

Shafts

Surface Treatment Fully-Plated Type

Shafts – Surface Treatment Fully-Plated Type

RoHS10

- ① Circularity, Straightness, Perpendicularity Concentricity, Changes in Hardness **P.198**
- ① Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10 mm). **P.199**
- ① Shafts may have centering holes at end faces depending on shapes.
- ① Surface treatment is also applied to shaft ends.

Type					D Tol.	Material	Hardness	Surface Treatment
Straight	One End Tapped	One End Stepped and Tapped	One End Threaded	One End Threaded with O.D. same as Shaft O.D.				
PSFCJ	PSFCT	PSFCG	PSFCN	PSFCQ	g6	52100 Bearing Steel Equivalent	Effective Hardened Depth of Induction Hardened P.199 58 HRC min.	Electroless Nickel Plating

Solid Type PSFCJ

One End Tapped PSFCT

One End Stepped and Tapped PSFCG

One End Threaded PSFCN

One End Threaded – Thread O.D. = Shaft O.D PSFCQ

① L does not include incomplete threads.

① Use "Oil-free Bushings" for plated shafts. **P.436–465.**
(Using rolling ball elements such as linear ball bushings on electroless nickel plated shafts may result in flaking of the nickel plating layer.)

Straight Type, One End Tapped Type – One End Stepped and Tapped Type

Part Number		1 mm Increments				M (One End Tapped)		M (One End Stepped and Tapped)		(Y) Max.	R	C
Type	D	L (Straight / One End Tapped)	L (One End Stepped and Tapped)	F	P							
Straight Type PSFCJ	8	20–800	25–798	2≤F≤Px4	6	3 4 5	3	800	0.3 or Less	0.5 or Less		
	10	20–800	25–798		6–8	3 4 5 6	3 4 5	800				
	12	20–1000	25–998		6–10	4 5 6 8	3 4 5 6	1000				
One End Tapped Type PSFCT	15	25–1000	25–998		6–13	4 5 6 8 10	3 4 5 6 8 10	1000	0.3 or Less		1.0 or Less	
	20	30–1000	25–998		6–17	4 5 6 8 10 12	4 5 6 8 10 12	1000				
	25	35–1000	25–998		8–22	4 5 6 8 10 12 16	4 5 6 8 10 12 16	1000				
One End Stepped and Tapped PSFCG	30	35–1000	25–998		9–27	6 8 10 12 16 20	5 6 8 10 12 16 20	1000	0.5 or Less			
	35	35–1000	25–998		9–32	8 10 12 16 20 24	5 6 8 10 12 16 20 24	1000				
	40	50–1000	25–998		11–37	10 12 16 20 24 30	6 8 10 12 16 20 24 30	1000				
	50	65–1000	25–998		11–47	12 16 20 24 30	6 8 10 12 16 20 24 30	1000				

One End Tapped Type ① When Mx2.5+4≥L, tap pilot holes may go through. · One End Stepped and Tapped ① P≥M+3 ① When Mx2.5+4≥Y, tap pilot holes may go through.

One End Threaded

Part Number		1 mm Increments			P	(Y) Max.	R	C	Coarse Thread Dimension	
Type	D	L	F	B					M	Pitch
One End Threaded PSFCN	8	25-798	2≤F≤Px5	(When P≤6) B≤F-2	3 4 5 6	800	0.3 or Less	0.5 or Less	3	0.5
	10	25-798		(When P=8, 10) B≤F-3	4 5 6 8	800			4	0.7
	12	25-998			5 6 8 10	1000			5	0.8
	15	25-998		(P≥12) B≤F-5	5 6 8 10 12	1000	6		1.0	
	20	25-998			6 8 10 12 16	1000	8		1.25	
	25	25-998			8 10 12 16 20 24	1000	10		1.5	
	30	25-998		① B≥Pitchx3	8 10 12 16 20 24	1000	12	1.75		
	35	25-998			10 12 16 20 24 30	1000	16	2.0		
	40	25-998			12 16 20 24 30	1000	20	2.5		
	50	25-998			16 20 24 30	1000	24	3.0		
								30	3.5	

One End Threaded with O.D. same as Shaft O.D.

Part Number		1 mm Increments		M	(Y) Max.	R	C
Type	D	L	B				
One End Threaded with O.D. same as Shaft O.D. PSFCQ	8	25–793	7–40	8	800	0.3 Less than	0.5 or Less
	10	25–795	8–50	10	800		
	12	25–991	9–60	12	1000		
	20	25–987	13–100	20	1000	1.0 or Less	
	30	25–982	18–150	30	1000		

① For shafts with O.D. same as Shaft O.D., L dimension has priority, thus the effective thread length will be B-(Pitchx2).

Shafts

Surface Treatment Fully-Plated Type, continued

Part Number Example

Part Number

-

L

-

F

-

B

-

P

-

M

PSFCJ20

-

75

PSFCT20

-

525

- M8

PSFCG20

-

400

- F20

- P15 - M10

PSFCN20

-

950

- F25

- B10

- P16

PSFCQ12

-

500

- B20

Part Number Alterations

Part Number

-

L

-

F

-

B

-

P (PMC / PSC)

-

M (MSC)

-

(LKC...etc.)

