


Metal Washers

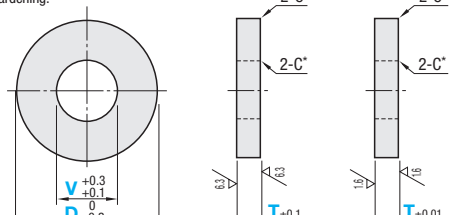
Hardened Type, Standard Grade / Precision Grade, T Dimension Selectable



Part Number		Material	Surface Treatment	Hardness
Standard Grade	Precision Grade			
WSSBH	WASBH	1045 Carbon Steel	Black Oxide	45~50HRC
WSSMH	WASMH		Electroless Nickel Plating	
WSSSH	WASSH	440C or 420 Stainless Steel	-	-

⚠ Depending on thickness and length, 1045 Carbon Steel Hardened Type may be less than 45HRC.

⚠ Stainless Steel Hardened Type (WSSSH, WASSH) may be discolored by hardening.



* For D=16 or Less: C0.2 or Less
D=20 or More: C0.5 or Less

Part Number	Type	D	V	T	Unit Price						
					Standard Grade			Precision Grade			
					WSSBH	WSSMH	WSSSH	WASBH	WASMH	WASSH	
4	Standard	2	2	1	2						
5	Standard	3	3	1	2						
6	Standard	4	4	1	2						
8	Standard	5	5	1	2	3	5				
10	Standard	6	6	1	2	3	5				
12	Standard	8	8	1	2	3	5				
13	Standard	10	10	1	2	3	5				
14	Standard	12	12	1	2	3	5				
15	Standard	15	15	1	2	3	5				
16	Precision	12	12	1	2	3	5				
20	Precision	15	15	2	3	5					
25	Precision	20	20	2	3	5					
30	Precision	25	25	2	3	5					
35	Precision	30	30	3	5	10					
40	Precision	30	30	3	5	10					
50	Precision	30	30	3	5	10					
60	Precision	30	30	3	5	10					


Ordering Example: Part Number **WASBH14** - V **10** - T **5**

Days to Ship **Configure Online**

Price **Configure Online**

Metal Washers

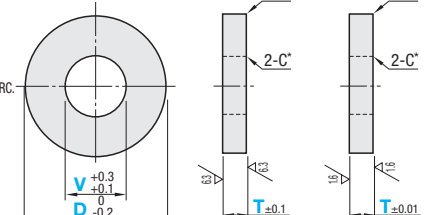
Hardened Type, Standard Grade / Precision Grade, Dimension Configurable



Part Number		Material	Surface Treatment	Hardness
Standard Grade	Precision Grade			
FWSSCH	FWASCH	1045 Carbon Steel	-	45~50HRC
FWSSBH	FWASBH		Black Oxide	
FWSSMH	FWASMH	O1 Tool Steel	Electroless Nickel Plating	55HRC~
FWSSK	FWASK		Black Oxide	
FWSSKB	FWASKB	440C or 420 Stainless Steel	Electroless Nickel Plating	45~50HRC
FWSSKM	FWASKM		-	
FWSSSH	FWASSH	Low Temp. Black Chrome Plating	-	-

⚠ Depending on thickness and length, 1045 Carbon Steel Hardened Type may be less than 45HRC.

⚠ Stainless Steel Hardened Type (FWSSSH, FWASSH) may be discolored by hardening.



