JOINT CANADA-UNITED STATES
NATIONAL STANDARD

ANSI/CAN/UL 203:2025

STANDARD FOR SAFETY

Pipe Hanger Equipment for Fire Protection Service

Approved American National Standard

ANSI/UL 203-2025

SCC FOREWORD

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UL Standard for Safety for Pipe Hanger Equipment for Fire Protection Service, ANSI/CAN/UL 203

Eleventh Edition, Dated March 17, 2020

Summary of Topics

This revision of ANSI/CAN/UL 203 dated June 30, 2025 includes the following changes in requirements:

– Revision to the Scope; 1.3 (deleted)

– Minimum Hanger Rod Size and Additional Pipe Sizes; Table 6.1, 12.1.2, Table 12.1

– Electronic Installation Instructions; 16.3

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated April 4, 2025.

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March 17, 2020

This ANSI/CAN/UL Safety Standard consists of the Eleventh Edition including revisions through June 30, 2025.

The most recent designation of ANSI/UL 203 as an American National Standard (ANSI) occurred on June 30, 2025. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This standard has been designated as a National Standard of Canada (NSC) on June 30, 2025.

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Preface

This is the Eleventh Edition of ANSI/CAN/UL 203, Standard for Pipe Hanger Equipment for Fire Protection Service.

ULSE is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

This ANSI/CAN/UL 203 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

This Eleventh Edition joint American National Standard and National Standard of Canada is based on, and now supersedes, the Tenth Edition of UL 203, Standard for Pipe Hanger Equipment for Fire Protection Service, and the First Edition of ULC/ORD-C203, Pipe Hanger Equipment for Fire Protection Service.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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This Edition of the Standard has been formally approved by the Technical Committee (TC) on Pipe Hanger Fire Protection Service, TC 203.

This list represents the TC 203 membership when the final text in this standard was balloted. Since that time, changes in the membership may have occurred.

TC 203 Membership

Name	Representing	Interest Category	Region
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T. Block	San Jose Fire Department	Authorities Having Jurisdiction / Regulator	USA
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This Standard is intended to be used for conformity assessment.

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE

INTRODUCTION

1 Scope

1.1 These requirements cover the performance of pipe hanger equipment for use in supporting piping employed in sprinkler systems, water-spray systems, and other piping systems used for fire-protection service.

1.2 Requirements for the installation of pipe hangers and auxiliary equipment and limitations for use of specific sizes of hangers and pipe are included in the Standard for the Installation of Sprinkler Systems, NFPA 13, and the Standard for Water-Spray Fixed Systems for Fire Protection, NFPA 15.

1.3 *Deleted*

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this standard shall comply with the requirements for that component.

2.2 A component is not required to comply with a specific requirement that:

a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or

b) Is superseded by a requirement in this standard.

2.3 component shall be used in accordance with its rating established for the intended conditions of use.

2.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

3 Units of Measurement

3.1 Where values of measurement are specified in both SI and U.S. Customary units, it is the responsibility of the user of this standard to determine the unit of measurement appropriate for the user's needs.

4 Normative References

4.1 The following standards are referenced in this standard, and portions of these referenced standards may be essential for compliance.

American Society for Testing and Materials (ASTM) Standards

ASTM A90/A90M-01, *Standard Test Method for Weight (Mass) of Coating on Iron or Steel Articles with Zinc or Zinc-Alloy Coatings*
ASTM A653/A653M-02a, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process*
ASTM B568-98, *Standard Test Method for Measurement of Coating Thickness by X-Ray Spectrometry*

National Fire Protection Association (NFPA) Codes and Standards

NFPA 13, *Standard for the Installation of Sprinkler Systems*
NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*
NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*
NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*

UL Standards

UL 2043, *Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*

5 Glossary

5.1 For the purpose of this standard the following definitions apply.

5.2 BAND HANGER – A type of hanger that is adjustable and utilizes a band looped around the pipe.

5.3 BRACKET – A cantilever-type hanger that is attached directly to a vertical surface of the building structure

5.4 "C" CLAMP – A hanger that grips a flange by means of a jaw and setscrew combination.

