

# U.S. Pipe

## Fire Resistant Test

On May 4th, fire study No. 3 was conducted at U.S. Pipe's Product Innovation test facility in Bessemer, Alabama. This study was conducted on two 6-ft long 8"- HDSS® pipe assembled with the joint positioned in the center of the assembly. A standard SBR TYTON JOINT® gasket was used. The pipe ends were capped with MJ caps with MJ restraining glands. This study was conducted to determine the fire resistance and the survivability of a gasketed restrained joint using a modified version of the following ISO standards: ISO 19921- Ships and marine technology- Fire resistance of metallic pipe components with resilient and elastomeric seals- test methods and ISO 19922 - Ships and marine technology- Fire resistance of metallic pipe components with resilient and elastomeric seals- Requirements imposed on the test bench.

The stated ISO standards were modified to closely simulate a wildfire type event and be a worst-case scenario which exposes the joint to extreme heat for an extended period with a minimal amount of water flow through the pipe. The propane gas burner was spaced 6-inches below the pipe bell with a thermal coupling spaced 5/8-inch below the pipe bell reading the flame temperature. The pipe assembly was suspended 43-7/8- inches above the floor. Another thermal coupling was placed in the out-flow to monitor the water temperature exiting the heated pipe.



Study Test # 3 (test ran with propane burner) with the Burner flame temp of ~ 1500 °F with a flow velocity of .025 GPM (gallon per minute). for 45 minutes. Ambient air temperature was 86° F. The water temperature exiting the pipe started at 80° F and did not increase above 80° F during the test. No leaks were observed during the trial. When the pipe cooled the assembly was pressure tested to 500 psi for 5 minutes with no leaks or damage to the pipe. The joint was then disassembled and examined. No noticeable damage was observed to the pipe, joint restraint components, cement-lining, or gasket.

### SUMMARY OF TEST

- Burned pipe for 45 minutes
- Pipe was burned at 1500 °F
- No damage to the gaskets or cement lining
- Pressure Tested to 500 psi for 5 minutes
- Based on modified ISO 19921

*Call your local U.S. Pipe Sales Manager or Technical Resource Engineer to learn more about the fire resilience of ductile iron pipe*



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## Fire Resistant Test



- Our material identification system and lay schedules will increase your team's efficiency by providing piece by piece analysis for your most complex projects
- Our team will provide an in-depth review of project specifications and plans to ensure all project requirements are met



- Value Engineering and Risk Assessment Reviews will ensure your project stays within budget and potential risks are mitigated
- Weekly communication with our Project Manager and Coordinator to facilitate material and shipping logistics as well as review project update and changes
- A Technical Resource Engineer will be assigned for technical support, provide as needed on-site training and guidance throughout the project
- 3D model layouts utilizing Revit® will provide the clarity needed for a successful installation



### Headquarters

U.S. Pipe  
Two Chase Corporate Drive  
Suite 200  
Birmingham, AL 35244

866-347-7473  
info@uspipe.com  
[www.uspipe.com](http://www.uspipe.com)

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