

TF



Wide Range of Flows and Angles



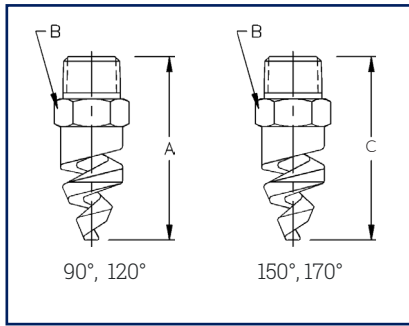
60°, 90°, 120° Metal

DESIGN FEATURES

- The original spiral nozzle invented by BETE and continuously improved
- High energy efficiency
- One-piece/no internal parts
- Clog-resistant performance
- High discharge velocity
- Male connection standard; female connection available by special order
- Available with FM approval, see Fire Protection Nozzle Series N

SPRAY CHARACTERISTICS

- Wide range of flow rates and spray angles
 - Fine atomization
- Spray angles:** 50° to 180°
Flow rates: 0.5 to 3320 GPM
 (Higher flow rates available)



FULL CONE

TF FLOW RATES & SPRAY ANGLES

Materials: Brass, 316 Stainless Steel, PVC, Polypropylene, and PTFE (Poly. not available for TF6 thru TF10).

PTFE not recommended at pressures above red line. Metal ONLY at pressures above green line.

Male or Female Pipe Size	Nozzle Number	Available Spray Angles					K Factor	Flow Rate (GPM) @ Differential Pressure (psi)																Aprox. Free Passage (in.)		Wt. (oz.)		Dim. (in.) for Metal Only*		
		60°	90°	120°	150°	170°		Flow Rate (GPM) @ Differential Pressure (psi)																Orif. Dia.	Dia.	Metal	Plastic	A**	B	C
								5 psi	10 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	200 psi	400 psi												
1/8"	TF6	X	X	X	X	X	0.221	0.495	0.70	0.99	1.21	1.40	1.57	1.71	1.98	2.21	3.13	4.43	0.09	0.09	1.00	0.20	1.69	0.56	1.69					
	TF8						0.411	0.919	1.30	1.84	2.25	2.60	2.91	3.18	3.68	4.11	5.81	8.22	0.13	0.13										
1/4"	TF6						0.221	0.495	0.70	0.99	1.21	1.40	1.57	1.71	1.98	2.21	3.13	4.43	0.09	0.09	1.25	0.20	1.88	0.56	1.88					
	TF8	X	X	X	X	X	0.411	0.919	1.30	1.84	2.25	2.60	2.91	3.18	3.68	4.11	5.81	8.22	0.13	0.13										
3/8"	TF10						0.632	1.41	2.00	2.83	3.46	4.00	4.47	4.90	5.66	6.32	8.94	12.6	0.16	0.13	1.63	0.25	1.88	0.69	2.38					
	TF5						0.221	0.495	0.70	0.99	1.21	1.40	1.57	1.71	1.98	2.21	3.13	4.43	0.09	0.09										
	TF8	X	X	X			0.411	0.919	1.30	1.84	2.25	2.60	2.91	3.18	3.68	4.11	5.81	8.22	0.13	0.13										
	TF10						0.632	1.41	2.00	2.83	3.46	4.00	4.47	4.90	5.66	6.32	8.94	12.6	0.16	0.13										
	TF12						0.949	2.12	3.00	4.24	5.20	6.00	6.71	7.35	8.49	9.49	13.4	19.0	0.19	0.13										
	TF14	X	X	X	X	X	1.28	2.86	4.05	5.73	7.01	8.10	9.06	9.92	11.5	12.8	18.1	25.6	0.22	0.13										
1/2"	TF16						1.68	3.75	5.30	7.50	9.18	10.6	11.9	13.0	15.0	16.8	23.7	33.5	0.25	0.13	3.00	0.50	2.50	0.88	3.06					
	TF20						2.61	5.83	8.25	11.7	14.3	16.5	18.4	20.2	23.3	26.1	36.9	52.2	0.31	0.13										
	TF24	X	X	X	X	X	3.81	8.52	12.1	17.0	20.9	24.1	26.9	29.5	34.1	38.1	53.9	76.2	0.38	0.19										
	TF28						5.22	11.7	16.5	23.3	28.6	33.0	36.9	40.4	46.7	52.2	73.8	104	0.44	0.19										
3/4"	TF32	X	X	X	X	X	6.64	14.8	21.0	29.7	36.4	42.0	47.0	51.4	59.4	66.4	93.9	133	0.50	0.19	5.50	0.88	2.75	1.13	3.50					
	TF40						10.6	23.7	33.5	47.4	58.0	67.0	74.9	82.1	94.8	106	150	212	0.63	0.25										
1"	TF48	X	X	X	X	X	15.0	33.6	47.5	67.2	82.3	95.0	106	116	134	150	212	300	0.75	0.25	8.50	2.50	3.63	1.38	4.38					
	TF56						20.4	45.6	64.5	91.2	112	129	144	158	182	204	288	408	0.88	0.31										
1 1/2"	TF64	X	X	X	X	X	26.7	59.7	84.5	120	146	169	189	207	239	267	378	534	1.00	0.31	22.0	4.25	4.38	2.00	5.38					
	TF72						30.4	67.9	96.0	136	166	192	215	235	272	304	429	607	1.13	0.31										
	TF88	X	X	X	X	X	44.3	99.0	140	198	242	280	313	343	396	443	626	885	1.38	0.44										
2"	TF96						55.9	125	177	250	306	354	395	433	500	559	791	1120	1.50	0.44	46.0	8.00	5.63	2.50	5.88					
	TF112	X	X	X	X	X	81.0	181	256	362	443	512	572	627	724	810	1150	1620	1.75	0.56										
3"	TF128						107	239	339	480	588	679	759	831	960	1070	1510	2150	2.00	0.56	114	20.0	8.63	3.50	9.25					
	TF160	X	X	X			166	371	525	742	909	1050	1170	1290	1480	1660	2350	3320	2.50	0.63										