5.5 CEILING FLANGE – A hanger that is attached directly to an overhead surface of a building structure.

5.6 CLAMP – A hanger that is rigidly attached to the flange of a steel structural member.

a) Beam or Flange Clamp – A clamp that is rigidly attached to both edges of the bottom flange of a structural member.

b) Top and Bottom Beam or "C" Clamp – A clamp that is intended to attach rigidly to one edge of the top, and, or bottom flange of a structural member.

5.7 CLAMP (RISER) – A type of pipe clamp used to support risers at various levels.

5.8 CLEVIS HANGER – A type of split ring hanger.

5.9 CLIP – A pipe support, usually one piece and nonadjustable, that only partially embraces a pipe and attaches directly to a building structure.

5.10 CONCRETE INSERT –- A hanger that is intended to be inserted into freshly poured concrete by which means the hanger is attached to the building structure.

5.11 COUPLING – A hanger used to connect expansion shells or fasteners to a rod. Couplings have male or female threads and have straight, reducing, or increasing patterns.

5.12 EXPANSION ANCHOR (SHIELD OR SHELL) – A hanger that is inserted into a self-drilled or predrilled hole in hardened concrete and then "set," usually by tightening of a bolt, setting of a cam or semisoft member, or forced expansion over a hardened steel plug.

5.13 HANGER – A unit assembly used singly or in combination with other assemblies for supporting or hanging pipe.

5.14 NPS (NOMINAL PIPE SIZE) – A dimensionless designator for pipe sizes defined in standards including ASTM A53, ASTM A135, and ASTM A795 used to replace terms such as “Nominal Diameter” and “Nominal Size”.

5.15 POWDER DRIVEN FASTENER – A hanger where the shank of the fastener is driven into concrete or steel by use of a special impact tool powered by an explosive charge similar to a firearm charge. Fasteners have male or female threads.

5.16 RETAINING STRAP – A hanger part used to hold a hanger in its intended position, commonly a Beam clamp or "C" clamp onto a beam.

5.17 RING – A pipe hanger that completely encircles a pipe without a positive gripping action.

a) Solid Clip Ring – One that has to be slipped onto the end of the pipe and is not able to be opened in any way for attachment to the pipe after the pipe line is assembled.

