


# Rotary Shafts

Both Ends Stepped, One End Threaded / Both Ends Stepped, One End Threaded, One End Tapped

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

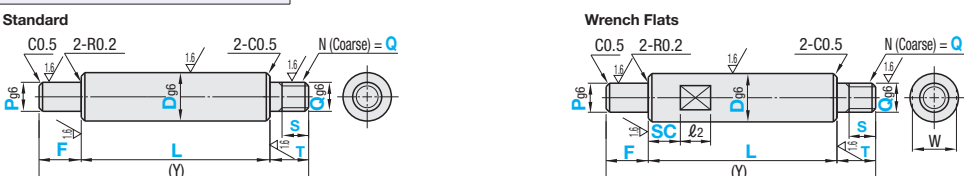
### One End Threaded



Type		Material	Surface Treatment
Standard	Wrench Flats	S45C Equivalent	Black Oxide
SFRE	SFRES	SUS304	-

⚠ Circularity, Straightness, Perpendicularity, Concentricity P.844


D Tolerance (g6)	
6	-0.004 -0.012
8, 10	-0.005 -0.014
12-18	-0.006 -0.017
20-30	-0.007 -0.020
35-50	-0.009 -0.025



Part Number	0.1mm Increment				1mm Increment		Q Selection	1mm Increment SC Wrench Flats Type only	W	ℓ <sub>2</sub>	(Y) max.	
	Type	D	L	F	T	P						S
SFRE	SFRES	6	15.0-395.0	2≤F≤P×5	5≤T≤Q×7	3≤P<D	When Q≤6 S≤Q×3 & S≤T-2	3 4 5 3 4 5 6 4 5 6 8 5 6 8 10 5 6 8 10 5 6 8 10 12 5 6 8 10 12 5 6 8 10 12 5 6 8 10 12 5 6 8 10 12 16 6 8 10 12 16 8 10 12 16 20 8 10 12 16 20 24 10 12 16 20 24 30 12 16 20 24 30 16 20 24 30	SC+ℓ <sub>2</sub> ≤L SC=0 or SC≥1	5	8	400 500 600 700 800 900 1000
		8	15.0-495.0									
		10	15.0-595.0									
		12	15.0-695.0									
		13	15.0-695.0									
		15	15.0-795.0									
		16	15.0-895.0									
		17	30.0-895.0									
		18	30.0-895.0									
		20	30.0-995.0									
		22	40.0-995.0									
		25	30.0-995.0									
		30	30.0-995.0									
		35	40.0-995.0									
		40	40.0-995.0									
50	40.0-995.0											

⚠ When D - P (Q) ≤ 2, chamfer C at the step is 0.2 or less.

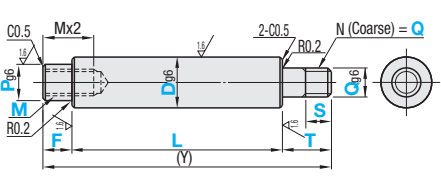
### One End Threaded, One End Tapped



Type		Material	Surface Treatment
Standard	Wrench Flats	S45C Equivalent	Black Oxide
SFRB	PSFRB	SUS304	Electroless Nickel Plating

⚠ Circularity, Straightness, Perpendicularity, Concentricity P.844

D Tolerance (g6)	
6	-0.004 -0.012
8, 10	-0.005 -0.014
12-18	-0.006 -0.017
20-30	-0.007 -0.020
35-50	-0.009 -0.025



Part Number	0.1mm Increment				1mm Increment		M (Coarse) Selection	Q Selection	W	ℓ <sub>2</sub>	(Y) max.
	Type	D	L	F	T	P					
SFRB	PSFRB	6	15.0-396.0	2≤F≤P×5	5≤T≤Q×7	5	When Q≤6 S≤Q×3 & M+2≤P<D When Q=8 or 10 S≤Q×3 & M+3≤P<D When Q≥12 S≤Q×3 & M+4≤P<D When Q≥12 S≤Q×3 & M+5≤P<D For M30 M+5≤P<D	2.6 3 2.6 3 4 5 3 4 5 6 4 5 6 8 4 5 6 8 10 4 5 6 8 10 4 5 6 8 10 4 5 6 8 10 12 4 5 6 8 10 12 4 5 6 8 10 12 4 5 6 8 10 12 4 5 6 8 10 12 16 4 5 6 8 10 12 16 4 5 6 8 10 12 16 20 6 8 10 12 16 20 6 8 10 12 16 20 24 10 12 16 20 24 30 12 16 20 24 30	400 500 600 700 800 900 1000		
		8	15.0-495.0								
		10	15.0-595.0								
		12	15.0-695.0								
		13	15.0-695.0								
		15	15.0-795.0								
		16	15.0-895.0								
		17	30.0-895.0								
		18	30.0-895.0								
		20	30.0-995.0								
		22	40.0-995.0								
		25	30.0-995.0								
		30	30.0-995.0								
		35	40.0-995.0								
		40	40.0-995.0								
50	40.0-995.0										

⚠ When D - P (Q) ≤ 2, chamfer C at the step is 0.2 or less.

