

Bore-Gard® Trenchless Raceway Product Specifications

PART 1 - GENERAL

1.01 SECTION INCLUDES

This specification covers rigid nonmetallic conduit (RNC) for the installation of electrical, voice, data, video and other low voltage cabling. This system will be designed to meet the rigorous requirements of horizontal directional drilling for electrical and datacom applications. All necessary fittings and accessories shall be provided by the same manufacturer as the conduit system to satisfy warranty requirements.

1.02 REFERENCES

A. Conduit and fittings shall be listed and approved listed specifically for the use with horizontal directional drilling.

B. ETL listing will allow the product to be used with electrical conductors as per the 2014 National Electrical Code (NEC), Articles 300 and 352.

C. CSA certified for Canadian applications per the Canadian Electrical Code (CEC) Part 1, Section 12.

1.03 SYSTEM DESCRIPTION

Each conduit section will be manufactured in standard ten or twenty foot lengths except 2" Schedule 80 will be manufactured in twenty foot lengths only. Schedule 40 trade sizes 3, 4, 5, 6, and 8 inch will be available. Schedule 80 trade sizes 2, 3, and 4 inch will be available. Conduit design must incorporate a watertight and airtight seal and locking ring that enables fast, cement free assembly. Each section of conduit will be belled on one end with two grooves machined into the inside diameter (ID) of the bell and with a groove and chamfer machined into the outside diameter (OD) of the spigot end. Conduit must contain a lubricated triple-lobed gasket factory installed in the bell end of the pipe to seal up to 80 psi with a 65' pre-bent radius (8" tested to 60 psi with a 72' bend radius).

PART 2 - PRODUCT

2.01 MATERIALS

A. Conduit will be engineered with PVC compound offering superior strength and flexibility when compared to standard Schedule 40 PVC and Schedule 80 PVC.

B. Each length of pipe will incorporate a seal, locking ring, end caps, and a bell.

C. Each conduit section will be belled on one end with two grooves machined into the inside diameter (ID) of the bell and with a groove and chamfer machined into the outside diameter (OD) of the spigot end.

D. Conduit will contain a lubricated triple-lobed gasket factory installed in the bell end of pipe to seal out ground water, boring lubricants, and other contaminants from entering pipe. Conduit can contain air pressure of up to 80 psi at the tightest bend radius of 65 feet. (8" tested to 60 psi with a 72' bend radius).

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- E. The maximum bend radius for conduit will be 65 feet. Exception: The maximum bend radius for Schedule 40 8" conduit will be 72 feet.
- F. Nylon locking straps will secure the connection between two pieces of conduit without need of cement.
- G. Conduit will be grey in color and sunlight resistant.

2.02 FITTINGS

- A. Listed Schedule 40 fittings shall be used with the PVC conduit. Schedule 40 fittings shall be easily attached using standard PVC cement.

PART 3 - PERFORMANCE REQUIREMENTS

3.01.1 PULL TESTING

- A. Pull Test – Pressurized to 80 PSI

Conduit shall be rated to the following values based on laboratory testing to UL Test 6.12.2.1. The loads were recorded, averaged and a safety factor used for the final rating.

Size	Wall Type	Pull Test Value @ 80 PSI
3"	Schedule 40	7,500 lb _f
4"	Schedule 40	9,200 lb _f
5"	Schedule 40	11,800 lb _f
6"	Schedule 40	14,500 lb _f
8"	Schedule 40	18,500 lb _f
2"	Schedule 80	3,150 lb _f
3"	Schedule 80	9,800 lb _f
4"	Schedule 80	12,500 lb _f

- B. Bending & Pull Test – Pressurized to 80 PSI and 65' Radius

Conduit shall be rated to following values based on laboratory testing to UL Test 6.12.2.2. The loads were recorded, averaged and a safety factor used for the final rating.

Size	Wall Type	Pull Test Value @ 80 PSI & 65' Radius
3"	Schedule 40	7,000 lb _f
4"	Schedule 40	8,700 lb _f
5"	Schedule 40	11,300 lb _f
6"	Schedule 40	14,000 lb _f
8"	Schedule 40	18,000 lb _f (60 psi & 72' Radius)
2"	Schedule 80	3,000 lb _f
3"	Schedule 80	9,300 lb _f
4"	Schedule 80	12,000 lb _f

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The Bend & Pull and Pull test results are recorded in lbf (pounds-force). This is NOT equivalent to PSI (lbf/in²). It is the responsibility of the customer to make that conversion (if needed) based on installation/equipment conditions.

3.02 TYPICAL CRUSH LBS. @ 30% DEFLECTION UL651 6.9

Size	Wall Type	Load for a 6" Speciman (lbf)
3"	Schedule 40	1,000
4"	Schedule 40	1,000
5"	Schedule 40	900
6"	Schedule 40	850
8"	Schedule 40	850
2"	Schedule 80	2,000
3"	Schedule 80	2,000
4"	Schedule 80	2,000

PART 4 - ASSEMBLY

The trenchless conduit system shall be designed for easy assembly without the need of PVC cement and installed in a manner as described below.

4.01 STEPS

1. Position conduit with the print line facing up.
2. Remove nylon locking strap and set it aside.
3. Remove end caps on first stick only, trim spigot end of pipe at the groove before attaching the pulling eye/grip attachment.
4. Insert pulling eye into spigot end of conduit.
5. Tighten pulling eye so that it expands against the interior of the conduit. Use of sleeve over O.D. of conduit is recommended.
6. The installer should use appropriate instrumentation to insure the maximum pull rating is not exceeded.
7. Take the next piece of conduit and insert spigot end into belled end of first piece until the insertion line is no longer visible.
8. Slide nylon locking strap into slot on the side of the bell. Push the strap in completely.
9. Repeat with remaining sections as space allows.
10. Conduit is now ready for installation.