


Rotary Shafts

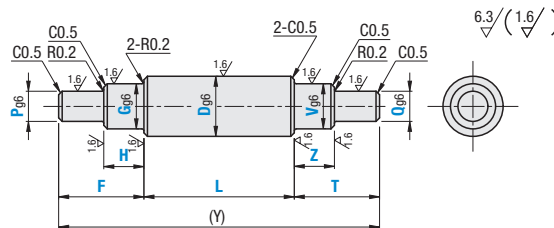
Both Ends Double Stepped



Rotary Shafts – Both Ends Double Stepped

RoHS10

Type	Material	Surface Treatment
NSFRJ	1045 Carbon Steel or Equivalent	—
SFRJ	1045 Carbon Steel or Equivalent	Black Oxide
SSFRJ	304 Stainless Steel	—



6.3/(1.6/)

① Circularity, Straightness, Perpendicularity, Concentricity P.853.

Type	Part Number		0.1 mm Increment			1 mm Increment		(Y) max.
	Dg _s	L	F, T	H, Z	G, V	P, Q		
NSFRJ 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 -0.014	20.0–396.0			4–7	3–6	400
	10	-0.006 -0.017	20.0–496.0			4–9	3–8	500
	12	-0.007	25.0–596.0			6–11	5–10	600
	13	-0.007	25.0–596.0			6–12	5–11	
	15	-0.006	25.0–696.0			6–14	5–13	
	16	-0.017	25.0–796.0			6–15	5–14	800
	17	-0.007	25.0–796.0			6–15	5–14	800
	18	-0.007	25.0–796.0			6–17	5–16	800
	20	-0.007	30.0–796.0			6–19	5–18	800
	22	-0.020	30.0–796.0			6–21	5–20	800
	25	-0.020	30.0–796.0			11–24	10–23	800
	30	-0.020	30.0–796.0			11–29	10–28	800

① When D-G(V)≤2 and G(V)-P(Q)≤2, chamfer C at the step is 0.2 or less. ② P<G<D, Q<V<D

Part Number Example


Part Number - L - F - H - G - P - T - Z - V - Q

SFRJ10 - 400 - F25 - H20 - G8 - P6 - T20 - Z10 - V8 - Q6

Part Number Alterations

Part Number - L - F - H - G - P - T - Z - V - Q - (KC, WKC, FC...etc.)


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

Alterations	Keyway	Keyway on Shaft End	Set Screw Flat	2 Set Screw Flats (Angle Specified)	Slit Cam Groove	Wrench Flats	L Dimension Tolerance																																																															
	One Keyway: KC Two Keyways: WKC	PKC, QKC	One Set Screw Flat: FC Two 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 ① KC / A / WKC / C / K / E = 1 mm Increment ① A / E / C ≤ 100 ① For keyway details P.853. ① If 3 keyways are required, use both KC and WKC. ① When keyway position is less than 1 mm away from the end face, R is not applied. Ex. 	Adds a keyway on the shaft end P (Q). Ordering Code: PKC10 (QKC10) ① PKC, QKC = 1 mm Increment ① PKC, QKC ≤ 50 PKC (QKC) ≤ F (T) ① Keyway Details P.853. ① 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 ① FC / G / WFC / J / W / V = 1 mm Increment ① G, J, V ≤ 50	Adds a set screw flat at any designated angle besides the datum plane (0°). SFC, SG = 1 mm Increment AG = 15° Increment ① SG ≤ 50 Ordering Code: SFC10-SG3-AG90	Adds a slit cam groove. UC = 1 mm Increment Ordering Code: UC10 ① UC + ℓ ₁ ≤ L ① UC ≤ 1 ① Not applicable to D13 or more. <table border="1" style="display: inline-table; margin-top: 5px;"> <thead> <tr> <th>D</th> <th>d</th> <th>ℓ₁</th> </tr> </thead> <tbody> <tr><td>6</td><td>5</td><td>4</td></tr> <tr><td>8</td><td>7</td><td>4</td></tr> <tr><td>10</td><td>8</td><td>5</td></tr> <tr><td>12</td><td>10</td><td>5</td></tr> </tbody> </table>	D	d	ℓ ₁	6	5	4	8	7	4	10	8	5	12	10	5	Adds a wrench flat. SC = 1 mm Increment ① SC + ℓ ₂ ≤ L SC = 0 or SC ≥ 1 ① When combined with other alterations, ±2 degree phase differential may occur. <table border="1" style="display: inline-table; margin-top: 5px;"> <thead> <tr> <th>D</th> <th>W</th> <th>ℓ₂</th> </tr> </thead> <tbody> <tr><td>6</td><td>5</td><td>8</td></tr> <tr><td>8</td><td>7</td><td>8</td></tr> <tr><td>10</td><td>8</td><td>10</td></tr> <tr><td>12/13</td><td>10</td><td>10</td></tr> <tr><td>15/16</td><td>13</td><td>10</td></tr> <tr><td>17/18</td><td>14</td><td>10</td></tr> <tr><td>20/22</td><td>17</td><td>10</td></tr> <tr><td>25</td><td>22</td><td>15</td></tr> <tr><td>30</td><td>27</td><td>15</td></tr> </tbody> </table>	D	W	ℓ ₂	6	5	8	8	7	8	10	8	10	12/13	10	10	15/16	13	10	17/18	14	10	20/22	17	10	25	22	15	30	27	15	Changes L Dimension Tolerance. Ordering Code: LKC ① L < 500 L ± 0.05 L ≥ 500 L ± 0.1 ① When combined with other alterations, ±2 degree phase differential may occur. <table border="1" style="display: inline-table; margin-top: 5px;"> <thead> <tr> <th>D</th> <th>W</th> <th>ℓ₂</th> </tr> </thead> <tbody> <tr><td>10</td><td>8</td><td>8</td></tr> <tr><td>12</td><td>10</td><td>10</td></tr> <tr><td>15</td><td>13</td><td>15</td></tr> <tr><td>20</td><td>17</td><td>20</td></tr> <tr><td>25</td><td>22</td><td>20</td></tr> </tbody> </table>	D	W	ℓ ₂	10	8	8	12	10	10	15	13	15	20	17	20	25	22	20
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① For Keyway Details, P.853.