Flow Rate (GPM) = $K\sqrt{PSI}$ * Dimensions are for bar stock, cast sizes may vary. **60° nozzles slightly longer, consult BETE. 1 Three turn nozzles.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

TFXP



Largest Free Passage



Metal

Plastic

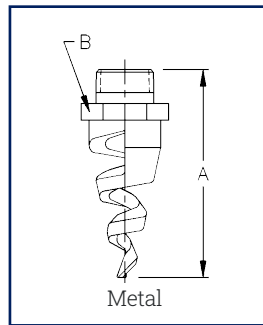
DESIGN FEATURES

- Largest free passage in the original spiral nozzle invented by BETE and continuously improved
- Passes particles equal to orifice size
- Clog-resistant
- One-piece, extra heavy construction
- High energy efficiency
- Male connection

SPRAY CHARACTERISTICS

- Wide range of flow rates
 - Fine atomization
- Spray angles:** 90° and 120°
Flow rates: 3.0 to 3320 GPM

APPROXIMATE DIMENSIONS FOR METAL ONLY. OVERALL LENGTH (MAX)



Pipe Size	Nozzle Number	Inches	
		Dim A	Dim B
3/8"	TF12	2.88	0.88
	TF14	2.88	0.88
	TF16	2.75	0.88
	TF20	3.12	0.88
1/2"	TF24	3.47	1.13
	TF28	3.50	1.13
3/4"	TF32	5.13	1.75
1"	TF40	5.25	2.00
	TF48	6.63	2.00

Pipe Size	Nozzle Number	Inches	
		Dim A	Dim B
1 1/2"	TF56	8.50	2.50
	TF64	8.43	2.50
	TF72	9.49	2.50
2"	TF88	10.59	2.63
	TF96	10.50	2.63
3"	TF112	12.00	3.56
	TF128	11.88	3.50
4"	TF160	12.00	4.56

FULL CONE

TFXP FLOW RATES & SPRAY ANGLES

Materials: Brass, 316 Stainless Steel, PVC, Polypropylene, Cobalt Alloy 6, and PTFE.

PTFE not recommended at pressures above red line. Metal ONLY at pressures above green line.

Male or Female Pipe Size	Nozzle Number	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)											Aprox. Free Passage(in.) Orif. Dia.	Wt. (oz.) 90° 120°	
			10	20	30	40	50	60	80	100	200	400	Metal		Plastic	
			psi	psi	psi	psi	psi	psi	psi	psi	psi	psi				
3/8"	TF12	0.949	3.00	4.24	5.20	6.00	6.71	7.35	8.49	9.49	13.4	19.0	0.19	0.20	0.04	
	TF14	1.28	4.05	5.73	7.01	8.10	9.06	9.92	11.5	12.8	18.1	25.6	0.22			
	TF16	1.68	5.30	7.50	9.2	10.6	11.9	13.0	15.0	16.8	23.7	33.5	0.25			
	TF20	2.61	8.25	11.7	14.3	16.5	18.4	20.2	23.3	26.1	36.9	52.2	0.31			
1/2"	TF24	3.81	12.1	17.0	20.9	24.1	26.9	29.5	34.1	38.1	53.9	76.2	0.38	0.41	0.06	
	TF28	5.22	16.5	23.3	28.6	33.0	36.9	40.4	46.7	52.2	73.8	104	0.44			
3/4"	TF32	6.64	21.0	29.7	36.4	42.0	47.0	51.4	59.4	66.4	93.9	133	0.50	1.56	0.22	
1"	TF40	10.6	33.5	47.4	58.0	67.0	74.9	82.1	94.8	106	150	212	0.63	1.56	0.25	
	TF48	15.0	47.5	67.2	82.3	95.0	106	116	134	150	212	300	0.75	2.06	0.47	
1 1/2"	TF56	20.4	64.5	91.2	112	129	144	158	182	204	288	408	0.88	4.00	0.59	
	TF64	26.7	84.5	120	146	169	189	207	239	267	378	534	1.00	2.44	0.53	
	TF72	30.4	96.0	136	166	192	215	235	272	304	429	607	1.13	2.81	0.53	
2"	TF88	44.3	140	198	242	280	313	343	396	443	626	885	1.38	5.12	1.25	
	TF96	55.9	177	250	306	354	395	433	500	559	791	1120	1.50	6.31	1.25	
3"	TF112	81.0	256	362	443	512	572	627	724	810	1150	1620	1.75**	8.37	1.37	
	TF128	107	339	480	588	679	759	829	960	1070	1510	2150	2.00**	9.75	1.50	
4"	TF160	166	525	742	909	1050	1170	1290	1480	1660	2350	3320	2.50**	15.6	1.87	

Flow Rate (GPM) = $\sqrt{K \cdot \text{PSI}}$ **Free passage is 1.5"

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

EZ TF & WL



EZ Change Quick Connection System



EZTF



EZWL

DESIGN FEATURES

- Nozzles can be changed in seconds without tools
- Three part nozzle, base, gasket and interchangeable tip
- Exclusive ramped engagement for efficient, automatic alignment
- Threaded adapters will accommodate other standard BETE nozzles. Shut-off plugs are also available
- Threaded adapters will accommodate other standard BETE nozzles. Shut-off plugs are also available
- Sanitary EZs are available with weld connection and no knurling

SPRAY CHARACTERISTICS

Spray Angle:

