

BEX ZIP-TIP® quick-disconnect spray nozzles are designed to allow fast and easy installation and removal of spray nozzle tips and adapter fittings, while providing positive alignment between nozzle body and nozzle tip. No tools are required to install or remove ZIP-TIP nozzle tips or adapters. Installation involves simply inserting a ZIP-TIP nozzle tip into a ZIP-TIP nozzle body, pressing lightly, and twisting in a clockwise direction until the nozzle tip or adapter snaps into aligned position. ZIP-TIP nozzles utilize standard

“O-ring” seals, where the “O-rings” are located on, and removed with, the nozzle tip. These seals are supplied with each new spray nozzle tip or adapter fitting. Any “Z” series (e.g. “ZF”), ZIP-TIP nozzle tip or adapter will fit any “Z” series ZIP-TIP nozzle body. Likewise, the “ZL” series (e.g. “ZLF”), ZIP-TIP nozzle tip or adapter for larger capacities will fit any “ZL” series ZIP-TIP nozzle body (note that a minimum pipe size is required for specific capacities). ZIP-TIP nozzles are available in 303 and 316 stainless steel as

well as brass, and all are supplied with VITON® seals standard. Other nozzle tip, nozzle body, and seal materials are available upon request. A wide range of styles and capacities of ZIP-TIP nozzle tips and nozzle bodies for flat, full-cone, and hollow-cone spray patterns are available. ZIP-TIP spray nozzles are rated to 20 bar. (NOTE: Metal and molded plastic ZIP-TIP components are not interchangeable).

U.S. Patent No. 5,421,522

ZIP-TIP NOZZLE INSTALLATION & REMOVAL

- NO TOOLS REQUIRED for ZIP-TIP nozzle tip installation or removal
- POSITIVE ALIGNMENT of spray pattern
- “Light-lock” feature allows for easy removal
- Seals located on and removed with nozzle tip for easy flushing
- New seals supplied with each new nozzle tip (VITON® standard)
- Uses standard “O-RING” seals, available in a variety of materials
- High flow capacities in a small assembly size



ZIP-TIP BODIES AND ADAPTERS



ZBD, ZLBD
1/8" - 3/4" BSPT Male Only
Brass, 303 & 316 SS



ZAJ, ZLAJ
1/8" - 1/2" BSPT Male Only
Brass, 303 & 316 SS



ZTA, ZLTA
1/8" - 1/2" BSPT Female Only
Brass, 303 & 316 SS



ZPLUG, ZLPLUG
To shut off individual nozzles
Brass, 303 & 316 SS

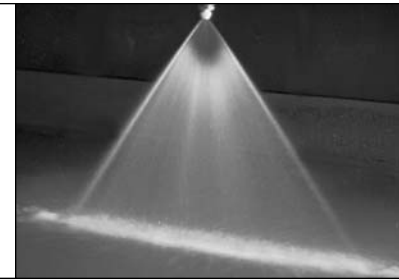
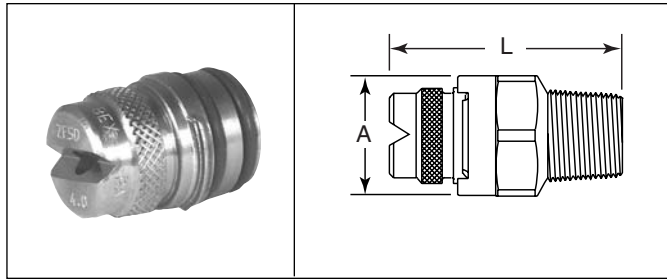
QUICK DISCONNECT

Flat "V" spray nozzles

ZF SERIES

DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZF	41	25
1/4 ZF	43	25
3/8 ZF	44	25
1/2 ZF	46	25
3/8 ZLF	54	32
1/2 ZLF	56	32



SPRAY CHARACTERISTICS:

ZF-Series spray nozzles produce a flat, fan-shaped spray pattern with spray angles available from 15° to 110° measured at 3 bar. Spray angles generally increase with pressure, as shown in the capacity table.

