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APPROVAL REPORT

Threaded Fittings for Use in Aboveground Fire Protection Systems

Prepared For:

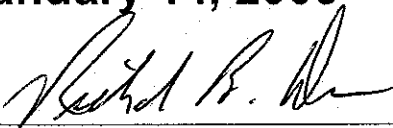
Langfang Pannext Pipe Fitting Co., Ltd.
No. 236 West Guang Ming Road
Langfang City, Hebei
P.R. China

Project Identifier: 3030125

Class: 1920

Date of Approval: January 14, 2009

Authorized by:


Richard B. Dunne, Group Manager-Hydraulics

Threaded Fittings for Use in Aboveground Sprinkler Systems

from

Langfang Pannext Pipe Fitting Co., Ltd.

No. 236 West Guang Ming Road

Langfang City, Hebei

P.R. China

I INTRODUCTION

- 1.1 Langfang Pannext Pipe Fitting Co., Ltd. requested an examination for possible FM Approval of malleable iron threaded fittings in a variety of styles and sizes.
- 1.2 This Report may be freely reproduced only in its entirety and without modification.
- 1.3 **Standard:**

Title	Class Number	Date
Approval Standard for Pipe Couplings and Fittings For Aboveground Fire Protection Systems	1920	November 2007

- 1.4 **Listings:** The items will appear in the Approval Guide as follows:

The products discussed in this Report will appear in the Automatic Sprinkler Systems' section of the FM Approval Guide, *an online resource of* FM Approvals under the heading "Pipe and Fittings for Aboveground, Pipe Fittings, Pipe Fittings" as shown below.

Pipe Fittings

Langfang Pannext Pipe Fitting Co., Ltd., No. 236 West Guang Ming Road, Langfang City, Hebei, P.R. China

FM APPROVALS
Project ID: 3030125

<i>Product Designation</i>	<i>Fitting Description</i>	<i>Nominal Pipe Size, mm</i>	<i>Max Working Pressure, psi (kPa)</i>	<i>Remarks</i>
	Reducing Tee, Threaded	<p align="center">1/2 x 1/2 x 3/4, 1/2 x 1/2 x 1, 3/4 x 1/2 x 1/2, 3/4 x 1/2 x 3/4, 3/4 x 1/2 x 1, 3/4 x 3/4 x 1, 1 x 1/2 x 1/2, 1 x 1/2 x 3/4, 1 x 1/2 x 1, 1, 1 x 3/4 x 1/2, 1 x 3/4 x 3/4, 1 x 3/4 x 1, 1 x 1 x 1-1/4, 1 x 1 x 1-1/2, 1-1/4 x 1/2 x 1/2, 1-1/4 x 1/2 x 3/4, 1-1/4 x 1/2 x 1, 1-1/4 x 1/2 x 1-1/4, 1-1/4 x 3/4 x 3/4, 1-1/4 x 3/4 x 1, 1-1/4 x 3/4 x 1-1/4, 1-1/4 x 1 x 1/2, 1-1/4 x 1 x 3/4, 1-1/4 x 1 x 1, 1-1/4 x 1 x 1-1/4, 1-1/4 x 1-1/4 x 1-1/2, 1-1/2 x 1/2 x 1-1/2, 1-1/2 x 3/4 x 3/4, 1-1/2 x 3/4 x 1-1/4, 1-1/2 x 3/4 x 1-1/2, 1-1/2 x 1 x 3/4, 1-1/2 x 1 x 1, 1-1/2 x 1 x 1-1/4, 1-1/2 x 1 x 1-1/2, 1-1/2 x 1-1/4 x 1/2, 1-1/2 x 1-1/4 x 3/4, 1-1/2 x 1-1/4 x 1, 1-1/2 x 1-1/4 x 1-1/4, 1-1/2 x 1-1/4 x 1-1/2, 2 x 1/2 x 2, 2 x 3/4 x 2, 2 x 1 x 1, 2 x 1 x 2, 2 x 1-1/4 x 1-1/4, 2 x 1-1/4 x 1-1/2, 2 x 1-1/4 x 2, 2 x 1-1/2 x 3/4, 2 x 1-1/2 x 1, 2 x 1-1/2 x 1-1/4, 2 x 1-1/2 x 1-1/2, 2 x 1-1/2 x 2, 2 x 2 x 2-1/2, 2-1/2 x 3/4 x 2-1/2, 3 x 3/4 x 3</p>	300 (2070)	
	Street Tee, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	Tee, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	Plug, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	Straight Coupling, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 3, 4, 5, 6	300 (2070)	
	Cross, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	Cap, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	Union, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	