EZTF: 60°, 90°, 120°, 150°, and 170°

Flow rates: 0.04 to 58.4 GPM

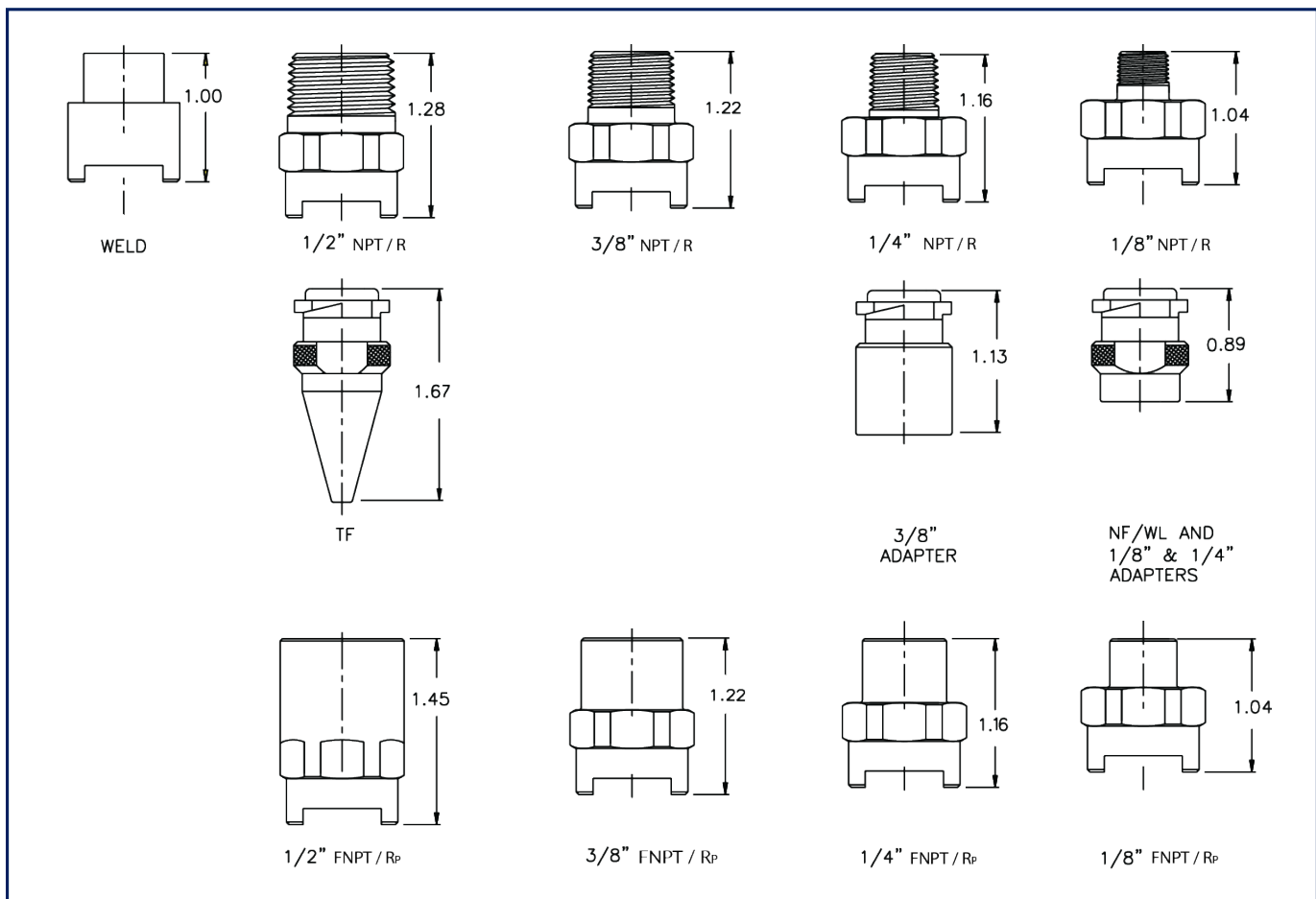
More EZ tips:

Hollow Cone: page 46

Flat Fan: pages 66 and 67

Pipe Size	Approx. Assembly Dim (in.)		Wt. (oz)
	HEX	Length	
1/8"	0.88	2.41	2.2
1/4"	0.88	2.53	2.2
3/8"	0.88	2.59	2.6
1/2"	0.88	2.65	2.6

DRAWINGS & DIMENSIONS FOR EZ TF & EZ WL



FULL CONE



EZ Change Quick Connection System

EZ TF SPIRAL FLOW RATES

Materials: Brass, Viton gaskets standard. 316 Stainless Steel available upon request.

Pipe Size	Nozzle Number	Available Spray Angles	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)											Approx. Orifice Dia. (in.)
				5	10	20	30	40	60	80	100	200	400	500	
				psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	
1/8" TO 1/2"	EZTF6	60°, 90°, 120°, 150° and 170°	0.221	0.49	0.70	0.99	1.21	1.40	1.71	1.98	2.21	3.13	4.43	4.94	0.09
	EZTF8		0.411	0.92	1.30	1.84	2.25	2.60	3.18	3.68	4.11	5.81	8.22	9.19	0.13
	EZTF10		0.632	1.41	2.00	2.83	3.46	4.00	4.90	5.66	6.32	8.94	12.6	14.1	0.16
	EZTF12		0.949	2.12	3.00	4.24	5.20	6.00	7.35	8.49	9.49	13.4	19.0	21.2	0.19
1/4" TO 1/2"	EZTF14	60°, 90°, 120°, 150° and 170°	1.28	2.86	4.05	5.73	7.01	8.10	9.92	11.5	12.8	18.1	25.6	28.6	0.22
	EZTF16		1.68	3.76	5.30	7.50	9.18	10.6	13.0	15.0	16.8	23.7	33.5	37.6	0.25
	EZTF20		2.61	5.83	8.25	11.7	14.3	16.5	20.2	23.3	26.1	36.9	52.2	58.4	0.31

Flow Rate (GPM) = K (PSI)^{0.47}

TF14-TF20 not available with 1/8" base

EZ WL FULL CONE FLOW RATES & DIMENSIONS

Materials: Brass, Viton gaskets standard. 316 Stainless Steel available upon request.

