



X-PLUG®

MASTER SPECIFICATION

SUGGESTED MASTER SPECIFICATION

DIVISION 03 15 00 – CONCRETE ACCESSORIES

SECTION 03 15 13.16 – EXPANDING WATERSTOPS

PART 1 GENERAL

1.01 SUMMARY:

- A. This specification describes the waterproofing of tapered tie rods and pass-through sleeves in walls of water retaining or excluding structures using a mechanical EPDM based plug.

1.02 QUALITY ASSURANCE

- A. Contractor qualifications: Contractor shall be qualified in the field of formwork erection or waterproofing with a successful track record of 5 years or more. The contractor shall maintain qualified personnel who have received product training by manufacturer's representative.
- B. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state, and federal authorities having jurisdiction. Consult Product Data Sheets for complete handling recommendations.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.04 JOB CONDITIONS

- A. Environmental Conditions: X-PLUG is not affected by hot or cold temperatures, rain, or snow.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to the mechanical application of the specified material.

1.05 SUBMITTALS

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets.

1.06 STANDARDS REFERENCE:

ASTM D412	Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
ASTM D624	Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers



ASTM D2240	Standard Test Method for Rubber Property—Durometer Hardness
ASTM D395	Standard Test Methods for Rubber Property—Compression Set
ASTM D1171	Standard Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)
ASTM D573	Standard Test Method for Rubber - Deterioration in an Air Oven
ASTM D471	Standard Test Method for Rubber Property—Effect of Liquids

PART 2 PRODUCTS

2.01 MANUFACTURER & PRODUCT

A. X-PLUG as supplied by Sika (St. Louis Sales Office), conforms to the requirements of this specification.

2.02 PERFORMANCE SPECIFICATION

The waterstop for all tapered tie holes or pass-through sleeves shall be X-PLUG, a mechanical EPDM based plug suitable for insertion into the tie hole, and mechanically tightened to form an effective seal against water ingress or egress, with the following minimum properties:

Technical Data	Standard	Min requirement
Description		An EPDM mechanical plug, specifically designed to SEAL the void formed in a concrete wall by the removal of a taper tie rod, or pass through tie sleeve.
Tensile strength	ASTM D412	13.2 MPa
Elongation at break	ASTM D412	410%
Permanent set %	ASTM D412	7%
Tear strength	ASTM D624	33 KN/m
Shore A Hardness @ 23°C	ASTM D2240	60
Compression set	ASTM D395	34.5%
Ozone resistance	ASTM D1171	Resistant to 50 pphm @ 40°C / 24 hours
Heat aging	ASTM D573	Change in tensile strength: 8% Change in elongation: - 15.1% Change in hardness: 4%
Change in volume after water immersion	ASTM D471	< 3.5%

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BUILDING TRUST



Sizes		Various diameters to suit tie rod holes: 1-1/4" to 1-1/2" (XP001), 1" to 1-1/4" (XP002), 3/4" to 1-1/4" (XP003), 3/4" to 1" (XP004), 5/8" to 7/8" (XP005), 5/8" to 3/4" (XP006)
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PART 3 EXECUTION

3.01 SURFACE PREPARATION

- A. Remove tapered tie rods or pass-through sleeves from the concrete wall.
- B. Concrete surfaces inside the remaining hole must be clean, sound, and free of surface contaminants.
- C. Remove dust and debris using bottle brushes or oil free compressed air.

3.02 APPLICATION

- A. Attach the 7/16" installation extension to a handheld drill. Place the nut side of X-PLUG into the socket and slide into void. The plug will stop when seated in tapered void, **FULLY TIGHTEN THE NUT.**
- B. For pass-through sleeve holes, angle the drill to wedge the X-PLUG in the hole and then fully tighten the nut.
- C. Once the nut has been fully tightened, the tapered tie void can then be packed with a grout if desired for aesthetics.

3.03 CLEANING

- A. Leave finished work and work area in a neat, clean condition without evidence of damage onto adjacent areas.

END OF SECTION

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