



Static Strength of Tension Limiting Stops in Hydraulic Vibration Dampers

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This test procedure determines the conditions, procedures and requirements for the static test of rebound limiting stops for hydraulic vibration dampers. In this test procedure, the strength of the connection of the stop ring to the piston rod shall be tested. This test should be used for both validation and as a production audit.

1.2 Applicability. For all rebound limiting stops in hydraulic vibration dampers.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

DIN 51220 ISO 7500-1

2.2 GM Standards/Specifications.

None

2.3 Additional References.

Component Technical Specification (CTS)

Per CTS Templates:

- Appendix C2 of Statement of Requirements (SOR): Adaptive Damper CTS
- Appendix C2 of Statement of Requirements SOR: Passive Shock CTS
- Appendix C2 of Statement of Requirements SOR: Passive Strut CTS

3 Resources

3.1 Facilities. Facility shall include a material testing machine equipped to stress the test piece at a uniform speed of 5 mm/minute maximum. The maximum force of the machine depends on the requirements of this test procedure. A testing machine according to DIN 51220 and ISO 7500-1 is suitable for this test procedure.

Requirements to the testing machine:

- Accuracy of load measurement: $\pm 1\%$ of the measured value.
- Accuracy of length change: ± 0.01 mm.
- Production audit to provide peak load.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Equipment to record a Force-Displacement Plot.

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3.2.2 Bearing plates with hardened bearing surfaces. Hardness: 650 HV 30 minimum.

3.3 Test Vehicle/Test Piece. For the test, the piston rod/stop ring assembly shall be used as a test sample.

Unless otherwise specified, at least six (6) test samples shall be required for initial sample approval and in the event of arbitration purposes, and at least one (1) test sample for routine quality control per production set.

3.4 Test Time.

Calendar time: 3 days

Test time: 4 h

Coordination time: 4 h

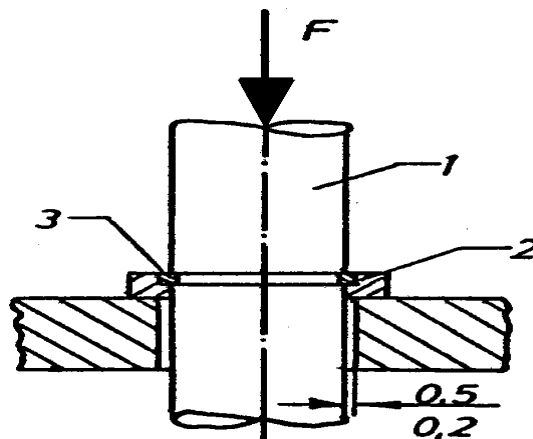
- **3.5 Test Required Information.** Loads provided from Static Loads table in Component Technical Specification (CTS) (i.e. Appendix C2 of Statement of Requirements (SOR): Adaptive Damper CTS, Appendix C2 of SOR: Passive Strut CTS and Appendix C2 of SOR: Passive Shock CTS).

3.6 Personnel/Skills. Technician must be capable of running test, inclusive of test machine used to apply loads, fixturing, data recording and reporting.

4 Procedure

4.1 Preparation.

4.1.1 Test Setup The arrangement of the test samples shall be as shown in Figure 1 and Figure 2.



Note: 1 = Piston Rod; 2 = Stop Ring; 3 = Circlip

Figure 1: Test Setup of Type 1

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