



## G-FIRE FLANGE ADAPTERS

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Adapters

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### MATERIAL SPECIFICATIONS

#### Ductile Iron Housing Specifications

- ASTM A 536 – Standard specification for ductile iron castings, Grade 65-45-12
- Tensile strength, minimum 4,481 bar (65,000 psi)
- Yield strength, minimum 3,102 bar (45,000psi)
- Elongation in 50mm (2"), minimum 12%
- ASTM A 153 – Standard specification for hot-dip galvanising

#### Bolt/Nut Specifications

- Carbon steel oval neck bolts and nuts are heat-treated and conform to the physical properties of ASTM A 183 with a minimum tensile strength of 7,584 bar (110,000 psi). Bolts and nuts are zinc electroplated to ASTM B 633.
- Gold colour coded metric bolts conforming to the physical properties of ASTM F 568M are available upon request. Contact GRINNELL Products.
- Stainless Steel nuts and bolts are UL Listed and comply with UL requirements. Bolts conform to ASTM A 193M, Class 2, Austenitic Stainless Steel. Nuts conform to ASTM A 194 Type 316, Grade 8M.

#### Coatings

- Red – Non-lead paint RAL 3000 (standard)
- Hot-Dipped, Zinc Galvanised (Optional)

#### Gasket Specifications

- **Grade "A" EPDM** pre-lubricated gaskets have a violet stripped colour code identification and conform to ASTM D 2000 for service temperatures from -34°C to 66°C (-30°F to 150°F). They are not recommended for hot water systems.
- **Grade "E" EPDM** gaskets have a green stripped colour code identification and conform to ASTM D 2000 for service temperatures from -34°C to 110°C (-30°F to 230°F). They are recommended for hot water not to exceed 110°C (230°F). They are not recommended for petroleum services.



For detailed Listing and Approval information see pages 101 - 108 or contact Tyco Fire Protection Products.

General notes: It is the Designer's responsibility to select products suitable for the intended service and to ensure that pressure ratings and performance data is not exceeded. Always read and understand the installation constructions. Never remove any piping components nor correct or modify any piping deficiencies without first depressurizing and draining the system. Material should be verified to be compatible for the specific application.

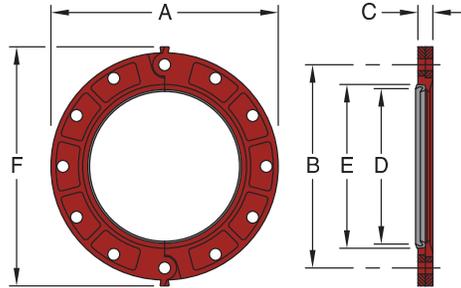
## Figure 71 Flange Adaptors (PN10/PN16)

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For detailed Listing and Approval information see pages 101 - 108 or contact Tyco Fire Protection Products.



