Metal Washer

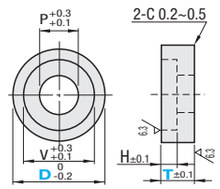
Counterbored

RoHS10

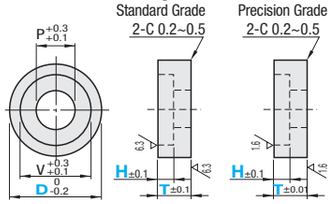
Standard Grade T T Tolerance±0.1			Precision Grade T T Tolerance±0.01		M Material	S Surface Treatment	H Hardness
T Dimension Selectable	T Dimension Configurable	Dimension Configurable	T Dimension Configurable	Dimension Configurable			
-	-	FWZASS	-	-	Steel for General Structure	-	-
-	-	FWZAC	-	FWZSC	S45C Equivalent	-	-
WZAB	TWZAB	FWZAB	TWZSB	FWZSB		Black Oxide	
WZAM	TWZAM	FWZAM	TWZSM	FWZSM		Electroless Nickel Plating	
-	-	FWZAA	-	-	2000series Aluminum Alloy	Clear Anodize	-
		FWZAAB				Black Anodize	
WZAS	TWZAS	FWZAS	TWZSS	FWZSS	SUS304	-	-
-	-	FWZACH	-	-	S45C Equivalent	-	45~50HRC
WZABH		FWZABH				Black Oxide	
WZAMH		FWZAMH				Electroless Nickel Plating	
-	-	FWZASK	-	-	SKS3 Equivalent	-	55HRC~
		FWZASKB				Black Oxide	
		FWZASKM				Electroless Nickel Plating	
WZASH	-	FWZASH	-	-	SUS440C or 13Cr stainless	-	45~50HRC

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

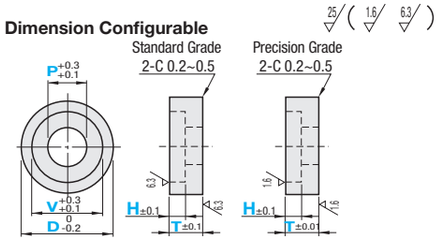
T Dimension Selectable



T Dimension Configurable



Dimension Configurable



T Dimension Selectable

Part Number Type	D	H	T Selection	V	P	Unit Price 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								
	30	10	12 15	14	9						
	40	12	15 20	18	11						
	50	12	15 20								
	60	12	15 20								

T Dimension Configurable

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

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 V	P	H	T	Unit Price Standard Grade FWZASS	FWZAC	FWZAB	FWZAM	FWZAA	FWZAAB FWZAS	FWZACH	FWZABH	FWZAMH	FWZASK	FWZASKB	FWZASKM	FWZASH	Precision Grade FWZSC	FWZSB	FWZSM	FWZSS
Standard Grade FWZASS FWZAC FWZAB FWZAM FWZAA FWZAAB FWZAS FWZACH FWZABH FWZAMH FWZASK FWZASKB FWZASKM FWZASH Precision Grade FWZSC FWZSB FWZSM FWZSS	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																	
	21~30 (1mm Increment)				3.0~10.0																	
					10.5~20.0																	
					20.5~30.0																	
					30.5~40.0																	
					40.5~50.0																	
	31~40 (1mm Increment)				3.0~10.0																	
					10.5~20.0																	
					20.5~30.0																	
					30.5~40.0																	
					40.5~50.0																	
	41~50 (1mm Increment)				3.0~10.0																	
					10.5~20.0																	
					20.5~30.0																	
					30.5~40.0																	
					40.5~50.0																	
	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

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

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	
For 61 ~ 80	V≤D-8	P ≤ V - 4
For 81 ~ 100	V≤D-10	

No specification available for sizes without declaration of value.

Ordering Example

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

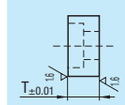
FWZASS - D25 - V12.0 - P6.0 - H5.5 - T10.5

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

Alterations

Part Number - D - V - P - H - T - (TKC)

FWZASH - D15.0 - V10.5 - P6.5 - H12.5 - T18.5 - TKC

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.