

High Precision Linear Shafts

Stepped Ends / Stepped Ends with Wrench Flats / One End & Both Ends & One End Threaded / One End Tapped

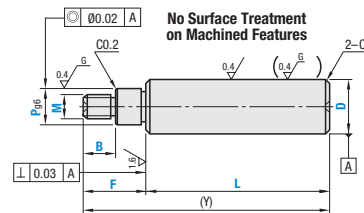
Shafts – Stepped Ends / Stepped Ends with Wrench Flats / One End & Both Ends & One End Threaded / One End Tapped



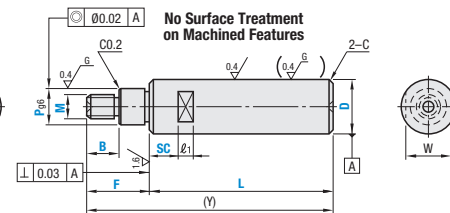
Type						D Tol.	Material	Hardness	Surface Treatment	D Tolerance Dg6	
One End Stepped and Threaded		Both Ends Stepped and Threaded		One End Stepped and Threaded – One End Tapped						4	5
Standard	With Wrench Flats	Standard	With Wrench Flats	Standard	With Wrench Flats	6	8	10	12	13	
VFAN	VFPN	VFAM	VFPM	VFAD	VFPD	g6	52100 Bearing Steel Equivalent	Effective Hardened Depth of Induction Hardened P.199	—	15	
VSFAN	VSFPN	VSFAM	VSFPM	VSFAD	VSFPD		SUS440C (13Cr) Stainless Steel Equivalent	52100 Bearing Steel Equivalent 58 HRC min.	Low Temp. Black Chrome Plating	16	
VRAN	VRPN	VRAM	VRPM	VRAD	VRPD		52100 Bearing Steel Equivalent	SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min.		18	
VSRAN	VSRPN	VSRAM	VSRPM	VSRAD	VSRPD		SUS440C (13Cr) Stainless Steel Equivalent			20	
										25	
										30	

$$6.3 / (1.6 / 0.4 / 0.4 / 0.4 / 0.4)$$

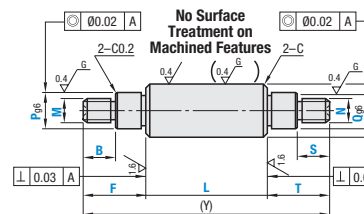
One End Stepped and Threaded



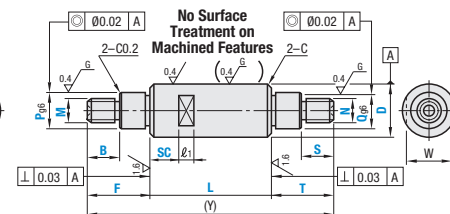
One End Stepped and Threaded with Wrench Flats



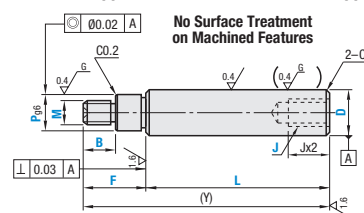
Both Ends Stepped and Threaded



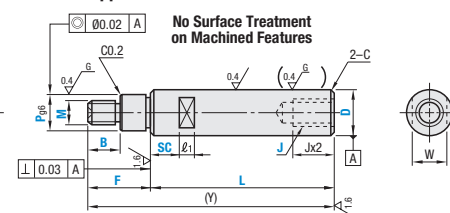
Both Ends Threaded and Stepped with Wrench Flats



One End Stepped and Threaded – One End Tapped



One End Stepped and Threaded – One End Tapped with Wrench Flats



The inside of taps won't be surface treated.

The inside of taps won't be surface treated.

- Annealing required for wrench flats machining and shaft end threading (effective thread length + approx. 10 mm) may lower hardness. P.199
- Changes in Hardness and Thread Undercut Dimensions P.198.
- There will be centering holes on end faces of the shafts.
- Features of Low Temperature Black Chrome Plating P.213.

Part Number	Type	1 mm Increments					M / N (Coarse)	J (Coarse)	Wrench Flats Dimensions			(Y) Max.	C
		D	L	F / T	B / S	P / Q			SC	W	ℓ ₁		
VFAN	VFPN	(5)	25-295				3 4	2.6 3	—	—	—	300	0.2 or less
VSFAN	VSFPN	6	25-295				3 4 5	3				300	
VRAN	VRPN	8	25-295				3 4 5 6	3 4 5				300	
VSRAN	VSRPN	10	25-345				4 5 6 8	3 4 5 6				350	
VFAM	VFPM	12	25-345		(Without threads)		5 6 8 10	4 5 6 8	SC=1 mm Increment			350	0.5 or less
VSFAM	VSFPM	13	25-345	5 ≤ F ≤ Px5	B=0 S=0	M < P < D	5 6 8 10	4 5 6 8				350	
VRAM	VRPM	15	25-345	5 ≤ T ≤ Nx5		N < Q < D	5 6 8 10 12	4 5 6 8 10				350	
VSRAM	VSRPM	16	25-345				5 6 8 10 12	4 5 6 8 10				350	
VFAD	VFPD	18	25-345				5 6 8 10 12	4 5 6 8 10 12				350	
VSFAD	VSFPD	20	25-445				6 8 10 12 16	4 5 6 8 10 12				450	
VRAD	VRPD	25	25-445				8 10 12 16 20	4 5 6 8 10 12 16				450	1.0 or less
VSRAD	VSRPD	30	25-445				8 10 12 16 20 24	6 8 10 12 16 20				450	

- For VFAD, VRAD, VSFAD, VSRAD, VFPD, VSFPD, VRPD and VSRPD, overall length L requires Jx3 ≤ L.
- F-B(T-S) ≥ 2 is required.
- Specify M=0 when B=0; N=0 when S=0.
- Sizes in () are not applicable to Shafts with Wrench Flats.

