

Rotary Shafts

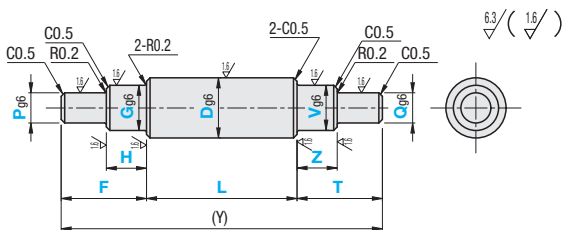
Both Ends Double Stepped



Type	Material	Surface Treatment
SFRJ	EN 1.1191 Equiv.	Black Oxide
SSFRJ	EN 1.4301 Equiv.	-

RoHS 10

⚡ Circularity, Straightness, Perpendicularity, Concentricity P820



Part Number			0.1mm Increment		1mm Increment		(Y)	
Type	Dg6	L	F, T	H, Z	G, V	P, Q	max.	
SFRJ SSFRJ (D13, 16, 17, 18 and 22 are not available for SSFRJ.)	6	^{-0.004} _{-0.012}	20.0~296.0	2<F≤Px5 2<T≤Qx5	2≤H 2≤Z	4~ 5	3 ~ 4	300
	8	-0.005	20.0~396.0			4~ 7	3 ~ 6	400
	10	-0.014	20.0~496.0			4~ 9	3 ~ 8	500
	12	-0.006 -0.017	25.0~596.0			6~11	5~10	600
	13		25.0~596.0			6~12	5~11	
	15		25.0~696.0			6~14	5~13	700
	16		25.0~796.0			6~15	5~14	800
	17		25.0~796.0			6~15	5~14	800
	18	-0.007 -0.020	25.0~796.0			6~17	5~16	800
	20		30.0~796.0			6~19	5~18	800
	22		30.0~796.0			6~21	5~20	800
	25		30.0~796.0			11~24	10~23	800
	30		30.0~796.0			11~29	10~28	800

⚡ When D-G(V)≤2 and G(V)-P(Q)≤2, chamfer C at the step is 0.2 or less. ⚡ P<G<D, Q<V<D

Ordering Example: SFRJ10 - 400 - F25 - H20 - G8 - P6 - T20 - Z10 - V8 - Q6

Alterations: SFRJ20 - 300 - F30 - H20 - G15 - P12 - T25 - Z15 - V15 - Q12 - SC10

	Keyway	Keyway on Shaft End	Set Screw Flat	2 Set Screw Flats (Angle Specified)	Slit Cam Groove	Wrench Flats	L Dimension Tolerance
Alterations	• 1 Keyway: KC • 2 Keyways: WKC	PKC, QKC	• 1 Set Screw Flat: FC • 2 Set Screw Flats: WFC	SFC	UC	SC	LKC
Code	KC, WKC	PKC, QKC	FC, WFC	SFC	UC	SC	LKC
Spec.	KC: Adds a keyway. Ordering Code: KC50-A10 WKC: Adds two keyways. Ordering Code: WKC50-C8-K40-E10 ⚡ KC, A, WKC, C, K, E = 1mm Increment ⚡ A, E, C≤100 ⚡ For Keyway Details, refer to P820. ⚡ If 3 keyways are required, use both KC and WKC. ⚡ When the keyway position is less than 1mm away from the end face, R is not applied. Ex.	Adds a keyway on the shaft end and P (Q). Ordering Code: PKC10(QKC10) ⚡ PKC, QKC = 1mm Increment ⚡ PKC, QKC≤50 ⚡ PKC(QKC)≤F(T) ⚡ Keyway Details P820 ⚡ Not applicable to P (Q)=5 or less.	FC: Adds 1 set screw flat. Ordering Code: FC10-G3 WFC: Adds 2 set screw flats. Ordering Code: WFC10-J3-W10-V3 ⚡ FC, G, WFC, J, W, V = 1mm Increment ⚡ G, J, V≤50	Adds a set screw flat at any desired angle besides the datum plane (0°). SFC, SG = 1mm Increment AG = 15° Increment Ordering Code: SFC10-SG3-AG90 D H 6~15 1 16~30 2	Adds a slit cam groove. UC = 1mm Increment Ordering Code: UC10 ⚡ UC+Δ1≤L ⚡ UC≥1 ⚡ Not applicable to D13 or more. D d Δ1 6 5 4 8 7 4 10 8 5 12 10 5	Adds a wrench flat. SC = 1mm Increment ⚡ SC+Δ2≤L SC=0 or SC≥1 D W Δ2 6 5 8 8 7 8 10 8 8 12, 13 10 15, 16 13 17, 18 14 20, 22 17 25 22 30 27 15 ⚡ When combined with other alterations, ±2 degree phase differential may occur.	Changes L dimension tolerance. Ordering Code: LKC ⚡ L<500→L±0.05 L≥500→L±0.1