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<i>Product Designation</i>	<i>Fitting Description</i>	<i>Nominal Pipe Size, mm</i>	<i>Max Working Pressure, psi (kPa)</i>	<i>Remarks</i>
	45° Elbow, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	90° Elbow, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	45° Street Elbow, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	90° Street Elbow, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	
	Bushing, Threaded	1/4 x 1/8, 3/8 x 1/8, 3/8 x 1/4, 1/2 x 1/8, 1/2 x 1/4, 1/2 x 3/8, 3/4 x 1/8, 3/4 x 1/4, 3/4 x 3/8, 3/4 x 1/2, 1 x 1/8, 1 x 1/4, 1 x 3/8, 1 x 1/2, 1 x 3/4, 1-1/4 x 1/4, 1-1/4 x 3/8, 1-1/4 x 1/2, 1-1/4 x 3/4, 1-1/4 x 1, 1-1/2 x 1/8, 1-1/2 x 1/4, 1-1/2 x 3/8, 1-1/2 x 1/2, 1-1/2 x 3/4, 1-1/2 x 1, 1-1/2 x 1-1/4, 2 x 3/8, 2 x 1/2, 2 x 3/4, 2 x 1, 2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 1/2, 2-1/2 x 3/4, 2-1/2 x 1, 2-1/2 x 1-1/4, 2-1/2 x 1-1/2, 2-1/2 x 2, 3 x 1, 3 x 1-1/4, 3 x 1-1/2, 3 x 2, 3 x 2-1/2, 3-1/2 x 1-1/2, 3-1/2 x 2, 3-1/2 x 3, 4 x 1, 4 x 1-1/2, 4 x 2, 4 x 2-1/2, 4 x 3, 6 x 3, 6 x 4	300 (2070)	
	Reducing, Coupling, Threaded	1/4 x 1/8, 3/8 x 1/8, 3/8 x 1/4, 1/2 x 1/8, 1/2 x 1/4, 1/2 x 3/8, 3/4 x 1/8, 3/4 x 1/4, 3/4 x 3/8, 3/4 x 1/2, 1 x 1/4, 1 x 3/8, 1 x 1/2, 1 x 3/4, 1-1/4 x 1/2, 1-1/4 x 3/4, 1-1/4 x 1, 1-1/2 x 1/2, 1-1/2 x 3/4, 1-1/2 x 1, 1-1/2 x 1-1/4, 2 x 1/2, 2 x 3/4, 2 x 1, 2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 1, 2-1/2 x 1-1/4, 2-1/2 x 1-1/2, 2-1/2 x 2, 3 x 1, 3 x 1-1/4, 3 x 1-1/2, 3 x 2, 3 x 2-1/2, 4 x 1-1/2, 4 x 2, 4 x 2-1/2, 4 x 3	300 (2070)	
	90° Reducing Elbow, Threaded	1/4 x 1/8, 3/8 x 1/8, 3/8 x 1/4, 1/2 x 1/8, 1/2 x 1/4, 1/2 x 3/8, 3/4 x 1/8, 3/4 x 1/4, 3/4 x 3/8, 3/4 x 1/2, 1 x 1/2, 1 x 3/4, 1-1/4 x 1/2, 1-1/4 x 3/4, 1-1/4 x 1, 1-1/2 x 1/2, 1-1/2 x 3/4, 1-1/2 x 1, 1-1/2 x 1-1/4, 2 x 1/2, 2 x 3/4, 2 x 1, 2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 1-1/4, 2-1/2 x 1-1/2, 2-1/2 x 2, 3 x 2, 3 x 2-1/2	300 (2070)	