Pipe Size	Nozzle Number	Available Spray Angles	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)											Approx. Orifice Dia. (in.)
				5	10	20	30	40	60	80	100	200	400	500	
				psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	
1/8" TO 1/2"	EZWL 1/4	30°, 60°, 90°, 120°	0.044	0.09	0.13	0.18	0.22	0.25	0.30	0.35	0.38	0.53	0.74	0.82	0.043
	EZWL 1/2		0.088	0.19	0.26	0.36	0.44	0.50	0.60	0.69	0.77	1.07	1.48	1.64	0.055
	EZWL 3/4		0.132	0.28	0.39	0.54	0.66	0.75	0.91	1.04	1.15	1.60	2.21	2.46	0.072
	EZWL1		0.177	0.38	0.52	0.72	0.87	1.00	1.21	1.39	1.54	2.13	2.95	3.28	0.082
	EZWL1 1/2		0.265	0.56	0.78	1.08	1.31	1.50	1.81	2.08	2.31	3.20	4.43	4.92	0.109
	EZWL2		0.353	0.75	1.04	1.44	1.75	2.00	2.42	2.77	3.08	4.26	5.90	6.56	0.125
	EZWL3		0.530	1.13	1.56	2.17	2.62	3.00	3.63	4.16	4.61	6.39	8.85	9.83	0.156
	EZWL4		0.706	1.51	2.08	2.89	3.49	4.00	4.84	5.54	6.15	8.52	11.8	13.1	0.188
	EZWL5		0.883	1.88	2.26	3.61	4.37	5.00	6.05	6.93	7.69	9.31	10.6	14.8	0.203
	EZWL6		1.06	2.26	3.13	4.33	5.24	6.00	7.26	8.31	9.23	11.2	12.8	17.7	0.219

Flow Rate (GPM) = K (PSI)^{0.47}

Note: Square pattern also available

Dimensions are approximate. Check with BETE for critical dimension applications.

SF



Snap Release Nozzle System



Double Clamp Adapter with Spiral Nozzle

DESIGN FEATURES

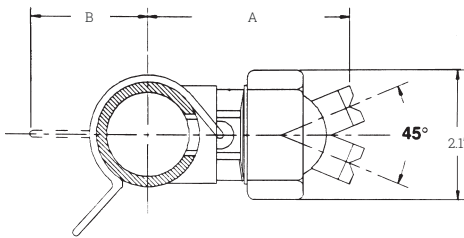
- Nozzles can be quickly changed and aligned by hand without tools
- Clamp-on adapter fits any style nozzle
- Quick set-up system features special "Snap-in" tips
- Polypropylene, resistant to most acids and alkalis
- Double clamp base or adapter available for higher pressure operation

SPRAY CHARACTERISTICS

- Quick Set-up System can be provided with fan, hollow or full cone spray tips
- Full 45° alignment of spray without tools

Spray angles: 35°, 65°, 80°

Flow rates: 0.35 to 15.8 GPM



Pipe Size	Body Color	Dimensions (in.)		Wt. (oz)
		A	B	
1"	blue	3.3	1.7	2.0
1-1/4"	red	3.4	1.9	2.2
1-1/2"	purple	3.6	2.0	2.2
2"	green	3.7	2.2	2.2

"SNAP-IN"
Full Cone Nozzle Tip

Single-Clamp Adapter

CLAMP-ON ADAPTER

- Available for 1", 1-1/4", 1-1/2" and 2" pipe.
- Available with 1/8", 1/4", 3/8", 1/2" NPT female threads; or 1/8" BSP female threads
- Available with single or double clamp.

• TO ORDER ADAPTER Specify: Pipe Size, thread size, thread type, number of clamps, materials.

Single-Clamp Base

Retainer Cap

Double-Clamp Adapter

"SNAP-IN"
Threaded Swivel Ball
Available with 1/8", 1/4",
3/8", 1/2"
NPT or BSP
Female threads

SF FLOW RATES & DIMENSIONS

Materials: Polypropylene, 302 Stainless Steel clamp, EPDM seal.

Pipe Size	Nozzle Number	Available Spray Angle	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)									
				5	10	15	20	30	40	60	80	100	
				psi	psi	psi	psi	psi	psi	psi	psi	psi	
1"	SF31FC	35°	0.527	1.14	1.59	1.94	2.22	2.70	3.10	3.77	4.32	4.81	
1-1/4"	SF32FC	80°	0.545	1.18	1.64	2.00	2.29	2.79	3.20	3.89	4.46	4.97	
2"	SF102FC	65°	1.736	3.76	5.24	6.37	7.31	8.88	10.2	12.4	14.2	15.8	

Flow Rate (GPM) = K(Psi)^{0.48}

Optional Materials: Viton seal.

NOTE: Drill 21/32" hole in pipe to install SF.

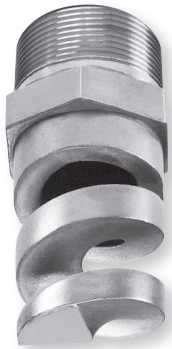
NOTE: Maximum recommended working pressures for SF assemblies: with single clamp, 70 psi for 1" pipe; 50 psi for 1-1/4" and 1-1/2" pipe; and 35 psi for 2" pipe; with double clamp up to 150 psi.

FULL CONE

TF



Wide Range of Flows and Angles

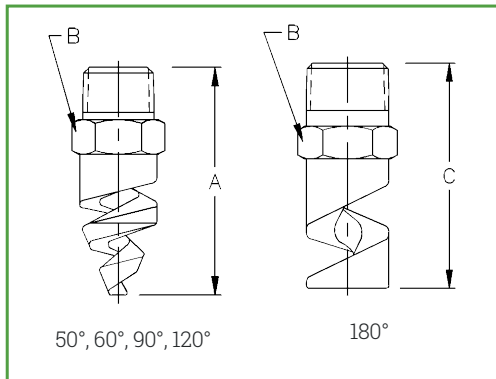


DESIGN FEATURES

- The original spiral nozzle invented by BETE and continuously improved
- High energy efficiency
- One-piece/no internal parts
- Clog-resistant performance
- High discharge velocity

SPRAY CHARACTERISTICS

- Wide range of flow rates and spray angles
 - Fine atomization
- Spray angles:** 50° to 180°
Flow rates: 0.5 to 3320 GPM
 (Higher flow rates available)



Male Pipe Size	Nozzle Number	Dimensions (in.) for Metals Only		
		50°, 60°, 90°, 120°	180°	
		A	B	C
1/4"	TF6	1.88	0.56	
1/4"	TF8, TF10	1.88	0.56	1.88
3/8"	TF12, TF14, TF16, TF20	1.88	0.69	1.88
1/2"	TF24, TF28	2.50	0.88	2.38
3/4"	TF32	2.75	1.13	3
1"	TF40, TF48	3.63	1.38	3.63
1 1/2"	TF56, TF64, TF72	4.38	2	4.38
2"	TF88	5.63	2.5	5
2"	TF96	6.88	2.5	5
3"	TF112, TF128	8.63	3.5	
4"	TF160	10.1	4.5	12.75

* Dimensions are for bar stock, cast sizes may vary.

