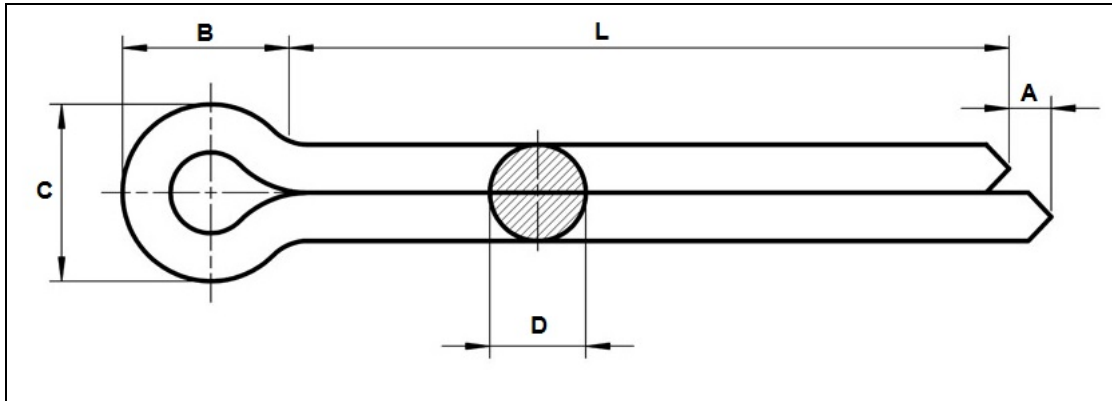


## Metric DIN 94 Split Pins (Cotter Pins)



Nominal Diameter	1	1.5	2	2.5	3.2	4	5	6.3	8	10	13	
<b>D</b>	Min	0.9	1.4	1.8	2.3	2.9	3.7	4.6	5.9	7.5	9.5	12.4
	Max	0.8	1.3	1.7	2.1	2.7	3.5	4.4	5.7	7.3	9.3	12.1
<b>A</b>	1.6	2.5	2.5	2.5	3.2	4	4	4	4	6.3	6.3	
<b>B</b>	3	3.2	4	5	6.4	8	10	12.6	16	20	26	
<b>C</b>	1.6	2.4	3.2	4	5.1	6.5	8	10.3	13.1	16.6	1.7	

All measurements are in mm

Nominal Diameter	1	1.5	2	2.5	3.2	4	5	6.3	8	10	13
L (mm)	Weight kg(s) / 1000 pcs										
10	0.04	0.15	0.37								
12	0.08	0.16	0.38	0.59	1.01	1.89					
16	0.10	0.22	0.39	0.70	0.09	2.22					
18		0.22	0.40	0.73	1.20	2.36					
20	0.13	0.25	0.45	0.76	1.27	2.36					
22		0.26	0.47		1.40	2.51					
25		0.31	0.54	0.99	1.49	2.84					
28		0.37	0.58	1.01	1.71	2.94	4.84				
32		0.38	0.65	1.18	1.85	3.12	5.36	6.97			
36			0.80	1.28	2.05	3.72	5.92	10.20			
40			0.82	1.38	2.24	4.07	6.41	11.40	20.60		
45				1.57	2.37	4.33	6.82	12.60	21.20		
50				2.00	2.81	4.75	7.87	13.20	23.10		
56					3.10	5.40	8.52	14.60	25.00	40.30	
63					3.50	5.87	9.41	15.70	28.00	44.80	
71						7.09	10.00	17.60	30.40	49.20	
80						7.94	11.50	18.50	33.40	53.30	
90						8.79	12.80	20.80	36.70	58.50	106.90
100							15.70	22.90	41.20	64.10	117.80
112								25.20	47.00	72.00	128.00
125								27.30	48.50	79.00	142.90
140									65.60	97.70	170.00

Metric DIN 94 Split Pins (Cotter Pins) are common used fasteners that hold assemblies together. Made of soft metal wire looped on itself so the two resulting tines can be inserted into a pre-drilled hole and bent to keep it in place. Cotter pins are typically made of soft metal allowing for easy installation and removal. However, this also makes them poor locking devices when strong shear forces are expected. Aspen Fasteners offers over 500,000 unique fastener products from stock in inch and metric standard in a variety of materials and finishes. The following sizes DIN 93 Single Tab Safety Lock Washers are available for immediate shipping from stock: Diameters ranging from M1 to M13 up to 140mm long in steel as well as stainless steel A2 and A4. View parts by clicking on the following link: [Metric DIN 94 Split Pins \(Cotter Pins\)](#)

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DIN (**D**eutsches **I**nstitut für **N**ormung - German Institute for Standardization) standards are issued for a variety of components including industrial fasteners as Metric DIN 85 Slotted Pan Head Machine Screws. The DIN standards remain common in Germany, Europe and globally even though the transition to ISO standards is taking place. DIN standards continue to be used for parts which do not have ISO equivalents or for which there is no need for standardization. The ISO equivalent of DIN 94 Split Pins (Cotter Pins) is ISO 1234.

