

# Highly Abrasion Resistant Sheets, Heat Resistant Urethane Sheets

## Vulkollan® / Abrasion Resistant Urethane

Vulkollan® and Abrasion Resistant Urethane are 6 times and 2.5 times more abrasion-resistant than the standard urethane respectively, and Heat Resistant Urethane is capable of withstanding up to 120°C.  
 A, B Configurable Adhesive Type is now available. For heat resistant urethane gasket products, see P453

**A Selectable Type**  
**Square Type** (No Adhesive) (Adhesive)  
 Backing Paper  
 Seal (Thickness 0.14~0.17mm)

**Band Type** (No Adhesive) (Adhesive)  
 Backing Paper  
 Seal (Thickness: 0.14~0.17mm)

**Material** | **Hardness** | **Color**

A Selectable Type	A, B Configurable Type	Material	Hardness	Color		
No Adhesive	Adhesive	No Adhesive	Adhesive			
VULHS	VULHSA	VULHSS	VULHSSA	Super Abrasion Resistant Urethane Vulkollan® (Ester Polyurethane)	Shore A92	Beige
VULMS	VULMSA	VULMSS	VULMSSA	Abrasion Resistant Urethane (Ester Polyurethane)	Shore A68	Dark Brown
UTEXH	UTEXHA	UTEXHS	UTEXHSA	Heat Resistant Urethane (Ester Polyurethane)	Shore A70	Brown
UTEXM	UTEXMA	UTEXMS	UTEXMSA			
UTHHS	UTHHSA	UTHHSS	UTHHSSA			

**Properties** P389

**Accuracy Standards** | **A, B Tolerance**

Tolerance	Tolerance	A, B Tolerance	Tolerance
T	Tolerance	A, B	Tolerance
1~4	±0.3	200 or Less	±0.5
5~10	±0.4	201~300	±1.0
15~30	±0.5	301~400	±1.2
		401~500	±1.5

**Hole Machining Details**

N (Through Hole) | Z (Counterbored Hole)

Screw Nominal Dia.	3	4	5	6	8	10
d	3.5	4.5	5.5	6.5	9	12
d1	6.5	8	9.5	11	14	17.5
h	3.5	4.5	5.5	6.5	9	11

**A, B Configurable Type**  
**Standard Type** | **Hole Type**

1-Hole 1H | 2-Hole 2H | 3-Hole 3H | 4-Hole 4H | 6-Hole 6H

1-Hole 1H: 1-Screw Nominal Dia. Selection, N (Through Hole), Z (Counterbored Hole)  
 2-Hole 2H: 2-Screw Nominal Dia. Selection, N (Through Hole), Z (Counterbored Hole)  
 3-Hole 3H: 3-Screw Nominal Dia. Selection, N (Through Hole), Z (Counterbored Hole)  
 4-Hole 4H: 4-Screw Nominal Dia. Selection, N (Through Hole), Z (Counterbored Hole)  
 6-Hole 6H: 6-Screw Nominal Dia. Selection, N (Through Hole), Z (Counterbored Hole)

Properties:  
 A, B dimension tolerance has been changed. Please refer to the accuracy standards on the right.  
 Vulkollan® may experience discoloration with time, but physical property and characteristics remain unchanged.  
 For Adhesive Type T4 or more, the adhesive tape may tear from the body. Please use it as temporary fixing, or in combination with bolt fixing.  
 Temperature limit for seals is 80°C.

### A Selectable - Square Type

Part Number	T	A Selection
No Adhesive	(1)	300
Adhesive	(2)	
VULHS VULHSA (Shore A92)	4	
VULMS VULMSA (Shore A68)	5	
UTEXH UTEXHA (Shore A90)	8	
UTEXM UTEXMA (Shore A70)	*10	
UTHHS UTHHSA (Shore A90)	*15	500
	*20	
	*25	
	*30	

\*Only 300 is available for Vulkollan®.

### A Selectable - Band Type

Part Number	T	A Selection
No Adhesive	(1)	3
Adhesive	(2)	
VULHS VULHSA (Shore A92)	3	
VULMS VULMSA (Shore A68)	4	
UTEXH UTEXHA (Shore A90)	5	
UTEXM UTEXMA (Shore A70)	6	
UTHHS UTHHSA (Shore A90)	*10	100
	*15	
	*20	
	*25	

L dimension is 500mm.  
 Vulkollan® is only available for T=10 and the length is 300mm.

