



# Certificate of Compliance

This certificate is issued for the following:

Threaded End Pipe Fittings  
Sizes ¼ through 6 inch NPS  
(see Table Attached)

**Prepared for:**

BIS Pipe Fitting Industry Co Ltd  
107 Moo 4 Petchkasem Road Omnoi Kratumban  
Samutsakhon, 74130  
Thailand

**Manufactured at:**

BIS Pipe Fitting Industry Co Ltd  
107 Moo 4 Petchkasem Road Omnoi Kratumban  
Samutsakhon, 74130  
Thailand

FM Approvals Class: 1920

Approval Identification: 0003040734

Approval Granted: January 31, 2012

Said Approval is subject to satisfactory field performance, continuing follow-up Facilities and Procedures Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

*For more than 160 years FM Approvals has partnered with business and industry  
to reduce property losses.*

A handwritten signature in dark ink, appearing to read 'Richard B. Dunne', is written over a horizontal line.

Richard B. Dunne  
Group Manager – Fire Protection  
FM Approvals  
1151 Boston-Providence Turnpike  
Norwood, MA 02062



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Product Designation	Fitting Description	Nominal Pipe Size, Inch	Max Working Pressure, psi (kPa)	Remarks
Figure 1 (BMF 90)	90 degree elbows with male x female threaded ends	¼, 3/8, ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300 (2070)	b
Figure 2 (BF 90)	90 degree elbows with female threaded ends	½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300 (2070)	b
Figure 3 (BM 90)	90 deg elbow with male threaded ends	1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 40 (BMF 45)	45 degree elbows with male x female threaded ends	3/8, ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300 (2070)	b
Figure 41 (BF 45)	45 degree elbows with female threaded ends	½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300 (2070)	b
Figure 90 (L 90)	90 degree elbows with female threaded ends	¼, 3/8, ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	a, b
Figure 90R (RL)	90 degree reducing elbows with female threaded ends	3/8 x ¼, ½ x ¼, ½ x 3/8, ¾ x ¼, ¾ x 3/8, ¾ x ½, 1 x ¼, 1 x 3/8, 1 x ½, 1 x ¾, 1-1/4 x 3/8, 1-1/4 x ½, 1-1/4 x ¾, 1-1/4 x 1, 1-1/2 x 3/8, 1-1/2 x ½, 1-1/2, ¾, 1-1/2 x 1, 1-1/2 x 1-1/4, 2 x ½, 2 x ¾, 2 x 1, 2 x 1-1/4, 2 x 1-1/2, 2-1/2 x ¾, 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 1-1/2, 3 x 2, 3 x 2-1/2, 4 x 2, 4 x 2-1/2, 4 x 3	300 (2070)	a, b
Figure 92 (SL 90)	90 degree street elbow with male x female threaded ends	¼, 3/8, ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300 (2070)	a, b
Figure 95	Union elbow, flat seats and female threaded ends	½, ¾, 1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 96	Union elbow with taper seats and female threaded ends	½, ¾, 1, 1-1/4, 1-1/2, 2	300 (2070)	b



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Product Designation	Fitting Description	Nominal Pipe Size, Inch	Max Working Pressure, psi (kPa)	Remarks
Figure 97	Union elbow with flat seats and male and female threaded ends	½, ¾, 1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 98	Union elbow, taper seats with male and female threaded ends	½, ¾, 1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 120 (L 45)	45 degree elbow with female threaded ends	¼, 3/8, ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5	300 (2070)	a,b
Figure 121 (SL 45)	45 degree street elbow with male x female threaded ends	¼, 3/8, ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5	300 (2070)	a,b
Figure 130R (RT)	Reducing Tee, female threaded ends, reducing branch	3/8 x ¼, ½ x ¼, 3/8 ¾ x ¼, 3/8, ½ 1 x ¼, 3/8, ½, ¾ 1-1/4 x 3/8, ½, ¾, 1 1-1/2 x ¼, ½, ¾, 1, 1-1/4 2 x ½, ¾, 1, 1-1/4, 1-1/2 2-1/2 x ½, ¾, 1, 1-1/4, 1-1/2, 2 3 x ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2 4 x ½, ¾, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3 5 x 3 6 x 2, 2-1/2, 3, 4	300 (2070)	a,b
Figure 130R (RT)	Reducing Tee, female threaded ends, reducing run	¾ x 3/8 x ¼, ¾ x ½ x ¾, 1 x ½ x 1, 1 x ¾ x 1, 1-1/4 x ½, 1-1/4, 1-1/4 x ¾ x 1-1/4, 1-1/4 x 1 x 1-1/4, 1-1/2 x ½ x 1-1/2, 1-1/2 x ¾ x 1-1/2, 1-1/2 x 1 x 1-1/2, 1-1/2 x 1-1/4 x 1-1/2, 2 x ½ x 2, 2 x ¾ x 2, 2 x 1 x 2, 2 x 1-1/4 x 2, 2 x 1-1/2 x 2, 2-1/2 x 1-1/2 x 2-1/2,	300 (2070)	a, b



