

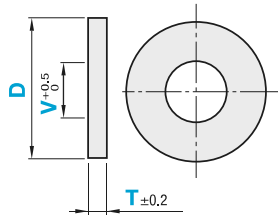
Urethane Washers

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

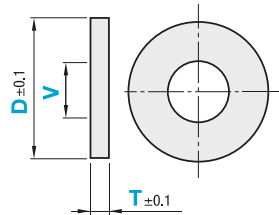
Adhesive Type is convenient for temporary fixing.



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		D Tolerance (Vulkollan®)	
D	Tolerance	D	Tolerance
6~40	±0.2	6~40	±0.5
41~60	±0.3	41~60	±0.6
61~100	±0.4	61~100	±0.7

For Vulkollan®, see the table on the right.

V Tolerance ±0.3

Precision Grade Tolerance

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

V Tolerance

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

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

Characteristic Values of Antistatic Urethane

Specific Volume Resistivity	2.1x10 ⁸ 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	V Selection								T Selection									
		D								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	5					
URWM (Standard Shore A70)	12				4	5	6	8				1	2	3	5				
URWL (Standard Shore A50)	15					4	5	6	8	10				1	2	3	5		
URHWH (Heat Resistant Shore A90)	20							5	6	8	10	12				3	5	10	
UREWH (Abrasion Resistant Shore A90)	25						5	6	8	10	12	16	20				3	5	10
UREWM (Abrasion Resistant Shore A70)	30					5	6	8	10	12	16	20				3	5	10	
Precision Grade																			
35								8	10	12	16	20	25				5	10	
UAWS (Standard Shore A95)	40							8	10	12	16	20	25	30				5	10
UAWH (Standard Shore A90)	50							8	10	12	16	20	25	30				5	10
UAWM (Standard Shore A70)	60								12	16	20	25	30	40				5	10

Configurable Type

Part Number	Type	D	V	T
		1mm Increment	1mm Increment	0.5mm Increment
Standard Grade				
URFS (Standard Urethane Shore A95)	URHFH (Heat Resistant Urethane Shore A90)	6~15	0 (No Hole) 2~41 (V≤D-4)	1.0~5.0
URFH (Standard Urethane Shore A90)	VULFH (Vulkollan® Shore A92)	16~30		5.5~10.0
URFM (Standard Urethane Shore A70)	VULFM (Vulkollan® Shore A68)			1.0~5.0
URFL (Standard Urethane Shore A50)	UREFH (Abrasion Resistant Urethane Shore A90)	31~45	0 (No Hole) 10~70 (V≤D-4)	5.5~10.0
URFY (Standard Urethane Shore A30)	UREFM (Abrasion Resistant Urethane Shore A70)			1.0~5.0
URFHE (Antistatic Polyurethane Shore A90)	URCES (Ceramic Urethane Shore A95)	46~60	0 (No Hole) 10~70 (V≤D-4)	5.5~10.0
URFME (Antistatic Polyurethane Shore A70)	URCEH (Ceramic Urethane Shore A90)			1.0~5.0
URFLE (Antistatic Polyurethane Shore A50)	URCEM (Ceramic Urethane Shore A70)	61~80	0 (No Hole) 20~80 (V≤D-4)	5.5~10.0
Precision Grade				
UAFSN (Standard Urethane Shore A95)		81~100	0 (No Hole) 20~80 (V≤D-4)	1.0~5.0
UAFH (Standard Urethane Shore A90)				5.5~10.0
UAFM (Standard Urethane Shore A70)				1.0~5.0

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

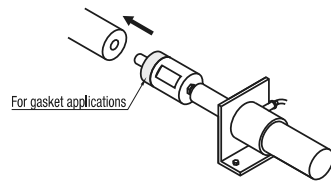


Ordering Example

Standard
Part Number - V - T
URWL20 - 10 - 5

Configurable Type

Part Number - D - V - T
URFM - D19 - V3 - T4.5
URFH - D35 - V18 - T8.0



Standard

For economical packages, see **P392**. (Note that tolerances etc. are different.)

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

Configurable Type

Standard / Precision		Unit Price																		
		Standard Grade										Precision Grade								
Material		Standard Urethane					Antistatic Polyurethane			Heat Resistant	Vulkollan®		Abrasion Resistant Urethane		Ceramic Urethane			Standard Urethane		
Hardness (Shore A)		95	90	70	50	30	90	70	50	90	92	68	90	70	95	90	70	95	90	70
Part Number		URFS	URFH	URFM	URFL	URFY	URFHE	URFME	URFLE	URHFH	VULFH	VULFM	UREFH	UREFM	URCES	URCEH	URCEM	UAFSN	UAFH	UAFM
Type	D	T																		
Standard Grade	6~15	1.0-5.0																		
URFS URHFH		5.5-10.0																		
URFH VULFH	16-30	1.0-5.0																		
URFM VULFM		5.5-10.0																		
URFL UREFH	31-45	1.0-5.0																		
URFY UREFM		5.5-10.0																		
URFHE URCEM	46-60	1.0-5.0																		
URFME URCEH		5.5-10.0																		
URFLE URCEM	61-80	1.0-5.0																		
Precision Grade		5.5-10.0																		
UAFSN UAFH	81-100	1.0-5.0																		
UAFM		5.5-10.0																		

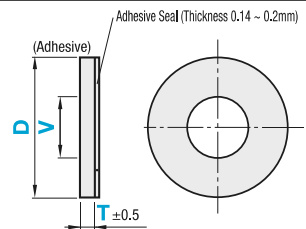
Adhesive Type Washers convenient for temporary fixing.

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	±0.6	0~+0.6	±0.7	0~+0.7						
	10	3 4 5 6	1 3 5										
	12	5 6 8	1 3 5	±0.8	0~+0.8	±0.9	0~+0.8						
	15	6 8 10	1 3 5										
URWMS (Shore A70)	20	8 10 12	3 5										
	25	10 12 16	3 5	±0.9	0~+0.9	±1.0	0~+1.0	-			-		
	30	10 12 16	3 5										

Ordering Example: Part Number - V - T
URWHS20 - 10 - 5