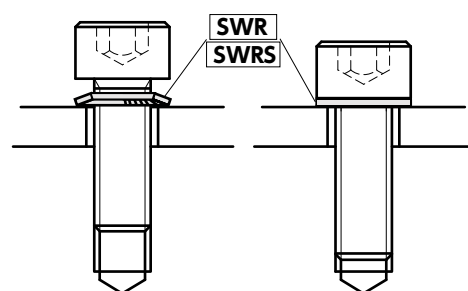


● Installation Method

- Before Tightening
- After Tightening



- Ribs on both sides of the washer hook onto the bolt bearing surface and intended attachment section to prevent looseness due to vibration.
- Washers for losing prevention. For connecting locations that cannot use other means such as adhesives.
- More effective for losing prevention than standard spring washers.

● Application

Vibration Resistant

● Material/Finish

	SWR	SWRS
Main Body	Spring Steel(Hardness: 380 - 450 HV) Ferrosoferric Oxide Film (Black)	Stainless steel



Precautions for Use

Ribs may not hook into some connecting locations, depending on their material. Confirm in advance that the ribs will hook.

SWR Made of Steel · Ferrosoferric Oxide Film

Part Number	1	Nominal	d	D	t	h	Mass (g)	Qty per pack
SWR-2		2	2.2 ^{+0.3} ₀	4 ⁰ _{-0.3}	0.35	0.6	0.02	10
SWR-2.5		2.5	2.7 ^{+0.3} ₀	4.8 ⁰ _{-0.3}	0.45	0.9	0.04	10
SWR-3		3	3.2 ^{+0.3} ₀	5.5 ⁰ _{-0.3}	0.45	0.9	0.05	20
SWR-4		4	4.3 ^{+0.3} ₀	7 ⁰ _{-0.36}	0.5	1	0.08	20
SWR-5		5	5.3 ^{+0.3} ₀	9 ⁰ _{-0.36}	0.6	1.1	0.14	20
SWR-6		6	6.4 ^{+0.36} ₀	10 ⁰ _{-0.36}	0.7	1.2	0.23	20
SWR-8		8	8.4 ^{+0.36} ₀	13 ⁰ _{-0.43}	0.8	1.4	0.43	10
SWR-10		10	10.5 ^{+0.43} ₀	16 ⁰ _{-0.43}	1	1.6	0.82	10
SWR-12		12	13 ^{+0.43} ₀	18 ⁰ _{-0.43}	1.1	1.7	0.89	10
SWR-16		16	17 ^{+0.43} ₀	24 ⁰ _{-0.52}	1.3	2.1	2	10
SWR-20		20	21 ^{+0.52} ₀	30 ⁰ _{-0.62}	1.5	2.4	3.4	5

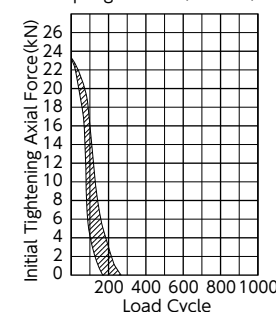
Unit : mm

● When purchasing less volume than one full bag, a separate handling fee is charged. For details, see the Sold Separately Service.

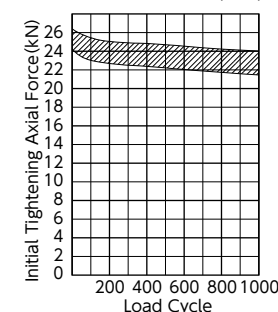
● Vibration test comparison

Test Hexagon Screws : DIN933 - 8.8-M10 - 35, Vibration : 15Hz, Amplitude : 0.5mm

■ Spring Washer (DIN127)



■ Ribbed Lock Washer (SWR)



SWRS Made of Stainless Steel

Part Number	1	Nominal	d	D	t	h	Mass (g)	Qty per pack
SWRS-1.6		1.6	1.7 ^{+0.3} ₀	3.2 ⁰ _{-0.3}	0.5	0.75	0.02	10
SWRS-2		2	2.2 ^{+0.3} ₀	4 ⁰ _{-0.3}	0.5	0.75	0.03	20
SWRS-2.5		2.5	2.7 ^{+0.3} ₀	4.8 ⁰ _{-0.3}	0.5	0.95	0.04	20
SWRS-3		3	3.2 ^{+0.3} ₀	5.5 ⁰ _{-0.3}	0.5	0.95	0.05	20
SWRS-4		4	4.3 ^{+0.3} ₀	7 ⁰ _{-0.36}	0.7	1.2	0.08	20
SWRS-5		5	5.3 ^{+0.3} ₀	9 ⁰ _{-0.36}	0.7	1.2	0.14	10
SWRS-6		6	6.4 ^{+0.36} ₀	10 ⁰ _{-0.36}	0.7	1.2	0.23	10
SWRS-8		8	8.4 ^{+0.36} ₀	13 ⁰ _{-0.43}	1	1.6	0.43	10
SWRS-10		10	10.5 ^{+0.43} ₀	16 ⁰ _{-0.43}	1	1.6	0.82	5
SWRS-12		12	13 ^{+0.43} ₀	18 ⁰ _{-0.43}	1.3	1.85	0.89	5
SWRS-16		16	17 ^{+0.43} ₀	24 ⁰ _{-0.52}	1.5	2.3	2	5
SWRS-20		20	21 ^{+0.52} ₀	30 ⁰ _{-0.62}	1.8	2.8	3.4	5

Unit : mm

● When purchasing less volume than one full bag, a separate handling fee is charged. For details, see the Sold Separately Service.

● Part number specification

SWR-10



1 Individual Sales → P.0000	Cleanroom Wash & Packaging → P.0000	Screw Length Adjustment → P.0000	Vibration Resistant → P.0000	Modification process for captive use → P.0000
Available / Add'l charge	S.S. only / Add'l charge	Not Available	Not Available	Not Available