

Metal Washer
Counterbored

RoHS 10

Standard Grade			T Tolerance±0.1			Precision Grade			T Tolerance±0.01			Material	Surface Treatment	Hardness
T Dimension Selectable	T Dimension Configurable	Dimension Configurable	T Dimension Configurable	Dimension Configurable	Dimension Configurable	T Dimension Configurable	Dimension Configurable	Dimension Configurable	T Dimension Configurable	Dimension Configurable	Dimension Configurable			
-	-	FWZASS	-	-	-	-	-	-	-	-	-	Steel for General Structure	-	-
-	-	FWZAC	-	-	-	-	-	-	-	-	-	S45C Equivalent	Black Oxide	-
WZAB	TWZAB	FWZAB	-	-	-	TWZSB	-	-	FWZSB	-	-		Electroless Nickel Plating	-
WZAM	TWZAM	FWZAM	-	-	-	TWZSM	-	-	FWZSM	-	-	2000series Aluminum Alloy	Clear Anodize	-
-	-	FWZAA	-	-	-	-	-	-	-	-	-	SUS304	Black Anodize	-
WZAS	TWZAS	FWZAAB	-	-	-	TWZSS	-	-	FWZSS	-	-		-	-
-	-	FWZAS	-	-	-	-	-	-	-	-	-	S45C Equivalent	Black Oxide	45~50HRC
WZABH	-	FWZACH	-	-	-	-	-	-	-	-	-		Electroless Nickel Plating	-
WZAMH	-	FWZABH	-	-	-	-	-	-	-	-	-	SKS3 Equivalent	-	55HRC~
-	-	FWZAMH	-	-	-	-	-	-	-	-	-		Electroless Nickel Plating	-
-	-	FWZASK	-	-	-	-	-	-	-	-	-	SUS440C Equivalent	Black Oxide	45~50HRC
WZASH	-	FWZASKB	-	-	-	-	-	-	-	-	-		Electroless Nickel Plating	-
-	-	FWZASKM	-	-	-	-	-	-	-	-	-	-	-	-
-	-	FWZASH	-	-	-	-	-	-	-	-	-	-	-	-

⚠ Depending on thickness and length, S45C Hardened Type may be less than 45HRC. ⚠ Stainless Steel Hardened Type (WZASH, FWZASH) may be discolored by hardening.

T Dimension Selectable

T Dimension Configurable

Dimension Configurable

25 / (1.6 / 6.3)

Standard Grade

2-C 0.2~0.5

Standard Grade

2-C 0.2~0.5

Precision Grade

2-C 0.2~0.5

T Dimension Selectable

Part Number		H	T		V	P	Unit Price					
Type	D		Selection				WZAB	WZAM	WZAS	WZABH	WZAMH	WZASH
WZAB WZAM WZAS WZABH WZAMH WZASH	10	4	6	8 10	6	3.5						
	12	5		8 10	8	4.5						
	14	6		8 10	10	5.5						
	15	8		10 12	11	6.5						
	20	8		10 12 15	14	9						
	30	10		12 15	18	11						
TWZAB TWZAM TWZAS TWZABH TWZAMH TWZASH	10	4		6 8 10	6	3.5						
	12	5		8 10	8	4.5						
	14	6		8 10	10	5.5						
	15	8		10 12	11	6.5						
	20	8		10 12 15	14	9						
	30	10		12 15	18	11						

T Dimension Configurable

Part Number		H	T		V	P	Unit Price								
Type	D		0.5mm Increment	0.5mm Increment			Standard Grade			Precision Grade					
							TWZAB	TWZAM	TWZAS	TWZSB	TWZSM	TWZSS			
Standard Grade TWZAB TWZAM TWZAS	10	1.0~18.0		3.0~10.0	6	3.5									
	12			10.5~20.0	8	4.5									
	14			3.0~10.0	10	5.5									
	15			10.5~20.0	11	6.5									
	20			3.0~10.0	14	9									
	30			10.5~20.0	18	11									
Precision Grade TWZSB TWZSM TWZSS	10	1.0~18.0		3.0~10.0	6	3.5									
	12			10.5~20.0	8	4.5									
	14			3.0~10.0	10	5.5									
	15			10.5~20.0	11	6.5									
	20			3.0~10.0	14	9									
	30			10.5~20.0	18	11									

⚠ Machining Conditions: H+2≤T≤Px8

Ordering Example

• T Dimension Selectable

Part Number - T

WZAS15 - 10

• T Dimension Configurable

Part Number - H - T

TWZAB10 - 3.5 - 10.0

Dimension Configurable

Part Number	D	0.5mm Increment				Unit Price																			
		V	P	H	T	Standard Grade												Precision Grade							
						FWZASS	FWZAC	FWZAB	FWZAM	FWZAA	FWZAAB	FWZACH	FWZABH	FWZAMH	FWZASK	FWZASKB	FWZASKM	FWZASH	FWZSC	FWZSB	FWZSM	FWZSS			
Standard Grade	10.0~20.0 (0.5mm Increment)	5.0~90.0	3.0~88.0	1.0~48.0	3.0~10.0																				
					10.5~20.0																				
					20.5~30.0																				
					30.5~40.0																				
					40.5~50.0																				
FWZASS FWZAC FWZAB FWZAM FWZAA FWZAAB FWZAS	21~30 (1mm Increment)				3.0~10.0																				
					10.5~20.0																				
					20.5~30.0																				
					30.5~40.0																				
					40.5~50.0																				
FWZACH FWZABH FWZAMH FWZASK FWZASKB FWZASKM FWZASH	41~50 (1mm Increment)				3.0~10.0																				
					10.5~20.0																				
					20.5~30.0																				
					30.5~40.0																				
					40.5~50.0																				
Precision Grade FWZSC FWZSB FWZSM FWZSS	51~60 (1mm Increment)				3.0~10.0																				
					10.5~20.0																				
					20.5~30.0																				
					30.5~40.0																				
					40.5~50.0																				
	61~80 (1mm Increment)				5.0~10.0																				
					10.5~20.0																				
					20.5~30.0																				
					30.5~40.0																				
					40.5~50.0																				
	81~100 (1mm Increment)				5.0~10.0																				
					10.5~20.0																				
					20.5~30.0																				
					30.5~40.0																				
					40.5~50.0																				

⚠Machining Conditions

D	V	P
For 10 ~ 60	V ≤ D - 2	P ≤ V - 2
For 61 ~ 100	V ≤ D - 4	P ≤ V - 4

⚠Machining Conditions of Material SKS3 (FWZASK, FWZASKB and FWZASKM)

D	V	P
For 10	V≤D-2	P ≤ V - 2
For 10.5 ~ 30	V≤D-4	
For 31 ~ 60	V≤D-6	P ≤ V - 4
For 61 ~ 80	V≤D-8	
For 81 ~ 100	V≤D-10	

⚠No specification available for sizes without declaration of value.

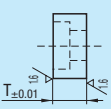
⚠2≤(T-H)≤Px8 The shaft diameter is 2mm or more and Px8 or less.

Ordering Example

Part Number - D - V - P - H - T

FWZASS - D25 - V12.0 - P6.0 - H5.5 - T10.5

FWZSC - D20 - V10.0 - P5.0 - H5.5 - T15.0

Alteration	Code	Spec.
	TKC	Changes T dimension tolerance. Ordering Code TKC T±0.1⇒±0.01 ⚠ FWZAA, FWZAS and FWZASH are not available for D=61 ~ 100. ⚠ Applicable to Dimension Configurable Type, Standard Grade (except FWZAAB) only.