RC. Orientation between two set screw flats is not coplanar. For details, see Shaft Alteration Overview. P.143
	MMC MMS NMC NMS	Change to Fine Thread Ordering Code MMC14 (M is changed to MMC) MMS14 (M is changed to MMS) NMC14 (N is changed to NMC) NMS14 (N is changed to NMS)

Please see Shaft Alteration Overview for details if provided. P.143
When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm. P.144
Alterations may lower hardness. See P.142.

Part Number Type	D	Unit Price Min. L ~ 50	L51 ~ 100	L101 ~ 150	L151 ~ 200	L201 ~ 250	L251 ~ 300	L301 ~ 350	L351 ~ 400	L401 ~ 450	L451 ~ 500	L501 ~ 550	L551 ~ 600	L601 ~ 650	L651 ~ 700	L701 ~ 750	L751 ~ 800	L801 ~ 850	L851 ~ 900	L901 ~ 950	L951 ~ 1000	L1001 ~ 1100	L1101 ~ 1200	L1201 ~ 1300	L1301 ~ 1400	L1401 ~ 1490
SAFM SFMU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
SSAFM SSFMU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
PSAFM PSFMU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
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	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
PSSAFM PSSFMU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									

For D tolerance h5, add the relevant surcharge to the prices above.

Part Number Type	D	Unit Price Min. L ~ 50	L51 ~ 100	L101 ~ 150	L151 ~ 200	L201 ~ 300	L301 ~ 400	L401 ~ 500
RSAFM	8							
	10							
	12							
	13							
	15							
	16							
	18							
	20							
	25							
	30							

Part Number Type	D	Unit Price Min. L ~ 100	L101 ~ 200	L201 ~ 400	L401 ~ 600	L601 ~ 800	L801 ~ 1000	L1001 ~ 1200	L1201 ~ 1490
PSAGM	8						-	-	-
	10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								
PSSAGM	8						-	-	-
	10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								