

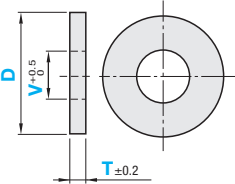
Urethane Washers

Standard, Antistatic, Heat Resistant, Vulkollan®, Abrasion Resistant, Ceramic Urethane, Adhesive

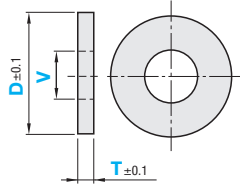
Adhesive Type is convenient for temporary fixing.



Standard Grade



Precision Grade



For Vulkollan®, see the tolerance table.

The tolerances are verified at 23°C±2 and 40~80% humidity.

Standard Grade Tolerance

D Tolerance	Tolerance
6~40	±0.2
41~60	±0.3
61~100	±0.4

For Vulkollan®, see the table on the right.

D Tolerance (Vulkollan®)	Tolerance
6~40	±0.5
41~60	±0.6
61~100	±0.7

Tolerance (Vulkollan®)	Tolerance
3~5	±0.5
5.5~10	±0.2

Precision Grade Tolerance

V Tolerance	Tolerance
2~50	+0.1
51~80	+0.2

Type	Standard Grade	Precision Grade	Material	Hardness	Photo No., Color
Standard	URWS	UAWS	Standard Urethane	Shore A95	① Natural Color
	URWH	UAWH	(Ether Polyurethane)	Shore A90	
	URWM	UAWM	Standard Urethane (Ester Polyurethane)	Shore A70	
	URWL		Standard Urethane (Ester Polyurethane)	Shore A50	③ Brown
	URHWH		Heat Resistant Urethane	Shore A90	
	UREWH		Abrasion Resistant Urethane	Shore A90	
Configurable Type	URFS	UAFSN	Standard Urethane	Shore A95	① Natural Color
	URFH	UAFH	(Ether Polyurethane)	Shore A90	
	URFM	UAFM	Standard Urethane (Ester Polyurethane)	Shore A70	
	URFL		Standard Urethane (Ester Polyurethane)	Shore A50	② Gray
	URFY		Standard Urethane (Ester Polyurethane)	Shore A30	
	URFHE		Antistatic Polyurethane	Shore A90	
	URFME		Antistatic Polyurethane	Shore A70	③ Brown
	URFLE		Antistatic Polyurethane	Shore A50	
	URHFH		Heat Resistant Urethane	Shore A90	
	VULFH		Super Abrasion Resistant Urethane Vulkollan®	Shore A92	⑤ Beige
	VULFM		Super Abrasion Resistant Urethane Vulkollan®	Shore A68	
	UREFH		Abrasion Resistant Urethane	Shore A90	
	UREFM		Abrasion Resistant Urethane	Shore A70	⑥ Gray
	URCES		Ceramic Urethane	Shore A95	
	URCEH		Ceramic Urethane	Shore A90	
URCEM		Ceramic Urethane	Shore A70		

- For features of Ceramic Urethane, see P.389.
- Urethane turns yellow by aging, but physical property or characteristics remain unchanged.
- For Yellow Discoloration of Urethane, see P.392.
- Depending on the production lot, the side face may show marks from machining.

Characteristic Values of Antistatic Urethane

Specific Volume Resistivity	2.1x10 ⁹ Ω·cm
Surface Resistivity	4.0x10 ⁹ Ω

(Conditions: Temperature 30°C Humidity 60%)

All other properties are equal to those of urethane of the same hardness.

Standard

Part Number	Type	D	V Selection								T Selection			
			6	2	3	4	5	6	8	10	1	2	3	
Standard Grade		6	2									1	2	3
URWS	(Standard Shore A95)	8	2	3	4							1	2	3
URWH	(Standard Shore A90)	10		3	4	5	6					1	2	3
URWM	(Standard Shore A70)	12			4	5	6	8				1	2	3
URWL	(Standard Shore A50)	15			4	5	6	8	10			1	2	3
URHWH	(Heat Resistant Shore A90)	20				5	6	8	10	12			3	5
UREWH	(Abrasion Resistant Shore A90)	25				5	6	8	10	12	16	20		3
UREWM	(Abrasion Resistant Shore A70)	30				5	6	8	10	12	16	20		3
Precision Grade		35					8	10	12	16	20	25		5
UAWS	(Standard Shore A95)	40					8	10	12	16	20	25	30	
UAWH	(Standard Shore A90)	50					8	10	12	16	20	25	30	
UAWM	(Standard Shore A70)	60					12	16	20	25	30	40		5