High Precision Linear Shafts

Stepped Ends / Stepped Ends with Wrench Flats / One End & Both Ends & One End Threaded / One End Tapped, continued



Part Number Example

Part Number	L	F	B	P	M	SC					
Example	VFAN20	- 400	- F30	- B20	- P10	- M8					
Part Number	L	F	B	P	M	T	S	Q	N	SC	
Example	VFPM12	- 300	- F30	- B20	- P10	- M8	- T20	- S10	- Q10	- N6	- SC10
Part Number	L	F	B	P	M	J	SC				
Example	VSFAD30	- 250	- F50	- B40	- P20	- M16	- J20				



Part Number Alterations

Part Number	L	F	B	P	M (MMC / MMS)	T / J (JSC)	S	Q	N (NMC / NMS)	SC	(LKC)
Example	VFAM13	- 300	- F30	- B20	- P10	- M8	- T20	- S10	- Q10	- NMC6	

Alterations	Alteration to L Dimension Tolerance	Change to Fine Thread	Change to Fine Thread																																																																																																																																																																											
	Code	LKC	MMC / MMS / NMC / NMS	JSC																																																																																																																																																																										
Spec.	<p>Changes L Tolerance</p> <p>Ordering Code: LKC</p> <ul style="list-style-type: none"> Applicable to L dimension 200 or less. → ±0.03 L dimensions can be specified in 0.1 mm increment for LKC Not applicable when D-P (Q) ≥ 2 	<p>Changes the threads to Fine Threads shown in the table below. (MMC, NMC → Applicable to bearing nut fine thread pitches.) (MMS, NMS → Applicable to cylinder fine thread pitches.)</p> <p>Ordering Code: MMC17</p> <table border="1"> <thead> <tr> <th>D</th> <th colspan="4">MMC / NMC</th> <th colspan="4">MMS / NMS</th> </tr> </thead> <tbody> <tr><td>4</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td>3</td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td>3</td><td>4</td><td>5</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td>3</td><td>4</td><td>5</td><td>6</td><td></td><td></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><td></td><td></td></tr> <tr><td>12</td><td></td><td></td><td>5</td><td>6</td><td>8</td><td>10</td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td><td></td><td>5</td><td>6</td><td>8</td><td>10</td><td></td></tr> <tr><td>15</td><td></td><td></td><td></td><td></td><td>5</td><td>6</td><td>8</td><td>10</td></tr> <tr><td>16</td><td></td><td></td><td></td><td></td><td></td><td>5</td><td>6</td><td>8</td></tr> <tr><td>18</td><td></td><td></td><td></td><td></td><td></td><td></td><td>5</td><td>6</td></tr> <tr><td>20</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5</td></tr> <tr><td>25</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>30</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> <p>Pitch: 0.35 0.5 0.75 1.0 1.5 1.25 1.5</p> <p>Specify M dimensions with MMC (MMS). Specify N dimensions with NMC (NMS).</p>	D	MMC / NMC				MMS / NMS				4	3								5	3	4							6	3	4	5						8	3	4	5	6					10		4	5	6	8				12			5	6	8	10			13				5	6	8	10		15					5	6	8	10	16						5	6	8	18							5	6	20								5	25									30									<p>Changes tapped threads to fine tapped threads shown in the table below.</p> <p>Ordering Code: JSC14</p> <table border="1"> <thead> <tr> <th>D</th> <th colspan="4">JSC</th> </tr> </thead> <tbody> <tr><td>12</td><td>8</td><td></td><td></td><td></td></tr> <tr><td>13</td><td>8</td><td></td><td></td><td></td></tr> <tr><td>15</td><td>8</td><td>10</td><td></td><td></td></tr> <tr><td>16</td><td>8</td><td>10</td><td></td><td></td></tr> <tr><td>18</td><td>8</td><td>10</td><td>12</td><td></td></tr> <tr><td>20</td><td>8</td><td>10</td><td>12</td><td>14</td></tr> <tr><td>25</td><td>8</td><td>10</td><td>12</td><td>14</td></tr> <tr><td>30</td><td>8</td><td>10</td><td>12</td><td>14</td></tr> </tbody> </table> <p>Pitch: 1.0 1.25 1.5</p> <p>Specify J dimensions with JSC.</p> <p>J dimension is equal to JSC.</p> <p>Only Applicable to V_AD / VS_AD / V_PD / VS_PD</p>	D	JSC				12	8				13	8				15	8	10			16	8	10			18	8	10	12		20	8	10	12	14	25	8	10	12	14	30	8	10	12	14
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- The distance between wrench flats and alteration areas should be greater than 2mm for alterations. P.201
- Alterations may lower hardness. P.199