

Metal Collar

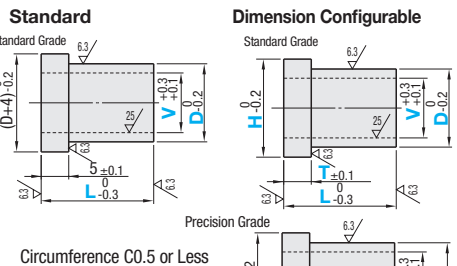
Flanged, Standard Grade / Precision Grade



RoHS 10

Type		Material	Surface Treatment	Hardness
Standard	Configurable			
Standard Grade	Precision Grade			
-	FTCLS	Steel for General Structure	-	-
-	FTCLC FTCLMC	S45C Equivalent	Black Oxide	-
TCLB FTCLB FTCLMB	FTCLM FTCLMM	Electroless Nickel Plating	-	-
-	FTCLBB	Brass (JIS C3604)	-	-
TCLA FTCLA	-	2000Series Aluminum Alloy	Clear Anodize	-
-	FTCLAB	-	Black Anodize	-
TCLSS FTCLSS	-	SUS304	-	-
-	FTCLCH	S45C Equivalent	Black Oxide	45~50HRC
-	FTCLBH	-	Electroless Nickel Plating	-
-	FTCLMH	SKS3 Equivalent	-	55HRC~
-	FTCLSK	SUS400C Equivalent	-	45~50HRC
-	FTCLSH	FTCMSH	-	-

⚠ Depending on thickness and length, S45C Hardened Type may be less than 45HRC.
⚠ Stainless Steel Hardened Type may be discolored due to hardening.



Standard Type, Standard Grade

Part Number	V	D	L	Unit Price
Type		Selection	0.1mm Increment	
TCLB TCLM TCLA TCLSS	2	5 6 8 10	10.0~16.0	
	3	5 6 8 10 12		
	4	6 8 10 12 13 14 15 16 20	10.0~50.0	
	5	8 10 12 13 14 15 16 20		
	6	8 10 12 13 14 15 16 20 25		
	8	10 12 13 14 15 16 20 25 30		
	10	12 13 14 15 16 20 25 30 35 40 50		
	12	15 16 20 25 30 35 40 50		
	15	20 25 30 35 40 50 60	10.0~100.0	
	16	20 25 30 35 40 50 60		
TCLB TCLM TCLA TCLSS	20	25 30 35 40 50 60		
	25	30 35 40 50 60		
	30	40 50 60		
	2			
	3 4 5			
	6			
	8 10			
	12			
	15			
	16			
TCLB TCLM TCLA TCLSS	20			
	25			
	30			
	2			
	3 4 5			
	6			
	8 10			
	12			
	15			
	16			

Ordering Example: Part Number - D - L
TCLB10 - 20 - 60.0

Standard Grade, Dimension Configurable

Part Number	V	D	H	T	L	Unit Price
	0.5mm Increment (V3 or More)			1mm Increment	0.1mm Increment	
FTCLS FTCLC FTCLB FTCLM FTCLBB FTCLA FTCLAB FTCLSS	(Selection)	4.0~10.0 (0.5mm Increment)	6.0~20.0 (0.5mm Increment)	1~20 (T≤L-1)	10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		10.5~20 (0.5mm Increment)	12.5~30 (0.5mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		21~30 (1mm Increment)	23~40 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		31~40 (1mm Increment)	33~50 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		41~50 (1mm Increment)	43~60 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		51~60 (1mm Increment)	53~70 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
FTCLCH FTCLBH FTCLMH FTCLSK FTCLSH	(Selection)	4.0~10.0 (0.5mm Increment)	6.0~20.0 (0.5mm Increment)	1~20 (T≤L-1)	10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		10.5~20 (0.5mm Increment)	12.5~30 (0.5mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		21~30 (1mm Increment)	23~40 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		31~40 (1mm Increment)	33~50 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		41~50 (1mm Increment)	43~60 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		51~60 (1mm Increment)	53~70 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	