**10**  
YEAR  
LIMITED  
WARRANTY

Flange  
Adaptors

Part Number	Pipe Size		Flange Type	Max † End Load N Lbs.	Dimensions - mm In.						Recommended Flange Mating Bolts ‡			Approx. Wt. kg Lbs
	Nominal mm In.	O.D. mm In.			A	B	C	*D	*E	F	Size Dia. x Lg mm In.	Qty.	Bolt Torque Range Nm	
71DAE0060*	50	60.3	PN10 / PN16	5889	162.1	125.0	19.1	60.5	86.6	184.2	M16 x 76	4	149-190	1.8
	2	2.375		1,324	6.38	4.92	0.75	2.38	3.41	7.25			110-140	4.0
71DAE0073*	65	73.0	PN10 / PN16	8665	177.8	139.7	22.4	73.6	99.3	130.3	M16 x 76	4	149-190	2.4
	2½	2.875		1,948	7.00	5.50	0.88	2.88	3.91	5.13			110-140	5.4
71DAE0076*	65	76.1	PN10 / PN16	8665	184.9	145.0	22.4	76.1	102.4	205.5	M16 x 76	4	149-190	2.6
	76.1mm	3.000		1,948	7.28	5.71	0.88	3.00	4.03	8.09			110-140	5.7
71DAE0089*	80	88.9	PN10 / PN16	12,838	200.2	160.0	23.9	88.9	115.1	222.5	M16 x 76	8	149-190	2.5
	3	3.500		2,886	7.88	6.30	0.94	3.50	4.53	8.76			110-140	5.6
71DAE0114*	100	114.3	PN10 / PN16	21,222	219.9	180.1	23.9	114.3	140.5	239.5	M16 x 76	8	149-190	3.6
	4	4.500		4,771	8.66	7.09	0.94	4.50	5.53	9.43			110-140	8.0
71DME0139*	125	139.7	PN10 / PN16	32,436	249.9	210.1	25.4	139.7	165.9	271.5	M16 x 89	8	149-190	4.2
	139.7mm	5.500		7,292	9.84	8.27	1.00	5.50	6.53	10.69			110-140	9.2
71DAE0165*	150	165.1	PN10 / PN16	44,282	285.0	240.3	24.5	165.1	194.6	307.3	M20 x 89	8	298-339	4.8
	165.1mm	6.500		9,955	11.22	9.46	1.00	6.50	7.66	12.10			220-250	10.5
71DAE0168*	150	168.3	PN10 / PN16	45,999	279.4	241.1	25.4	168.1	197.6	301.8	M20 x 89	8	298-339	4.8
	6	6.625		10,341	11.00	9.49	1.00	6.62	7.78	11.88			220-250	10.6
71DME8219*	200 8**	219.1 8.625	PN10	77,968	336.8	292.1	28.6	218.9	254.5	358.6	M20 x 89	8	298-339	6.9
71DME0219*			PN16	17,528	13.26	11.50	1.125	8.62	9.94	14.12			220-250	15.4
71DAE8273*	250 10**	273.0 10.750	PN10	121,121	395.2	350.0	30.2	273.1	312.4	419.1	M20 x 102	12	298-339	9.6
			PN16	27,229	15.56	13.78	1.188	10.75	12.31	16.50			220-250	21.2
71DAE0273*	300 12**	323.9 12.750	PN10	170,380	445.0	399.8	31.8	323.9	363.5	470.4	M22 x 102	12	434-542	11.2
PN16			38,303	16.00	13.98	1.188	10.75	12.31	16.88	320-400			22.5	
71DME8324*	300 12**	323.9 12.750	PN10	170,380	445.0	399.8	31.8	323.9	363.5	470.4	M22 x 102	12	434-542	11.2
PN16			38,303	17.52	15.74	1.25	12.75	14.31	18.52	320-400			24.8	
71DME0324*	300 12**	323.9 12.750	PN10	170,380	460.2	410.0	31.8	323.9	363.5	486.2	M22 x 102	12	434-542	13.1
PN16			38,303	18.12	16.14	1.25	12.75	14.31	19.14	320-400			28.9	

\* = 1 for red paint (RAL 3000) finish, 2 for hot dipped galvanised finish  
 Maximum Pressure rating is 20,7 Bar (300 psi).  
 † Dimensions D and E represent minimum and maximum sealing surfaces.  
 \*\* For noted sizes, PN10 and PN16 dimensional values differ.  
 ‡ Maximum end load is total from all loads based on standard weight steel pipe. Pressure ratings and end loads may differ on other pipe materials and/or wall thickness. Contact Tyco Technical Services for details.  
 ‡ Mating Bolts and Nuts are not supplied. Flange Mating Bolts must be at least SAE J429, Grade 5 or stronger. Bolt lengths are standard; responsibility lies with the purchaser to verify the correct length for the intended application.  
 For information on other alternative sizes, contact Tyco Technical Services  
 See page 22 for general notes, and see pages 76 - 82 for gasket information.  
 See page 25 for flange washer Adaptor and page 110 flange drilling specifications

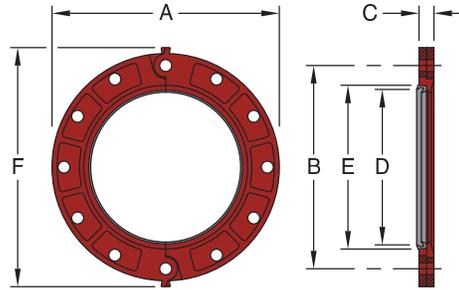
## Figure 71 Flange Adapters (ANSI Class 125/150)

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The Figure 71 Flange Adapter is capable of pressures up to 20,7 Bar (300 psi) depending on pipe size and wall thickness. It provides a direct transition from flanged components to a grooved piping system. I.P.S. size flange bolt patterns conform to ANSI Class 125 and 150.

The gasket seal is designed with an optimal amount of rubber to provide a dependable seal and to avoid the gasket pocket from overfilling, which may cause assembly difficulties.