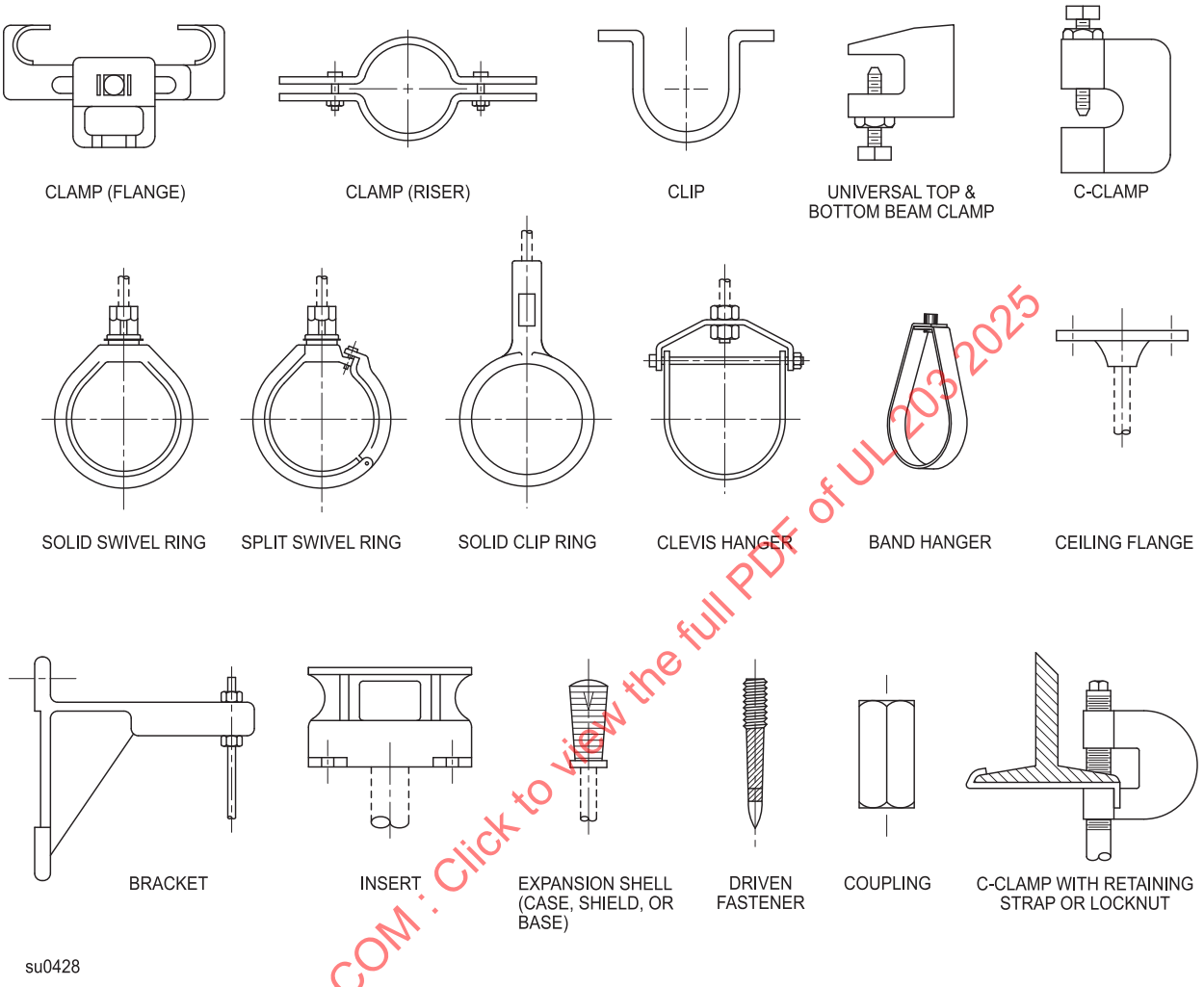
b) Split Swivel Ring – One that is capable of being opened so that the pipe is able to be put into the ring after the pipe line is assembled.

c) Solid Swivel Ring – A solid ring that has a top swivel in which the hanger is able to be connected to a rod after it has been installed on the pipe.

5.18 SURGE DEVICE – A hanger mechanism or assembly that is intended to retain the system pipe in its intended position during sprinkler or nozzle operation and water discharge. This device can be an accessory to a pipe hanger, a pipe hanger with this feature or a separate assembly.

Figure 5.1

Some common types of pipe hanger equipment



CONSTRUCTION

6 General

6.1 A pipe hanger shall be constructed to fit the appropriate rod sizes specified in Table 6.1 for the sizes of pipe shown and shall have the strength to support the test loads, specified in the Pull Test, Section 12, without rupture, pullout, or release of load. Washers shall not be used to reduce an oversize hole to accommodate a rod. A pipe hanger shall be permitted to be used with a maximum pipe size less than the maximum referenced for a rod size in Table 6.1 when marked with the maximum pipe size (See 15.1).

Table 6.1
Hanger rod sizes

Pipe size			Minimum hanger rod size	
	OD			
NPS	mm	(Inches)	mm	(Inch)
1/2	21.3	(0.84)	10	(3/8)
3/4	26.7	(1.05)	10	(3/8)
1	33.4	(1.32)	10	(3/8)
1-1/4	42.2	(1.66)	10	(3/8)
1-1/2	48.3	(1.90)	10	(3/8)
2	60.3	(2.38)	10	(3/8)
2-1/2	73.0	(2.88)	10	(3/8)
3	88.9	(3.50)	10	(3/8)
3-1/2	101.6	(4.00)	10	(3/8)
4	114.3	(4.50)	10	(3/8)
5	141.2	(5.56)	13	(1/2)
6	168.3	(6.63)	13	(1/2)
8	219.2	(8.63)	13	(1/2)
10	273.1	(10.75)	16	(5/8)
12	323.9	(12.75)	20	(3/4)
14	355.6	(14.0)	25	(1)
16	406.4	(16.0)	25	(1)
18	457	(18.0)	25	(1)
20	508	(20.0)	32	(1-1/4)
22	558.8	(22.0)	32	(1-1/4)
24	610	(24.0)	32	(1-1/4)

6.2 A hanger rod attachment shall be constructed to provide corrosion resistance (see Protective Coatings, Section 8), strength (see Pull Test, Section 12), and resistance to vibration (see Vibration Test, Section 13).