⚠ D-V Machining Conditions
10.0≤L≤50.0 → (D-V)/2≥1
50.1≤L≤100.0 → (D-V)/2≥3

⚠ D-V Machining Conditions (FTCLSK, FTCLBB)
4≤D≤10 → V≤D-2
10.5≤D≤30 → V≤D-4
31≤D≤60 → V≤D-6

⚠ H-D≥2

⚠ D/10≤L≤Vx8

Ordering Example: Part Number - V - D - H - T - L
FTCLB - V10.5 - D20 - H30 - T4 - L23.8

Precision Grade, Dimension Configurable

Part Number	V	D	H	T	L	Unit Price
	0.5mm Increment (V3 or More)			0.5mm Increment	0.1mm Increment	
FTCLMC FTCLMB FTCLMM FTCMSH	(Selection)	4.0~10.0 (0.5mm Increment)	6.0~20.0 (0.5mm Increment)	1.0~20.0	10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		10.5~20 (0.5mm Increment)	12.5~30 (0.5mm Increment)	2.0~20.0	10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		21~30 (1mm Increment)	23~40 (1mm Increment)	3.0~20.0	10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		31~40 (1mm Increment)	33~50 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		41~50 (1mm Increment)	43~60 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
		51~60 (1mm Increment)	53~70 (1mm Increment)		10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	
					10.0~ 25.0 25.1~ 50.0 50.1~ 75.0 75.1~ 100.0	

⚠ D-V Machining Conditions
4≤D≤10 → V≤D-2
10.5≤D≤30 → V≤D-4
31≤D≤60 → V≤D-6

⚠ T≤L-1

⚠ D/10≤L≤Vx8

Alterations

Standard Grade

Precision Grade

Ordering Example: Part Number - V - D - H - T - L
FTCLB - V10.5 - D20 - H30 - T4 - L23.8 - TCB

Ordering Example: Part Number - V - D - H - T - L
FTCLMB - V10.5 - D20 - H30 - T4 - L23.8 - TSB

⊗ Not applicable to Standard Type. ⊗ Not applicable to Anodized Products. ⊗ Not applicable to Hardened Type (products with hardness indications H).

Alterations	Negative Tolerance	Positive Tolerance	Zero, Negative Tolerance	Zero, Positive Tolerance
Code	TCB	TCC	TCB	TCE
	Changes shoulder thickness tolerance (T). T -0.1 T -0.3 Ordering Code TCB	Changes shoulder thickness tolerance (T). T +0.3 T +0.1 Ordering Code TCC	Changes shoulder thickness tolerance (T). T 0 T -0.2 Ordering Code TCD	Changes shoulder thickness tolerance (T). T +0.2 T 0 Ordering Code TCE

⚠ Applicable to Standard Grade.

Alterations	Shoulder Thickness Tolerance	Negative Tolerance	Positive Tolerance	Zero, Negative Tolerance	Zero, Positive Tolerance
Code	TSA	TSB	TSC	TSB	TSE
	Changes shoulder thickness tolerance (T). T ±0.025 Ordering Code TSA	Changes shoulder thickness tolerance (T). T -0.01 T -0.06 Ordering Code TSB	Changes shoulder thickness tolerance (T). T +0.06 T +0.01 Ordering Code TSC	Changes shoulder thickness tolerance (T). T 0 T -0.05 Ordering Code TSD	Changes shoulder thickness tolerance (T). T +0.05 T 0 Ordering Code TSE

⚠ Applicable to Precision Grade.

