



Certificate of Compliance

This certificate is issued for the following:

Grooved Couplings – Standard Rigid
Styles 5, 5A, and 5L
(per table below)

Prepared for:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No. 1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

Manufactured at:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No.1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

FM Approvals Class: 1920

Approval Identification: 0003044509

Approval Granted: October 10, 2012

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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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Rated Working Pressure s for Style 5 Couplings by Pipe ^a																		
Nominal Pipe Size																		
Pipe Description	1 (33.4)	1-1/4 (42.7)	1-1/2 (48.3)	2 (60.3)	2-1/2 (73.1)	(76.1)	3 (88.9)	(108)	4 (114.3)	(133)	(139.7)	5 (141.3)	(159)	(165.1)	6 (168.3)	8 (219.1)	10 (273)	12 (323.9)
Schedule 40, Cut Groove	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	N/A	300 (2070)	N/A	300 (2070)	N/A	N/A	N/A	N/A	N/A	300 (2070)	300 (2070)	300 (2070)	300 (2070)
Schedule 40, Roll Groove	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	N/A	300 (2070)	N/A	300 (2070)	N/A	N/A	N/A	N/A	N/A	300 (2070)	300 (2070)	175 (1205)	175 (1205)
Schedule 10S, Rolled Groove	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	N/A	300 (2070)	N/A	300 (2070)	N/A	N/A	N/A	N/A	N/A	300 (2070)	300 (2070)	N/A	N/A

Remarks:

a. Approved for use with EPDM gasket.

Rated Working Pressure s for Style 5A Couplings by Pipe ^a																		
Nominal Pipe Size																		
Pipe Description	1 (33.4)	1-1/4 (42.7)	1-1/2 (48.3)	2 (60.3)	2-1/2 (73.1)	(76.1)	3 (88.9)	(108)	4 (114.3)	(133)	(139.7)	5 (141.3)	(159)	(165.1)	6 (168.3)	8 (219.1)	10 (273)	12 (323.9)
Schedule 40, Cut Groove	N/A	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	N/A	300 (2070)	N/A	N/A	N/A	N/A	300 (2070)	N/A	N/A	N/A	N/A
Schedule 40, Roll Groove	N/A	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	N/A	300 (2070)	N/A	N/A	N/A	N/A	300 (2070)	N/A	N/A	N/A	N/A
Schedule 10S, Rolled Groove	N/A	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	300 (2070)	N/A	300 (2070)	N/A	N/A	N/A	N/A	300 (2070)	N/A	N/A	N/A	N/A

Remarks:

a. Approved for use with EPDM gasket.

Rated Working Pressure s for Style 5L Couplings by Pipe ^a																		
Nominal Pipe Size																		
Pipe Description	1 (33.4)	1-1/4 (42.7)	1-1/2 (48.3)	2 (60.3)	2-1/2 (73.1)	(76.1)	3 (88.9)	(108)	4 (114.3)	(133)	(139.7)	5 (141.3)	(159)	(165.1)	6 (168.3)	8 (219.1)	10 (273)	12 (323.9)
Schedule 40, Cut Groove	N/A	175 (1205)	175 (1205)	175 (1205)	175 (1205)	N/A	175 (1205)	N/A	175 (1205)	N/A	N/A	N/A	N/A	N/A	175 (1205)	175 (1205)	N/A	N/A
Schedule 40, Roll Groove	N/A	175 (1205)	175 (1205)	175 (1205)	175 (1205)	N/A	175 (1205)	N/A	175 (1205)	N/A	N/A	N/A	N/A	N/A	175 (1205)	175 (1205)	N/A	N/A

Remarks:

a. Approved for use with EPDM gasket.



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Certificate of Compliance

This certificate is issued for the following:

Grooved Couplings – Standard Flexible
Styles 10, 10L, and 11
(per table below)

Prepared for:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No. 1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

Manufactured at:

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Technology Co., Ltd
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FM Approvals Class: 1920

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Rated Working Pressure s for Style 10 Couplings by Pipe ^a																		
Nominal Pipe Size																		
Pipe Description	1 (33.4)	1-1/4 (42.7)	1-1/2 (48.3)	2 (60.3)	2-1/2 (73.1)	(76.1)	3 (88.9)	(108)	4 (114.3)	(133)	(139.7)	5 (141.3)	(159)	(165.1)	6 (168.3)	8 (219.1)	10 (273)	12 (323.9)
Schedule 40, Cut Groove	N/A	500 (3445)	500 (3445)	500 (3445)	500 (3445)	N/A	500 (3445)	N/A	500 (3445)	N/A	N/A	300 (2070)	N/A	N/A	300 (2070)	300 (2070)	300 (2070)	300 (2070)
Schedule 40, Roll Groove	N/A	500 (3445)	500 (3445)	500 (3445)	500 (3445)	N/A	500 (3445)	N/A	500 (3445)	N/A	N/A	300 (2070)	N/A	N/A	300 (2070)	300 (2070)	175 (1205)	175 (1205)
Schedule 10S, Rolled Groove	N/A	500 (3445)	500 (3445)	500 (3445)	500 (3445)	N/A	500 (3445)	N/A	500 (3445)	N/A	N/A	300 (2070)	N/A	N/A	300 (2070)	300 (2070)	N/A	N/A

Remarks:

- a. Approved for use with EPDM gasket.