### A, B Configurable - Standard Type

Part Number	T	A	B
No Adhesive	(1)	10~500	10~500
Adhesive	(2)		
VULHS VULHSA (Shore A92)	3		
VULMS VULMSA (Shore A68)	4		
UTEXH UTEXHA (Shore A90)	5		
UTEXM UTEXMA (Shore A70)	*10		
UTHHS UTHHSA (Shore A90)	*15	10~300 for Vulkollan®	10~300 for Vulkollan®
	*20		
	*25		
	*30		

A≥B≥T  
 Vulkollan® is available for dimensions marked with \* only.  
 Vulkollan® (Shore A68) is available for T=10 or 15 only.

### A, B Configurable - Hole Type

Part Number	Type	Nominal	T	1mm Increment (A≥B≥T)		0.5mm Increment		Screw Nominal Dia. Selection		
				A	B	F	G	N (Through Hole)	Z (Counterbored Hole)	
No Adhesive	Adhesive	VULHS VULHSA (Shore A92)	(1)	1H	25~500 (Vulkollan®)	25~500 (Vulkollan®)	5~495 (Vulkollan®)	5~295 (1H Type)	5~495 (Vulkollan®)	5~295 (1H, 2H, 3H Types)
			(2)							
			3							
			4							
			5							
			6							
			8							
			*10							
			*15							
			*20							
No Adhesive	Adhesive	VULMS VULMSA (Shore A68)	(1)	2H	25~500 (Vulkollan®)	25~500 (Vulkollan®)	9~491 (Vulkollan®)	9~291 (2H, 4H Types)	9~491 (Vulkollan®)	9~291 (4H, 6H Types)
			(2)							
			3							
			4							
			5							
			6							
			8							
			*10							
			*15							
			*20							
No Adhesive	Adhesive	UTEXH UTEXHA (Shore A90)	(1)	3H	25~500 (Vulkollan®)	25~500 (Vulkollan®)	9~245 (Vulkollan®)	9~170 (3H, 6H Types)	9~245 (Vulkollan®)	9~170 (3H, 6H Types)
			(2)							
			3							
			4							
			5							
			6							
			8							
			*10							
			*15							
			*20							
No Adhesive	Adhesive	UTEXM UTEXMA (Shore A70)	(1)	4H	25~500 (Vulkollan®)	25~500 (Vulkollan®)	9~245 (Vulkollan®)	9~170 (3H, 6H Types)	9~245 (Vulkollan®)	9~170 (3H, 6H Types)
			(2)							
			3							
			4							
			5							
			6							
			8							
			*10							
			*15							
			*20							
No Adhesive	Adhesive	UTHHS UTHHSA (Shore A90)	(1)	6H	25~500 (Vulkollan®)	25~500 (Vulkollan®)	9~245 (Vulkollan®)	9~170 (3H, 6H Types)	9~245 (Vulkollan®)	9~170 (3H, 6H Types)
			(2)							
			3							
			4							
			5							
			6							
			8							
			*10							
			*15							
			*20							
*25										
*30										

T (1) and (2) are available for Abrasion Resistant Urethane only. T dim. For Vulkollan® is available with \* sign only. (For Shore A68, only available with T=10 or 15.)  
 A≥B≥T  
 Dimension F Specification Range: For 1H: d(d1)/2+2.5≤F≤A-d(d1)/2-2.5; for 2H, 4H: d(d1)+5≤F≤A-d(d1)-5; for 3H, 6H: d(d1)+5≤F≤A/2-d(d1)/2-2.5.  
 Dimension G Specification Range: For 1H, 2H, 3H: d(d1)/2+2.5≤G≤B-d(d1)/2-2.5; for 4H, 6H: d(d1)+5≤G≤B-d(d1)-5. (d for through holes, d1 for counterbored holes.)