D	SFRJ								SSFRJ							
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
6	50.0	100.0	150.0	200.0	300.0	400.0	600.0	796.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	796.0
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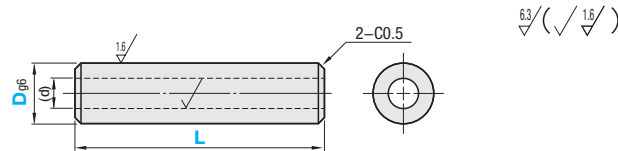
Hollow Rotary Shafts

Lightweight, Straight



Type	Material	Surface Treatment
PFR	EN 1.1191 Equiv.	Black Oxide
PPFR	EN 1.1191 Equiv.	Electroless Nickel Plating
SPFR	EN 1.4301 Equiv.	-

⚡ Circularity, Straightness, Perpendicularity P820



⚡ Surface treatment is not applied to the shaft ends.

Part Number		L		(d)
Type	Dg6	0.1mm Increment		
PFR PPFR SPFR	10	20.0~500.0	6	
	12	30.0~600.0	6	
	15	30.0~600.0	10	
	20	40.0~600.0	11.7	
	25	50.0~600.0	15.2	
	30	60.0~600.0	16	
	35	70.0~600.0	20.1	
	40	80.0~600.0	22.7	
	50	100.0~600.0	24	

Ordering Example: PFR20 - 300

Alterations: SPFR30 - 150 - (KC, WKC, FC--etc.) SC10

Alterations	Keyway	Set Screw Flat	Wrench Flats	L Dimension Tolerance
	• 1 Keyway: KC • 2 Keyways: WKC	• 1 Set Screw Flat: FC • 2 Set Screw Flats: WFC		
Code	KC, WKC	FC, WFC	SC	LKC
Spec.	KC: Adds a keyway. Ordering Code: KC50-A10 WKC: Adds two keyways. Ordering Code: WKC50-C8-K40-E10 ⚡ Applicable when D≥30. ⚡ KC, A, WKC, C, K, E = 1mm Increment ⚡ KC, WKC, K≥2 ⚡ KC+A+4≤L ⚡ WKC+C+K+E+6≤L ⚡ A, E, C≤100 ⚡ If 3 keyways are required, use both KC and WKC.	FC: Adds 1 set screw flat. Ordering Code: FC10-G3 WFC: Adds 2 set screw flats. Ordering Code: WFC10-J3-W10-V3 ⚡ FC, G, WFC, J, W, V = 1mm Increment ⚡ FC, G, W, V=2 ⚡ FC+G+4≤L ⚡ WFC+J+W+V+6≤L ⚡ G, J, V≤50	Adds a wrench flat. SC = 1mm Increment ⚡ SC≥2 ⚡ SC+Δ2+4≤L ⚡ W-M (N)≥2 for SC≤M(N)x3 D W Δ2 10 8 8 12 10 30 27 15 15 13 40 36 20 20 17 50 41 20 25 22	Changes L dimension tolerance. Ordering Code: LKC ⚡ L<500→L±0.05 L≥500→L±0.1

D	PFR								PPFR								SPFR							
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
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