



# Standard Part

## Helical Spring Lock Washers - Metric - Non-Preferred

STPF530

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### REFERENCE DOCUMENTS

ANSI B18.21.2M	Lock Washers (Metric Series)	
CNH STPA020	Fastener Finishes and Material Specifications	
CNH STPF600	Belleville Spring Lock Washer	
CNH STPF610	Conical Spring Washers	
DIN 127	Spring Lock Washers with Tang Ends and Square Ends	Cancelled 7/1993
DIN 128	Curved and Wave Spring Lock Washers	Cancelled 5/2003
DIN 267-26	Fasteners, Technical Delivery Conditions – Steel Spring Washers for Bolt/Nut Assemblies	
DIN 6796	Conical Spring Washers for Bolt/Nut Assemblies	
DIN 6904	Spring Washers for Screw Assemblies	Cancelled 2/2003
DIN 6905	Spring Lock Washers for Screw Assemblies	Cancelled 5/2003
DIN 6908	Conical Spring Washers for Screw Assemblies	
DIN 6913	Spring Lock Washers with Safety Ring	Cancelled 7/1993
DIN 7980	Spring Lock Washers for Cheese Head Bolts	Cancelled 7/1993
BS 4464	Specification for Spring Washers for General Engineering and Automotive Purposes. Metric Series	
FIAT 10188 FIAT 10188/01	Helical Spring Lock Washers	

**GENERAL:** Helical lock washers in this standard shall meet the requirements of ANSI B18.21.2M for material and general requirements.

Regular series lock washers in this standard (Table 1 and Table 2) conform dimensionally to DIN 127 and BS 4464 except Type A and Type B lock washers are considered optional methods of construction at the option of the manufacturer. Separate part numbers will not be assigned for Type A and Type B lock washers.

Heavy series lock washers in this standard (Table 3) conform to heavy series lock washers in ANSI B18.21.2M.

AUTHOR	APPROVED BY	ECO	PART NUMBER
A KHAN	10JUN25 A KHAN	10JUN25 35512722	<b>87307107</b>

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The word "LOCK" appearing in the names of the products in this standard is a generic term historically associated with their identification and is not intended to imply an indefinite permanency of fixity in attachments where they are used.

In October 1987, it was noted, in DIN 127, that there was no real demand for DIN 127 spring lock washers and that manufacturers and users should convert to spring lock washers conforming to DIN 128. Both standards have subsequently been withdrawn without a noted superseded standard.

Spring lock washers complying with DIN 128 are suitable for bolt/nut assemblies involving fasteners of a property class less than 8.8 while spring lock washers complying with DIN 127 are only intended for use with fasteners of property class 5.8 or less.

Since most spring lock washers are not suitable for use with fasteners having property class 8.8 and higher, the user will have to decide on a case by case basis whether a locking device is required and choose another spring washer (e.g. conical spring washer or Belleville spring lock washer) where necessary.

Conical spring washers per DIN 6796 are intended for use with bolts of property class 8.8 to 10.9 as specified in ISO 898-1. These washers should not be used with fasteners having a property class less than 8.8 due to indentation. Conical washers are not part of this standard.

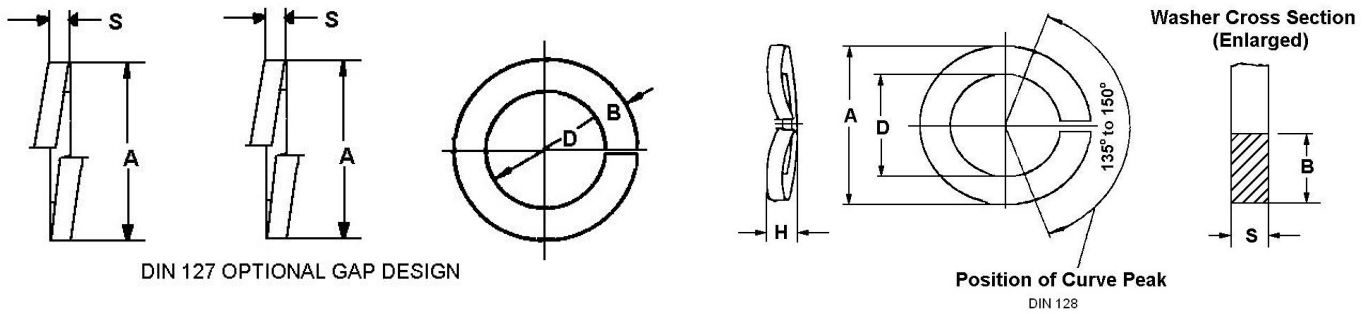
SST washers shall be fabricated from AISI 420 or equivalent. Heat treatment after coating RC C44-51 or equivalent.