	C Chamfering (One Side - Both Sides)	Tapping	Set Screw Hole (1-set 2-set)	Slitting	I.D. Tolerance																																																																																					
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Code	CC	VM (Coarse Thread) VMA (Fine Thread)	MC, WMC	SLC	VKC																																																																																					
Spec.	Chamfers C plane. Ordering Code CC1.5 CC=0.5mm Increment CC<(D-V) / 2	Adds a tapped hole (through). Ordering Code VM: VM-V should be specified as VM or VMA. Ex.) FTCLS-VM44-D10-H13-T18 L≤Mx8	Adds a tapped hole (coarse thread) at D part. Ordering Code MC3 WMC5 For the condition of thickness (D-V) / 2, see table below. L≥MC, WMCx3 MC, WMC=Select from table below.	Adds a slit. Ordering Code SLC For the condition of thickness (D-V) / 2, see table below. Slit width is fixed.	Changes the I.D. Tolerance to H7. Ordering Code VKC Machining Conditions D≥6 V≥3 L≤Vx5																																																																																					
		<table><tr><th>Tapped Hole Dia.</th><th>VM</th><th>VMA</th><th>L max</th></tr><tr><th>MM</th><th>Pitch (Coarse)</th><th>Pitch (Fine)</th><th></th></tr><tr><td>4</td><td>0.7</td><td>0.5</td><td>20</td></tr><tr><td>5</td><td>0.8</td><td>0.5</td><td>30</td></tr><tr><td>6</td><td>1.0</td><td>0.75</td><td>35</td></tr><tr><td>8</td><td>1.25</td><td></td><td>40</td></tr><tr><td>10</td><td>1.5</td><td>1.0</td><td>50</td></tr><tr><td>12</td><td>1.75</td><td></td><td>55</td></tr><tr><td>16</td><td>2.0</td><td></td><td>90</td></tr><tr><td>18</td><td>-</td><td>1.5</td><td></td></tr><tr><td>20</td><td>2.5</td><td></td><td>100</td></tr></table>	Tapped Hole Dia.	VM	VMA	L max	MM	Pitch (Coarse)	Pitch (Fine)		4	0.7	0.5	20	5	0.8	0.5	30	6	1.0	0.75	35	8	1.25		40	10	1.5	1.0	50	12	1.75		55	16	2.0		90	18	-	1.5		20	2.5		100	<table><tr><th>MC, WMC</th><th>(D-V)/2</th></tr><tr><td>3.4</td><td>3 or More</td></tr><tr><td>5.6, 8</td><td>5 or More</td></tr><tr><td>10, 12</td><td>8 or More</td></tr></table>	MC, WMC	(D-V)/2	3.4	3 or More	5.6, 8	5 or More	10, 12	8 or More	<table><tr><th>O.D. D</th><th>SLC</th><th>(D-V)/2</th></tr><tr><td>10.0~20.0</td><td>1</td><td>5 or Less</td></tr><tr><td>20.5~40</td><td>2</td><td>10 or Less</td></tr><tr><td>41~</td><td>3</td><td>20 or Less</td></tr></table> D, V and L dimension tolerances are the values before alteration. They may change after alteration depending on materials.	O.D. D	SLC	(D-V)/2	10.0~20.0	1	5 or Less	20.5~40	2	10 or Less	41~	3	20 or Less	<table><tr><th>D</th><th>D-V</th></tr><tr><td>6~10</td><td>D-V≥2</td></tr><tr><td>10.5~20</td><td>D-V≥3</td></tr><tr><td>21~30</td><td>D-V≥4</td></tr><tr><td>31~40</td><td>D-V≥5</td></tr><tr><td>41~50</td><td>D-V≥10</td></tr><tr><td>51~60</td><td>D-V≥12</td></tr><tr><td>61~70</td><td>D-V≥14</td></tr><tr><td>71~80</td><td>D-V≥16</td></tr><tr><td>81~90</td><td>D-V≥18</td></tr><tr><td>91~100</td><td>D-V≥20</td></tr></table>	D	D-V	6~10	D-V≥2	10.5~20	D-V≥3	21~30	D-V≥4	31~40	D-V≥5	41~50	D-V≥10	51~60	D-V≥12	61~70	D-V≥14	71~80	D-V≥16	81~90	D-V≥18	91~100
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