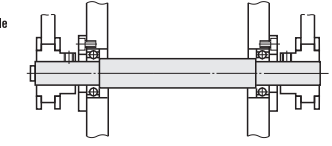
Ordering Example: Part Number - L - F - P - T - S - Q - SC  
SFRE25 - 300 - F50 - P20 - T20 - S15 - Q10 - SC70  
SFRB20 - 400 - F25 - P16 - M10 - T20 - S15 - Q10

### One End Threaded

Type	SFRE								SSFRES									
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	995.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	795.0	795.0
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### One End Threaded, One End Tapped

Type	SFRB								PSFRB									
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	996.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	996.0
6																		
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Alterations: Part Number - L - F - P - T - S - Q (Q/MC) - SC - (LC, FC-etc.)  
SFRE25 - 300 - F50 - P20 - T20 - S15 - Q10 - SC70 - LKC  
Part Number - L - F - P - M - T - S - Q (Q/MC) - (LKC, FC-etc.)  
SFRB25 - 400 - F25 - P16 - M10 - T20 - S15 - Q10 - LKC

Alterations	Keyway				Retaining Ring Groove			
	1	2	1 (for 4th keyway)	Keyway on Step P (Position Zero from End Face)	Keyway on Step (Position Specified)	Multiple Keyways on Step	D dim.	Step
Code	KC	WKC	KZ	PKC, QKC	PP, QQ	PV, QV	TL, TR	TF, TT
Dimension Increment	KC, A = 0.1mm Increment	WKC, C, E, K = 0.1mm Increment	KZ, Z = 0.1mm Increment	PKC, QKC = 0.1mm Increment	PP, PK = 0.1mm Increment QQ, QK = 0.1mm Increment	PV, PV = 0.1mm Increment QV, QV = 0.1mm Increment	TL, TR = 0.1mm Increment	TF, TT = 0.1mm Increment
Ordering Example	KC50-A10	WKC5-C20-K5-E10	KC5-A10-WKC20-C10-K60-E10-K2100-Z10	PKC10	PP5-PK10	PP5-PK10-PV5-PW10	TL10	TF10
Conditions	Key Length ≤ 100. *1, *2				Not applicable when P≤5. Key Length ≤ 70. *1, *2		F+TL≤150 T+TR≤150	2≤TF, TT≤150

Alterations	Set Screw Flat				Threaded		Undercut Dimensions
	1	2	2 Set Screw Flats (Angle Specified)	Set Screw Flat on Step	Changes to Left-hand Thread	Changes to Fine Thread	
Code	FC	WFC	SFC	PFC, QFC	QLM	QMC	QC
Dimension Increment	FC, G = 1mm Increment	WFC, J, V, W = 1mm Increment	SFC, SG = 1mm Increment	PFC, LC = 1mm Increment QFC, RC = 1mm Increment	-	-	-
Ordering Example	FC10-G3	WFC10-J15-W10-V20	SFC10-SG3-AG120	PFC10-LC5	QLM	QMC	QC
Conditions	For H dim., see P.843.		For H, V, L, RC, SG ≤ 70		Not applicable when D Tol. = h9.		

Alterations	Slit Cam Groove		Concentricity	
	UC	LKC	SC	CKC
Code	UC	LKC	SC	CKC
Dimension Increment	UC = 1mm Increment	-	SC = 1mm Increment	-
Ordering Example	UC10	LKC	SC10	CKC
Conditions	Not applicable when D≥13.		Not applicable when L≥800.	

For details about Alterations, see Alteration Overview (P.843). When combined with other alterations, ±2 degree phase difference may occur. Provide 2mm or more clearance between this alteration and others.  
When multiple keyways or set screw flats are specified, they are added in the same plane. When the distance of the alterations are over 500mm, ±2 degree phase difference may occur.  
\*1. When multiple keyways are added with 2mm or less clearance between them, keyways will interfere.  
\*2. When the keyway position is less than 1mm away from the end face, R is not applied. For details, see Alteration Details on P.843.