



Hoseclamps - Worm Drive

Foreword:

February 2005

During the February 2005 update the surface finish of the screw component was updated.

Prior to the February 2005 update the surface finish on the screw was specified to be in accordance with S309, this finish had to be eliminated to remove usage of Hexavalent Chromium.

The choice of finish is now the responsibility of the manufacturer, however, the surface finish shall not contain any restricted substances and shall comply with WSS-M99P9999-A1.

It is the responsibility of the manufacturer to ensure that the mechanical performance of the clamp is not impacted by the screw surface finish change.

In order to comply with the requirements of WSS-M99P9999-A1 elimination of Hexavalent Chromium by changing to a new surface finish shall occur before July 2005.

During the February 2005 update the band thickness was corrected to 0.7 +/- 0.1 mm. This correction was necessary to line up the standard with other Company, National and International standards.

November 2005

A note was added to section 4.0 Materials to allow an exception to the requirements of WSS-M99A3-A and allow the screw component to be electroplated. The screw component is under relatively low stress, these screws have been electroplated for many years without any known issues.





1. **SCOPE:** This specification covers the dimensions, material and performance of worm drive hoseclamps.
NOTE: The torques specified are test requirements and are not recommended as tightening torques for assembly purposes.

1.1 REFERENCES:

ASTM A 176 UNS or BS 1449 Part 2 1983	Specification for stainless and heat-resisting chromium steel plate, sheet and strip.
WSD-M1A283-B1 to B6, B47 to B49, or B57	Steel, cross reference for standard parts.

2. **GENERAL:** Alternative screw and thread sizes and means of screw retention are permissible provided all other requirements of this specification are met.

The worm drive slots on the band must be formed and not pierced and the forming shall not protrude radially within the band diameter.

NOTE: Although the screw thread may vary, the screw head must remain in accordance with Figure 1 and Table 1.

3. **DIMENSIONS:** The dimensions of worm drive hoseclamps shall be as specified in Figure 1 and Table 1. Parts shall be supplied to Ford at diameter B +2/-0 as specified in Table 1.

4. **MATERIAL:** The material for the band and screw housing shall be Stainless Steel to ASTM A 176, UNS S43000, or BS 1449 Part 2 430S17 R_m 450 - 600 MN/m² or X6Cr17 DIN 17440 R_m 450 - 600 MN/m².

The material for the screw component of Hoseclamps - Worm Drive, "All Stainless" shall be manufactured from Stainless Steel to ASTM A 176, UNS S43000, or BS 1449 Part 2 430S17 R_m 450 - 600 MN/m² or X6Cr17 DIN 17440 R_m 450 - 600 MN/m².

The material for the screw component of Hoseclamps - Worm Drive, "Carbon Steel Screw" shall be manufactured from steel to WSD-M1A283-B1 to B6, B47 to B49, or B57. The screw shall be suitably protected from corrosion and shall provide a minimum of 120 hours resistance in accordance with SAE/USCAR 001, the choice of surface finish shall be the responsibility of the manufacturer. The surface finish shall meet the requirements of WSS-M99P9999-A1 (see Foreword). The electroplating restriction in WSS-M99A3-A does not apply to the screw component.

Although the hardness of the screw component exceeds 390 HV in some instances, the screw is under relatively low stress in service and therefore the use of electroplated finishes is acceptable.

5. **PERFORMANCE:** With the hoseclamp mounted on a steel mandrel of diameter B max and torqued to 1.5 Nm a wire of diameter 1mm max shall not pass between the mandrel and the clamp.

When the clamp is further torqued to 5 Nm min the teeth on the screw shall not strip or mesh over the teeth on the band.

The clamp shall be loosened and then re-tightened to 5 Nm min without failure.

With the hose clamp mounted on a mandrel of diameter C min and torqued to 1.5 Nm a wire of diameter 1 mm max shall not pass between the mandrel and the clamp.

The free running torque through the diameter range shall not exceed 0.7 Nm.