

Resin Washers / Collars Characteristics and Features



Resin Washers

-Standard Type / Dimension Configurable Type-

Price Reduction

Up to 15%



CAD Data

Resin Washers - Collars Characteristics and Features

Item			Testing Method (ASTM)	Unit	Material										
					Polyacetal	MC Nylon			Bakelite		Fluoro Resin Polytetra-fluoro-ethylene	PEEK Polyether Ether Ketone	Epoxy Glass	Polycarbonate	
						Standard	Conductive Grade		Paper Base	Cloth Base					
Mechanical Properties	Tensile Strength		D638	Mpa	61	96	68	74	113	97	13.7~34.3	98	309	59	
	Elongation		D638	%	40	30	10	7	2.6	2	200~400	20	4	60~120	
	Bending Strength	Vertical	D790	Mpa	89	110	117	117	189	144	-	170	431	80.4	
		Parallel	D790						182	148					
	Flexural Modulus		D790		2589	3530	4110	4020	9680	8650	550	4021	16300	2200	
	Compression Strength		D695		103	95	98	93	135	116	11.8	119	266	73.5	
[5% Deformation]		D695	132						115						
Izot Impact Strength (Notched)		D256	J/m		74	50	35	35	-	-	160	77	-	740~980	
Thermal Characteristics	Rockwell Hardness		D785	R / M Scale	R119 M78	R120	R119	R117	-	-	-	120	-	M60~70	
	Deflection Temperature Under Load	(0.45Mpa) (1.82Mpa)	D648	°C	158	215	215	215	-	-	121	-	-	145	
				110	200	200	200	206	230~	55	155	230~	-		
	Linear Expansion Coefficient		D696	10 -5/°C	9.0	9.0	8.0	7.5	-	-	9.9	5.0	1.55	6.0~7.0	
	Thermal Conductivity		D177	W/(mk)	0.233	0.233	0.512	0.709	0.21	0.38	0.25	0.25	0.47	0.19	
	Dielectric Constant (106 Hz)		D150	-	3.7	3.7	-	-	4.24	5.33	18.6	3.3	-	3.0	
Electrical Characteristics	Dissipation Factor (106 Hz)		D150	-	0.007	0.02	-	-	0.036	0.056	2x10 ⁻⁴	3x10 ⁻³	-	0.0012	
	Specific Volume Resistivity		D257	Ω·cm	>10 ¹⁴	4.2x10 ¹³	10 ¹² ~10 ⁴	10 ⁴ ~10 ⁶	-	-	>10 ¹⁸	10 ¹⁶	10 ¹¹ ~10 ¹²	>10 ¹⁷	
	Dielectric Breakdown Strength		D149	kV/mm	20	20	-	-	29.5	18.6	19	19	23	15	
	Arc Resistance		D495	sec	-	-	-	-	-	-	>300	23	180	-	
	Specific Gravity		D792	-	1.41	1.16	1.2	1.23	1.4	1.4	2.14~2.2	1.32	1.8~1.85	1.2	
	Water Absorption (At 23°C x 24h)		D570	%	0.22	0.8	-	-	0.5~1.3	1.6~1.8	<0.01	0.14	0.4	0.24	
Others	Glass Fiber Content		-	-	-	-	-	-	-	-	-	Contain	-	-	
	Ambient Operation Temperature		-	°C	-45~95		-40~120		-50~100	-50~100	-40~250	-50~250	-150~180	~110	
	Food Sanitation Laws		-	-	Suitable	Suitable*	Suitable*		-	-	Suitable	Suitable	-	-	
	Properties	○ : Excellent △ : Good △ : Questionable X : Poor	Sliding Properties	○	○	○	○	○	△	△	○	○	○	△	△
			Heat Resistance	△	△	△	△	△	○	○	○	○	○	△~○	○
			Insulation	○	○	-	-	-	○	○	○	○	○	○	○
Abrasion Resistance			△	○	△	△	△	X	X	○	○	○	X	X	
Dimension Stability			○	△	○	△	△	○	○	○	X	○	○	○	
Machinability		○	○	○	○	○	○	○	○	○	○	△	○		

④ In compliance with Food Sanitation Laws (MC Nylon, Standard: After boiling for 1.5hrs; Conductive Grade: After boiling for 2hrs.) Listed values are for reference, not guaranteed.
④ Do not store resin materials for prolonged duration to avoid dimensional deformation due to water absorption. (Material with a higher moisture absorption rate will be deformed more.)
④ Property values of Polycarbonate are obtained by JIS test (for reference).
④ Bakelite may be discolored over time, but the properties do not change.
④ For properties of Polyslider ④, refer to P.141