PSFCN30

-

250

- F40

- B30

- P10

- LKC

Alteration Details **P.200**

Alterations	Alteration to L Dimension Tolerance	Wrench Flats	Set Screw Flat																										
Code	LKC	SC	FC																										
Spec.	Changes L Tolerance Ordering Code: LKC ① L<200 → L±0.03 200≤L<500 → L±0.05 L≥500 → L±0.1 ① L dimensions can be specified in 0.1 mm increment for LKC. ① Not applicable to One End Threaded when D-P≤2. ① Not applicable to One End Threaded with O.D. same as Shaft O.D.	Adds Wrench Flats Ordering Code: SC5 ① SC=1 mm Increment ① SC+ℓ1≤L SC≥0 <table><tr><th>D</th><th>W</th><th>ℓ1</th></tr><tr><td>8</td><td>7</td><td>8</td></tr><tr><td>10</td><td>8</td><td></td></tr><tr><td>12</td><td>10</td><td></td></tr><tr><td>15</td><td>13</td><td>10</td></tr><tr><td>20</td><td>17</td><td></td></tr></table>	D	W	ℓ1	8	7	8	10	8		12	10		15	13	10	20	17		Adds a screw flat Ordering Code: FC10-E8 ① FC, E = 1 mm Increment ① FC≤Dx3 ① When 1.5xD<FC, FC≤L/2 ① E=0 or E≥2 <table><tr><th>D</th><th>h</th></tr><tr><td>8–15</td><td>1</td></tr><tr><td>20–40</td><td>2</td></tr><tr><td>50</td><td>3</td></tr></table>	D	h	8–15	1	20–40	2	50	3
D	W	ℓ1																											
8	7	8																											
10	8																												
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D	h																												
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20–40	2																												
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Alterations	Change to Fine Tapped Thread	Undercut	Change to Fine Thread																																																																																																																				
Code	MSC	PC	PMC / PMS																																																																																																																				
Spec.	Changes tapped threads to fine tapped threads shown in the table below. Ordering Code: MSC14 ① Applicable to One End Tapped Type and One End Stepped and Tapped Type. ① Specify in reference to D dimensions for One End Threaded Shafts; P dimensions for One End Stepped and Tapped Shafts. <table><tr><th>D / P</th><th colspan="3">MSC</th></tr><tr><td>12</td><td>8</td><td></td><td></td></tr><tr><td>15</td><td>8</td><td>10</td><td></td></tr><tr><td>20</td><td>8</td><td>10</td><td>12 14</td></tr><tr><td>25–35</td><td>8</td><td>10</td><td>12 14 18</td></tr><tr><td>40</td><td></td><td>10</td><td>12 14 18</td></tr><tr><td>50</td><td></td><td></td><td>12 14 18</td></tr><tr><td>Pitch</td><td>1.0</td><td>1.25</td><td>1.5</td></tr></table> ① Specify M dimensions with MSC. ① M dimension is equal to MSC.	D / P	MSC			12	8			15	8	10		20	8	10	12 14	25–35	8	10	12 14 18	40		10	12 14 18	50			12 14 18	Pitch	1.0	1.25	1.5	Adds an undercut to P. Ordering Code: PC ① Undercut width=F(T)-B(S) ① For detailed undercut dimensions, please see P.200. ① Applicable to One End Threaded Type only. ① Not applicable to M3–M5.	Changes the threads to fine threads shown in the table below. (PMC → Applicable to bearing nut fine thread pitches) (PMS → Applicable to cylinder fine thread pitches) Ordering Code: PMC17 ① Applicable to One End Threaded Type only. <table><tr><th>D</th><th colspan="4">PMC</th><th colspan="2">PMS</th></tr><tr><td>8</td><td>3</td><td>4</td><td>5</td><td>6</td><td></td><td></td></tr><tr><td>10</td><td></td><td>4</td><td>5</td><td>6</td><td>8</td><td></td></tr><tr><td>12</td><td></td><td></td><td>5</td><td>6</td><td>8 10</td><td></td></tr><tr><td>15</td><td></td><td></td><td></td><td>5</td><td>6 8 10 12</td><td>10 12</td></tr><tr><td>20</td><td></td><td></td><td></td><td></td><td>6 8 10 12 15 17</td><td>10 12 14 18</td></tr><tr><td>25</td><td></td><td></td><td></td><td></td><td>8 10 12 15 17 20</td><td>10 12 14 18</td></tr><tr><td>30</td><td></td><td></td><td></td><td></td><td>8 10 12 15 17 20 25</td><td>10 12 14 18</td></tr><tr><td>35</td><td></td><td></td><td></td><td></td><td>10 12 15 17 20 25 30</td><td>10 12 14 18</td></tr><tr><td>40</td><td></td><td></td><td></td><td></td><td>12 15 17 20 25 30</td><td>12 14 18</td></tr><tr><td>50</td><td></td><td></td><td></td><td></td><td>15 17 20 25 30</td><td>14 18</td></tr><tr><td>Pitch</td><td>0.35</td><td>0.5</td><td>0.75</td><td>1.0</td><td>1.5</td><td>1.25 1.5</td></tr></table> ① Specify P dimensions with PMC (PMS). ① P dimension is equal to that of PMC (PMS).	D	PMC				PMS		8	3	4	5	6			10		4	5	6	8		12			5	6	8 10		15				5	6 8 10 12	10 12	20					6 8 10 12 15 17	10 12 14 18	25					8 10 12 15 17 20	10 12 14 18	30					8 10 12 15 17 20 25	10 12 14 18	35					10 12 15 17 20 25 30	10 12 14 18	40					12 15 17 20 25 30	12 14 18	50					15 17 20 25 30	14 18	Pitch	0.35	0.5	0.75	1.0	1.5	1.25 1.5
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Pitch	0.35	0.5	0.75	1.0	1.5	1.25 1.5																																																																																																																	

- ① When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm. **P.201**
- ① Alterations may lower hardness. **P.199**
- ① For detailed undercut dimensions. **P.199**

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