TF FLOW RATES & DIMENSIONS

Materials: Brass, 316 Stainless Steel, PVC, Polypropylene and PTFE (Poly, not available for TF6 thru TF10).

Male Pipe Size	Nozzle Number	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)											Approx. (in.)		Wt. (oz.)	
			5	10	20	30	40	50	60	80	100	200	400	Orif. Dia.	Free Pass	60°	90° 120°
			psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi			
1/4"	TF6	0.221	0.495	0.70	0.99	1.21	1.40	1.57	1.71	1.98	2.21	3.13	4.43	0.09	0.09	1.25	0.25
	TF8	0.411	0.919	1.30	1.84	2.25	2.60	2.91	3.18	3.68	4.11	5.81	8.22	0.13	0.13		
	TF10	0.632	1.41	2.00	2.83	3.46	4.00	4.47	4.90	5.66	6.32	8.94	12.6	0.16	0.13		
3/8"	TF12	0.949	2.12	3.00	4.24	5.20	6.00	6.71	7.35	8.49	9.49	13.4	19.0	0.19	0.13	1.75	0.25
	TF14	1.28	2.86	4.05	5.73	7.01	8.10	9.06	9.92	11.5	12.8	18.1	25.6	0.22	0.13		
	TF16	1.68	3.75	5.30	7.50	9.18	10.6	11.9	13.0	15.0	16.8	23.7	33.5	0.25	0.13		
1/2"	TF20	2.61	5.83	8.25	11.7	14.3	16.5	18.4	20.2	23.3	26.1	36.9	52.2	0.31	0.13	3.00	0.50
	TF24	3.81	8.52	12.1	17.0	20.9	24.1	26.9	29.5	34.1	38.1	53.9	76.2	0.38	0.19		
	TF28	5.22	11.7	16.5	23.3	28.6	33.0	36.9	40.4	46.7	52.2	73.8	104	0.44	0.19		
3/4"	TF32	6.64	14.8	21.0	29.7	36.4	42.0	47.0	51.4	59.4	66.4	93.9	133	0.50	0.19	3.00	1.00
1"	TF40	10.6	23.7	33.5	47.4	58.0	67.0	74.9	82.1	94.8	106	150	212	0.63	0.25	15.0	3.00
	TF48	15.0	33.6	47.5	67.2	82.3	95.0	106	116	134	150	212	300	0.75	0.25		
	TF56	20.4	45.6	64.5	91.2	112	129	144	158	182	204	288	408	0.88	0.31		
1 1/2"	TF64	26.7	59.7	84.5	120	146	169	189	207	239	267	378	534	1.00	0.31	30.0	6.00
	TF72	30.4	67.9	96.0	136	166	192	215	235	272	304	429	607	1.13	0.31		
	TF88	44.3	99.0	140	198	242	280	313	343	396	443	626	885	1.38	0.44		
2"	TF96	55.9	125	177	250	306	354	395	433	500	559	791	1120	1.50	0.44	46.0	8.00
	TF112	81.0	181	256	362	443	512	572	627	724	810	1150	1620	1.75	0.56	54.0	9.00
	TF128	107	239	339	480	588	679	759	831	960	1070	1510	2150	2.00	0.56		
4"	TF160	166	371	525	742	909	1050	1170	1290	1480	1660	2350	3320	2.50	0.63		

PTFE not recommended at pressures above red line

Metal ONLY at pressures above green line

Flow Rate (GPM) = $K\sqrt{PSI}$

*150# flange standard; other options available upon request.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.



EZ Change Quick Connection System



DESIGN FEATURES

- Nozzles can be changed in seconds without tools
- Three part nozzle, base, gasket and interchangeable tip
- Exclusive ramped engagement for efficient, automatic alignment
- Threaded adapters will accommodate other standard BETE nozzles. Shut-off plugs are also available
- Sanitary EZs are available with weld connection and no knurling

SPRAY CHARACTERISTICS

Full Cone: page 30

Flat Fan: pages 66 and 67

Spray Angle:

EZTF: 60°, 90°, 120°, and 180°

EZWT: 70° and 110°

More EZ tips:

Flow rates: 0.04 to 58.4 GPM

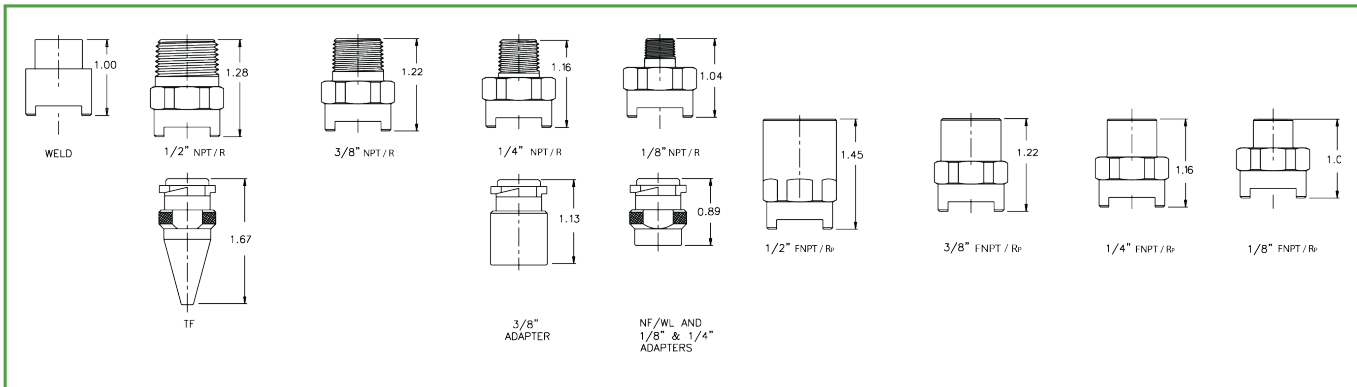
Dimensions for EZWT

Male Pipe Size	Dimensions (in.)	
	A	B
1/8"	0.88	1.99
1/4"	0.88	2.11
3/8"	0.88	2.17
1/2"	0.88	2.23