6.3 A bracket shall be of such construction that the reactive force on any one bolt or screw is no greater than the load applied on the cantilever portion of the device, unless conformance of the fastener is evaluated for compliance.

6.4 If a bracket has a prying effect that causes an increased force on any one bolt or screw that is greater than the load applied to the cantilever portion of the device, then the specific fastener for use with the

bracket shall be utilized for testing and indicated in the manufacturer's installation instructions. Other fasteners shall not be permitted unless specifically tested and allowed by the manufacturer's installation instructions.

6.5 Accommodation of some items of hanger equipment, such as powder-driven fasteners and 6.4 and 7.9 mm (1/4 and 5/16 inch) size expansion anchors, to the standard hanger rod sizes shall be achieved by use of increaser couplings that have the strength to support the test loads applicable to the maximum pipe sizes intended for use with the hanger equipment.

6.6 Ceiling flanges for pipe sizes up to 50 mm (2 NPS) (nominal) shall have at least two supporting screw holes; for pipe sizes 60 to 200 mm (2-1/2 to 8 NPS), not less than three supporting screw holes.

6.7 Hanger-rod sizes designated in Table 6.1 are the nominal diameters associated with machined threads. The diameter of a rod provided with a rolled thread shall be not less than the root diameter of the thread.

6.8 Pipe hangers intended for use with CPVC pipe shall be constructed so as to not apply compressive force to the pipe.

7 Materials

7.1 Hangers and their components shall be made of ferrous materials.

Exception: When nonferrous materials, for example, plastics, are used, they shall be investigated to evaluate their resistance to external fire exposure and effects of aging.

8 Protective Coatings

8.1 When a hanger or part of a hanger is made of flat iron or steel, the thickness of the metal, unless protected by coating as described in 8.2, shall be at least 4.8 mm (3/16 inch).

Exception No. 1: Retaining strap material for a "C" clamp fabricated from unprotected flat steel not less than 3.2 mm (1/8 inch) #11 gauge (nominal 0.120 inches) thick.

Exception No. 2: Clevis-type hangers and other flat iron hangers, fabricated from steel at least 3.2 mm (1/8 inch) #11 gauge (nominal 0.120 inches) thick and at least 25.4 mm (1 inch) wide and when the support (hanger) exhibits strength values, under test, of 1-1/2 times the load requirements specified by Table 12.1 or Table 12.2 as applicable.

Exception No. 3: "C" clamps that are 1) fabricated from not less than 3.2 mm (1/8 inch) #11 gauge (nominal 0.120 inches) thick unprotected steel and formed of a double thickness so as to create at least a 6.4 mm (1/4 inch) thick section at the throat of the clamp, and 2) when the clamp exhibits strength values, under test, of 1-1/2 times the load requirements specified by Table 12.1 or Table 12.2 as applicable.

Exception No. 4: Pressed-steel concrete inserts fabricated from unprotected steel not less than 3.2 mm (1/8 inch) #11 gauge (nominal 0.120 inches) thick when it complies with all other applicable requirements.

8.2 With reference to the requirements of 6.1, the following coatings meet the intent of this requirement:

a) A zinc coating having a minimum thickness of 0.0127 mm (0.0005 inch) on all outside surfaces and 0.0076 mm (0.0003 inch) on all inside surfaces. The thickness of the coating is to be established by the Metallic Coating Thickness Test, Section 9.

b) A hot-dipped mill galvanized sheet steel conforming with the coating designation G90 in Table I of the Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process, A653/A653M, with not less than 40 percent of the zinc on any side, based on the minimum single spot test requirement in this ASTM Designation. The weight of the zinc coating is to be determined by any equivalent method; however, in case of question, the weight of the coating shall be established in accordance with the test method of the Standard Test Method for Weight (Mass) of Coating on Iron or Steel Articles with Zinc or Zinc-Alloy Coatings, A90/ASTM A90M. The edges of a stamping complying with this requirement are not required to be plated.

c) Any other metallic or nonmetallic finish or combination of the two which, when subjected to comparative tests, indicates it provides corrosion protection equivalent to the coating by either (a) or (b) above.