Rated Working Pressure s for Style 10L Couplings by Pipe ^a																		
Nominal Pipe Size																		
Pipe Description	1 (33.4)	1-1/4 (42.7)	1-1/2 (48.3)	2 (60.3)	2-1/2 (73.1)	(76.1)	3 (88.9)	(108)	4 (114.3)	(133)	(139.7)	5 (141.3)	(159)	(165.1)	6 (168.3)	8 (219.1)	10 (273)	12 (323.9)
Schedule 40, Cut Groove	N/A	175 (1205)	175 (1205)	175 (1205)	175 (1205)	N/A	175 (1205)	N/A	175 (1205)	N/A	N/A	N/A	N/A	N/A	175 (1205)	175 (1205)	N/A	N/A
Schedule 40, Roll Groove	N/A	175 (1205)	175 (1205)	175 (1205)	175 (1205)	N/A	175 (1205)	N/A	175 (1205)	N/A	N/A	N/A	N/A	N/A	175 (1205)	175 (1205)	N/A	N/A
Schedule 10S, Rolled Groove	N/A	175 (1205)	175 (1205)	175 (1205)	175 (1205)	N/A	175 (1205)	N/A	175 (1205)	N/A	N/A	N/A	N/A	N/A	175 (1205)	175 (1205)	N/A	N/A

Remarks:

- a. Approved for use with EPDM gasket.

Rated Working Pressure s for Style 11 Couplings by Pipe ^a																		
Nominal Pipe Size																		
Pipe Description	1 (33.4)	1-1/4 (42.7)	1-1/2 (48.3)	2 (60.3)	2-1/2 (73.1)	(76.1)	3 (88.9)	(108)	4 (114.3)	(133)	(139.7)	5 (141.3)	(159)	(165.1)	6 (168.3)	8 (219.1)	10 (273)	12 (323.9)
Schedule 40, Cut Groove	N/A	500 (3445)	500 (3445)	500 (3445)	500 (3445)	N/A	500 (3445)	N/A	500 (3445)	N/A	N/A	N/A	N/A	N/A	500 (3445)	500 (3445)	N/A	N/A
Schedule 40, Roll Groove	N/A	500 (3445)	500 (3445)	500 (3445)	500 (3445)	N/A	500 (3445)	N/A	500 (3445)	N/A	N/A	N/A	N/A	N/A	500 (3445)	500 (3445)	N/A	N/A
Schedule 10, Rolled Groove	N/A	500 (3445)	500 (3445)	500 (3445)	500 (3445)	N/A	500 (3445)	N/A	500 (3445)	N/A	N/A	N/A	N/A	N/A	500 (3445)	500 (3445)	N/A	N/A

Remarks:

- a. Approved for use with EPDM gasket.



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Certificate of Compliance

This certificate is issued for the following:

Grooved Split Flanges – Flexible
Style 14
(per table below)

Prepared for:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No. 1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

Manufactured at:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No.1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

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Richard B. Dunne
Group Manager -Fire Protection
FM Approvals
1151 Boston-Providence Turnpike
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Certificate of Compliance

Product Designation	Pipe Ends	Nominal Pipe Size, in	Rated Working Pressure, psi (kPa)	Remarks
Style 14	Cut Groove Rolled Groove	2, 2-1/2, 3, 4, 5, 6, 8	175 (1205)	a, b, c

Remarks:

a.	Min schedule pipe to be joined: 6 in. or smaller – Schedule 40; 8 in. or larger – Schedule 30
b.	Min schedule pipe to be joined: 6 in. or smaller – Schedule 10S; 8 in. or larger – 0.188 in (5 mm) wall.
c.	With EPDM gasket



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Certificate of Compliance

This certificate is issued for the following:

Fittings, Side Outlet, Rigid
Styles 15 and 16
(per table below)

Prepared for:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No. 1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

Manufactured at:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No.1 Road, Hetao Industry Park
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Product Designation	Fitting Description	Nominal Pipe Size, in	Rated Working Pressure, psi (kPa)	Remarks
Style 15	Snap-Tee Branch Outlet, Grooved	3 x 1-1/2, 3 x 2 4 x 1-1/2, 4 x 2, 4 x 2-1/2, 4 x 3	300 (2070)	a
Style 15	Snap-Tee Branch Outlet, Grooved	6 x 1-1/2, 6 x 2, 6 x 2-1/2, 6 x 3, 6 x 4	250 (1725)	a
Style 16	Snap-Tee Branch Outlet, NPT	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, 3 x 1/2, 3 x 3/4, 3 x 1, 3 x 1-1/4, 3 x 1-1/2, 3 x 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 6 x 1-1/4, 6 x 1-1/2, 6 x 2, 6 x 2-1/2, 6 x 3, 6 x 4	300 (2070)	b

Remarks:

a.	For use on Schedule 10 or heavier pipe.
b.	For use on schedule 10 or heavier pipe. NPT internal outlet connection to Schedule 40 or heavier pipe.