Spray density tapers off toward the outside of these sprays, to permit overlapping of spray patterns while maintaining uniform spray density.

CONSTRUCTION:

The tip models listed are machined from bar stock and are one piece construction. Standard materials are brass, 303 stainless steel and 316 stainless steel. All bodies are available in either BSPT or NPT threads.

Please see page 40 for body styles and adapters.

Please see page 55 for molded plastic models.

TYPICAL APPLICATIONS:

Suitable for a variety of washing and spraying applications.

- Parts Cleaning
- Metal Washing
- Foam Control
- Asphalt Spraying
- Gravel Washing
- Vehicle Washing
- Fertilizer Spraying
- Dishwashers

SPRAY ANGLE @ 3bar	ZF MODEL	ZLF MODEL	EQUIV. ORIFICE DIAMETER (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)														SPRAY ANGLE @		
				0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	7 bar	10 bar	20 bar	30 bar	1.5 bar	3 bar	5 bar	
110°	ZF11003		1.1	0.37	0.48	0.57	0.68	0.84	0.97	1.18	1.37	1.53	1.81	2.16	3.06	3.74	92°	110°	118°	
	ZF11004		1.2	0.50	0.64	0.76	0.91	1.12	1.29	1.58	1.82	2.04	2.41	2.88	4.08	4.99	90°	110°	112°	
	ZF11005		1.35	0.62	0.81	0.95	0.31	1.40	1.61	1.97	2.28	2.55	3.01	3.6	5.1	6.2	96°	110°	114°	
	ZF11006		1.47	0.75	0.97	1.14	0.37	1.67	1.93	2.37	2.73	3.06	3.6	4.3	6.1	7.5	97°	110°	115°	
	ZF11008		1.70	1.00	1.29	1.53	0.49	2.23	2.58	3.2	3.6	4.1	4.8	5.8	8.2	10.0	100°	110°	115°	
	ZF11010		1.91	1.25	1.61	1.91	0.61	2.79	3.2	3.9	4.6	5.1	6.0	7.2	10.2	12.5	102°	110°	115°	
	ZF11015		2.31	1.87	2.42	2.86	0.92	4.2	4.8	5.9	6.8	7.6	9.0	10.8	15.3	18.7	102°	110°	115°	
	ZF11020		2.67	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	12.1	14.4	20.4	25.0	103°	110°	112°	
	ZF11030		3.28	3.7	4.8	5.7	6.8	8.4	9.7	11.8	13.7	15.3	18.1	21.6	30.6	37.4	103°	110°	115°	
	ZF11040		3.78	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	24.1	28.8	41	50	103°	110°	115°	
	ZF11050		4.24	6.2	8.1	9.5	11.4	14.0	16.1	19.7	22.8	25.5	30.1	36	51	62	107°	110°	116°	
	ZF11060		4.62	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.6	36	43	61	75	103°	110°	115°	