### Ordering Example

**A Selectable Type**  
 Part Number - A  
 VULHS10 - 300  
 UTHHS10 - 100

**A, B Configurable Type**  
 Part Number - A - B - F - G - Screw Nominal Dia.  
 VULHS10 - 300 - 200  
 UTEXHS3H5 - 200 - 150 - F140 - G120 - N5

### Alterations

Alterations: Part Number - A - B - F - G - Screw Nominal Dia. - (XC, YC)  
 VULHS4H25 - 100 - 80 - F60 - G20 - Z5 - YC40

**Hole Position from Left** | **Hole Position from Bottom**

**Code** | **XC** | **YC**

**Spec.**  
 XC=1mm Increment  
 ① 5≤XC≤480 (up to 286 for Vulkollan®)  
 ② 2H, 4H Type  
 ③ d(d1)/2+2.5≤XC≤A-F-d(d1)/2-2.5  
 ④ 3H, 6H Type  
 ⑤ d(d1)/2+2.5≤XC≤A-2F-d(d1)/2-2.5

YC=1mm Increment  
 ① 5≤YC≤480 (up to 286 for Vulkollan®)  
 ② d(d1)/2+2.5≤YC≤B-G-d(d1)/2-2.5

### A Selectable - Square Type

Type	Unit Price							
	Vulkollan®		Abrasion Resistant		Heat Resistant		Abrasion Resistant Heat Resistant	
	A92	A68	A90	A70	A90	A90	A70	A90
VULHS VULMSA	300							
UTEXH UTEXMA								
UTHHS UTHHSA								

Adhesive Charge: Adhesive Type = Unit Price + Adhesive Charge

### A Selectable - Band Type

Part Number	Type	T	Unit Price								
			A								
			3	5	10	20	30	40	50	80	100
VULHS VULMSA		10									
UTEXH UTEXMA		4									
UTHHS UTHHSA		5									

Adhesive Charge: Adhesive Type = Unit Price + Adhesive Charge

### A, B Configurable Type

Part Number	Type	T	A	Unit Price				
				B				
				10-100	101-200	201-300	301-400	401-500
UTEXHS UTEXMSA (x1.0)		1	10-100					
UTEXHS UTEXMSA (x1.1)		2	10-100					
UTEXMS UTEXMSA (x1.0)		3	10-100					
UTEXMS UTEXMSA (x1.1)		4	10-100					
UTHHS UTHHSA (x1.2)		5	10-100					
UTHHS UTHHSA (x1.3)		6	10-100					

( ) Material Multiplier

Part Number	Type	T	A	Unit Price				
				B				
				10-100	101-200	201-300	301-400	401-500
UTEXHS UTEXHSA (x1.0)		8	10-100					
UTEXHS UTEXHSA (x1.1)		10	10-100					
UTEXMS UTEXMSA (x1.0)		15	10-100					
UTEXMS UTEXMSA (x1.1)		15	10-100					
UTHHS UTHHSA (x1.2)		20	10-100					
UTHHS UTHHSA (x1.3)		20	10-100					
( ) Material Multiplier		25	10-100					
( ) Material Multiplier		30	10-100					
( ) Material Multiplier		30	10-100					
( ) Material Multiplier		30	10-100					

( ) Material Multiplier

T (1) and (2) are available for Abrasion Resistant Urethane UTEXHS and UTEXMS only.

### Hole Machining Charge

The price of the Hole Type is found by adding the standard type unit price and the hole machining charge.

(Ex.) Part Number - A - B - F - G - Screw Nominal Dia.  
 UTHHS3H5 - 500 - 400 - F240 - G160 - N8

(Unit Price) x (Material Multiplier) = Unit Price of Standard Type  
 (Standard Type Unit Price) + (Hole Machining Charge) = Hole Type Unit Price

No Adhesive Adhesive  
 VULHS VULHSA (x1.0) (x1.1)  
 VULMS VULMSA (x1.2) (x1.3)

( ) Material Multiplier

(Ex.) Part Number - A - B >>>  
 VULMS10 - 300 - 200

(Unit Price) x (Material Multiplier) = Unit Price of Standard Type

Vulkollan® shore A68 (VULMS, VULMSSA) is available for dimensions marked with \* only.  
 The price of this product is the unit price shown in the table multiplied by material multiplier.