



## MIDLAND MANUFACTURING COMPANY

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### Test Report

#### Style 40 MIDCO Joint Restraint System

#### Tested on Ductile Iron using Heat Treated Bronze Grip Ring

MIDCO Joint Restraint System has been successfully tested to ASTM F1674 and used on PCV (IPS and C900) and ductile iron pipe for over 30 years. The purpose of this test was to determine the viability of using the MIDCO Joint Restraints on ductile iron pipe using a heat treated bronze grip ring. The grip ring was specially designed and heat treated to enhance strength, corrosion resistance and hardness with the hardness level of the grip rings testing over 200BH.

For the testing purposes, the sample sizes selected of the ductile iron pipe were 4", 8", and 12". For each pipe size, the test pressure was over 400 psi, more than 2 ½x working pressure, which was held for 10 minutes. This test was repeated 3 times for each pipe size. In all of the sustained and cyclical tests and for all of the pipe sizes, it was observed that there was no leakage around the joints and no movement of the joint restraints. In all cases, the joint restraints retained their originally installed position and grip on the pipe.

Based upon our testing, application and field experience, we recommend the use of the Style 40 MIDCO Joint Restraints on ductile iron pipe.

Respectfully submitted,

  
George Westhoff, Jr.

President