Washers / Collars Lineup

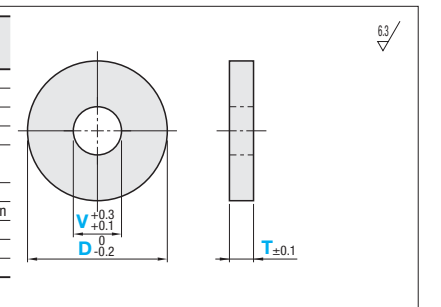
Shape	Material	Polyacetal	MC Nylon		Bakelite		Fluoro Resin Polytetrafluoroethylene	PEEK Polyether Ether Ketone	Epoxy Glass	Polycarbonate	Polyslider®
			Standard	Conductive Grade	Paper Base	Cloth Base					
				CDR2	CDR6	CDR2	CDR6				
Washers	-Standard Type-	P.130 Outer Diameter D 4~60 Inner Diameter V 0~55 Thickness T 2~10	●	●	●	●	●	●	●	●	●
	-Flanged Slitless Type-	P.131 Outer Diameter D 6~60 Nose Diameter V 2~58 Thickness T 3~50	●	●	●	●	●	●	●	●	●
	-Flanged-	P.131 Outer Diameter D 4~60 Flange Diameter H 6~70 Inner Diameter V 0~55 Overall Length L 2~10	●	●	●	●	●	●	●	●	●
	-Counterbore-	P.132 Outer Diameter D 10~60 Inner Diameter P 3~53 Thickness T 3~50	●	●	●	●	●	●	●	●	●
	-Square Resin Washer-	P.142 Length A 6~25 Width B 6~100 Thickness T 2~10	●	●	●	●	●	●	●	●	●
Collar	-Standard Type-	P.133 Outer Diameter D 4~100 Inner Diameter V 2~55 Overall Length L 10~100	●	●	●	●	●	●	●	●	●
	-Flanged-	P.135 Outer Diameter D 4~100 Flange Diameter H 6~110 Inner Diameter V 0~90 Overall Length L 10~100	●	●	●	●	●	●	●	●	●
	-With Guide-	P.137 Outer Diameter D 8~30 Inner Diameter V 3~20 Overall Length L 2~50	●	●	●	●	●	●	●	●	●

● Product Available - Product not available



Type	Material	Color
Dimension Selectable Type	Dimension Configurable Type	
WSJJ	FWSJJ	White
WSJK	FWSJK	Black
WSJM	FWSJM	Blue
WSJW	FWSJW	Ivory
WSJD	FWSJD	Black
WSJT	FWSJT	Black
WSJB	FWSJB	Brown
WSJN	FWSJN	Light Brown
WSJF	FWSJF	White
WSJP	FWSJP	Gray
WSJE	FWSJE	Green

④ Material Properties P.129



Dimension Selectable Type

④ Items without listed price are not available.

Part Number		V Selection	T Selection	€ Unit Price									
Type	D			WSJJ WSJK	WSJM WSJW	WSJD	WSJT	WSJB	WSJN	WSJF	WSJP	WSJE	
WSJJ WSJK WSJM WSJW WSJD WSJT WSJB WSJN WSJF WSJP WSJE	4	2	2										
	5	2 3	2										
	6	2 3 4	2										
	8	2 3 4 5 6	2 3 5										
	10	2 3 4 5 6 8	2 3 5										
	12	3 4 5 6 8 10	2 3 5										
	13	4 5 6 8 10	2 3 5										
	14	4 5 6 8 10	2 3 5										
	15	4 5 6 8 10 12	2 3 5										
	16	4 5 6 8 10 12	2 3 5										
	20	4 5 6 8 10 12 15 16	2 3 5										
	25	6 8 10 12 15 16 20	2 3 5										
	30	8 10 12 15 16 20 25	2 3 5										
	35	10 12 15 16 20 25	3 5 10										
	40	10 12 15 16 20 25 30	3 5 10										
	50	10 12 15 16 20 25 30	3 5 10										
60	15 16 20 25 30	3 5 10											

Dimension Configurable Type

④ Items without listed price are not available.

Unit Price Table (Unit Price is not shown)														
Part Number	D	V		T		€ Unit Price								
		0.5mm Increment (V 3 or more)	0.5mm Increment	FWSJJ FWSJK	FWSJM FWSJW	FWSJD	FWSJT	FWSJB	FWSJN	FWSJF	FWSJP	FWSJE		
FWSJJ FWSJK FWSJM FWSJW FWSJD FWSJT FWSJB FWSJN FWSJF FWSJP FWSJE	4.0~10.0 (0.5mm Increment)	0 (No Hole Machining)	2.0~ 5.0											
	10.5~20 (0.5mm Increment)		5.5~10											
	21~30 (1mm Increment)		2.0~ 5.0											
	31~40 (1mm Increment)		5.5~10											
	41~50 (1mm Increment)		2.0~ 5.0											
	51~60 (1mm Increment)		5.5~10											
	61~80 (1mm Increment)		2.0~ 5.0											
	81~100 (1mm Increment)		5.5~10											



Part Number - V - T - (VKC / TKC)
WSJJ6 - 4 - 2 - VKC

④ Alterations are applicable to WSJJ, WSJM, FWSJJ and FWSJM only.

Alterations	Inner Diameter Tolerance	Thickness Tolerance Change
Code	VKC	TKC
Spec.	Changes the inner diameter tolerance to ± 0.1 [Ordering Code] VKC ④ If D≤50, D-V≥6 ④ If 51≤D≤80, D-V≥10 ④ If 80≤D≤100, D-V≥16	Changes thickness tolerance to ± 0.05 . [Ordering Code] TKC ④ If D≤50, D-V≥6 ④ If 51≤D≤80, D-V≥10 ④ If D≤100, D-V≥16
Price Adder	1,00	1,00



Part Number - V - T
WSJJ6 - 4 - 2



Dimension Selectable Type
8 Days



Price
Express A 2,00 EUR/piece P.88



Volume Discount
(Round down to one Cent.) P.87



Dimension Configurable Type
8 Days



Part Number - D - V - T
FWSJN - D10 - V5 - T5.5



Dimension Configurable Type
8 Days



Price
Express A 2,00 EUR/piece P.88



Volume Discount
(Round down to one Cent.) P.87



Dimension Configurable Type
8 Days



Part Number - D - V - T
FWSJN - D10 - V5 - T5.5



Dimension Configurable Type
8 Days



Price
Express A 2,00 EUR/piece P.88



Volume Discount
(Round down to one Cent.) P.87



Dimension Configurable Type
8 Days



Part Number - D - V - T
FWSJN - D10 - V5 - T5.5



Dimension Configurable Type
8 Days