Flange Adapters

Part Number	Pipe Size		Max † Pressure Bar psi	Max End Load † N Lbs.	Dimensions - mm Inches						Recommended Flange Mating Bolts ‡			Approx. Wt. Kg. Lbs.
	Nominal mm Inches	O.D. mm Inches			A	B	C	*D	*E	F	Size Dia. x Lg mm Inches	Qty.	Bolt Torque Range Nm Lbs.-ft	
71AAE0060*	50	60.3	20.7	5889	162.1	120.7	19.1	60.5	86.6	184.2	-	4	149-190	1.9
	2	2.375	300	1,324	6.38	4.75	0.75	2.38	3.41	7.25	5/8 x 3		110-140	4.1
71AAE0073*	65	73.0	20.7	8665	178.0	140.0	22.0	73.0	99.0	200.0	-	4	149-190	2.4
	2 1/2	2.875	300	1,948	7.00	5.50	0.88	2.88	3.91	7.88	5/8 x 3		110-140	5.4
71AAE0076*	65	76.1	20.7	9435	184.9	145.0	22.0	76.1	102.4	205.2	-	4	149-190	2.6
	76,1mm	3.000	300	2,121	7.28	5.71	0.88	3.00	4.03	8.08	5/8 x 3		110-140	5.8
71AAE0089*	80	88.9	20.7	12,838	190.5	152.4	23.9	88.9	115.1	251.0	-	4	149-190	2.7
	3	3.500	300	2,886	7.50	6.00	0.94	3.50	4.53	9.88	5/8 x 3		110-140	6.0
71AAE0114*	100	114.3	20.7	21,222	228.6	190.5	23.9	114.3	140.5	251.5	-	8	149-190	3.7
	4	4.500	300	4,771	9.00	7.50	0.94	4.50	5.53	9.90	5/8 x 3		110-140	8.1
71AAE0139*	125	139.7	20.7	31,702	249.9	210.1	25.4	139.7	169.2	270.3	-	8	298-339	4.2
	139,7mm	5.500	300	7,127	9.84	8.27	1.00	5.50	6.66	10.64	3/4 x 3 1/2		220-250	9.2
71AAE0141*	125	141.3	20.7	32,436	254.0	215.9	25.4	141.2	170.7	289.1	-	8	298-339	4.2
	5	5.563	300	7,292	10.00	8.50	1.00	5.56	6.72	11.38	3/4 x 3 1/2		220-250	9.2
71AAE0165*	150	165.1	20.7	44,282	285.0	240.6	25.4	165.1	194.6	307.3	-	8	298-339	5.0
	165,1mm	6.500	300	9,955	11.22	9.45	1.00	6.50	7.66	12.10	3/4 x 3 1/2		220-250	11.0
71AAE0168*	150	168.3	20.7	45,999	279.4	241.3	25.4	168.1	197.6	301.8	-	8	298-339	4.8
	6	6.625	300	10,341	11.00	9.50	1.00	6.62	7.78	11.88	3/4 x 3 1/2		220-250	10.5
71AAE0219*	200	219.1	20.7	77,968	342.9	298.5	28.7	218.9	252.5	365.3	-	8	298-339	7.3
	8	8.625	300	17,528	13.50	11.75	1.13	8.62	9.94	14.38	3/4 x 3 1/2		220-250	16.2
71AAE0273*	250	273.0	20.7	121,121	406.4	362.0	30.2	273.1	312.7	428.8	-	12	434-542	9.4
	10	10.750	300	27,229	16.00	14.25	1.19	10.75	12.31	16.88	7/8 x 4		320-400	20.7
71AAE0324*	300	323.9	20.7	170,380	482.6	431.8	31.8	323.9	363.5	508.0	-	12	434-542	14.4
	12	12.750	300	38,303	19.00	17.00	1.25	12.75	14.31	20.00	7/8 x 4		320-400	31.8

\* = 1 for red paint (RAL 3000) finish, 2 for hot dipped galvanised finish  
 \* Dimensions D and E represent minimum and maximum sealing surfaces.  
 • Metric segment bolt are available upon request.  
 † Maximum Pressure and End Load are total from all loads based on standard weight steel pipe. Pressure ratings and end loads may differ on other pipe materials and/or wall thickness. Contact Tyco Technical Services for details.  
 ‡ Mating bolts and nuts are not supplied. Flange mating bolts must be at least SAE J429, Grade 5 or stronger. Bolt lengths are standard; responsibility lies with the purchaser to verify the correct length for the intended application.  
 For information on other alternative sizes, contact Tyco Technical Services  
 See page 22 for general notes, and see pages 76 - 82 for gasket information.  
 See page 25 for Flange Adapter Washers and page 110 Flange Drilling Specifications.