Dimensions for EZTF

Male Pipe Size	Dimensions (in.)	
	A	B
1/8"	0.88	2.41
1/4"	0.88	2.53
3/8"	0.88	2.59
1/2"	0.88	2.65

DRAWINGS & DIMENSIONS FOR EZ TF & EZ WT



HOLLOW CONE

EZ TF SPIRAL FLOW RATES & DIMENSIONS

Materials: Brass, Viton gaskets standard. 316 Stainless Steel available upon request.

Pipe Size	Nozzle Number	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)											Approx. Orifice Dia. (in.)	Wt. (oz.)
			5	10	20	30	40	60	80	100	200	400	500		
			psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi		
1/8" TO 1/2"	EZTF6	0.221	0.49	0.70	0.99	1.21	1.40	1.71	1.98	2.21	3.13	4.43	4.94	0.09	2.2
	EZTF8	0.411	0.92	1.30	1.84	2.25	2.60	3.18	3.68	4.11	5.81	8.22	9.19	0.13	
	EZTF10	0.632	1.41	2.00	2.83	3.46	4.00	4.90	5.66	6.32	8.94	12.6	14.1	0.16	
	EZTF12	0.949	2.12	3.00	4.24	5.20	6.00	7.35	8.49	9.49	13.4	19.0	21.2	0.19	
1/4" TO 1/2"	EZTF14	1.28	2.86	4.05	5.73	7.01	8.10	9.92	11.5	12.8	18.1	25.6	28.6	0.22	2.6
	EZTF16	1.68	3.76	5.30	7.50	9.18	10.6	13.0	15.0	16.8	23.7	33.5	37.6	0.25	
	EZTF20	2.61	5.83	8.25	11.7	14.3	16.5	20.2	23.3	26.1	36.9	52.2	58.4	0.31	

Flow Rate (GPM) = $K\sqrt{PSI}$

TF14-TF20 not available with 1/8" base

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.



EZ Change Quick Connection System

EZ WT HOLLOW CONE FLOW RATES & DIMENSIONS

Materials: Brass, Viton gaskets standard. 316 Stainless Steel available upon request.

Pipe Size	Nozzle Number	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)										Approx. Orifice Dia. (in.)	Wt. (oz.)
			5	10	20	40	60	80	100	200	400	500		
			psi	psi	psi	psi	psi	psi	psi	psi	psi	psi		
1/8"	EZWT10	0.0158	0.04	0.05	0.07	0.10	0.12	0.14	0.16	0.22	0.32	0.35	0.03	2.2
	EZWT12	0.0190	0.04	0.06	0.08	0.12	0.15	0.17	0.19	0.27	0.38	0.42	0.03	
	EZWT18	0.0285	0.06	0.09	0.13	0.18	0.22	0.25	0.28	0.40	0.57	0.64	0.05	
	EZWT20	0.0316	0.07	0.10	0.14	0.20	0.24	0.28	0.32	0.45	0.63	0.71	0.06	
	EZWT27	0.0427	0.10	0.14	0.19	0.27	0.33	0.38	0.43	0.60	0.85	0.95	0.05	
	EZWT35	0.0553	0.12	0.18	0.25	0.35	0.43	0.49	0.55	0.78	1.11	1.24	0.06	
	EZWT40	0.0632	0.14	0.20	0.28	0.40	0.49	0.57	0.63	0.89	1.26	1.41	0.08	
	EZWT42	0.0664	0.15	0.21	0.30	0.42	0.51	0.59	0.66	0.94	1.33	1.48	0.06	
1/4"	EZWT48	0.0759	0.17	0.24	0.34	0.48	0.59	0.68	0.76	1.07	1.52	1.70	0.06	2.2
	EZWT50	0.0791	0.18	0.25	0.35	0.50	0.61	0.71	0.79	1.12	1.58	1.77	0.08	
	EZWT53	0.084	0.19	0.27	0.37	0.53	0.65	0.75	0.84	1.19	1.68	1.87	0.11	
	EZWT60	0.095	0.21	0.30	0.42	0.60	0.73	0.85	0.95	1.34	1.90	2.12	0.09	
	EZWT68	0.108	0.24	0.34	0.48	0.68	0.83	0.96	1.08	1.52	2.15	2.40	0.13	
3/4"	EZWT70	0.111	0.25	0.35	0.49	0.70	0.86	0.99	1.11	1.57	2.21	2.47	0.09	2.6
	EZWT80	0.126	0.28	0.40	0.57	0.80	0.98	1.13	1.26	1.79	2.53	2.83	0.08	
	EZWT100	0.158	0.35	0.50	0.71	1.00	1.22	1.41	1.58	2.24	3.16	3.54	0.13	
	EZWT130	0.206	0.46	0.65	0.92	1.30	1.59	1.84	2.06	2.91	4.11	4.60	0.13	
	EZWT150	0.237	0.53	0.75	1.06	1.50	1.84	2.12	2.37	3.35	4.74	5.30	0.22	
	EZWT160	0.253	0.57	0.80	1.13	1.60	1.96	2.26	2.53	3.58	5.06	5.66	0.16	
1/2"	EZWT180	0.285	0.64	0.90	1.27	1.80	2.20	2.55	2.85	4.02	5.69	6.36	0.17	2.9
	EZWT200	0.316	0.71	1.00	1.41	2.00	2.45	2.83	3.16	4.47	6.32	7.07	0.22	
	EZWT220	0.348	0.78	1.10	1.56	2.20	2.69	3.11	3.48	4.92	6.96	7.78	0.22	
	EZWT240	0.379	0.85	1.20	1.70	2.40	2.94	3.39	3.79	5.37	7.59	8.49	0.20	
	EZWT260	0.411	0.92	1.30	1.84	2.60	3.18	3.68	4.11	5.81	8.22	9.19	0.22	
	EZWT270	0.427	0.95	1.35	1.91	2.70	3.31	3.82	4.27	6.04	8.54	9.55	0.22	
	EZWT280	0.443	0.99	1.40	1.98	2.80	3.43	3.96	4.43	6.26	8.85	9.90	0.20	
	EZWT300	0.474	1.06	1.50	2.12	3.00	3.67	4.24	4.74	6.71	9.49	10.6	0.25	
	EZWT340	0.538	1.20	1.70	2.40	3.40	4.16	4.81	5.38	7.60	10.8	12.0	0.28	
	EZWT350	0.553	1.24	1.75	2.47	3.50	4.29	4.95	5.53	7.83	11.1	12.4	0.23	
EZWT400	0.632	1.41	2.00	2.83	4.00	4.90	5.66	6.32	8.94	12.7	14.1	0.25		