* For D=16 or Less: C0.2 or Less
D=20 or More: C0.5 or Less

Part Number	D	V 0.5mm Increment (V3 or More)	T 0.1mm Increment	Unit Price														
				Standard Grade			Precision Grade											
				FWSSCH	FWSSBH	FWSSMH	FWSSK	FWSSKB	FWSSKM	FWSSSH	FWSSHR	FWASCH	FWASBH	FWASMH	FWASK	FWASKB	FWASKM	FWASSH
- Standard Grade - FWSSCH FWSSBH FWSSMH FWSSK FWSSKB FWSSKM FWSSSH	4.0-10.0	0	No Hole (Machining)	1.0-2.0														
	0.5mm Increment			2.1-5.0														
	10.5-20.0			5.1-10.0														
- Precision Grade - FWASCH FWASBH FWASMH FWASK FWASKB FWASKM FWASSH	21-30	2.0	(Selection)	1.0-2.0														
	1mm Increment			2.1-5.0														
	31-40			5.1-10.0														
- Precision Grade - FWASCH FWASBH FWASMH FWASK FWASKB FWASKM FWASSH	41-50	2.6	(0.5mm Increment)	1.0-2.0														
	1mm Increment			2.1-5.0														
	51-60			5.1-10.0														
- Precision Grade - FWASCH FWASBH FWASMH FWASK FWASKB FWASKM FWASSH	61-80	90.0	90.0	1.0-2.0														
	1mm Increment			2.1-5.0														
	81-100			5.1-10.0														
1mm Increment	5.0-10.0																	

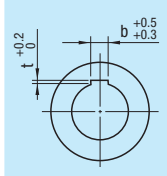
⚠ D / V Machining Conditions: D=60 → V≤D-2, D≥61 → V≤D-4. ⚠ D / V Machining Conditions of Material O1 Tool Steel: 4≤D≤10 → V≤D-2, 61≤D≤80 → V≤D-8, 10.5≤D≤30 → V≤D-4, 81≤D≤100 → V≤D-10, 31≤D≤60 → V≤D-6. ⚠ No specification available for sizes without declaration of value.

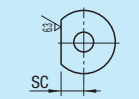
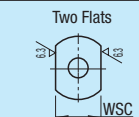
Ordering Example: Part Number **FWSSKB** - D **D71** - V **V50.0** - T **T10.0**

Days to Ship **Configure Online**

Price **Configure Online**

Alterations **Configure Online**

Alterations	Code	Spec.	Price Adder																																				
Keyway Relief 	KC	Adds a keyway relief. Ordering Code KC Machining Conditions: V≥8 ⚠ Not available for D61~100.																																					
		<table border="1" style="font-size: x-small; width: 100%;"> <thead> <tr> <th>V</th> <th>b</th> <th>t</th> <th>D-V</th> </tr> </thead> <tbody> <tr><td>8~10.5</td><td>3</td><td>2.0</td><td>7 or More</td></tr> <tr><td>11~12.5</td><td>4</td><td>2.5</td><td>8 or More</td></tr> <tr><td>13~17.5</td><td>5</td><td>3.0</td><td>10 or More</td></tr> <tr><td>18~22.5</td><td>6</td><td>3.5</td><td>12 or More</td></tr> <tr><td>23~30.5</td><td>8</td><td>4.0</td><td>14 or More</td></tr> <tr><td>31~38.5</td><td>10</td><td>4.0</td><td>14 or More</td></tr> <tr><td>39~42.5</td><td>12</td><td>4.0</td><td>14 or More</td></tr> <tr><td>43~44.0</td><td>14</td><td>4.5</td><td>16 or More</td></tr> </tbody> </table>	V	b	t	D-V	8~10.5	3	2.0	7 or More	11~12.5	4	2.5	8 or More	13~17.5	5	3.0	10 or More	18~22.5	6	3.5	12 or More	23~30.5	8	4.0	14 or More	31~38.5	10	4.0	14 or More	39~42.5	12	4.0	14 or More	43~44.0	14	4.5	16 or More	
V	b	t	D-V																																				
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31~38.5	10	4.0	14 or More																																				
39~42.5	12	4.0	14 or More																																				
43~44.0	14	4.5	16 or More																																				

Alterations	Code	Spec.	Price Adder
One Flat 	SC	Adds a flat. Ordering Code SC10 SC=1mm Increment SC≥V/2+2 ⚠ Not available for D4~8.	
Two Flats 	WSC	Adds two flats. Ordering Code WSC10 WSC=1mm Increment WSC≥V+4 ⚠ Not available for D4~8.	