

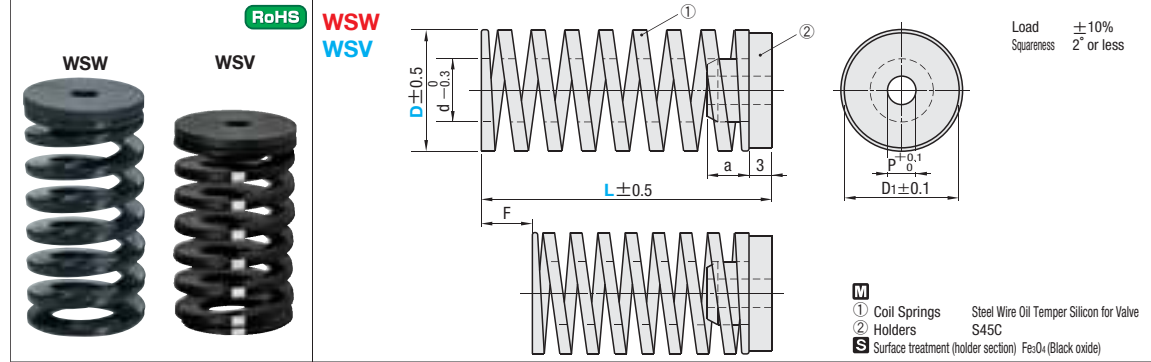
# GATE-CUT SPRINGS / WASHERS FOR COIL SPRINGS

— Heat Resistant 120°C / 200°C Type —



Printed in Red

WSV (200°C heat resistant type) is painted with a vertical white line for identification.



## Heat resistant 120°C type

D	d	L	D1	P	a	N/mm (kgf/mm)	Solid height	F=L×25%		F=L×40%		Bolt used	Catalog No. Type	U/Price 1~19		
								Fmm	N (kgf)	Fmm	N (kgf)					
16	9	20	15.9	5.2	3	36.8 {3.8}	12	5.0	*7	*279.5 {28.5}	M5	16-20 16-25 16-30 18-20 18-25 18-30 20-25 20-30 20-35 20-40 22-25 22-30 22-35 22-40 22-45 25-30 25-35 25-40 25-45 25-50 30-45 30-50 30-55	Quotation			
		25				29.4 {3.0}	14	6.2	10	294.2 {30}						
		30				24.5 {2.5}	16	7.5	12							
18	11	20	17.9	6.2		3	34.3 {3.5}	14	6.2	*7				*326.1 {33.25}		
		30					28.6 {2.9}	17	7.5	10				343.2 {35}		
		40					44.1 {4.5}	13	6.2	12						
20	11.5	25				19.9	6.2	3.5	36.8 {3.8}	17				7.5	10	441.3 {45}
		35							31.5 {3.2}	19				8.7	12	
		40							27.6 {2.8}	21				10	16	
22	12.7	25			21.9			6.2	3.5	53.9 {5.5}	14	6.2	10	539.4 {55}		
		30								45.0 {4.6}	16	7.5	12			
		40								38.5 {3.9}	17	8.7	14			
25	15	35	24.9	6.2					4	33.7 {3.4}	23	10	16	686.5 {70}		
		45								30.0 {3.1}	25	11.2	18			
		50								61.3 {6.3}	18	7.5	14			
30	17	45				29.9	6.2		4.5	49.0 {5.0}	21	8.7	14	784.5 {80}		
		50								34.3 {3.5}	27	12.5	20			
		55								43.6 {4.4}	25	11.2	18			

Durable number of times used: One million times, 300,000 times. Use Fmm \*within F=L×35%. The solid height values are for reference only. There may be some dispersions depending on the lot. kgf=N×0.101972

## Heat resistant 200°C type

D	d	L	D1	P	a	N/mm (kgf/mm)	Solid height	F=L×25%		F=L×30%		Bolt used	Catalog No. Type	U/Price 1~19		
								Fmm	N (kgf)	Fmm	N (kgf)					
16	9	20	15.9	5.2	3	32.7 {3.3}	14	5.0	Outside allowable range		M5	16-20 16-25 16-30 18-20 18-25 18-30 20-25 20-30 20-35 20-40 22-25 22-30 22-35 22-40 22-45 25-30 25-35 30-45 30-50 30-55	Quotation			
		25				26.2 {2.7}	16	6.2	7.5	196.1 {20}						
		30				21.8 {2.2}	19	7.5	9.0							
18	11	20	17.9	6.2		3	39.2 {4.0}	14	5.0	Outside allowable range						
		30					31.4 {3.2}	16	6.2	7.5				235.4 {24}		
		40					26.2 {2.7}	19	7.5	9.0						
20	11.5	25				19.9	6.2	3.5	39.2 {4.0}	16				6.2	7.5	294.2 {30}
		35							32.7 {3.3}	19				7.5	9.0	
		40							28.0 {2.9}	21				8.7	10.5	
22	12.7	25			21.9			6.2	3.5	24.5 {2.5}	24	10.0	12.0	367.7 {38}		
		30								49.0 {5.0}	16	6.2	7.5			
		40								40.9 {4.2}	19	7.5	9.0			
25	15	35	24.9	6.2					4	35.0 {3.6}	21	8.7	10.5	490.3 {50}		
		45								30.6 {3.1}	24	10.0	12.0			
		50								27.2 {2.8}	27	11.2	13.5			
30	17	45				29.9	6.2		4.5	54.5 {5.6}	19	7.5	9.0	559.0 {57}		
		50								46.7 {4.8}	21	8.7	10.5			
		55								40.9 {4.2}	24	10.0	12.0			