Flow Rate (GPM) = $K\sqrt{PSI}$

TF14- TF20 not available with 1/8" base

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

HOLLOW CONE

SF



Snap Release Nozzle System



DESIGN FEATURES

- Nozzles can be quickly changed and aligned by hand without tools
- Clamp-on adapter fits any style nozzle
- Quick set-up system features special "Snap-in" tips
- Polypropylene, resistant to most acids and alkalis
- Double clamp base or adapter available for higher pressure operation

SPRAY CHARACTERISTICS

- Quick Set-up System can be provided with fan, hollow or full cone spray tips
- Full 45° alignment of spray without tools

More SF Nozzle Systems:

Full Cone: page 31

Flat Fan: page 68

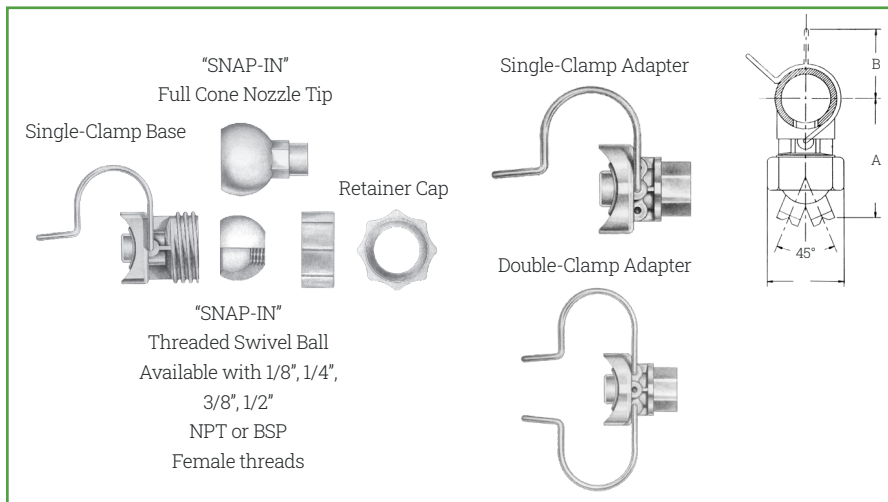
Flow rates: 0.35 to 15.8 GPM

Spray angles:

Fan: 40°, 50°, 65°, 80°, 95°

Hollow Cone: 50°, 65°, 90°

Full Cone: 35°, 65°, 80°



Female Pipe Size	Dimensions (in.)	
	A	B
1"	3.3	1.7
1 1/4"	3.4	1.9
1 1/2"	3.6	2
2"	3.7	2.2

Pipe Size	Body Color	Wt. (oz.)
1"	blue	2.0
1-1/4"	red	2.2
1-1/2"	purple	2.2
2"	green	2.2

HOLLOW CONE

CLAMP-ON ADAPTER

- Available for 1", 1-1/4", 1-1/2" and 2" pipe.
- Available with 1/8", 1/4", 3/8", 1/2" NPT female threads; or 1/8" BSP female threads
- Available with single or double clamp.
- **TO ORDER ADAPTER Specify: Pipe Size, thread size, thread type, number of clamps, materials.**

SF FLOW RATES & DIMENSIONS

Materials: Polypropylene, 302 Stainless Steel clamp, EPDM seal. Optional Materials: Viton seal.

Nozzle Number	Available Spray Angle	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)								
			5	10	15	20	30	40	60	80	100
			psi	psi	psi	psi	psi	psi	psi	psi	psi
SF15HC	90°	0.237	0.53	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37
SF58HC	50°	0.917	2.05	2.90	3.55	4.10	5.20	5.80	7.10	8.20	9.17
SF100HC	65°	1.581	3.53	5.00	6.12	7.07	8.65	10.0	12.2	14.1	15.8

Flow Rate (GPM) = $K\sqrt{PSI}$

NOTE: Drill 21/32" hole in pipe to install SF.

NOTE: Maximum recommended working pressures for SF assemblies: with single clamp, 70 psi for 1" pipe; 50 psi for 1-1/4" and 1-1/2" pipe; and 35 psi for 2" pipe; with double clamp up to 150 psi.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

N



Fire Protection



DESIGN FEATURES

- Simplicity of design
- One-piece/no internal parts
- Clog-resistant
- Three standard pipe sizes—1/2", 1", and 1-1/2"
- Male connection
- Factory Mutual, U.S. Coast Guard, and Lloyd's Register approved models

SPRAY CHARACTERISTICS

- Two spray cones: an outer, wide angle cone and a narrower inner cone combine to give full cone effect

Spray angles: 90° and 120° standard

Flow rates: 3.0 to 534 GPM

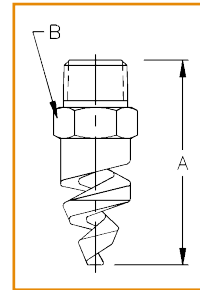
Nozzle with optional protective cover
Use of blow-off covers requires a pressure of 25 PSI or higher



N6 nozzles protect a propane storage tank from fire and explosion.

