

# Metal Washer

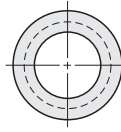
## Flanged



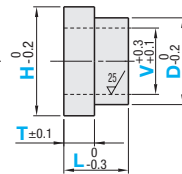
RoHS 10

Part Number		M	S	H
Standard Grade	Precision Grade	Material	Surface Treatment	Hardness
FTCSS	-	Steel for General Structure	-	-
FTCC	FTCMC	S45C	Black Oxide Electless Nickel Plating	-
FTCB	FTCMB			
FTCM	FTCMM	Equivalent	-	-
FTCSK	-	SKS3 Equivalent	Black Oxide Electless Nickel Plating	55HRC~
FTCSKB	FTCSKM			
FTCS	FTCMS	SUS440C or 13Cr stainless	-	45~50HRC

⚠ Stainless Steel Hardened Type (FTCS, FTCMS) may be discolored by hardening.

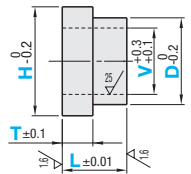


Standard Grade



Circumference C0.5 or Less

Precision Grade



Circumference C0.5 or Less

### Standard Grade / Precision Grade

Part Number	D	H	V 0.5mm Increment (V3 or More)	T 0.1mm Increment	L 0.1mm Increment	Unit Price															
						Standard Grade				Precision Grade											
						FTCSS	FTCC	FTCB	FTCM	FTCSK	FTCSKB	FTCSKM	FTCS	FTCMC	FTCMB	FTCMM	FTCMS				
Standard Grade FTCSS FTCC FTCB FTCM FTCSK FTCSKB FTCSKM FTCS	Precision Grade FTCMC FTCMB FTCMM FTCMS	5.0-9.0 (0.5mm Increment)	7.0-12.0 (0.5mm Increment)	(Selection) 2.0 2.6  3.0-58.0	1.0-8.0	2.0-10.0															
		9.5-20.0 (0.5mm Increment)	11.5-25.0 (0.5mm Increment)																		
		21-30 (1mm Increment)	23-40 (1mm Increment)																		
		31-40 (1mm Increment)	33-50 (1mm Increment)																		
		41-50 (1mm Increment)	43-60 (1mm Increment)																		
		51-60 (1mm Increment)	53-70 (1mm Increment)																		

⚠ Machining Conditions

⚠ T<sub>s</sub>≤L-1

⚠ Machining Conditions of Material SKS3 (FTCSK, FTCSKB, FTCSKM) ⚠ 2≤T≤L-2

D	H	V
For 5 ~ 20	D+2±H±Dx1.5	V≤D-2
For 21 ~ 40	D+2±H±Dx1.4	V≤D-4
For 41 ~ 60	D+2±H±Dx1.2	V≤D-6

D	H	V
For 5 ~ 10	D+2±H±Dx1.4	V≤D-2
For 10.5 ~ 30	D+2±H±Dx1.4	V≤D-4
For 31 ~ 60	D+2±H±Dx1.2	V≤D-6



Ordering Example  
Part Number - D - H - V - T - L  
FTCMS - D25 - H30 - V8.0 - T2.0 - L5.0



Alterations  
Part Number - D - H - V - T - L - (TCB, TCC, TCD, TCE, TSA, TSB, TSC, TSD, TSE, VKC, DKC, HKC)  
FTCMM - D25 - H30 - V8.0 - T2.0 - L5.0 - TSC - VKC

⚠ When both I.D./O.D. tolerance changes are specified, the concentricity is 0.02. ⚠ Not applicable to the Hardened Products.

Alterations	Code	Spec.	Alterations	Code	Spec.																												
I.D. Tolerance	VKC	Changes the I.D. Tolerance to H7. Ordering Code VKC Machining Conditions ⚠ D≥6 V≥3	O.D. Tolerance	DKC (g6) HKC (h7)	Changes the O.D. Tolerance to g6 or h7. Ordering Code DKC, HKC Machining Conditions ⚠ When D≥43, T≥1.5. ⚠ D≥6																												
		<table border="1"> <thead> <tr> <th>D</th> <th>D-V</th> </tr> </thead> <tbody> <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≥6</td> </tr> <tr> <td>31~40</td> <td>D-V≥8</td> </tr> <tr> <td>41~50</td> <td>D-V≥10</td> </tr> <tr> <td>51~60</td> <td>D-V≥12</td> </tr> </tbody> </table>	D	D-V	6~10	D-V≥2	10.5~20	D-V≥3	21~30	D-V≥6	31~40	D-V≥8	41~50	D-V≥10	51~60	D-V≥12			<table border="1"> <thead> <tr> <th>D</th> <th>D-V</th> </tr> </thead> <tbody> <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≥6</td> </tr> <tr> <td>31~40</td> <td>D-V≥8</td> </tr> <tr> <td>41~50</td> <td>D-V≥10</td> </tr> <tr> <td>51~60</td> <td>D-V≥12</td> </tr> </tbody> </table>	D	D-V	6~10	D-V≥2	10.5~20	D-V≥3	21~30	D-V≥6	31~40	D-V≥8	41~50	D-V≥10	51~60	D-V≥12
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⚠ Not applicable to the Hardened Products (FTCSK, FTCSKB, FTCSKM, FTCS, FTCMS).

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

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