Durable number of times used: One million times, 300,000 times. The solid height values are for reference only. There may be some dispersions depending on the lot. kgf=N×0.101972

## Characteristics

Spring can easily be installed by a bolt in small spaces.

## Note on handling

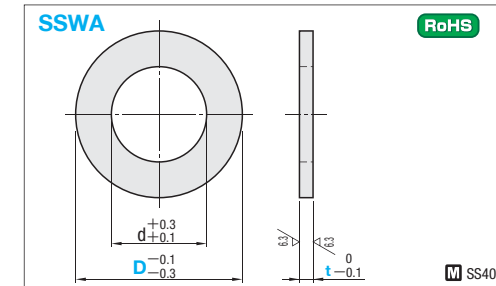
- Flange part of the spring and holder is press fitted. However, the spring and holder could come off depending on the usage environment. Please refrain from using the spring in an unlocked state.
- Please do not use it with over maximum allowable deflection (F=L×40%). It become easy for the spring and the holder to come off, and it is very dangerous.
- Please use within the allowable temperature.
- Data on load was taken at room temperature (less than 40°C). Although it may vary depending on various conditions, N (kgf) load usually decreases when used in temperature higher than room temperature.

Load calculation method : Load = Spring constant × Deflection  
N = N/mm × Fmm  
kgf = kgf/mm × Fmm

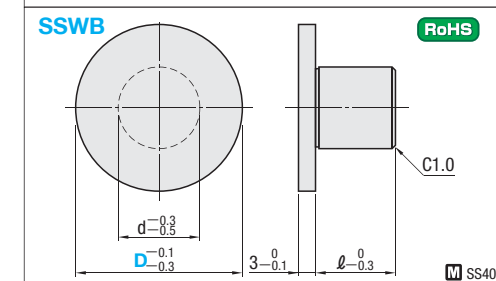
Instructions and notes for coil springs P.165



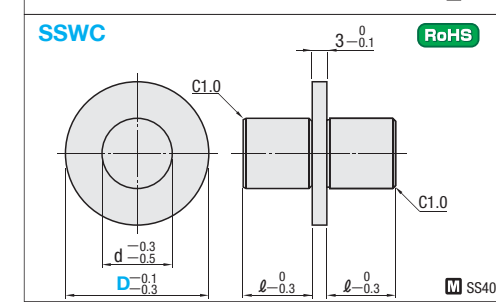
## WASHERS FOR COIL SPRINGS



d	Applicable spring dia	Catalog No. Type	D	t	U/Price for 1~19				
					t=1.0	t=2.0	t=3.0	t=4.0	t=5.0
3.0	6	SSWA	5	1.0	Quotation				
5.0	8		7						
6.0	10		9						
7.0	12		11.5						
8.0	14		13						
9.0	16		15						
10.0	18		17						
12.0	20		19						
12.0	22		21						
14.5	25		24						
15.0	27		26						
17.0	30		29						
20.0	35		34						
23.0	40		39						



d	ℓ	Applicable spring dia	Catalog No. Type	D	U/Price 1~19
4.5	5.0	10	9		
5.5	6.0	12	11		
6.5	7.0	14	13		
7.5	8.0	16	15		
8.5	9.0	18	17		
9.5	10.0	20	19		
10.5	11.0	22	21		
12.0	12.0	25	24		
13.0	13.0	27	26		
14.5	15.0	30	29		
17.0	17.0	35	34		
19.5	20.0	40	39		



d	ℓ	Applicable spring dia	Catalog No. Type	D	U/Price 1~19
4.5	5.0	10	9		
5.5	6.0	12	11		
6.5	7.0	14	13		
7.5	8.0	16	15		
8.5	9.0	18	17		
9.5	10.0	20	19		
10.5	11.0	22	21		
12.0	12.0	25	24		
13.0	13.0	27	26		
14.5	15.0	30	29		
17.0	17.0	35	34		
19.5	20.0	40	39		

Order Catalog No. SSWA15 SSWC9 t 2.0  
Delivery 3 Days



Order Catalog No. WSW20-35 WSV20-35  
Delivery SGP Stock 3 Days  
Quantity discount rate: 1~19 (5%), 20~49 (10%), 50~199 (15%), 200~500 (15%)