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<i>Product Designation</i>	<i>Fitting Description</i>	<i>Nominal Pipe Size, mm</i>	<i>Max Working Pressure, psi (kPa)</i>	<i>Remarks</i>
	Flange, Threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	

II DESCRIPTION

The fittings described in this Report are malleable iron threaded fittings.

III EXAMINATION AND TESTS

3.1 Samples, as detailed below, were submitted for examination and testing. The samples were considered representative of the product line and were examined, tested, and compared to the manufacturer's drawings. All data remains on file at FM Approvals along with other documents and correspondence applicable to this program.

3.2 Fittings

Hydrostatic Strength

Hydrostatic tests were conducted on the styles and sizes, considered representative of all fittings discussed in this Report, listed in Table 3.2. All tests were conducted for a five minute duration at four times the rated working pressure of 300 psi (2070 kPa). There was no apparent damage to any of these fittings as a result of this 5 minute test at the test pressure of 1200 psi (8280 kPa). These test results are considered satisfactory.

Fitting Description	Size, inch	Rated Working Pressure psi (kPa)
Tee	1/2, 1, 2, 2-1/2, 4, 6	300 (2070)
Street Tee	1/2, 3/4, 1	300 (2070)
Reducing Tee	1/2 x 3/8, 3/4 x 1/2, 1 x 3/4, 1-1/4 x 1, 1-1/2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 2, 4 x 3	300 (2070)
90° Elbow	1/2, 1, 2, 2-1/2, 4, 6	300 (2070)
90° Street Elbow	1/2, 1, 2, 4	300 (2070)
90° Reducing Elbow	1/2 x 3/8, 3/4 x 1/2, 1 x 3/4, 1-1/4 x 1, 1-1/2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 2	300 (2070)
Straight Coupling	1/2, 1, 2, 4, 6	300 (2070)
Reducing Coupling	1/2 x 3/8, 3/4 x 1/2, 1 x 3/4, 1-1/4 x 1, 1-1/2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 2, 3 x 2-1/2, 4 x 3	300 (2070)

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Fitting Description	Size, inch	Rated Working Pressure psi (kPa)
Cross	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2	300 (2070)
Plug	1/2, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)
Cap	1/2, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6	300 (2070)
Bushing	3/4 x 1/2, 2 x 1, 3 x 2, 4 x 2, 4 x 3, 6 x 4, 6 x 5	300 (2070)
Union	1/2, 1, 2, 4	300 (2070)

3.3 Based on the nature of the design and successful tests described in Section 3.2, no testing was required on the following items:

- 45° Elbow: 1/2 through 6 inch
- 45° Street Elbow: 1/2 through 6 inch
- Flange: 1/2 through 6 inch
- 90° Elbow: 1-1/2, 3 and 5 inch
- 90° Street Elbow: 1/2 through 6 inch
- Cap: 3/4, 5 inch
- Cross: 3, 4, 5 and 6 inch
- Straight Coupling: 3/4, 1-1/4, 1-1/2, 2-1/2, 3 and 5 inch
- Street Tee: 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5 and 6 inch
- Tee: 3/4, 1-1/4, 3 and 5
- Union: 3/4, 1-1/4, 1-1/2, 2-1/2, 3, 5 and 6 inch
- Plug: 3/4 inch

IV MARKING

The following pertinent information is cast in raised letters on all fittings:

P: (Manufacturers Trademark)
Nominal Size
China: (Country of origin)
FM Approval Mark
300 (Pressure Rating)

V REMARKS

The items discussed in this Report are only Approved when installed to the manufacturer's installation instructions.

