■Metal Washers

Part Number	M Material	S Surface Treatment
KWSC	S45C Equivalent	-
KWSB		Black Oxide
KWSM		Electroless Nickel Plating
KWSS	SUS304	-

25 / (6.3 /)

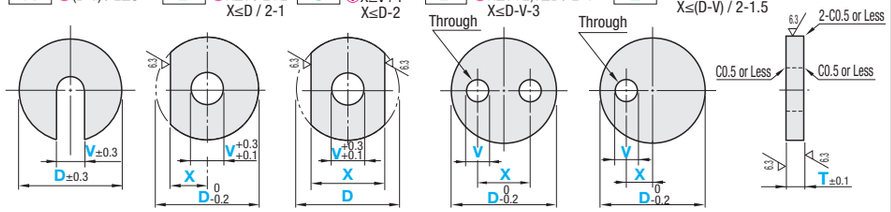
A (D-V) / 2≥3

B X≥V / 2+2, X≤D / 2-1

C X≥V+4, X≤D-2

D X≥V+2, V≤D / 2-4, X≤D-V-3

E V≤D / 2-4, X≤(D-V) / 2-1.5



Part Number	Shape Selection	D	V 0.5mm Increment	X 0.1mm Increment	T 0.1mm Increment	Unit Price KWSC A	B	C	D	E	KWSB A	B	C	D	E	KWSM A	B	C	D	E	KWSS A	B	C	D	E
KWSC KWSB KWSM KWSS	A B C D E	10.0~20.5 0.5mm Increment	3~30	4.0~48.0	3.0~5.0																				
					5.1~10.0																				
		21~30 1mm Increment			3.0~5.0																				
					5.1~10.0																				
		31~40 1mm Increment			3.0~5.0																				
					5.1~10.0																				
		41~50 1mm Increment			3.0~5.0																				
					5.1~10.0																				

Ordering Example: Part Number - Shape - D - V - X - T
KWSB - B - D12.0 - V5 - X5.0 - T3.0

Alterations: Part Number - Shape - D - V - T - (HH)
KWSB - A - D20 - V10 - T3 - HH

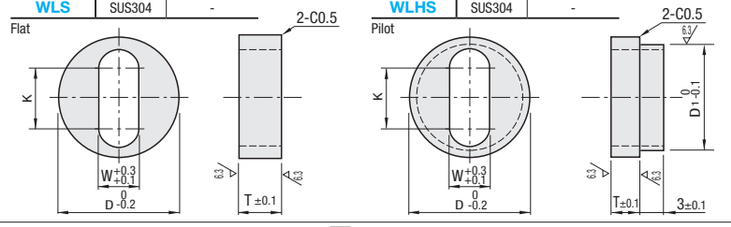
Alteration	Code	Spec.
	HH	Hardens the washer in the shape of A. H Hardness: 45 ~ 50HRC Ordering Code HH Applicable to KWSB and KWSC only. Deformation may occur in some cases due to heat treatment.

■Slotted Hole Washers

Type	M Material	S Surface Treatment
WLM	S45C Equivalent	Electroless Nickel Plating
WLS	SUS304	-

Type	M Material	S Surface Treatment
WLHM	S45C Equivalent	Electroless Nickel Plating
WLHS	SUS304	-

25 / (6.3 /)



■Flat

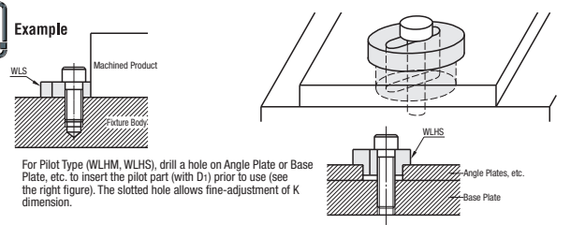
Part Number Type	No.	D	T	K	W	Applicable Screw	Unit Price WLM	WLS
WLM WLS	3	18	3	5	3.5	M3		
	4	20		6	4.5	M4		
	5	22		7	5.5	M5		
	6	26		8	6.6	M6		
	8	30		10	9	M8		
	10	38	4	12	11	M10		
	12	46	5	16	14	M12		

■Pilot

Part Number Type	No.	D	D1	T	K	W	Applicable Screw	Unit Price WLHM	WLHS
WLHM WLHS	4	20	14	3	6	4.5	M4		
	5	22	16		7	5.5	M5		
	6	26	18		8	6.6	M6		
	8	30	22		10	9	M8		
	10	38	28	4	12	11	M10		
	12	46	36	5	16	14	M12		

Ordering Example: Part Number
WLM5
WLHS4

Example

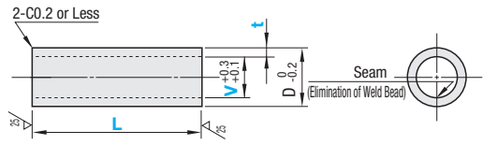


For Pilot Type (WLHM, WLHS), drill a hole on Angle Plate or Base Plate, etc. to insert the pilot part (with D1) prior to use (see the right figure). The slotted hole allows fine-adjustment of K dimension.