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Product Designation	Fitting Description	Nominal Pipe Size, Inch	Max Working Pressure, psi (kPa)	Remarks
		2-1/2 x 2 x 2-1/2		
Figure 130R (RT)	Reducing Tee, female threaded ends, reducing run and branch	3/4 x 1/2 x 1/2, 3/4 x 1/2 x 1, 1 x 1/2 x 1/2, 1 x 1/2 x 3/4, 1 x 3/4 x 1/2, 1 x 3/4 x 3/4, 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 3/4 x 1/2, 1-1/4 x 3/4 x 3/4, 1-1/4 x 3/4 x 1, 1-1/4 x 1 x 1/2, 1-1/4 x 1 x 3/4, 1-1/4 x 1 x 1, 1-1/2 x 1/2 x 1/2, 1-1/2 x 1/2 x 3/4, 1-1/2 x 1/2 x 1, 1-1/2 x 1/2 x 1-1/4, 1-1/2 x 3/4 x 1/2, 1-1/2 x 3/4 x 3/4, 1-1/2 x 3/4 x 1, 1-1/2 x 3/4 x 1-1/4, 1-1/2 x 1 x 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 1-1/4 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 2, 2 x 1/2 x 1/2, 2 x 1 x 1/2, 2 x 1 x 3/4, 2 x 1 x 1, 2 x 1 x 1-1/4, 2 x 1 x 1-1/2, 2 x 1-1/4 x 1/2, 2 x 1-1/4 x 3/4, 2 x 1-1/4 x 1, 2 x 1-1/4 x 1-1/4, 2 x 1-1/4 x 1-1/2, 2 x 1-1/2 x 1/2, 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, 2-1/2 x 2 x 1-1/2, 3 x 2 x 2	300 (2070)	a, b
Figure 130R (BHT)	Bull head tees with female threaded ends	3/8 x 3/8 x 1/2, 1/2 x 1/2 x 3/4, 1/2 x 1/2 x 1, 3/4 x 3/4 x 1, 3/4 x 3/4 x 1-1/4, 1 x 1 x 1-1/4, 1 x 1 x 1-1/2, 1 x 1 x 2, 1-1/4 x 1-1/4 x 1-1/2, 1-1/4 x 1-1/4 x 2, 1-1/2 x 1-1/2 x 2, 2 x 2 x 2-1/2, 2-1/2 x 2-1/2 x 3	300 (2070)	a, b
Figure 130	equal tees with female	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2,	300	a, b



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Product Designation	Fitting Description	Nominal Pipe Size, Inch	Max Working Pressure, psi (kPa)	Remarks
(T)	threaded ends	2-1/2, 3, 4, 5, 6	(2070)	
Figure 131	Pitcher Tee	1/2, 3/4, 1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 134 (ST)	Street tees with male x female threaded ends	1/2, 3/4, 1, 1-1/2, 2	300 (2070)	a
Figure 165 (Y 45)	Lateral "Y-Branch" with female threaded ends	1/2, 3/4, 1, 1-1/4, 1-1/2, 2	300 (2070)	a
Figure 180 (CR)	Equal crosses with female threaded ends	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300 (2070)	a, b
Figure 221 (SOL)	Equal side outlet elbows with female threaded ends	1/2, 3/4, 1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 223 (SOT)	Equal side outlet tees with female threaded ends	1/2, 3/4, 1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 240 (RS)	Reducing couplings with female threaded ends	3/8 x 1/4, 1/2 x 1/4, 1/2 x 3/8, 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 3/8, 1-1/4 x 1/2, 1-1/4 x 3/4, 1-1/4 x 1, 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 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 1/2, 3 x 3/4, 3 x 1, 3 x 1-1/4, 3 x 1-1/2, 3 x 2, 3 x 2-1/2, 4 x 1/2, 4 x 3/4, 4 x 1, 4 x 1-1/4, 4 x 1-1/2, 4 x 2, 4 x 2-1/2, 4 x 3, 5 x 2, 5 x 3, 5 x 4, 6 x 2, 6 x 3, 6 x 4, and 6 x 5	300 (2070)	a, b
Figure 241 (BU)	Reducing bushings with male x female threaded ends	3/8 x 1/4, 1/2 x 1/4, 1/2 x 3/8, 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 1/4, 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 1/4, 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 1/4, 2 x 3/8, 2 x	300 (2070)	a, b



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Product Designation	Fitting Description	Nominal Pipe Size, Inch	Max Working Pressure, psi (kPa)	Remarks
		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 1/2, 3 x 3/4, 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 1/2, 4 x 3/4, 4 x 1, 4 x 1-1/4, 4 x 1-1/2, 4 x 2, 4 x 2-1/2, 4 x 3, 5 x 4, 6 x 2, 6 x 2-1/2, 6 x 3, 6 x 4, 6 x 5		
Figure 245	Reducing hex nipples	3/8 x 1/4, 1/2 x 1/4, 1/2 x 3/8, 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 3/4, 2 x 1, 2 x 1-1/4, 2 x 1-1/2, 2-1/2 x 1-1/2, 2-1/2 x 2, 3 x 2, 3 x 2-1/2, 4 x 2, 4 x 3	300 (2070)	b
Figure 246	Extensions with male and female threaded ends	3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2	300 (2070)	b
Figure 270 (S)	Couplings	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6	300 (2070)	a, b
Figure 280 (NI)	Hexagon nipples with male threaded ends	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	b
Figure 291 (P)	Plugs with male threaded ends	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 3-1/2, 4	300 (2070)	a, b
Figure 301 (CA)	Cap with female threaded ends	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	a, b
Figure 330 (U)	Union with flat seat and female threaded ends	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6	300 (2070)	b
Figure 331	Union with flat seats, male and female threaded ends	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3	300 (2070)	b
Figure 340 (EU)	Union with conical joint and female threaded ends	3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3	300 (2070)	b
Figure 341	Union with taper seats and male and female threaded	1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3	300 (2070)	b



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Product Designation	Fitting Description	Nominal Pipe Size, Inch	Max Working Pressure, psi (kPa)	Remarks
	ends			
Figure 350 (AU)	Union with brass seat and female threaded ends	1/4, 3/8, 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4	300 (2070)	a, b

**Notes:**

a.	Considered FM Approved when supplied with ASME B1.20.1 tapered pipe threads
b.	Considered FM Approved when supplied with ISO 7/1 or ISO 228 pipe threads.



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