9 Use in Environmental Air Handling Spaces

9.1 Pipe hangers having nonmetallic components and intended for use in ceiling cavity environmental air handling spaces shall be tested in accordance with the requirements in the Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces, UL 2043, and comply with the applicable requirements of the Standard for the Installation of Air Conditioning and Ventilating Systems, NFPA 90A.

10 Retaining Straps

10.1 Retaining straps shall be constructed of steel having strength characteristics of at least AISI 1010 carbon steel and:

a) Thickness not less than 1.57 mm (16 gauge) and width not less than 25.4 mm (1 inch) when intended for nominal pipe sizes of 200 mm (8 inches) or smaller and

b) Thickness not less than 1.98 mm (14 gauge) and width not less than 31.7 mm (1-1/4 inch) when intended for nominal pipe sizes larger than 200 mm (8 inches).

10.2 Retaining straps shall exceed the width of the intended beam flange size by at least 25.4 mm (1 inch) to allow for wrapping the strap around the flange.

10.3 Retaining straps shall be permitted to be fabricated from other materials or dimensions if the straps provide equivalent strength and heat resistance as the materials and dimensions specified in 10.1 and 10.2.

PERFORMANCE

11 Metallic Coating Thickness Test

11.1 The solution to be used for this test is to be made from distilled water and is to contain 200 grams per liter or reagent grade chromic acid (CrO_3) and 50 grams per liter of chemically pure concentrated sulfuric acid (H_2SO_4). The latter is equivalent to 27 milliliters per liter of chemically pure concentrated sulfuric acid, specific gravity 1.84, containing 96 percent of H_2SO_4.

11.2 Except as specified in 11.3, the metallic coating thickness test described in 11.4 – 11.11 shall be used to determine the thickness of a zinc or cadmium coating.

11.3 As an alternative to the test described in 11.4 – 11.11, a nondestructive test method as specified in Standard Test Method for Measurement of Coating Thickness by X-Ray Spectrometry, ASTM B568 or an

equivalent test method shall be used to determine the thickness of a zinc or cadmium coating. Whenever referee measurements are required, the test described in 11.4 – 11.11 is to be used.

11.4 The solution to be used for this test is to be made from distilled water and is to contain 200 grams per liter of reagent grade chromic acid (CrO_3) and 50 grams per liter of chemically pure concentrated sulfuric acid (H_2SO_4). The latter is equivalent to 27 milliliters per liter of chemically pure concentrated sulfuric acid, specific gravity 1.84, containing 96 percent of H_2SO_4.

11.5 The test solution is to be contained in a glass vessel such as a separatory funnel with the outlet equipped with a stopcock and a capillary tube of 0.64 mm (0.025 inch) inside bore and 139.7 mm (5.5 inches) long. The lower end of the capillary tube shall be tapered to form a tip, the drops from which are 0.025 milliliters each. To preserve an effectively constant level, a small glass tube shall be inserted in the top of the funnel through a rubber stopper and its position is to be adjusted so that, when the stopcock is open, the rate of dropping is 100 ±5 drops per minute. An additional stopcock is permitted to be used in place of the glass tube to control the rate of dropping.

11.6 The sample and the test solution shall be conditioned to the test room ambient temperature, which shall be 21.1 – 32.2°C (70 – 90°F).

11.7 Each sample is to be thoroughly cleaned before testing. All grease, lacquer, paint, and other nonmetallic coatings are to be removed completely by means of solvents. Samples are then to be thoroughly rinsed in water and dried. Care is to be exercised to avoid contact of the cleaned surface with the hands or any foreign material.

11.8 The sample to be tested is to be supported from 17.8 – 25.4 mm (0.7 – 1 inch) below the orifice, so that the drops of solution strike the point to be tested and run off quickly. The surface to be tested is to be inclined 45 degrees from the horizontal.

11.9 The stopcock is to be opened and the time, in seconds, is to be measured until the dropping solution dissolves the protective metallic coating, exposing the base metal. The base material is exposed when the first appearance of the base metal is recognizable by the change in color.