C72 Material according to C72 FILO BON Steel per Fiat 52554 or 55 SI 7 FILO BON HRC 44 – 51 Steel per Fiat 52566.

Typical part description for BOM's and CAD drawings entered by Standards:

WASHER, SPRING LOCK REG 16 ZND

For cross reference listing of company part numbers, go to [PARTsolutions](#).



**Table 1. Metric Helical Spring Lock Washers DIN 127 – Regular Series**

Nominal Bolt Dia	D		A	B		S		Overall Height		Compression Load	Spring Back Height		
	ID			Section Width		Thickness		Max	Min				
	Max	Nom Min	OD Max	Nom	Tol + -	Nom	Tol + -	mm	mm				
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	KN	mm		
2.5	2.9	2.6	5.1	1	0.1	0.6	0.1	1.4	1.2	1.1	1		
3	3.4	3.1	6.2	1.3		0.8		1.9	1.6	1.7	1.3		
4	4.4	4.1	7.6	1.5		0.9		2.1	1.8	3	1.4		
5	5.4	5.1	9.2	1.8		1.2		2.8	2.4	5	1.9		
6	6.5	6.1	11.8	2.5		1.6		3.8	3.2	7	2.6		
8	8.5	8.1	14.8	3	5	2	0.1	4.7	4	12.9	3.2		
10	10.7	10.2	18.1	3.5		2.2		5.2	4.4	20.6	3.5		
12	12.7	12.2	21.1	4	0.2	2.5	5	5.9	5	30	4		
14	14.7	14.2	24.1	4.5		3		7.1	6	41.3	4.8		
16	17	16.2	27.4	5		3.5		8.3	7	56.3	5.6		
18	19	18.2	29.4	5		3.5		8.3	7	69	5.6		
20	21.2	20.2	33.6	6		4		9.4	8	88	6.4		
22	23.5	22.5	35.9	6	0.2	4	0.2	9.4	8	110	6.4		
24	25.5	24.5	40	7		5		11.8	10	127	8		
27	28.5	27.5	43	7		5		5	5	11.8	10	167	8
30	31.7	30.5	48.2	8				6		14.2	12	255	9.6



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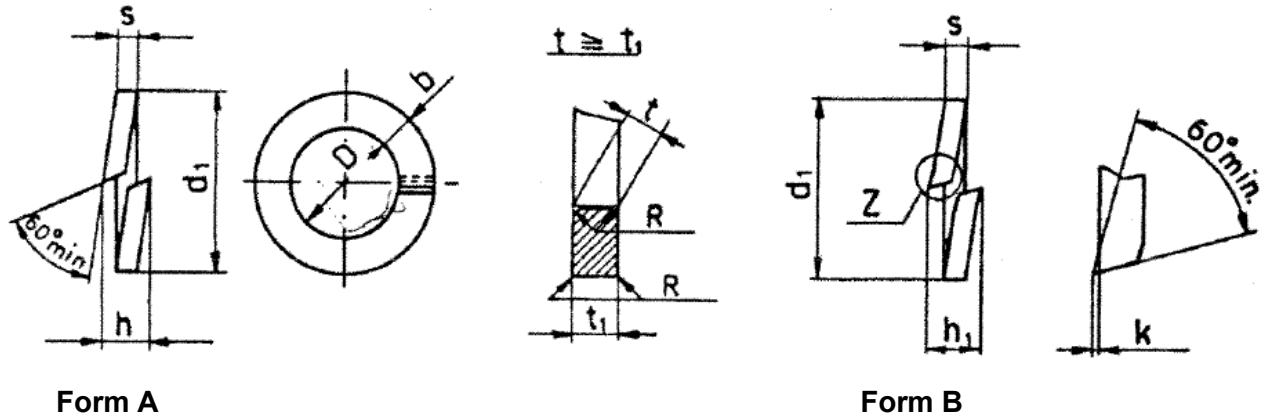
**Table 2. Helical Spring Lock Washers – Regular Series – Non-Preferred**