Hollow Rotary Shafts

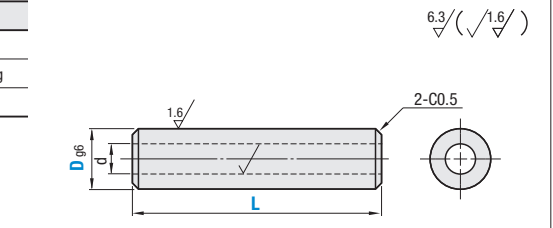
Straight



Hollow Rotary Shafts – Straight

RoHS10

Type	Material	Surface Treatment
PFR	1045 Carbon Steel or Equivalent	Black Oxide
PPFR	1045 Carbon Steel or Equivalent	Electroless Nickel Plating
SPFR	304 Stainless Steel	—



6.3/(1.6/)

① Circularity, Straightness, Perpendicularity P.853.

② Surface treatment is not applied to the shaft ends.

Type	Part Number		L	d
	Dg _s	0.1 mm Increment		
PFR PPFR SPFR	10	-0.005 -0.014	20.0–500.0	6
	12	-0.006	30.0–600.0	6
	15	-0.017	30.0–600.0	10
	20	-0.007	40.0–600.0	11.7
	25	-0.020	50.0–600.0	15.2
	30	-0.007	60.0–600.0	16
	35	-0.009	70.0–600.0	20.1
	40	-0.025	80.0–600.0	22.7
	50	-0.025	100.0–600.0	24

Part Number Example


Part Number - L

SPFR30 - 150 - SC10

Part Number Alterations

Part Number - L - (KC, WKC, FC...etc.)

SPFR30 - 150 - SC10

Alterations	Keyway	Set Screw Flat	Wrench Flats	L Dimension Tolerance																		
	One Keyway: KC Two Keyways: WKC	One Set Screw Flat: FC Two Set Screw Flats: WFC	SC	LKC																		
Code	KC, WKC	FC, WFC	SC	LKC																		
Spec.	KC: Adds one keyway. Ordering Code: KC50-A10 WKC: Adds two keyways. Ordering Code: WKC50-C8-K40-E10 ① Applicable when D ≥ 30 ① KC, A, WKC, C, K, E = 1 mm Increment ① KC, WKC, K ≥ 2 ① KC+A+4 ≤ L ① WKC+C+K+E+6 ≤ L ① A, E, C ≤ 100 ① For keyway details refer to P.853. ① If 3 keyways are required, use both KC and WKC. ① When keyway position is less than 1 mm away from the end face, R is not applied. Ex. 	FC: Adds 1 set screw flat. Ordering Code: FC10-G3 WFC: Adds 2 set screw flats. Ordering Code: WFC10-J3-W10-V3 ① FC, G, WFC, J, W, V = 1 mm Increment ① FC, WFC, W ≥ 2 ① FC+G+4 ≤ L ① WFC+J+W+V+6 ≤ L ① G, J, V ≤ 50	Adds a wrench flat. SC = 1 mm Increment ① SC ≥ 2 ① SC + ℓ ₂ + 4 ≤ L ① W-M(N) ≥ 2 for SC ≤ M(N)x3 <table border="1" style="display: inline-table; margin-top: 5px;"> <thead> <tr> <th>D</th> <th>W</th> <th>ℓ₂</th> </tr> </thead> <tbody> <tr><td>10</td><td>8</td><td>8</td></tr> <tr><td>12</td><td>10</td><td>10</td></tr> <tr><td>15</td><td>13</td><td>15</td></tr> <tr><td>20</td><td>17</td><td>20</td></tr> <tr><td>25</td><td>22</td><td>20</td></tr> </tbody> </table>	D	W	ℓ ₂	10	8	8	12	10	10	15	13	15	20	17	20	25	22	20	Changes L dimension tolerance. Ordering Code: LKC ① L < 500 L ± 0.05 L ≥ 500 L ± 0.1
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