N3-N5W: U.S. Coast Guard approved

TF24-150° also available in Factory Mutual approved model (see page 20)



Pipe Size	Approximate Dimensions (in)		Wt. (lbs)
	A	B	
1/2"	2.50	0.88	3.00
1"	3.63	1.38	8.50
1 1/2"	4.38	2.00	27.0

FIRE PROTECTION

N FLOW RATES & DIMENSIONS

Materials: Brass and 316 Stainless Steel. Available in nickel aluminum bronze and titanium, plus other materials available on request.

Standard Cover Materials: Brass for brass nozzles, 304 Stainless Steel for other nozzle materials.

Pipe Size	Nozzle Number	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)									Approx. Orifice Diam. (In)	Approx. Free Passage (in)
			10	20	30	40	60	80	100	200	400		
			psi	psi	psi	psi	psi	psi	psi	psi	psi		
1/2"	N1	0.949	3.00	4.24	5.20	6.00	7.35	8.49	9.49	13.4	19.0	0.19	0.13
	N2	1.68	5.30	7.50	9.18	10.6	13.0	15.0	16.8	23.7	33.5	0.27	0.13
	N3	2.61	8.25	11.7	14.3	16.5	20.2	23.3	26.1	36.9	52.2	0.34	0.13
	N4	3.81	12.1	17.0	20.9	24.1	29.5	34.1	38.1	53.9	76.2	0.43	0.19
	N5	5.22	16.5	23.3	28.6	33.0	40.4	46.7	52.2	73.8	104	0.53	0.19
1"	N6	6.64	21.0	29.7	36.4	42.0	51.4	59.4	66.4	93.9	133	0.56	0.19
	N7	10.6	33.5	47.4	58.0	67.0	82.1	94.8	106	150	212	0.77	0.25
1 1/2"	N8	15.0	47.5	67.2	82.3	95.0	116	134	150	212	300	0.93	0.25
	N9	20.4	64.5	91.2	112	129	158	182	204	288	408	1.09	0.31
	N10	26.7	84.5	120	146	169	207	239	267	378	534	1.29	0.31

Flow Rate (GPM) = $K\sqrt{PSI}$

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

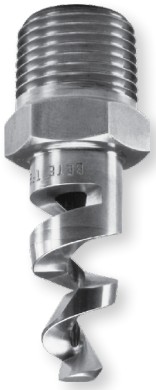


All N1-N3W nozzles provided with integral strainer.
Strainer material: 316SS
24 mesh (0.027" opening)

TF29-180



FireBēter: Ultra-Wide Full Cone



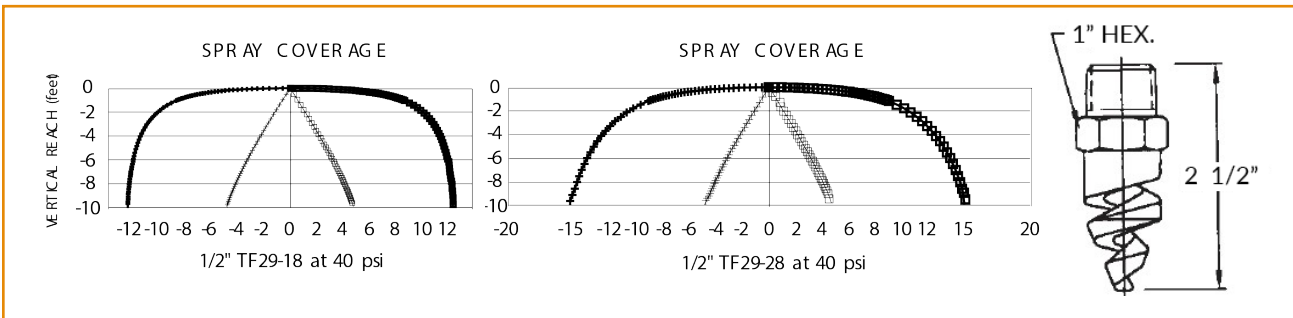
DESIGN FEATURES

- Two-turn spiral
- Ultra-wide spray coverage very close to the nozzle
- One-piece design/no internal parts
- Excellent choice for deluge applications where there is little distance between nozzle and material being protected

SPRAY CHARACTERISTICS

- Wide spray coverage
- Fine atomization
- Spray angle:** 180° extra-wide angle
- Flow rates:** 3.80 to 110 GPM

TF29-180 nozzles in brass can be supplied in full compliance with MIL-S-24660.



TF29-180 FLOW RATES & DIMENSIONS

Materials: Brass and 316 Stainless Steel.

Pipe Size	Nozzle Number	Available Spray Angles	K Factor	Flow Rate (GPM) @ Differential Pressure (psi)										Approx. Free Pass. & Orifice Dia. (in.)
				10	20	30	40	50	60	80	100	200	400	
				psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	
1/2"	TF29-180-16	180°	1.20	3.80	5.37	6.58	7.60	8.50	9.31	10.7	12.0	17.0	24.0	0.203
	TF29-180-18		1.90	6.00	8.49	10.4	12.0	13.4	14.7	17.0	19.0	26.8	37.9	0.250
	TF29-180-21		2.29	7.25	10.3	12.6	14.5	16.2	17.8	20.5	22.9	32.4	45.9	0.281
	TF29-180-24		3.00	9.50	13.4	16.5	19.0	21.2	23.3	26.9	30.0	42.5	60.1	0.328
	TF29-180-28		3.91	12.4	17.5	21.4	24.7	27.6	30.3	34.9	39.1	55.2	78.1	0.375
	TF29-180-32		5.50	17.4	24.6	30.1	34.8	38.9	42.6	49.2	55.0	77.8	110	0.438

Flow Rate (GPM) = $K\sqrt{PSI}^{0.50}$

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

FIRE PROTECTION