


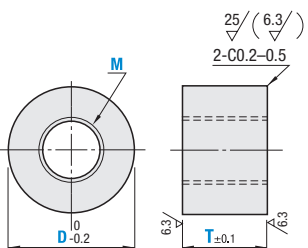
Metal Washers

Tapped



RoHS 10

T Dimension Selectable	T Dimension Configurable	Dimension Configurable	Material	Surface Treatment
Coarse Thread				
—	—	FWTAC	1045 Carbon Steel or Equivalent	—
WTAB	TWTAB	FWTAB		Black Oxide
WTAM	TWTAM	FWTAM		Electroless Nickel Plating
—	—	FWTAA	2017 Aluminum Alloy	Clear Anodize
—	—	FWTAAB		Black Anodize
WTAS	TWTAS	FWTAS	304 Stainless Steel	—



M	Pitch Coarse Thread
2	0.4
2.6	0.45
3	0.5
4	0.7
5	0.8
6	1.0
8	1.25
10	1.5
12	1.75
16	2.0
20	2.5
24	3.0
30	3.5

Fixed T-Dimension

Part Number	M										T						
Type	D																
WTAB WTAM WTAS	10	2	3	4	5						3	5	8	10			
	12					6						5	8	10	15		
	16					6	8						5	8	10	15	
	20					6	8	10						8	10	15	20
	30					8	10	12						8	10	15	20
	40					10	12	16						10	15	20	20
50					16	20						15	20				
60					16	20						15	20				

Configurable T-Dimension

Part Number	D	M				T	
Type	D					0.5 mm Increment	
TWTAB TWTAM TWTAS	6	2	3	4	3.0-20.0		
	8	2	3	4			
	10	2	3	4	5		
	12	4 5 6					
	16	5 6 8				3.5-20.0	
	20	6 8 10					
30	8 10 12						

⊙ T≤Mx8 ⊙ M2 → T≤Mx5

Configurable Dimensions

Part Number	D	M	T
			0.5 mm Increment Unit
FWTAC FWTAB FWTAM FWTAA FWTAAB FWTAS	6-10	2 3≤T≤10 2.6 3≤T≤13 3 3≤T≤24 4 3≤T≤32 5 3≤T≤40 6 3≤T≤48 8 4≤T≤50 10 5≤T≤50 12 6≤T≤50 16 6≤T≤50 20 8≤T≤50 24 10≤T≤50 30 12≤T≤50	3.0-20.0
	10.5-20.0		3.0-20.0
	21-30		3.0-50.0
	31-40		3.0-50.0
	41-50		3.0-50.0
	51-60		3.0-50.0
	61-80		3.0-50.0
	81-100		3.0-50.0

⊙ (D-M)/2≥2 ⊙ T≤Mx8 ⊙ M2 / M2.6 → T≤Mx5




Part Number Example

Part Number	D	M	T
WTAB12	6	5	
TWTAB12	6	5.5	
FWTAM	D20	M5	T4.5




Part Number Alterations

Part Number	D	M	T	(WSC)
FWTAS	D15	M6	T15	WSC10

Alteration	Code	Spec.
	WSC	Adds two flats. Ordering Code: WSC10 WSC=1 mm Increment WSC≥M+4 ⊙ Not available for D6-D8 ⊙ Not available for T Selectable / Configurable Type

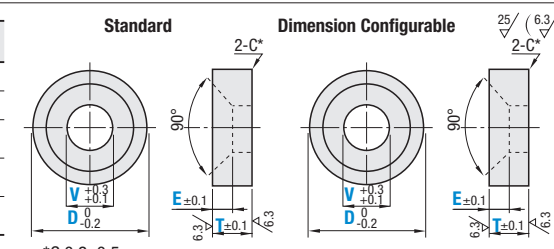
Metal Washers

Countersunk / With Screw Holes



RoHS 10

Standard	Dimension Configurable	Material	Surface Treatment
—	FWSRC	1045 Carbon Steel or Equivalent	—
WSRB	FWSRB		Black Oxide
WSRM	FWSRM		Electroless Nickel Plating
—	FWSRA	2017 Aluminum Alloy	Clear Anodize
WSRS	FWSRS	304 Stainless Steel	—



*C 0.2-0.5


Countersunk / Standard

Part Number	D	T Selection	E	V
WSRB	14	2.5	2.5	4.5
		4		
		5		
WSRM	16	3	3	5.5
		4		
		5		
WSRS	20	3.5	3.5	6.6
		4		
		5		
	25	5	5	9
		6		
		8		
	30	6	6	11
		8		

Countersunk / Configurable Dimensions

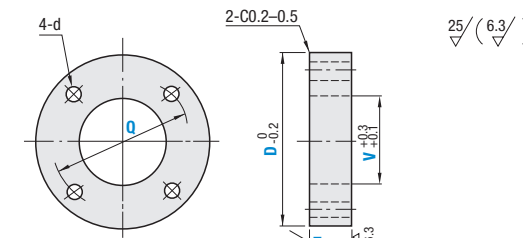
Part Number	D	V	E	T
		0.5 mm Increment (V 3 or more)	0.5 mm Increment	0.5 mm Increment
FWSRC FWSRB FWSRM FWSRA FWSRS	10.0-20.0	2.0	2.0-10.0	2.0-10.0
	0.5 mm Increment			
	21-30			
	1 mm Increment			
	31-40			
1 mm Increment	2.6	E≤T		
41-50	3-30			
1 mm Increment				
51-60				
1 mm Increment				

⊙ (D-V)/2-E≥2 → 2 mm or more are required for the min. thickness.
 ⊙ Circularity cannot be guaranteed because the thickness V becomes 0 when E=T.



RoHS 10

Type	Material	Surface Treatment
WBAC	1045 Carbon Steel or Equivalent	—
WBAB		Black Oxide
WBAM		Electroless Nickel Plating
WBAA	2017 Aluminum Alloy	Clear Anodize
WBAS	304 Stainless Steel	—



Part Number	D	V	Q	T	D	Applicable Screw
Type		0.5 mm Increment	0.5 mm Increment	1 mm Increment		
WBAC WBAB WBAM WBAA WBAS	20	3.0-5.0	10.5-13.5	1-10	3.5	M3
	25	3.0-9.5	10.5-17		3.5	M3
	30	3.0-10.0	12-20		4.5	M4
	35	3.0-16.0	12-25		4.5	M4
	40	3.0-20.0	12-30		4.5	M4
	50	3.0-22.0	14-35		5.5	M5
60	3.0-28.0	14-40	5.5	M5		

⊙ Q≥V+d+4 ⊙ T≥2 for WBAA.



Part Number Example

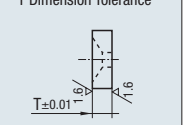
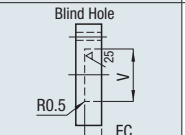
Part Number	D	V	E	Q	T
WSRM14					2.5
FWSRS	D17.5	V6.5	E3		T7.5
WBAB30		V8		Q18	T3



Part Number Alterations

Part Number	D	V	E	Q	T	(TKC, FC)
FWSRB	D17.5	V5	E3		T3.0	TKC
WBAS40		V10		Q25	T10	FC3

⊙ Alteration is available for Dimension Configurable Type only.

Alterations	Code	Spec.
	TKC	Changes T dimension tolerance. Ordering Code: TKC T±0.1 → ±0.01 ⊙ Available for Countersunk Screw Type only
	FC	Changes V hole to blind hole. Ordering Code: FC3 FC=1 mm Increment ⊙ Available for With Screw Holes only. ⊙ T-FC≥2 ⊙ V≥10 ⊙ FC≥2