11.10 Each sample of a test lot is to be subjected to test at three or more points, excluding cut, stenciled, and threaded surfaces, on the inside surface and at an equal number of points on the outside surface, at places where the metallic coating is expected to be the thinnest. On enclosures made from precoated sheets, the external corners that are subjected to the greatest deformation are able to have thin coatings.

11.11 The thickness of the coating being tested is to be calculated by specifying the appropriate thickness factor from Table 11.1 for the temperature at which the test was conducted and multiplying that factor by the time, in seconds, required to expose the base metal as noted in 11.9.

Table 11.1
Thickness of coating factors

Temperature		Thickness factors, 0.00001 inch (0.0003 mm) per second
°C	(°F)	Zinc platings
21.1	(70)	0.980
21.7	(71)	0.990
22.2	(72)	1.000

Table 11.1 Continued on Next Page

Table 11.1 Continued

Temperature		Thickness factors, 0.00001 inch (0.0003 mm) per second
°C	(°F)	Zinc platings
22.8	(73)	1.010
23.3	(74)	1.015
23.9	(75)	1.025
24.4	(76)	1.033
25.0	(77)	1.042
25.6	(78)	1.050
26.1	(79)	1.060
26.7	(80)	1.070
27.2	(81)	1.080
27.8	(82)	1.085
28.3	(83)	1.095
28.9	(84)	1.100
29.4	(85)	1.110
30.0	(86)	1.120
30.6	(87)	1.130
31.1	(89)	1.141
31.7	(89)	1.150
32.2	(90)	1.160

12 Pull Test

12.1 General

12.1.1 A pipe hanger shall support the required loads specified in 12.1.2 for 1 minute without rupture, pull out, or complete release of load. Sample pipe hangers are to be installed in a tension-compression test apparatus in a manner duplicating as closely as possible their intended field installation.

12.1.2 The required load for hangers intended shall be determined by one of the following as applicable:

a1) For metallic pipe sizes 12-inch and less, multiplying the weight of a span of 4.57 m (15 feet) of water-filled Schedule 40 steel pipe by 5, plus a fixed load of 1112 N (250 pounds-force); or a minimum load of 340.2 kg (750 pounds). See Table 12.1.

a2) For metallic pipe sizes 14-inch and greater, multiplying the weight of a span of 4.57 m (15 feet) of water-filled Standard Weight Class (Class STD) steel pipe by 5, plus a fixed load of 1112 N (250 pounds-force). See Table 12.1.

b) For thermoplastic pipe, multiplying the weight of the maximum a span of water-filled thermoplastic pipe by 5, plus a fixed load of 1112 N (250 pounds-force) or a minimum load of 1512 N (340 pounds-force). See Table 12.2 for loads for CPVC pipe.

c) 8.1 Exceptions, No. 1, 2 and 3.

Table 12.1
Pull test load requirements for hangers for metallic sprinkler pipe

Pipe size, NPS	Required load	
	Newtons	(lb-f)
1/2	3336	(750)
3/4	3336	(750)
1	3336	(750)
1-1/4	3336	(750)
1-1/2	3336	(750)
2	3336	(750)
2-1/2	3781	(850)
3	4670	(1050)
3-1/2	5560	(1250)
4	6672	(1500)
5	8896	(2000)
6	11787	(2650)
8	18014	(4050)
10	26020	(5850)
12	35139	(7900)
14	39366	(8850)
16	48485	(10900)
18	58494	(13150)
20	69614	(15650)
22	81402	(18300)
24	94079	(21150)

Table 12.2
Pull test load requirements for hangers for thermoplastic sprinkler pipe

Pipe size, NPS	Required load	
	Newtons	(Lb-f)
1/2	1512	(340)
3/4	1512	(340)
1	1512	(340)
1-1/4	1512	(340)
1-1/2	1512	(340)
2	1512	(340)
2-1/2	1779	(400)
3	2224	(500)
4	3336	(750)

12.1.3 The test apparatus is to be started slowly until there is no slack in the test assembly. The test sample is then subjected to an increasing load until the required load is achieved.