



EXTERNAL JOINT SEAL

Technical Specifications

1. Scope

This specification describes the function of the NPC External Joint Seal, its principle of operation, and the component materials that constitute the External Seal, and their physical properties.

2. Product Application

NPC External Joint Seals are designed to provide a long-lasting; flexible watertight seal for new pipe or manhole installations and/or for external rehabilitation of pipe joints or manhole joints during excavation.

3. Principle of Operation

NPC External Joint Seals prevent infiltration at joints in pipe and manholes by bridging the joint with a flexible rubber seal and compressing the rubber against the outside diameter of the pipe or manhole on either side of the joint with compression bands. Installation is frequently performed in new installation and repair where new sections are spliced into place.

The compressive force providing the seal is the result of decreasing the effective diameter of the stainless steel hose clamp bands. The diameter of the compression bands are decreased by tightening the screw housings. The diameters of the joint being sealed determines the number of take-up assemblies on each hose clamp band to ensure even distribution of force on the rubber sleeve.

Reference the NPC External Seal Recommended Installation Procedure for a detailed explanation of the preparation, assembly, and installation of the External Joint Seal.



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4. Materials

NPC External Joint Seal is manufacturer in compliance with the material requirement of ASTM C923-02, consisting of a high quality flexible rubber seal, and 300 series stainless steel compression bands with take-up assemblies.

Flexible Rubber Seals – The seal is extruded from a high grade rubber compound to the require length, and the ends are joined using a high strength vulcanized splice.

Stainless Steel Compression Bands – the hose clamp bands are manufactured from 300 series, non-magnetic stainless steel, which conforms to the material requirements of ASTM C923-02.

ASTM C 923-02 Material Properties

Physical Property	ASTM Specification	Test Requirement
Chemical Resistance 1 N Sulfuric Acid 1 N Hydrochloric Acid	D543, at 22°C for 48 hours	No Weight Loss No Weight Loss
Tensile Strength	D412	1200 psi
Elongation at Break	N/A	350% minimum
Hardness	D2240 (shore A durometer)	+/- 5 from manufacturer's specified hardness
Accelerated Aging	D573 70°C for 7 days	Maximum Decrease 15% tensile 20% elongation
Water Absorption	D471, immerse 0.75 by 2 inch specimen in distilled water at 70°C for 48 hours	10% weight increase maximum
Ozone Resistance	D1171	Rating 0
Low Temp. Brittle Point	D746	No fracture at -40°C
Tear Resistance	D624, method B	200 lbf/in.

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