



WH 901

General Requirements and Physical Properties for Spring Pins - Coiled

1. SCOPE. This standard specifies the material, heat treatment, gauging and physical properties for metric coiled spring pins intended for general use.
 - 1.1 REFERENCES.

ISO 6507: 1982	-	Metallic materials - Hardness test- Vickers test.
ISO 6508	-	Metallic materials - Hardness test - Rockwell test.
WSD-M1A283-B50/B51/B52	-	Steel, cross reference for standard parts.
2. GENERAL REQUIREMENTS.
 - 2.1 DIAMETER. The pin diameters shall be inspected using the Go/No Go ring gauges shown in Table 1.

Table 1.

Dimensions in mm

Pin Size	2	3	4	5	6	8	10
Go	2.25	3.3	4.4	5.5	6.5	8.63	10.8
Gage	2.24	3.29	4.39	5.49	6.49	8.62	10.79
No Go	2.14	3.16	4.21	5.21	6.26	8.31	10.36
Gauge	2.13	3.15	4.2	5.2	6.25	8.30	10.35

- 2.2 STRAIGHTNESS. The straightness of the pins shall be within the limits necessary to permit the pins to fall through a ring gauge by their own weight. Ring gauge dimensions are shown in Table 2.

Table 2.

Dimensions in mm

Pin Length	Gauge Length +/- 0.15	Gauge Hole Diameter *	
		Max.	Min.
To & including 24	25	0.2	0.18
Over 24 to 50	50	0.34	0.3
Over 50	75	0.48	0.42

* Gauge hole diameter = Max pin diameter plus indicated values

3. MATERIAL AND HEAT TREATMENT.
 - 3.1 MATERIAL. Steel - WSD-M1A283-B50/51/52.
 - 3.2 HEAT TREATMENT. The pins are to be through hardened and tempered to HV 420-545 (HR 15N82-86.4) or austempered to HV 500-580 (HR 15N85-87.5).
4. PHYSICAL PROPERTIES.
 - 4.1 HARDNESS TESTING. The hardness testing shall be performed in accordance with the following procedures:

Vickers Hardness to ISO 6507:1982 10kg load.

Rockwell Hardness to ISO 6508.

NOTE: In case of dispute the Vickers Hardness test is decisive for acceptance.

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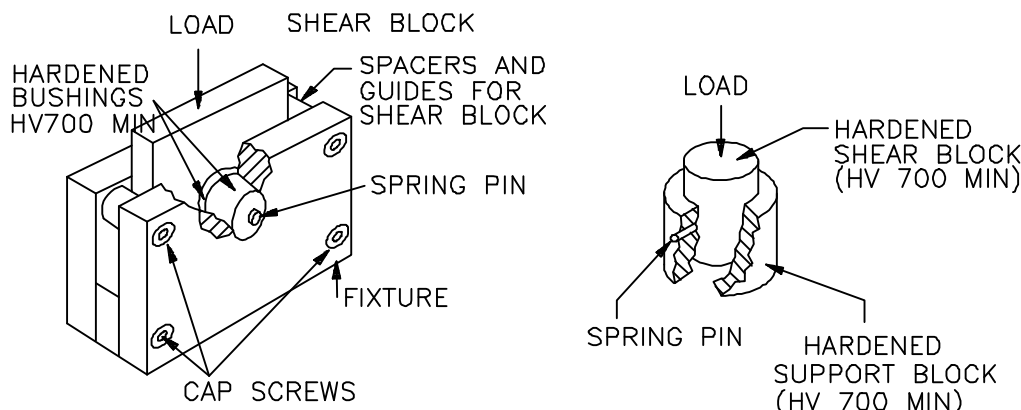
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- 4.2 PERFORMANCE. Pins shall be capable of withstanding the double shear loads specified in Table 3. The shear test shall be performed in a fixture in which the pin support member and the member for applying the load shall have holes with diameters as recommended for the pins and shall have a hardness of HV 700 minimum. The clearance between the supporting members and the load member shall not exceed 0.15mm and the shear plane shall be at least one pin diameter away from each end and at least two diameters apart. Pins too short to be tested in double shear shall be tested by shearing two pins simultaneously in single shear. Speed of testing shall not exceed 13mm/minute. Pins shall be tested to failure. The maximum load applied to the pin coincident with or prior to pin failure shall be recorded as the double shear strength of the pin. Pins tested for shear strength shall shown a ductile shear without longitudinal cracks.

Table 3.

Dimensions in mm

Nominal Pin Size	2	3	4	5	6	8	10
Min. Double Shear Strength - kN	2.5	5.5	9.6	15	22	39	62



5. DEFECTS. Pins shall be free from burrs, loose scale, seams, notches, sharp edges and corners and any other defects affecting serviceability.
6. RECOMMENDED APPLICATION HOLE SIZES. See Table 4.

Table 4.

Dimensions in mm

Nominal Pin Size	2	3	4	5	6	8	10
Hole Dia. max.	2.1	3.1	4.12	5.12	6.12	8.15	10.15
min.	2	3	4	5	6	8	10