Metal Washer

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

Part Number (Standard Grade)	Part Number (Precision Grade)	M Material	S Surface Treatment
SWSC	SWMC	S45C Equivalent	-
SWSB	SWMB		Black Oxide
SWSM	SWMM		Electroless Nickel Plating
SWSS	SWMS	SUS304	-

D	T D Tolerance Selection G g6	H h7	N -	X -
5.0~8.5	-	-	-0.1 -0.3	0 -0.2
9.0~10.0	-0.005 -0.014	0 -0.015		
10.5~18.0	-0.006 -0.017	0 -0.018		
18.5~30	-0.007 -0.020	0 -0.021		
31~50	-0.009 -0.025	0 -0.025		
51~60	-0.010 -0.029	0 -0.030		

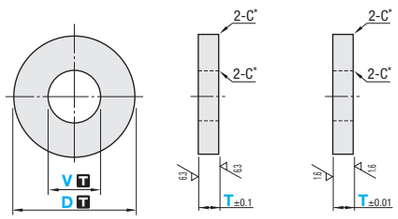
V	T V Tolerance Selection H H7	N -	X -
3.0	+0.010 0	+0.3 +0.1	+0.2 0
3.5~6.0	+0.012 0		
6.5~10.0	+0.015 0		
10.5~18.0	+0.018 0		
18.5~30.0	+0.021 0		
30.5~50.0	+0.025 0		
50.5~58.0	+0.030 0		

■I.D./O.D. Tolerance Price Number List

D (O.D.)	V (I.D.)	Price No.
G	H	②
	N	①
	X	①
H	H	②
	N	①
	X	①
N	H	①
	N	③
	X	③
X	H	①
	N	③
	X	③

• Guide to Price List
<Ex.> When ordering Material S45C, O.D. g6, I.D. H7 and L Tolerance When ordering Material S45C, O.D. g6, I.D. H7 and L Tolerance ±0.01
Product Number:
SWMC–GH–D10.0–V4.0–T1.0

1. Check the I.D. / O.D. Tolerance Price Number List. (GH is Price Number ②)
2. In the price list of precision grade, find the column of I.D. / O.D. tolerance price ② shown in the price list of precision grade.



*D=16 or Less: C0.2 or Less
D=16.5 or More: C0.5 or Less

■Standard Grade

Part Number	D Tolerance Selection	V Tolerance Selection	D	V 0.5mm Increment	T 0.1mm Increment	SWSC Tolerance ①	SWSC Tolerance ②	SWSC Tolerance ③	SWSB Tolerance ①	SWSB Tolerance ②	SWSB Tolerance ③	SWSM Tolerance ①	SWSM Tolerance ②	SWSM Tolerance ③	SWSS Tolerance ①	SWSS Tolerance ②	SWSS Tolerance ③
SWSC SWSB SWSM SWSS	G H N X	H N X	5.0~10.0 0.5mm Increment	3.0~58.0 (V≤D-2) Refer to the following.	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												

T≥3 for SWSS
No specification available for sizes without declaration of value.

D≥9 is applicable when G or H is selected as the tolerance values of D and V. The dimension ranges of V and T are shown in the table below.

D	V	T
9~30	D-V≥6	1~10
31~60	D-V≥12	2~10

Ordering Example: Part Number - Tolerance Selection (D V) - D - V - T
SWSC - G H - D10.0 - V4.0 - T1.0

■Precision Grade

Part Number	D Tolerance Selection	V Tolerance Selection	D	V 0.5mm Increment	T 0.1mm Increment	SWMC Tolerance ①	SWMC Tolerance ②	SWMC Tolerance ③	SWMB Tolerance ①	SWMB Tolerance ②	SWMB Tolerance ③	SWMM Tolerance ①	SWMM Tolerance ②	SWMM Tolerance ③	SWMS Tolerance ①	SWMS Tolerance ②	SWMS Tolerance ③
SWMC SWMB SWMM SWMS	G H N X	H N X	5.0~10.0 0.5mm Increment	3.0~58.0 (V≤D-2) Refer to the following.	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												

T≥3 for SWMS
No specification available for sizes without declaration of value.

D≥9 is applicable when G or H is selected as the tolerance values of D and V. The dimension ranges of V and T are shown in the table below.

D	V	T
9~30	D-V≥6	1~10
31~60	D-V≥12	2~10

Ordering Example: Part Number - Tolerance Selection (D V) - D - V - T
SWMC - G H - D10.0 - V4.0 - T1.0

Alterations: Part Number - Tolerance Selection (D V) - D - V - T - (TSB, TSC, TSD, TSE)
SWMC - G H - D10.0 - V4.0 - T1.0 - TSB

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

Alterations	Code	Negative Tolerance	Positive Tolerance	Zero, Negative Tolerance	Zero, Positive Tolerance
Precision Grade T Tolerance		TSB	TSC	TSD	TSE
	Applicable to Precision Grade.	Changes thickness tolerance (T). T -0.01 -0.03	Changes thickness tolerance (T). T +0.03 +0.01	Changes thickness tolerance (T). T 0 -0.02	Changes thickness tolerance (T). T +0.02 0
		Ordering Code TSB	Ordering Code TSC	Ordering Code TSD	Ordering Code TSE