

Metal Washer

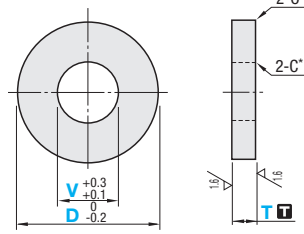
Standard Grade / Precision Grade / High Precision Grade I.D. / O.D. Tolerance Selectable / Dimension Configurable



RoHS 10

Part Number	M Material	S Surface Treatment	H Hardness
AWSC	EN 1.1191 Equiv.	-	-
AWSB		Black Oxide	
AWSM		Electroless Nickel Plating	
AWSS	EN 1.4301 Equiv.	-	45~50HRC
AWSH	EN 1.4031 Equiv.	-	

Stainless Steel Hardened Type (AWSH) may be discolored due to hardening.



2-C*
2-C*
1/16
V +0.3
D -0.2
T

T Dimension Tolerance Selection Table			
A	±0.005	-	-
B	-0.1 -0.3	SB	-0.01 -0.03
C	+0.3 +0.1	SC	+0.03 +0.01
D	0 -0.2	SD	0 -0.02
E	+0.2 0	SE	+0.02 0

2/ (1/)
*D=16 or Less: C0.2 or Less
D=16.5 or More: C0.5 or Less

I.D./O.D. Tolerance Selectable, Dimension Configurable

Part Number	Tolerance Selection	D	V 0.5mm Increment	T 0.1mm Increment	Unit Price													
					High Precision Grade - Tolerance A				Standard Grade - Tolerance B-E					Precision Grade - Tolerance SB-SE				
					AWSC	AWSB	AWSM	AWSH	AWSC	AWSB	AWSM	AWSS	AWSH	AWSC	AWSB	AWSM	AWSS	AWSH
AWSC AWSB AWSM AWSS AWSH	High Precision Grade A Standard Grade B C D E Precision Grade SB SC SD SE	5.0~10.0 0.5mm Increment	3.0~58.0	1.0~ 2.9														
				3.0~ 5.0														
				5.1~10.0														
		10.5~20.0 0.5mm Increment		1.0~ 2.9														
				3.0~ 5.0														
				5.1~10.0														
		21~30 1mm Increment		1.0~ 2.9														
				3.0~ 5.0														
				5.1~10.0														
		31~40 1mm Increment		1.0~ 2.9														
				3.0~ 5.0														
				5.1~10.0														
		41~50 1mm Increment		1.0~ 2.9														
				3.0~ 5.0														
				5.1~10.0														
		51~60 1mm Increment		1.0~ 2.9														
				3.0~ 5.0														
				5.1~10.0														

D≤60...V≤D-2 D≥61...V≤D-4 High Precision Grade (Tolerance A) is not available for AWSS.

Ordering Example

Part Number - T Tolerance Selection - D - V - T

AWSB - B - D20.0 - V8.0 - T5.0

AWSS - SB - D20.0 - V8.0 - T5.0

Metal Washer

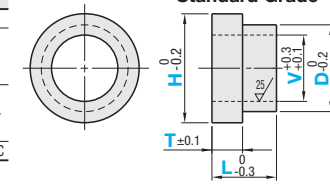
Flanged



RoHS 10

Part Number	M Material	S Surface Treatment	H Hardness
FTCSS	EN 1.0038 Equiv.	-	-
FTCC		-	-
FTCB		Black Oxide	-
FTCM	EN 1.1191 Equiv.	Electroless Nickel Plating	-
FTCMM	EN 1.2510 Equiv.	-	55HRC~
FTCSK		Black Oxide	55HRC~
FTCSKB		Electroless Nickel Plating	55HRC~
FTCSKM	EN 1.4031 Equiv.	-	45~50HRC
FTCS		-	45~50HRC

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



6.3 / (1.5 / 2.5)
Standard Grade
Precision Grade
H 0~0.2
V +0.3
D 0~0.2
T ±0.1
L 0
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
Standard Grade FTCSS FTCC FTCB FTCM FTCSK FTCSKB FTCSKM FTCS	5.0~9.0 (0.5mm Increment) 9.5~20.0 (0.5mm Increment) 21~30 (1mm Increment) 31~40 (1mm Increment) 41~50 (1mm Increment) 51~60 (1mm Increment)	7.0~12.0 (0.5mm Increment) 11.5~25.0 (0.5mm Increment) 23~40 (1mm Increment) 33~50 (1mm Increment) 43~60 (1mm Increment) 53~70 (1mm Increment)	(Selection) 2.0 2.6 (0.5mm Increment) 3.0~58.0	1.0~8.0	2.0~10.0										
Machining Conditions T≤L-1 Machining Conditions of Material EN 1.2510 Equiv. (FTCSK, FTCSKB, FTCSKM) 2≤T≤L-2															
D		H	V	D		H	V								
For 5 ~ 20		D+2±HsDx1.5	V≤D-2	For 5 ~ 10		D+2±HsDx1.4	V≤D-2								
For 21 ~ 40		D+2±HsDx1.4	V≤D-4	For 10.5 ~ 30		D+2±HsDx1.4	V≤D-4								
For 41 ~ 60		D+2±HsDx1.2	V≤D-6	For 31 ~ 60		D+2±HsDx1.2	V≤D-6								

Ordering Example

Part Number - D - H - V - T - L

FTCMS - D25 - H30 - V8.0 - T2.0 - L5.0

Alterations

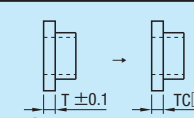
Part Number - D - H - V - T - L - (TCB, TCC, TCD, TCE, TSA, TSB, TSC, TSD, TSE, VKC, DKC, HKC)

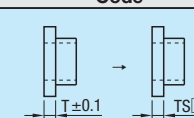
FTCMM - D25 - H30 - V8.0 - T2.0 - L5.0 - TSC - VKC

When both I.D./O.D. tolerance changes are specified, the concentricity is 00.02. Not applicable to the Hardened Products.

Alterations	Code	Spec.	Alterations	Code	Spec.
I.D. Tolerance		Changes the I.D. Tolerance to H7. Ordering Code VKC Machining Conditions Ⓜ D≥6 V≥3	O.D. Tolerance		Changes the O.D. Tolerance to g6 or h7. Ordering Code DKC, HKC Machining Conditions Ⓜ When D≥43, T≥1.5. Ⓜ D≥6
	VKC			DKC (g6) HKC (h7)	
		D D-V			D D-V
		6~10 D-V≥2			6~10 D-V≥2
		10.5~20 D-V≥3			10.5~20 D-V≥3
		21~30 D-V≥6			21~30 D-V≥6
		31~40 D-V≥8			31~40 D-V≥8
		41~50 D-V≥10			41~50 D-V≥10
51~60 D-V≥12	51~60 D-V≥12				

Not applicable to the Hardened Products (FTCSK, FTCSKB, FTCSKM, FTCS, FTCMS).

Alterations	Negative Tolerance	Positive Tolerance	Zero, Negative Tolerance	Zero, Positive Tolerance
Code	TCB	TCC	TCD	TCE
	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	Shoulder Thickness Tolerance	Negative Tolerance	Positive Tolerance	Zero, Negative Tolerance	Zero, Positive Tolerance
Code	TSA	TSB	TSC	TSD	TSE
	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.					