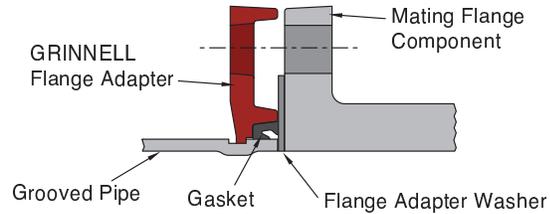
## Flange Adapter Washers



Carbon steel Flange Adapter Washers are required when the Figure 71 Flange Adapter is used against surfaces such as:

- Rubber surfaces
- Adapting to AWWA cast flanges
- Rubber faced wafer valves
- Serrated flange surfaces

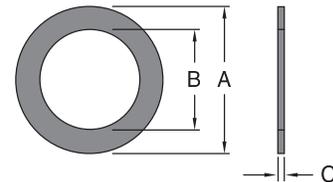
Contact Tyco Technical Services for additional information.



Flange  
Adapters

Part Number		Pipe Size		Dimensions - mm Inches		
PN10/PN16	ANSI	Nominal mm Inches	O.D. mm Inches	A	B	C
INSDIN060M	INS060M	50	60.3	100.1	57.2	3.0
		2	2.375	3.94	2.25	0.12
INSDIN073M	INS073M	65	73.0	119.1	69.9	3.0
		2½	2.875	4.69	2.75	0.12
INSDIN076M	INS076M	65	76.1	124.2	73.2	3.0
		76,1mm	3.000	4.89	2.88	0.12
INSDIN089M	INS089M	80	88.9	131.8	85.9	3.0
		3	3.500	5.19	3.38	0.12
INSDIN114M	INS114M	100	114.3	169.9	111.3	3.0
		4	4.500	6.69	4.38	0.12
INSDIN139M	INS139M	125	139.7	189.2	135.1	3.0
		139,7mm	5.500	7.45	5.32	0.12
INSDIN141M	INS141M	125	141.3	192.0	136.7	3.0
		5	5.563	7.56	5.38	0.12
INSDIN165M	INS165M	150	165.1	215.1	160.5	3.0
		165,1mm	6.500	8.47	6.32	0.12
INSDIN168M	INS168M	150	168.3	217.4	163.6	3.0
		6	6.625	8.56	6.44	0.12
INSDIN219M	INS219M	200	219.1	274.6	214.4	3.0
		8	8.625	10.81	8.44	0.12
INSDIN273M	INS273M	250	273.0	335.0	266.7	3.0
		10	10.750	13.19	10.50	0.12
INSDIN324M	INS324M	300	323.9	404.9	317.5	3.0
		12	12.750	15.94	12.50	0.12

For information on other alternative sizes, contact Tyco Technical Services  
 Plate material: stainless steel ASTM A666 Type 304-2B  
 See Flange Drilling Specifications on page 110.

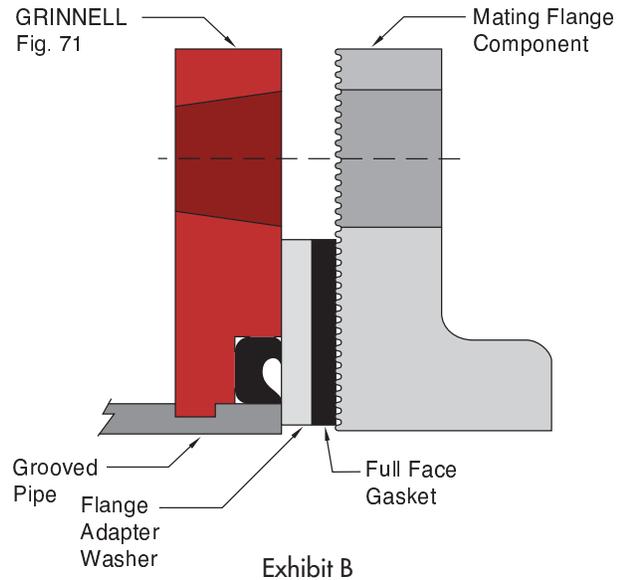
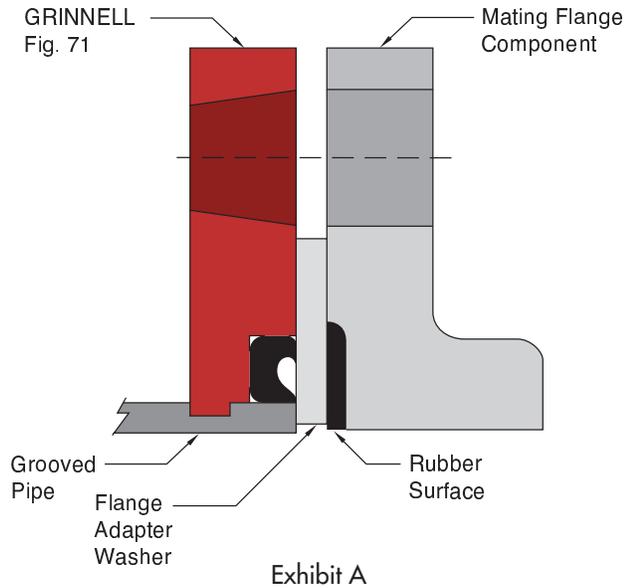