### 1) Mechanical properties of stainless steel for metric DIN 94 Split Pins (Cotter Pins)

Stainless steels can be divided into three groups of steel - austenitic, ferritic and martensitic. Austenitic steel is by far the most common type (>90% of commercial fasteners). The steel groups and strength classes are designated by a four-digit sequence of letters and numbers (eg A2-70) as shown in the following table. DIN EN ISO 3506 governs screws and nuts made from stainless steel.

Steel group	Steel grade	Strength class	Screws, Nuts and Bolts			
			Tensile strength N/mm <sup>2</sup>	Tensile strength PSI	Dia range	Nut Load N/mm <sup>2</sup>
Austenitic	A2 and A4	50	500	70,000	<=M39	500
		70	700	100,000	<=M20	700
		80	800	118,000	<=M20	800

The tensile stress is calculated with reference to the tensile stress area (see DIN EN ISO 3506-1979). Nuts to be paired with same grade of stainless steel screws

Steel group	Property Strength class	Made From	Characteristics
Austenitic	50	A1, A2	Soft; cold worked, turned and soft pressed fasteners
	70	A2, A4	Cold worked, normal strength formed fasteners
	80	A2, A4	Extreme cold worked, high strength, special applications

**2) Chemical composition of stainless steel metric DIN 94 Split Pins (Cotter Pins)**

Grade	USA Grade	Material designation	Material no.	C %	Si ≤ %	Mn ≤ %	Cr %	Mo %	Ni %
<b>A 2</b>	<b>304</b>	X 5Cr Ni 1810	1.4301	≤ 0.07	1.0	2.0	17.5 to 19.5	-	8.0 to 10.5
		X 2 Cr Ni 1811	1.4306	≤ 0.03	1.0	2.0	18.0 to 20.0	-	10 to 12.0
		X 8 Cr Ni 19/10	1.4303	≤ 0.07	1.0	2.0	17.0 to 19.0	-	11.0 to 13.0
<b>A 4</b>	<b>316</b>	X 5 Cr Ni Mo 1712	1.4401	≤ 0.07	1.0	2.0	16.5 to 18.5	2.0 to 2.5	10.0 to 13.0
		X 2 Cr Ni Mo 1712	1.4404	≤ 0.03	1.0	2.0	16.5 to 18.5	2.0 to 2.5	10 to 13

**3) Chemical composition of steel metric DIN 94 Split Pins (Cotter Pins)**

PROPERTY CLASS	MATERIAL AND TREATMENT	CHEMICAL COMPOSITION LIMITS %				TEMPERING TEMP °C MIN.
		C		P	S	
		min.	max.	max.	max.	
4.6, 4.8, 5.8, 6.8	Low or medium carbon steel	-	0.55	0.05	0.06	-
8.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
9.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
10.9	Medium carbon steel additives e.g. boron, Mn, Cr or Alloy steel - quenched, tempered	0.20	0.55	0.04	0.05	425
12.9	Alloy steel - quenched, tempered	0.20	0.50	0.035	0.035	380

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**4) Mechanical properties of steel for metric DIN 94 Split Pins (Cotter Pins)**

MECHANICAL PROPERTY		PROPERTY CLASS									
		4.8	5.6	5.8	6.8	8.8		9.8	10.9	12.9	
						Up to M 16	Over M 16				
Tensile Strength (Rm, N/mm <sup>2</sup> )	nom.	400	500		600	800		900	1000	1200	
	min.	420	500	520	600	800	830	900	1040	1220	
Vickers Hardness	min.	130	155	160	190	250	255	290	320	385	
	max.	250				320	336	360	380	435	
Brinell Hardness	min.	124	147	152	181	319	242	266	295	353	
	max.	238				385	319	342	363	412	
Rockwell Hardness	min. HR	71	79	82	89	-					
	HRC	-	-	-	-	20	23	28	32	39	
	HR	95				99	-				
	max. HRC	-	-	-	-	32	34	37	39	44	
Yield Stress ReL. N/mm <sup>2</sup>	nom.	320	300	400	480	-					
	min.	340	300	420	480	-					
Stress at permanent set limit N/mm <sup>2</sup>	nom.	-				640		720	900	1080	
	min.	-				640	660	720	940	1100	

**Disclaimer**

Dimensional data and technical information for Metric DIN 94 Split Pins (Cotter Pins) was obtained from publicly available sources and not acquired through standards agencies. It has been completed and compiled for reference purposes only; where discrepancies are found they are subject to change without notice. Aspen Fasteners makes no warranties or representations regarding the accuracy and validity of the compiled information and data. Contact the relevant standards authorities for accurate and detailed information.