Configurable Type

Part Number	Type	D	V Selection			T Selection
			1mm Increment	1mm Increment	0.5mm Increment	
Standard Grade		6-15			1.0-5.0	
URFS	(Standard Urethane Shore A95)	URHFH	(Heat Resistant Urethane Shore A90)		5.5-10.0	
URFH	(Standard Urethane Shore A90)	VULFH	(Vulkollan® Shore A92)	0 (No Hole)	1.0-5.0	
URFM	(Standard Urethane Shore A70)	VULFM	(Vulkollan® Shore A68)	2-41 (V≤D-4)	5.5-10.0	
URFL	(Standard Urethane Shore A50)	UREFH	(Abrasion Resistant Urethane Shore A90)		1.0-5.0	
URFY	(Standard Urethane Shore A30)	UREFM	(Abrasion Resistant Urethane Shore A70)		5.5-10.0	
URFHE	(Antistatic Polyurethane Shore A90)	URCES	(Ceramic Urethane Shore A95)	0 (No Hole)	1.0-5.0	
URFME	(Antistatic Polyurethane Shore A70)	URCEH	(Ceramic Urethane Shore A90)	10-70 (V≤D-4)	5.5-10.0	
URFLE	(Antistatic Polyurethane Shore A50)	URCEM	(Ceramic Urethane Shore A70)		1.0-5.0	
Precision Grade		61-80			5.5-10.0	
UAFSN	(Standard Urethane Shore A95)			0 (No Hole)	1.0-5.0	
UAFH	(Standard Urethane Shore A90)			20-80 (V≤D-4)		
UAFM	(Standard Urethane Shore A70)				5.5-10.0	

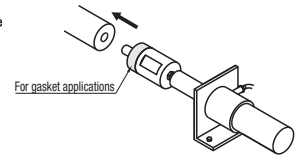
When V=0, there is no hole. Vulkollan® is available for T=3.0 or more. For Ceramic Urethane, T=5.0 or more.

Ordering Example

Standard	Part Number	D	V	T
URWL20	-	10	-	5

Ordering Example

Configurable Type	Part Number	D	V	T
URFM	-	D19	-	V3
URFH	-	D35	-	V18



Standard

For economical packages, see P.392. (Note that tolerances etc. are different.)

Standard / Precision	Material	Hardness (Shore A)	Unit Price									
			Standard Urethane			Heat Resistant / Abrasion Resistant Urethane			Precision Grade Standard Urethane			
			95	90	70	50	90	90	70	95	90	70
Standard Grade			URWS	URWH	URWM	URWL	URHWH	UREWH	UREWM	UAWS	UAWH	UAWM
URWS	(Standard Shore A95)	6										
URWH	(Standard Shore A90)	8										
URWM	(Standard Shore A70)	10										
URWL	(Standard Shore A50)	12										
URHWH	(Heat Resistant Shore A90)	15										
UREWH	(Abrasion Resistant Shore A90)	20										
UREWM	(Abrasion Resistant Shore A70)	25										
Precision Grade		30										
UAWS	(Standard Shore A95)	35										
UAWH	(Standard Shore A90)	40										
UAWM	(Standard Shore A70)	50										
		60										

Configurable Type

Standard / Precision	Material	Hardness (Shore A)	Part Number	Unit Price																		
				Standard Urethane					Antistatic Polyurethane					Precision Grade Standard Urethane								
				95	90	70	50	30	90	70	50	68	92	68	90	70	95	90	70			
Standard Grade			URFS	URFH	URFM	URFL	URFY	URFHE	URFME	URFLE	URHFH	VULFH	VULFM	UREFH	UREFM	URCES	URCEH	URCEM	UAFSN	UAFH	UAFM	
URFS	(Standard Urethane Shore A95)	6-15																				
URFH	(Standard Urethane Shore A90)	16-30																				
URFM	(Standard Urethane Shore A70)	31-45																				
URFL	(Standard Urethane Shore A50)	46-60																				
URFY	(Standard Urethane Shore A30)	61-80																				
URFHE	(Antistatic Polyurethane Shore A90)	81-100																				
URFME	(Antistatic Polyurethane Shore A70)																					
URFLE	(Antistatic Polyurethane Shore A50)																					

Adhesive Type Washers convenient for temporary fixing.

Urethane Washers - Adhesive

Type	Type	Material	Hardness	Color
Urethane Washers - Adhesive	URWHS	Standard Urethane (Ether Polyurethane)	Shore A90	Natural Color
	URWMS	Standard Urethane (Ester Polyurethane)	Shore A70	

Temperature limit for seals is 80°C.

Type	D Selection	V Selection	T Selection	Tolerance				Unit Price						
				T1, 3		T5		URWHS (Shore A90)		URWMS (Shore A70)				
				D	V	D	V	T1	T3	T5	T1	T3	T5	
Adhesive URWHS (Shore A90)	8	3	4	1	3									
	10	3	4	5	6	±0.6	0~+0.6	±0.7	0~+0.7					
	12		5	6	8									
	15			6	8	10	±0.8	0~+0.8	±0.9	0~+0.8				
URWMS (Shore A70)	20			8	10	12								
	25				10	12	16	3	5	±0.9	0~+0.9	±1.0	0~+1.0	
	30				10	12	16	3	5					

Ordering Example

Configurable Type	Part Number	D	V	T
URWHS20	-	10	-	5