■Thin-Walled Metal Collars

Type	M Material
TASC	SUS304

L Dimension	Tolerance
3.0~10.0	±0.05
10.5~20.0	±0.1



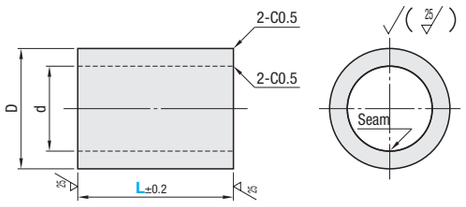
Part Number Type	V	t	L 0.5mm Increment	D t0.5	D t1	Unit Price L3.0~5.0	L5.5~10.0	L10.5~15.0	L15.5~20.0
TASC	1	0.5 1	3.0 ~ 20.0	2	3				
	1.5			2.5	3.5				
	2			3	4				
	2.5			3.5	4.5				
	3			4	5				
	3.5			4.5	5.5				
	4			5	6				
	5			6	7				

Ordering Example: Part Number - t - L
TASC1 - 0.5 - 3.0

■Hollow Collars

Type	M Material	S Surface Treatment
SGP	SGP	-
SGPBB		Black Oxide
STPG	STPG370 (Sch40)	-
STPGB		Black Oxide
STPGH	STPG370 (Sch80)	-
STPGHB		Black Oxide

This tube has a welding seam on the I.D. surface.
Only SGP and SGPBB have 0.5 ~ 1mm weld seam rise inside.



Part Number Type	No.	L 0.5mm Increment	D	d SGP SGPBB	STPG STPGB	STPGH STPGHB	Unit Price SGP L6~80	SGP L80.5~150	SGP L150.5~200	SGPBB L6~80	SGPBB L80.5~150	SGPBB L150.5~200	STPG L6~80	STPG L80.5~150	STPG L150.5~200	STPGB L6~80	STPGB L80.5~150	STPGB L150.5~200	STPGH L6~80	STPGH L80.5~150	STPGH L150.5~200	STPGHB L6~80	STPGHB L80.5~150	STPGHB L150.5~200
SGP	6A	6.0~80.0	10.5	6.5	7.1	5.7		-	-		-	-		-	-		-	-		-	-		-	-
SGPBB	8A		13.8	9.2	9.4	7.8		-	-		-	-		-	-		-	-		-	-		-	-
STPG	10A	10.0~150.0	17.3	12.7	12.7	10.9			-			-			-			-			-			-
STPGB	15A		21.7	16.1	16.1	14.3			-			-			-			-			-			-
STPGH	20A		27.2	21.6	21.4	19.4			-			-			-			-			-			-
STPGHB	25A	20.0~200.0	34.0	27.6	27.2	25.0																		
	32A		42.7	35.7	35.5	32.9																		
	40A		48.6	41.6	41.2	38.4																		

Ordering Example: Part Number - L
SGP6A - 45.0

Alterations: Part Number - L - (LKC)
STPG15A - 80 - LKC

Alteration	Code	Spec.
L Dimension Tolerance	LKC	Changes L dimension tolerance from ±0.2 to ±0.05. Ordering Code LKC

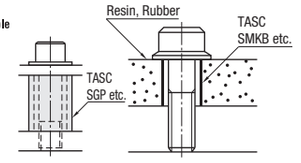
■Spacers

Type	M Material	S Surface Treatment
SMKB	SPCC Equivalent	Trivalent Chromate (Black)

L Dimension	Tolerance
3, 4, 5, 8, 10	±0.05
12, 15, 20	±0.1
30	±0.15

The circularity may be slightly deformed due to manufacturing process.

Part Number Type	No.	L Selection	D	d	Unit Price L3~10	L12~20	L30
SMKB	2	3 4 5 8 10	3	2		-	-
	2.6	3 4 5 8 10	3.65	2.65		-	-
	3	3 4 5 8 10 12 15 20	4	3			-
	4	3 4 5 8 10 12 15 20 30	5.3	4.1			
	5	3 4 5 8 10 12 15 20 30	6.3	5.1			
	6	3 4 5 8 10 12 15 20 30	7.8	6.2			
	8	4 5 8 10 12 15 20 30	10	8.2			
	10	5 8 10 12 15 20 30	12.2	10.2			

Ordering Example: Part Number - L
SMKB2.6 - 10

Example