	ZF11070		5.00	8.7	11.3	13.3	16.0	19.5	22.6	27.6	32	36	42	50	71	87	107°	110°	115°	
		ZLF11080		5.36	10.0	12.9	15.3	18.2	22.3	25.8	31.6	36.5	40.8	48.2	58	82	100	107°	110°	115°
		ZLF110100		5.99	12.5	16.1	19.1	22.8	27.9	32.2	39.5	45.6	51.0	60	72	102	125	106°	110°	115°
		ZLF110120		6.55	15.0	19.3	22.9	27.3	33.5	38.7	47.4	54.7	61.1	72	86	122	150	108°	110°	117°
		ZLF110150		7.34	18.7	24.2	28.6	34.2	41.9	48.3	59.2	68	76	90	108	153	187	104°	110°	115°
		ZLF110200		8.46	25.0	32.2	38.1	45.6	55.8	64	79	91	102	121	144	204	250	106°	110°	116°
	ZLF110400		11.96	50	64	76	91	112	129	158	182	204	241	288	408	499	105°	110°	115°	
95°	ZF9503		1.1	0.37	0.48	0.57	0.68	0.84	0.97	1.18	1.37	1.53	1.81	2.16	3.06	3.74	86°	95°	101°	
	ZF9504		1.2	0.50	0.64	0.76	0.91	1.12	1.29	1.58	1.82	2.04	2.41	2.88	4.08	4.99	86°	95°	101°	
	ZF9505		1.35	0.62	0.81	0.95	0.31	1.40	1.61	1.97	2.28	2.55	3.01	3.6	5.1	6.2	86°	95°	101°	
	ZF9506		1.47	0.75	0.97	1.14	0.37	1.67	1.93	2.37	2.73	3.06	3.6	4.3	6.1	7.5	86°	95°	101°	
	ZF9508		1.70	1.00	1.29	1.53	0.49	2.23	2.58	3.2	3.6	4.1	4.8	5.8	8.2	10.0	86°	95°	100°	
	ZF9510		1.91	1.25	1.61	1.91	0.61	2.79	3.2	3.9	4.6	5.1	6.0	7.2	10.2	12.5	88°	95°	99°	
	ZF9515		2.31	1.87	2.42	2.86	0.92	4.2	4.8	5.9	6.8	7.6	9.0	10.8	15.3	18.7	90°	95°	100°	
	ZF9520		2.67	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	12.1	14.4	20.4	25.0	89°	95°	99°	
	ZF9530		3.28	3.7	4.8	5.7	6.8	8.4	9.7	11.8	13.7	15.3	18.1	21.6	30.6	37.4	90°	95°	101°	
	ZF9540		3.78	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	24.1	28.8	41	50	90°	95°	100°	
	ZF9550		4.24	6.2	8.1	9.5	11.4	14.0	16.1	19.7	22.8	25.5	30.1	36	51	62	91°	95°	101°	
	ZF9560		4.62	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.6	36	43	61	75	92°	95°	102°	
	ZF9570		5.00	8.7	11.3	13.3	16.0	19.5	22.6	27.6	32	36	42	50	71	87	92°	95°	103°	
		ZLF9580		5.36	10.0	12.9	15.3	18.2	22.3	25.8	31.6	36.5	40.8	48.2	58	82	100	92°	95°	103°
		ZLF95100		5.99	12.5	16.1	19.1	22.8	27.9	32.2	39.5	45.6	51.0	60	72	102	125	92°	95°	103°
		ZLF95120		6.55	15.0	19.3	22.9	27.3	33.5	38.7	47.4	54.7	61.1	72	86	122	150	92°	95°	103°
		ZLF95150		7.34	18.7	24.2	28.6	34.2	41.9	48.3	59.2	68	76	90	108	153	187	92°	95°	102°

