



Polyethylene Pipe & Fittings Industry Group Technical Note #1

Date: 14th March 2016

Subject: Can gunmetal tapping bands be installed onto PE pipe and provide a long asset life?

Simple answer to the question is No.

Explanation

Gunmetal tapping bands for waterworks purposes must be manufactured to AS/NZS 4793:2009 - *Mechanical Tapping Bands for Waterworks Purposes*

The scope on page 4 of this Standard reads;

“1.0 Scope

This standard specifies requirements for design, materials, and performance in service of PN16 mechanical tapping bands used for the connection of property service pipes to reticulation water mains.

It applies to tapping bands with and without electrical insulation, for mechanical connection to standard water mains, with the **exception of polyethylene** water mains that are covered in AS/NZS4129 fittings for polyethylene pipes for pressure applications. The operating temperature range is 0 to 40 degrees c.”

This excludes the use of fittings manufactured to the AS / NZS 4793 standard from being used on PE pipe. The standard clearly points out that service connections or tapping onto PE pipe should employ fittings manufactured to AS/NZS4129.

Question:

Why can't gunmetal tapping bands be used on PE pipe? – Even if they appear to fit?

Answer:

Polyethylene is a visco-elastic pipe material. What this means in simple terms is the material can deform under stress or load. The material undergoes “reversion” and “creep” when compression stress is applied onto the material, particularly where the compression area contacting the pipe is small. Gunmetal tapping bands typically have a narrow saddle design and are specifically made for pipe materials that are not visco-elastic, such as; PVC, GRP, AC, Steel and Ductile Iron. When a narrow body gunmetal tapping band is bolted onto a PE pipe the stress applied to the pipe from the narrow saddle causes it to revert or creep away from the tapping band over time, losing the seal around the tapping. Eventually the PE pipe will leak early in its asset life.

Conclusion: The only correct fittings to use on PE pipes, including mechanical tapping saddles and electrofusion tapping saddles are **manufactured to AS/NZS4129**. These fittings are designed and tested for use with PE pipe and have a wide saddle design which spreads the compression load across a wider pipe barrel area.

