

# Double-layer Self-locking Washer ▶ Stainless Steel



Please order according to the diagram

①~② Select the-Type and parameters in the order of for ordering

Model(①Code) — ②Specification

UREXP

4

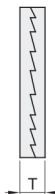
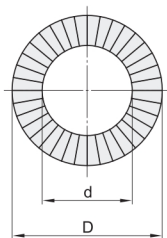


Price Excluding Tax (Yuan)

Discounted Price		
Quantity	1~9	10~
Price	100%	Separate Quotation



CAD 2D 3D



① This product is used in pairs

① Applicable Standards for This Product: DIN25201

Code	Type	Material	Hardness	Heat Resistance Temperature
UREXP	Double-layer Self-locking Washer	Stainless Steel	HRC49~	-160~500°C

Model		Applicable Bolts	d	D	T Thickness
Code	Specification				
	3	M3	3.4	7	2.2
	4	M4	4.4	7.6	
	5	M5	5.4	9	
	6	M6	6.5	10.8	
	8	M8	8.7	13.5	2.0
	10	M10	10.7	16.6	
	11	M11	11.4	18.5	
	12	M12	13.0	19.5	2.0
UREXP	14	M14	15.2	23	3.0
	16	M16	17.0	25.4	
	18	M18	19.5	29	3.2
	20	M20	21.4	30.7	3.0
	22	M22	23.4	34.5	3.2
	24	M24	25.3	39	
	27	M27	28.4	42	6.8
	30	M30	31.4	47	

## ④ Principle of Anti-loosening Washers

Anti-loosening washers are typically used in pairs. Each washer has a radial ridged surface on the outer side and a helical serrated surface on the inner side. The angle 'a' on the helical serrated surface is greater than the bolt thread angle 'β'. During installation, the inner helical serrated surfaces face each other, while the outer radial ridged surfaces engage with the contact surfaces at both ends. When the connected components experience vibration and cause a loosening tendency in the bolt, only the relative displacement between the inner helical serrations of the two washers is allowed, generating a lifting tension. This achieves a 100% anti-loosening effect.

## ④ Correct Assembly Method and Precautions for Repeated Use

The anti-loosening washer can be reused. Before reuse, please confirm that the teeth are undamaged and free from cracks (as shown below) and install them correctly. To reduce friction, it is recommended to use lubricant when reusing.



Correct

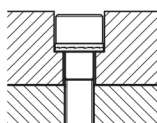


Incorrect

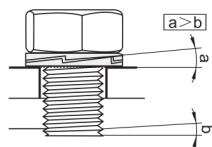


Incorrect

## Example



It can be used without enlarging the diameter of the bolt head counterbore.



## ④ Recommended Tightening Torque and Clamping Force

When using anti-loosening washers to fasten bolts, please refer to the recommended values in the table below. Using a torque lower than the recommended value will not provide anti-loosening effects. Using a torque higher than the recommended value may cause difficulty in bolt removal or cracking of the anti-loosening washers.

## ④ Bolt Tightening Torque and Recommended Clamping Force When Using Anti-loosening Washers

GTP600 = Graphite Lubrication

Specification	Applicable bolts M×P	Bolt Strength Classification A2-50, A4-50 G <sub>F</sub> = 0.65 μ <sub>th</sub> = 0.14, μ <sub>b</sub> = 0.15		Bolt Strength Classification A2-70, A4-70 G <sub>F</sub> = 0.65 μ <sub>th</sub> = 0.14, μ <sub>b</sub> = 0.15		Bolt Strength Classification A2-80, A4-80 G <sub>F</sub> = 0.65 μ <sub>th</sub> = 0.14, μ <sub>b</sub> = 0.15	
		Torque(Nm)	Clamping Force(kN)	Torque(Nm)	Clamping Force(kN)	Torque(Nm)	Clamping Force(kN)
3	3×0.5	0.4	0.7	0.9	1.5	1.2	2
4	4×0.7	0.9	1.2	2	2.6	2.7	3.4
5	5×0.8	1.8	1.9	3.9	4.1	5.3	5.5
6	6×1.0	3.2	2.7	6.9	5.9	9.2	7.8
8	8×1.25	7.7	5	17	11	22	14
10	10×1.5	15	8	33	17	43	23
12	12×1.75	26	12	56	25	75	33
14	14×2.0	42	16	89	34	119	45
16	16×2.0	64	21	136	46	181	61
18	18×2.5	89	26	191	56	254	75
20	20×2.5	125	33	267	72	356	95
22	22×2.5	170	41	364	89	485	118
24	24×3.0	214	48	460	103	613	137
27	27×3.0	313	63	671	134	895	179
30	30×3.5	427	77	915	164	1220	219

G<sub>F</sub> = yield rate μ<sub>th</sub> = Thread Friction Coefficient μ<sub>b</sub> = Washer Friction Coefficient  
1N = 0.2251B 1Nm = 0.738ft-lb

## ④ Vibration Test Results

