

SUPER CORFLO >>>



NEMA TC 5 STANDARDS - HIGHLIGHTS

Section 4 - PERFORMANCE TESTS

4.1 CONDITIONING TEST SPECIMENS

When conditioning is required, the test specimen shall be conditioned in accordance with Procedure A in ASTM D 618 a 73.4 ± 3.6 F (23 ± 2 °C) and 50 ± 5 percent relative humidity for not less than 48 hours prior to the test unless otherwise specified.

NEMA Standard 3-8-1978.

4.2 TEST CONDITIONS

Tests shall be conducted at 73.4 ± 3.6 °F (23 ± 2 °C) and 50 ± 5 percent relative humidity unless otherwise specified.

NEMA Standard 3-8-1978.

4.3 DUCT STIFFNESS

Three 6-in. (152mm) long specimens conditioned in accordance with 4.1 shall be tested using the apparatus described in ASTM D 2412. The specimens shall be compressed at the rate of 1/2in. (13mm) per minute and the load recorded at the vertical deflection equivalent to 5 percent of the original inside diameter of the specimen.

The duct stiffness at 5 percent vertical deflection shall be determined as follows:

$$\text{Duct Stiffness, psi} = F / Y$$

Where:

F = Load pounds per inch (kilograms per 25.4mm) of length recorded at 5 percent vertical deflection in inches (mm).

Y = Vertical deflection of inside diameter in inches (mm).

The minimum duct stiffness shall be 130 psi (897.3 kPa).

4.4 COMPRESSION AND RECOVERY

Three 6-in. (152mm) long specimens conditioned in accordance with 4.1 shall be tested using the apparatus described in ASTM D 2412. The specimens shall be compressed at the rate of 1/2in. (13mm) per minute until the distance between the plates has been decreased by 50 percent of the original inside diameter of the duct. When the load is removed, the specimens shall recover to at least 80 percent of their original diameter within 10 minutes.

There shall be no evidence of splitting or cracking of any of the specimens.

NEMA Standard 3-8-1978.

4.5 IMPACT TEST

4.5.1 Room Temperature Test

Ten 6-in. (152mm) specimens on the surfaces of which there are no cracks, tears, or other imperfections shall be cut from finished lengths of each size of coilable plastic duct to be tested. The specimens, the test apparatus, and the surrounding air shall be in thermal equilibrium with one another at a temperature of 73.4 ± 3.6 °F (23 ± 2 °C) during the test. The test apparatus and method shall be as described in 4.5.3.

4.5.2 Low Temperature Test

Ten 6-in. (152mm) specimens on the surface of which there are no cracks, tears, or other imperfections shall be cut from finished lengths of each size of coilable plastic duct to be tested. The specimens shall then be conditioned at a temperature of 32 ± 3.6 °F (0 ± 2 °C) for 5 hours. The test apparatus shall be at room temperature of 73.4 ± 3.6 °F (23 ± 2 °C). The samples shall be removed from the cold chamber and immediately tested for impact in accordance with 4.5.3. The time between removal of the sample from the cold chamber and completion of impact shall not exceed 15 seconds.



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4.5.3 Test Method

The specimens shall be tested in accordance with ASTM D 2444, using a 20-lb. (9-kg) tup B and flat plate holder B. The minimum impact strength shall be in accordance with Table 4-1. The duct does not meet the requirements of this standard if a crack or tear longer than 1/32in. (0.8mm) appears on the outer surface of more than three of the ten specimens.

4.6 LOW TEMPERATURE HANDLING TEST

Ten 30-in. (762mm) specimens shall be conditioned at a temperature of $-4 \pm 3.6^{\circ}\text{F}$ ($-20 \pm 2^{\circ}\text{C}$) for 5 hours. The specimens shall be removed from the cold chamber and each one of them shall be dropped from a height of about 5 ft. (1.5 m) onto a concrete floor twice in quick succession. During the first drop, the specimen shall make an angle of approximately 45 with the floor so that one end of it reaches the floor first. During the second drop, the specimen shall fall parallel to the floor.

Right after the drop test, each specimen shall be bent to the appropriate bending radii shown in Table 3-1. The duct does not meet the requirements of (this standard if it shatters or chips, or if a crack or tear longer than 1/32in. (0.8mm) appears on the outer surface of more than three of the ten specimens.

NEMA Standard 3-S-1978.

4.7 AXIAL PULL TEST ON FACTORY-MADE JOINTS

Two 18-in. (457mm) lengths of each size of duct shall be joined using the manufacturer's recommended procedure. A static axial load of 60lb. (27kg) shall be applied to each joint for 5 minutes.

The joint shall not become separated or damaged.

NEMA Standard 3-8-1978.

**TABLE 4-1
MINIMUM IMPACT STRENGTH**

Nominal Size, Inches	Height of the Face or the Weight above the Specimen before the Weight Is Released.	
	Room-temperature Test, 73.4°F (23°C)	Low-temperature Test, -4°F (-20°C)
	ft. (m)	ft. (m)
1.25	1.5 (0.46)	3/4 (0.23)
1.5	1.5 (0.46)	3/4 (0.23)
2	2 (0.46)	1 (0.30)
2.5	2 (0.46)	1 (0.30)
3	4 (0.46)	2 (0.61)
3.5	6 (0.46)	3 (0.91)
4	6 (0.46)	3 (0.91)
5	6 (0.46)	3 (0.91)



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