Table 2. Helical Spring Lock Washers – Regular Series – Non-Preferred						
Bolt Dia	ID Nom Min	Thick Nom	OD Nom Max	Matl	Finish	Part Number
2.5	2.6	.7	5.1	HTS	ZNM	86511130
3	3.1	.9	6.2	HTS	ZNM	86509827
4	4.1	1	7.6	HTS	ZNM	140024
#4	4.1	1.2	7.0	C72	DAC	10569074
#4	4.1	1.2	7.0	C72	ZNM	10569079
5	5.1	1.2	9.2	C72	DAC	10571474
5	5.1	1.2	9.2	C72	ZNM	10571479
5	5.1	1.3	9.2	HTS	ZNM	86509828
5	5.1	1.3	9.2	SST	PLN	84270864
#6	6.1	1.6	9.9	C72	ZNM	10569279
*6	6.1	1.6	11.8	C72	PLN	10571570
*6	6.1	1.6	11.8	C72	DAC	10571574
*6	6.1	1.6	11.8	C72	BLO	10571576
*6	6.1	1.6	11.8	C72	BZN	10571577
*6	6.1	1.6	11.8	C72	ZNM	10571579
6	6.1	1.7	11.8	HTS	ZNM	86517328
6	6.1	1.7	11.8	HTS	DAC	90338432
6	6.1	1.7	11.8	SST	PLN	87391931
6	6.1	1.7	11.8	HTS	BZN	87543395
6	6.1	1.7	11.8	HTS	DOR	47399209
#8	8.1	2	12.7	C72	PLN	10569370
#8	8.1	2	12.7	C72	DAC	10569374
#8	8.1	2	12.7	C72	ZNM	10569379
*8	8.1	2	14.8	C72	BGM	92092885
*8	8.1	2	14.8	C72	PLN	10571770
*8	8.1	2	14.8	C72	DAC	10571774
*8	8.1	2	14.8	C72	ZNM	10571779
8	8.2	2.1	14.8	HTS	ZNM	83990583
8	8.2	2.1	14.8	HTS	DAC	90338433

Table 2. Helical Spring Lock Washers – Regular Series – Non-Preferred						
Bolt Dia	ID Nom Min	Thick Nom	OD Nom Max	Matl	Finish	Part Number
8	8.2	2.1	14.8	HTS	BZN	87016619
*10	10.2	2.2	18.1	C72	PLN	10571870
*10	10.2	2.2	18.1	C72	ZND	10571871
*10	10.2	2.2	18.1	C72	PHC	10571873
*10	10.2	2.2	18.1	C72	DAC	10571874
*10	10.2	2.2	18.1	C72	BZN	10571877
*10	10.2	2.2	18.1	C72	ZNM	10571879
10	10.2	2.2	17.2	HTS	ZNM	85700672
10	10.2	2.35	18.1	HTS	ZNM	140028
10	10.2	2.35	18.1	HTS	DAC	90338558
#12	12.2	2.5	18	C72	DAC	10569574
#12	12.2	2.5	18	C72	ZNM	10569579
*12	12.2	2.5	21.1	C72	ZNM	10571979
12	12.2	2.5	21.1	HTS	ZNM	412123
12	12.2	2.5	21.1	HTS	DAC	90338559
14	14.2	3.15	24.1	HTS	ZNM	140030
16	16.2	3.5	27.4	HTS	ZNM	87016618
*16	16.2	3.5	27.4	C72	DAC	10572174
*16	16.2	3.5	27.4	C72	ZNM	10572179
18	18.2	3.5	29.4	HTS	ZNM	86642318
20	20.2	4	33.6	HTS	ZNM	86642462
20	20.2	4	33.6	HTS	DAC	90338565
22	22.5	4	35.9	HTS	PHC	47820326
24	24.5	5	40	HTS	ZNM	86509829
30	30.5	6	48.2	HTS	ZNM	47591097

\*per Fiat Standard 10188  
#per Fiat Standard 10188/01.