## Flange Adapter Technical Data

Fig 71 GRINNELL Flange Notes:

- A. Fig 71 Flange Adapters have an anti-rotational feature or "Gripping Teeth" cast inside the shoulder.
- B. GRINNELL grooved Flanges are to be assembled on butterfly valves so as not to interfere with actuator, or handle operation. The Flange might not fit all Grooved butterfly valve sizes. Contact Tyco FPP for details
- C. Figure 71 Flange Adapters are not recommended for application which incorporate tierods for anchoring or on a standard fitting within 90° of each other. Contact Tyco FPP for recommendations prior to using with plastic pipe.
- D. Fig 71 GRINNELL Flange sealing gaskets require a hard flat surface for adequate sealing. The use of a metal adaptor insert is required for applications against rubber faced valves or other equipment. The adaptor insert is installed between the GRINNELL Flange sealing gasket and the mating flange or surface to provide an effective sealing surface area.

Flange Adapters



Metal Flange Washer Adapters are required when Figure 71 Flange Adapter is used against surfaces such as:

1. Rubber Surfaces (see exhibit A)
2. Adapting AwwA Cast Flanges
3. Rubber Faced Wafer Valves
4. Serrated Flange Surfaces (see exhibit B)

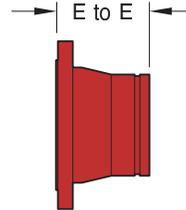


Special attention required during installation to ensure that the gasket is installed correctly with the small side on the inside.

See the picture on the left side.

## Figure 343 & 344 Flange Adapters (PN10/PN16 BS 4504)

**10**  
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Flange  
Adapters

Part Number	Pipe Size		Flange Drilling	E to E mm Inches	Mating Flange		Approx. Weight Kg. Lbs.
	Nominal mm Inches	O.D. mm Inches			Bolt Qty.	Bolt Size mm	
343F00060*	50	60.3	PN10 & PN16	95.0	4	M16 x 65	2.3
	2	2.375		3.74			5.07
343F00076*	65	76.1	PN10 & PN16	95.0	4	M16 x 65	3.3
	76.1mm	3.000		3.74			7.27
343F00089*	80	88.9	PN10 & PN16	100.0	4	M16 x 70	4.0
	3	3.500		3.94			8.82
343F00108*	100	108.0	PN10 & PN16	102.0	8	M16 x 70	4.5
	108.0mm	4.252		4.02			9.92
343F00114*	100	114.3	PN10 & PN16	102.0	8	M16 x 70	4.6
	4	4.500		4.02			10.14
343F00133*	125	133.0	PN10 & PN16	105.0	8	M16 x 75	6.0
	133.0mm	5.236		4.13			13.23
343F00139*	125	139.7	PN10 & PN16	105.0	8	M16 x 75	6.0
	139.7mm	5.500		4.13			13.23
343F00159*	125	159.0	PN10 & PN16	105.0	8	M16 x 75	7.2
	159.0mm	6.260		4.13			15.87
343F00165*	150	165.1	PN10 & PN16	105.0	8	M20 x 80	7.2
	165.1mm	6.500		4.13			15.87
343F00168*	150	168.3	PN10 & PN16	105.0	8	M20 x 80	7.2
	6	6.625		4.13			15.87
344F00219*	200 8**	219.1 8.625	PN10	112.0	8	M20 x 80	10.2
			4.41	22.49			
343F00219*			PN16	112.0	12	M20 x 90	10.2
				4.41			22.49
344F00273*	250 10**	273.0 10.750	PN10	138.0	12	M20 x 90	18.0
			5.43	39.68			
343F00273*			PN16	138.0		M24 x 100	18.0
				5.43			39.68
344F00324*	300 12**	323.9 12.750	PN10	138.0	12	M20 x 90	22.4
			5.43	49.38			
343F00324*			PN16	138.0		M24 x 100	22.4
				5.43			49.38

\* = 1 for red paint (RAL 3000) finish, 2 for hot dipped galvanised finish  
For information on other alternative sizes, contact Tyco Technical Services  
See specifications on page 22 and page 110 Flange Drilling Specifications.

Flange  
Adapters