

Midland Manufacturing Company
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MATERIAL SPECIFICATIONS

Gland	ASTM A536 Ductile (65-45-12) Epoxy Coated to 4 mil thickness
Grip Ring	CA 87850 Bronze (max of .09% lead)

MIDCO'S PERMA-GRIP RESTRAINING JOINT SYSTEM TECHNICAL DATA INFORMATION

Item: MIDCO Restraining Joint

Method: Hydrostatic Pressure

Procedure: MIDCO restrainers were assembled on the ends of the pipe. A MJ cap was assembled on the end with the MIDCO joints providing the restraint and sealing.

TEST 1: Sustained Pressure Test

- 1.1 Duration: 1000 hours
- 1.2 Test Pressure: 507 P.S.I.
- 1.3 No detectable failures
No damage to pipe

TEST 2: Cyclic Pressure

- 2.1 Range from 100 to 205 P.S.I
- 2.2 Cycle frequency 6 to 10 cycles / minute
- 2.3 Duration of 1,089,174 cycles
- 2.4 No failure of assembly nor damage to pipe

TEST 3: Improper Installation

This test was performed by deliberately installing the restraining joint improperly. This installation allowed the end of the pipe to "bottom out" into the fitting. Upon introduction of water pressure, the gland leaked at approximately 50 P.S.I. Continued tightening of the gland bolts allowed the assembly to sustain pressures above 200 P.S.I. without leaking. It is strongly recommended however, to follow the instructions and not to bottom out the pipe.