**Table 3a. Helical Spring Lock Washers – Heavy Series – Non-Preferred**



Nominal Bolt Dia	D		d <sub>1</sub>	b		s		h		h <sub>1</sub>		Compr-ession Load	Spring Back Height
	ID			Section Width		Thickness		Overall Height		Overall Height			
	Max	Nom Min	OD Max	Nom	Tol + -	Nom	Tol + -	Max	Min	Max	Min		
3	3.4	3.1	6	1.2	0.10	0.9	0.10	2.2	1.6	2.5	1.75	1.7	1.4
4	4.4	4.1	7	1.2		0.9		2.2	1.6	2.5	1.75	2.9	1.4
5	5.4	5.1	8.6	1.5		1.1		2.6	2	2.9	2.15	4.7	1.6
6	6.5	6.1	11.8	2.5	0.15	1.8	0.15	4.2	3.4	4.6	3.6	6.7	2.8
7	7.5	7.1	12.8	2.5		1.8		4.2	3.4	4.6	3.6	9.6	2.8
8	8.5	8.1	14.8	3		2.2		5.1	4.2	5.7	4.5	12.2	3.4
10	10.7	10.2	17.7	3.3	0.20	2.5	0.20	5.8	4.7	6.4	5	19.3	3.8
12	12.7	12.2	21.1	4		3.1		7.1	5.9	7.9	6.3	28	4
14	14.7	14.2	24.1	4.5		3.5		8.1	6.6	8.9	7	38.2	5.3
16	17	16.2	27.7	5.2	0.25	4	0.25	9.3	7.6	10.1	8	52.2	6.1
18	19	18.2	30.6	5.6		4.2		9.7	8	10.5	8.4	64	6.3
20	21.2	20.2	33.6	6		4.5		10.4	8.6	11.2	9	81	6.9
22	23.3	22.3	37.7	6.5	0.25	5	0.25	11.4	9.6	12.2	10	101	7.4
24	25.3	24.3	39.8	7		5.5		12.8	10.6	13.8	11.1	117	8.5



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**Table 3b. Helical Spring Lock Washers –  
Heavy Series – Non-Preferred**

Bolt Dia	ID Nom Min	Thick Nom	OD Nom Max	Matl	Finish	Part Number
*6	6.1	1.8	11.8	C72	ZND	10516471
*6	6.1	1.8	11.8	C72	DAC	10516474
*6	6.1	1.8	11.8	C72	ZNM	10516479
*8	8.1	2.2	14.8	C72	DAC	10516674
*8	8.2	2.2	14.8	C72	ZND	10516671
*8	8.2	2.2	14.8	C72	ZNM	10516679
#10	10.2	2.5	16	C72	PLN	10569470
#10	10.2	2.5	16	C72	DAC	10569474
#10	10.2	2.5	16	C72	ZNM	10569479
*10	10.2	2.5	17.7	C72	ZND	10516871
*10	10.2	2.5	17.7	C72	DAC	10516874
*10	10.2	2.5	17.7	C72	ZNM	10516879
*12	12.2	3.1	21.1	C72	PLN	10517070
*12	12.2	3.1	21.1	C72	ZND	10517071
*12	12.2	3.1	21.1	C72	PHC	10517073
*12	12.2	3.1	21.1	C72	DAC	10517074
*12	12.2	3.1	21.1	C72	ZNM	10517079
*14	14.2	3.5	24.1	C72	PLN	10517170
*14	14.2	3.5	24.1	C72	ZND	10517171
*14	14.2	3.5	24.1	C72	PHC	10517173
*14	14.2	3.5	24.1	C72	DAC	10517174
*14	14.2	3.5	24.1	C72	ZNM	10517179
*16	16.2	4	27.7	C72	ZND	10517271
*16	16.2	4	27.7	C72	DAC	10517274
*16	16.2	4.2	30.6	C72	ZNM	10517279
*18	18.2	4.0	30.6	C72	DAC	10517374
*18	18.2	4.0	30.6	C72	ZNM	10517379
*24	24.3	5.5	39.8	C72	ZND	10517671
*24	24.3	5.5	39.8	C72	ZNM	10517679
*24	24.3	5.5	39.8	C72	DAC	10517674

\*per Fiat Standard 10188

#per Fiat Standard 10188/01