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Certificate of Compliance

This certificate is issued for the following:

Grooved Couplings, Reducing - Flexible
Style 25
(per table below)

Prepared for:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No. 1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

Manufactured at:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No.1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

FM Approvals Class: 1920

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Richard B. Dunne
Group Manager -Fire Protection
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Norwood, MA 02062



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Certificate of Compliance

Product Designation	Pipe Ends	Nominal Pipe Size, in	Rated Working Pressure, psi (kPa)	Remarks
Style 25	Cut Groove Rolled Groove	2 x 1-1/2, 2-1/2 x 2, 3 x 2, 3 x 2-1/2, 4 x 2, 4 x 2-1/2, 4 x 3, 6 x 4	300 (2070)	a, b, c
		2 x 1-1/2	300 (2070)	c, g
		2 x 1-1/2, 2-1/2 x 2, 3 x 2, 3 x 2-1/2	300 (2070)	c, l
		2 x 1-1/2, 2-1/2 x 2, 3 x 2, 3 x 2-1/2, 4 x 2, 4 x 2-1/2, 4 x 3	300 (2070)	c, d

Remarks:

a.	Min Schedule cut groove pipe to be joined: 6 in. and smaller – Schedule 40; 8 in. or larger – Schedule 30.
b.	Min Schedule rolled groove pipe to be joined: 6 in. and smaller – Schedule 10S; 8 in. or larger – 0.188 in (5 mm) wall.
c.	With EPDM gasket
d.	Approved for use with Allied Tube & Conduit “Dyna Flow” Lightwall steel sprinkler pipe in sizes: 1-1/2, 2, 2-1/2, 3, and 4 inch NPS.
g.	Approved for use with Bull Moose Tube “EDDY-Lite” Thinwall steel sprinkler pipes in sizes: 1, 1-1/4, 1-1/2, and 2 inch NPS.
l.	Approved for use with Allied Tube & Conduit “XL” Thinwall steel sprinkler pipes in sizes: 1, 1-1/4, 1-1/2, 2, 2-1/2, and 3 inch NPS.



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Certificate of Compliance

This certificate is issued for the following:

Grooved Pipe Fittings
Styles 100, 101, 100s, 110, 110s, 115, 115s, 140G, 150
(per table below)

Prepared for:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
No. 1 Road, Hetao Industry Park
Chengyang, Qingdao, P.C. 266113
Peoples Republic of China

Manufactured at:

Qingdao Hilywill Advanced Materials
Technology Co., Ltd
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Product Designation	Fitting Description	Nominal Pipe Size, in	Rated Working Pressure, psi (kPa)	Remarks
100	90° Elbow, Grooved	1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6, 8	500 (3445)	
101	45° Elbow, Grooved	1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6, 8	500 (3445)	
100s	Short Radius 90° Elbow, Grooved	2, 2-1/2, 3, 4	300 (2070)	
		6, 8, 10, 12	175 (1205)	
110	Equal Tee, Grooved	1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6, 8	500 (3445)	
110s	Short Radius Equal Tee, Grooved	2, 2-1/2, 3, 4	300 (2070)	
		6, 8, 10, 12	175 (1205)	
115	Reducing Tee, Grooved	3 x 3 x 2, 3 x 3 x 2-1/2, 4 x 4 x 2, 4 x 4 x 2-1/2, 4 x 4 x 3	500 (3450)	
		6 x 6 x 2, 6 x 6 x 2-1/2, 6 x 6 x 3, 6 x 6 x 4	400 (2760)	
115s	Short Radius Reducing Tee, Grooved	3 x 3 x 2, 3 x 3 x 2-1/2, 4 x 4 x 2, 4 x 4 x 2-1/2, 4 x 4 x 3	300 (2070)	
		6 x 6 x 2, 6 x 6 x 2-1/2, 6 x 6 x 3, 6 x 6 x 4, 8 x 8 x 4, 8 x 8 x 6	175 (1205)	
140G	Concentric Reducer, Grooved	2-1/2 x 2, 3 x 2, 4 x 2, 4 x 3	500 (3450)	
		6 x 2, 6 x 2-1/2, 6 x 3, 6 x 4, 8 x 3, 8 x 4	400 (2760)	
150	End Cap, Grooved	1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 6, 8	300 (2070)	



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