QUICK DISCONNECT

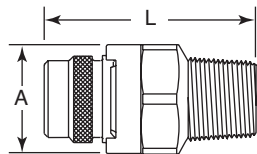
ZF SERIES

Flat "V" spray nozzles continued

SPRAY ANGLE @ 3bar	ZF MODEL	ZLF MODEL	EQUIV. ORIFICE DIAMETER (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)												SPRAY ANGLE @				
				0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	7 bar	10 bar	20 bar	30 bar	1.5 bar	3 bar	5 bar	
15°	ZF1505		1.35	0.62	0.81	0.95	1.14	1.40	1.61	1.97	2.28	2.55	3.01	3.6	5.1	6.2	10°	15°	20°	
	ZF1506		1.47	0.75	0.97	1.14	1.37	1.67	1.93	2.37	2.73	3.06	3.6	4.3	6.1	7.5	11°	15°	24°	
	ZF1508		1.70	1.00	1.29	1.53	1.82	2.23	2.58	3.2	3.6	4.1	4.8	5.8	8.2	10.0	11°	15°	21°	
	ZF1510		1.91	1.25	1.61	1.91	2.28	2.79	3.2	3.9	4.6	5.1	6.0	7.2	10.2	12.5	13°	15°	16°	
	ZF1515		2.31	1.87	2.42	2.86	3.4	4.2	4.8	5.9	6.8	7.6	9.0	10.8	15.3	18.7	11°	15°	20°	
	ZF1520		2.67	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	12.1	14.4	20.4	25.0	11°	15°	20°	
	ZF1530		3.28	3.7	4.8	5.7	6.8	8.4	9.7	11.8	13.7	15.3	18.1	21.6	30.6	37.4	11°	15°	18°	
	ZF1540		3.78	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	24.1	28.8	41	50	12°	15°	18°	
	ZF1550		4.24	6.2	8.1	9.5	11.4	14.0	16.1	19.7	22.8	25.5	30.1	36	51	62	12°	15°	19°	
	ZF1560		4.62	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.6	36	43	61	75	12°	15°	17°	
	ZF1570		5.00	8.7	11.3	13.3	16.0	19.5	22.6	27.6	32	36	42	50	71	87	12°	15°	19°	
		ZLF1580		5.36	10.0	12.9	15.3	18.2	22.3	25.8	31.6	36.5	40.8	48.2	58	82	100	12°	15°	19°
		ZLF15100		5.99	12.5	16.1	19.1	22.8	27.9	32	39	46	51	60	72	102	125	12°	15°	19°
		ZLF15120		6.55	15.0	19.3	22.9	27.3	33	39	47	55	61	72	86	122	150	12°	15°	19°
		ZLF15150		7.34	18.7	24.2	28.6	34	42	48	59	68	76	90	108	153	187	12°	15°	18°
	ZLF15200		8.46	25.0	32.2	38	46	56	64	79	91	102	121	144	204	250	13°	15°	17°	
5°	ZF0505		1.35	0.62	0.81	0.95	1.14	1.40	1.61	1.97	2.28	2.55	3.01	3.6	5.1	6.2	10°	15°	20°	
	ZF0506		1.47	0.75	0.97	1.14	1.37	1.67	1.93	2.37	2.73	3.06	3.6	4.3	6.1	7.5	11°	15°	24°	
	ZF0508		1.70	1.00	1.29	1.53	1.82	2.23	2.58	3.2	3.6	4.1	4.8	5.8	8.2	10.0	11°	15°	21°	
	ZF0510		1.91	1.25	1.61	1.91	2.28	2.79	3.2	3.9	4.6	5.1	6.0	7.2	10.2	12.5	13°	15°	16°	
	ZF0515		2.31	1.87	2.42	2.86	3.4	4.2	4.8	5.9	6.8	7.6	9.0	10.8	15.3	18.7	11°	15°	20°	
	ZF0520		2.67	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	12.1	14.4	20.4	25.0	11°	15°	20°	
	ZF0530		3.28	3.7	4.8	5.7	6.8	8.4	9.7	11.8	13.7	15.3	18.1	21.6	30.6	37.4	11°	15°	18°	
	ZF0540		3.78	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	24.1	28.8	41	50	12°	15°	18°	

ZF SERIES

Solid stream spray nozzles



DIMENSIONS

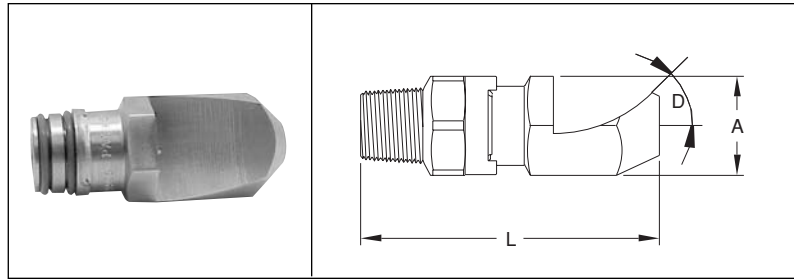
NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8ZF	41	25
1/4ZF	43	25
3/8ZF	44	25
1/2ZF	46	25
3/8ZLF	54	32
1/2ZLF	56	32

