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## Westfield Fasteners Product Specification:

### DIN 94 - Cotter Pins

This specification is based on the standard DIN 94 which covers split pins / cotter pins. A comprehensive range of sizes are available Westfield Fasteners.

#### Product Description

Cotter Pins, also known as Split Pins are a simple non threaded fastener designed to be inserted into an open ended hole and secured by bending the two tines outward. They are commonly made from wire of semi-circular cross section and square cut at the ends; other specialist end finishes include mitre or bevel shapes. Lengths are measured from the end of the tines/legs to the point where the base of the eyelet hole contacts with the host material. An unthreaded fastener solution designed for single use, as bending fatigue will cause failure if re-used continually.

#### Scope of the DIN standard.

DIN 94 specifies the permissible form together with dimensions and tolerances for diameters from 0.6 mm up to and including 20 mm diameter. See figure 1 and table 1 for this information. Table 2 shows the tolerances on the shank length.

Cotter pins are generally used in conjunction with clevis pins or bolts featuring a transverse hole. Figure 2 and table 3 offer some guidance on appropriate sizes to use with different bolt and clevis pin diameters.

As a general note on diameters, cotter pins are designed to be employed in holes diameters that match the cotter pin's nominal diameter. Cotter pin diameters are toleranced to allow for a measure of clearance, and are therefore designed to be undersize. Please see table 1 for this data.

The shape of the ends of the tines can vary at the manufacturers discretion.

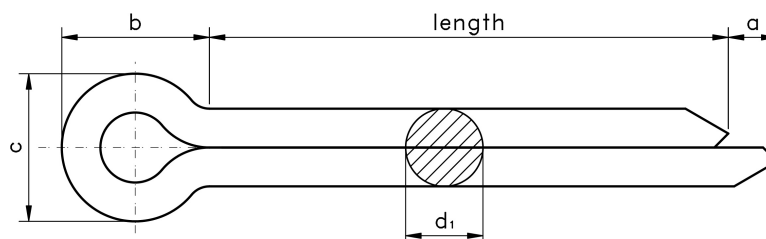


Figure 1: Cotter Pin To DIN 94

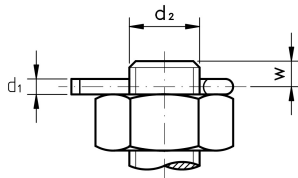
**Table 1: Dimensions & Tolerances According to DIN 94**

<b>d<sub>1</sub></b>			<b>a</b>		<b>b</b>	<b>c</b>	
Nominal Size	Max	Min	Max	Min	=	Min	Max
0.6	0.5	0.4	1.6	0.8	2	0.9	1
0.8	0.7	0.6	1.6	0.8	2.4	1.2	1.4
1	0.9	0.8	1.6	0.8	3	1.6	1.8
1.2	1	0.9	2.5	1.25	3	1.7	2
1.6	1.4	1.3	2.5	1.25	3.2	2.4	2.8
2	1.8	1.7	2.5	1.25	4	3.2	3.6
2.5	2.3	2.1	2.5	1.25	5	4	4.6
3.2	2.9	2.7	3.2	1.6	6.4	5.1	5.8
4	3.7	3.5	4	2	8	6.5	7.4
5	4.6	4.4	4	2	10	8	9.2
6.3	5.9	5.7	4	2	12.6	10.3	11.8
8	7.5	7.3	4	2	16	13.1	15
10	9.5	9.3	6.3	3.2	20	16.6	19
13	12.4	12.1	6.3	3.2	26	21.7	24.8
16	15.4	15.1	6.3	3.2	26	21.7	24.8
20	19.3	19	6.3	3.2	40	33.8	38.6

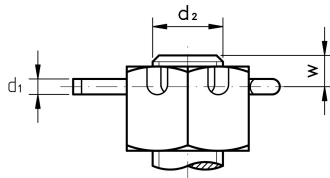
**Table 2: Shank Length Tolerance According to DIN 94**

Nominal Length (mm)	+/- (mm)
4-6	0.6
8-10	0.75
12-18	0.9
20-28	1.0
32-50	1.25
56-80	1.5
90-112	1.75
125-180	2.0
200-250	2.3
280	2.6

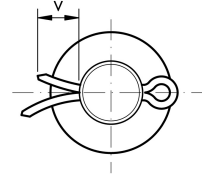
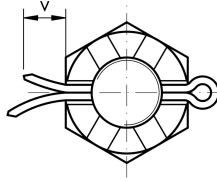
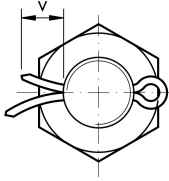
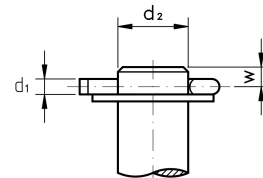
Hex Nut &amp; Bolt



Castle Nut &amp; Bolt



Clevis Pin &amp; Washer



v Length of projection of the short leg.

w The split pin hole distances would be different in every case, depending on the situation and the shape of the end of the bolt or clevis pin.

**Figure 2: Cotter Pin Application**

**Table 3: Cotter Pin Application**

Nominal Diameter, d1		0.6	0.8	1	1.2	1.6	2	2.5	3.2	4	5	6.3	8	10	13	16	20	
For Diameter Range, d2	Bolts	over	-	2.5	3.5	4.5	5.5	7	9	11	14	20	27	39	56	80	120	170
		up to	2.5	3.5	4.5	5.5	7	9	11	14	20	27	39	56	80	120	170	-
	Clevis Pins	over	-	2	3	4	5	6	8	9	12	17	23	29	44	69	110	160
		up to	2	3	4	5	6	8	9	12	17	23	29	44	69	110	160	-
v		min	3	3	4	5	5	6	6	8	8	10	12	14	16	20	25	32

For verification of details and for further information please refer to the DIN standard document for this item.  
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