



WH 902

General Requirements and Application Guidelines for Clevis Pins

1. SCOPE This standard specifies the dimensional and general requirements for metric clevis pins intended for general use.
 - 1.1 REFERENCES.
ISO 6507 - Metallic materials - Hardness test - Vickers test.
WSD-M1A283-B43/B44/B45/B46 - Steel, cross reference for standard parts.
2. GENERAL REQUIREMENTS.
 - 2.1 The top of the head shall be flat and either chamfered or rounded at the outer periphery. The bearing surface of the head shall be flat and square with the axis of the pin within 2° (determined over a distance equivalent to 1.5 pin diameters from under the head). The axis of the head shall be located at a true position with respect to the axis of the shank within a tolerance zone diameter equivalent to 6% of the maximum head diameter or 0.25mm whichever is greater.
 - 2.2 LENGTH. The length of clevis pins shall be measured parallel to the axis of the pins, from the bearing surface of the heads to the centerline of the holes. For length increments and tolerances, see Table 1.
 - 2.3 HOLE. The hole location on all clevis pins shall be specified as the distance, measured parallel to the axis of the pin, from the bearing surface of the head to the centerline of the hole. The axis of the hole through the shank shall not be offset from the axis of the pin by more than 0.25mm for 5 and 6mm nominal pins and 0.5mm for larger size pins, and shall be square within 2° of the axis of the pin. The hole may be chamfered or processed so that the hole is unobstructed and free from burrs.
3. MATERIAL AND HEAT TREATMENT.
 - 3.1 MATERIAL. Steel to WSD-M1A283-B43/44/45/46.
 - 3.2 HEAT TREATMENT. Case harden and temper to a minimum surface hardness of HV 700 (HR15N 90.3) with a case depth of 0.1 to 0.2mm.
4. HARDNESS TESTING. Hardness testing shall be performed in accordance with the following procedures:
Vickers Hardness to ISO 6507 - 5 kg load.
5. FINISH For general use, S309M should be specified for case hardened pins. Parts to these guidelines are susceptible to embrittlement and must not be electrolytically plated (See WX 100).
6. DEFECTS. The pins shall be free from burrs, loose scale, sharp edges and all other defects which might affect installation or serviceability.

Table 1.

Dimensions in mm

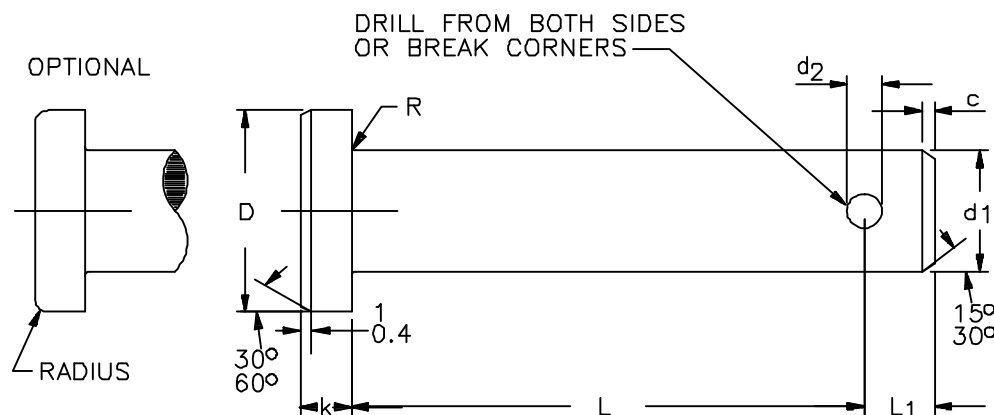
Length Increments	Tolerance
-10	+/- 0.29
12-14-16-18	+/- 0.35
20-22-25-28-30	+/- 0.42
35-40-45-50	+/- 0.50
55-60-65-70-75-80	+/- 0.60



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7. DIMENSIONS. The chart below gives the dimensional requirements for clevis pins of 5, 6, 8, 10 and 12mm nominal diameters.



Dimensions in mm

Nominal Size		5	6	8	10	12
d_1	max.	4.93	5.93	7.92	9.92	11.9
	min.	4.85	5.85	7.83	9.83	11.79
D	+/- 0.5	8	10	14	18	20
d_2	max.	1.45	1.85	2.25	3.5	3.5
	min.	1.2	1.6	2	3.2	3.2
c	max.	2	2	2	2	3
k	+/- 0.15	1.6	2	3	4	4
L_1	min.	3	3.5	5	6	7
R	max.	0.6	0.6	0.6	0.6	0.6

8. RECOMMENDED SPLIT COTTER PIN SIZES. The following chart gives the recommended split cotter pin sizes and lengths for clevis pins shown in the chart above.

Dimensions in mm

* Pin or Shaft	over	4	5	6	8	9	10	12
Diameter	up to and including	5	6	8	9	10	12	15
Recommended	Nom. Size	1.2	1.6	2	2.5	3.2	3.2	4
Split Cotter Pin	Length	10	12	14	16	18	20	22

* For severe application and where subjected to alternating transverse forces, the next size larger split cotter pin is recommended.