QUICK DISCONNECT

SPRAY ANGLE @ 3 bar	ZF STYLE	ZLF STYLE	EQUIV. ORIFICE DIAMETER (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)												SPRAY ANGLE @		
				0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	7 bar	10 bar	1.5 bar	3 bar	5 bar	
0°	ZF0002		0.91	0.25	0.32	0.38	0.46	0.56	0.64	0.79	0.91	1.0	1.2	1.4	0° Solid Stream			
	ZF0003		1.04	0.37	0.48	0.57	0.68	0.84	0.97	1.18	1.37	1.53	1.81	2.16				
	ZF0004		1.19	0.50	0.64	0.76	0.91	1.12	1.29	1.58	1.82	2.04	2.41	2.88				
	ZF0005		1.35	0.62	0.81	0.95	1.14	1.40	1.61	1.97	2.28	2.55	3.01	3.60				
	ZF0006		1.47	0.75	0.97	1.14	1.37	1.67	1.93	2.37	2.73	3.06	3.62	4.32				
	ZF0008		1.70	1.00	0.33	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.2				
	ZF0010		1.91	1.25	1.61	1.91	2.28	2.79	3.22	3.95	4.56	5.10	6.0	7.2				
	ZF0015		2.31	1.87	2.42	2.86	3.42	4.19	4.83	5.92	6.8	7.6	9.0	10.8				
	ZF0020		2.67	2.50	3.22	3.81	4.56	5.58	6.4	7.9	9.1	10.2	12.1	14.4				
	ZF0030		3.28	3.74	4.83	5.72	6.8	8.4	9.7	11.8	13.7	15.3	18.1	21.6				
	ZF0040		3.78	4.99	6.45	7.6	9.1	11.2	12.9	15.8	18.2	20.4	24.1	28.8				
	ZF0050		4.24	6.24	8.1	9.5	11.4	14.0	16.1	19.7	22.8	25.5	30.1	36.0				
	ZF0060		4.62	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.6	36.2	43.2				
	ZF0070		5.00	8.7	11.3	13.3	16.0	19.5	22.6	27.6	31.9	35.7	42.2	50.4				
		ZLF0080		5.36	10.0	12.9	15.3	18.2	22.3	25.8	31.6	36.5	40.8	48.2		58		
		ZLF00100		5.99	12.5	16.1	19.1	22.8	27.9	32.2	39.5	45.6	51.0	60		72		
	ZLF00120		6.55	15.0	19.3	22.9	27.3	33.5	38.7	47.4	54.7	61.1	72	86				
	ZLF00150		7.34	18.7	24.2	28.6	34.2	41.9	48.3	59.2	68	76	90	108				
	ZLF00200		8.46	25.0	32.2	38.1	45.6	55.8	64	79	91	102	121	144				
	ZLF00400		11.96	49.9	64.5	76	91	11.2	129	158	182	204	241	288				

High impact flat spray nozzles

ZFP SERIES



SPRAY CHARACTERISTICS:

A flat and thin fan-shaped spray with sharp definition on all edges. This spray delivers very high impact over the area covered. The spray is deflected by angle D away from the centerline of the spray nozzle.

CONSTRUCTION:

The models listed are machined from bar stock, and are one piece construction. Standard materials are brass, 303 stainless steel and 316 stainless steel. Please see page 40 for body styles and adapters.

TYPICAL APPLICATIONS:

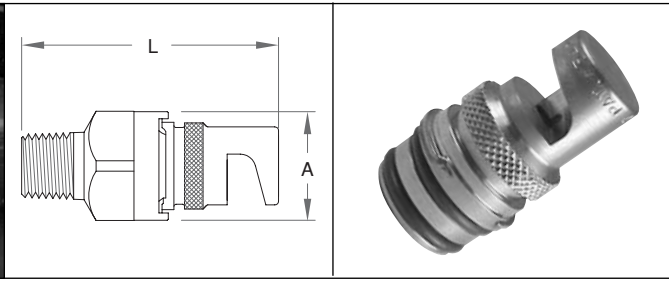
- High Impact Applications
- Metal Wash
- Gravel Washing
- Vehicle Washing