VI FACILITIES AND PROCEDURES AUDIT

6.1 The fittings discussed in this Report are Approved when manufactured at the following location. This site has been audited, and is included in the FM Approvals Facilities and Procedures Audit program.

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Project ID: 3030125

Langfang Pannext Pipe Fitting Co., Ltd.
No. 236 West Guang Ming Road
Langfang City, Hebei
P.R. China 065000

- 6.2 This manufacturing site is subject to follow-up audit inspections. The facilities and quality control procedures in place have been found to be satisfactory to manufacture product identical to that examined and tested as described in this Report.

VII MANUFACTURER'S RESPONSIBILITIES

Documentation considered critical to this Approval is on file at FM Approvals and listed in the Documentation Section of this Report. No changes of any nature shall be implemented unless notice of the proposed change has been given and written authorization obtained from FM Approvals. The Approved Product Revision Report, Form 797, shall be forwarded to FM Approvals as notice of proposed changes.

VIII DOCUMENTATION

The following drawings describe the items and are filed under Project Identifier 3030125:

Drawing Number	Revision	Drawing Title
QB121-1 A / 0	1	90° Elbows (Class 150)
QB121-2 A / 0	1	Tees (Class 150)
QB121-3 A / 0	1	Red. Couplings (Class 150), Page 1 of 3
QB121-3 A / 0	1	Red. Couplings (Class 150), Page 2 of 3
QB121-3 A / 0	1	Red. Couplings (Class 150), Page 3 of 3
QB121-4 A / 0	1	45° Street Elbows (Class 150)
QB121-5 A / 0	1	Couplings (Class 150)
QB121-6 A / 0	1	Red. Elbows (Class 150), Page 1 of 2
QB121-6 A / 0	1	Red. Elbows (Class 150), Page 2 of 2
QB121-7 A / 0	2	Red. Tees (Class 125), Page 1 of 5
QB121-7 A / 0	2	Red. Tees (Class 125), Page 2 of 5
QB121-7 A / 0	2	Red. Tees (Class 125), Page 3 of 5
QB121-7 A / 0	2	Red. Tees (Class 125), Page 4 of 5
QB121-7 A / 0	2	Red. Tees (Class 125), Page 5 of 5
QB121-8 A / 0	1	Street Elbows (Class 150)
QB121-9 A / 0	1	45° Elbows (Class 150), Page 1 of 2
QB121-10 A / 0	1	Caps (Class 150)
QB121-11 A / 0	1	Plugs (Class 250)
QB121-12 A / 0	1	Bushings (Class 250), Page 1 of 4
QB121-12 A / 0	1	Bushings (Class 250), Page 2 of 4
QB121-12 A / 0	1	Bushings (Class 250), Page 3 of 4
QB121-12 A / 0	1	Bushings (Class 250), Page 4 of 4
QB28-15 A / 0		Malleable Iron Couplings (Class 300)
QB28-16 A / 0	1	Malleable Iron 90° Elbows (Class 300)
QB28-17 A / 0	1	Malleable Iron 45° Elbows (Class 300)

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Drawing Number	Revision	Drawing Title
QB28-18 A / 0	1	Malleable Iron Tees (Class 300)
QB28-19 A / 0	1	Malleable Iron Caps (Class 300)

IX CONCLUSION

The products described in Section 1.4 meet FM Approval requirements. Since a duly signed Master Agreement is on file for this manufacturer, Approval is effective the date of this Report.

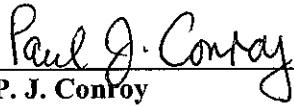
TESTS BY: M. Masopust and F. Coles

EXAMINATION BY: P. J. Conroy

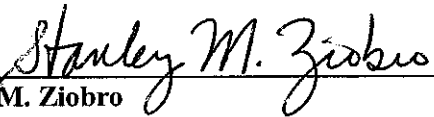
PROJECT DATA RECORD: Project Identifier: 3030125

ORIGINAL TEST DATA: Project Identifier: 3030125

REPORT BY: **REVIEWED BY:**



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