SPRAY ANGLE @ 3 bar	ZFP MODEL	ZLFP MODEL	ORIFICE DIA. (mm)	ANGLE 'D' @ 3 bar	Dimensions (mm)		CAPACITY (L/min) AT VARIOUS PRESSURES (bar)										SPRAY ANGLE @		
					'A'	'L'	1 bar	1.5 bar	2 bar	2.5 bar	3 bar	4 bar	5 bar	6 bar	1 bar	3 bar	6 bar		
50°	ZFP5001		0.61	40°	17 Hex	21.1	0.23	0.28	0.32	0.36	0.39	0.46	0.51	0.56	30°	50°	58°		
	ZFP50025		0.97	41°	17 Hex	27.3	0.57	0.70	0.81	0.90	0.99	1.14	1.27	1.40	29°	50°	57°		
	ZFP5005		1.35	41°	17 Hex	28.3	1.14	1.40	1.61	1.80	1.97	2.28	2.55	2.79	30°	50°	59°		
	ZFP5010		1.91	52°	17 Hex	31.8	2.28	2.79	3.2	3.6	3.9	4.6	5.1	5.6	32°	50°	59°		
	ZFP5025		3.00	40°	17 Hex	33.3	5.7	7.0	8.1	9.0	9.9	11.4	12.7	14.0	41°	50°	58°		
	ZFP5040		3.78	45°	22 Hex	47.7	9.1	11.2	12.9	14.4	15.8	18.2	20.4	22.3	42°	50°	59°		
	ZFP5060		4.65	40°	22 Hex	55.5	13.7	16.7	19.3	21.6	23.7	27.3	30.6	33	41°	50°	52°		
		ZLFP50100		5.99	38°	31.8Hex	69.9	22.8	27.9	32	36	39	46	51	56	44°	50°	54°	
		ZLFP50125		6.76	34°	31.8Hex	65.3	28.5	35	40	45	49	57	64	70	39°	50°	57°	
		ZLFP50160		7.57	37°	31.8Hex	67.8	36	45	52	58	63	73	82	89	46°	50°	55°	
	ZLFP50200		8.33	33°	34.9Hex	73.0	46	56	64	72	79	91	102	112	47°	50°	55°		
40°	ZFP4040		3.78	34°	22 Hex	53.1	9.1	11.2	12.9	14.4	15.8	18.2	20.4	22.3	29°	40°	48°		
	ZFP4050		4.24	32°	31.8Hex	56.9	11.4	14.0	16.1	18.0	19.7	22.8	25.5	27.9	30°	40°	47°		
	ZFP4060		4.65	31°	28.6Hex	72.2	13.7	16.7	19.3	21.6	23.7	27.3	30.6	33	31°	40°	50°		
	ZFP4070		5.00	28°	31.8Hex	71.9	16.0	19.5	22.6	25.2	27.6	32	36	39	33°	40°	50°		
		ZLFP4080		5.36	28°	31.8Hex	71.9	18.2	22.3	25.8	28.8	32	36	41	45	33°	40°	48°	
		ZLFP4090		5.79	28°	31.8Hex	71.9	20.5	25.1	29.0	32	36	41	46	50	34°	40°	46°	
	ZLFP40100		5.99	31°	31.8Hex	74.6	22.8	27.9	32	36	39	46	51	56	34°	40°	46°		
35°	ZFP3504		1.19	36°	11 Hex	49.2	0.91	1.12	1.29	1.44	1.58	1.82	2.04	2.23	20°	35°	41°		
	ZFP3510		1.91	37°	17 Hex	36.5	2.28	2.79	3.2	3.6	3.9	4.6	5.1	5.6	18°	35°	38°		
	ZFP3520		2.67	30°	17 Hex	39.4	4.6	5.6	6.4	7.2	7.9	9.1	10.2	11.2	25°	35°	42°		
	ZFP3525		2.97	29°	17 Hex	50.8	5.7	7.0	8.1	9.0	9.9	11.4	12.7	14.0	24°	35°	41°		
	ZFP3530		3.25	28°	22 Hex	54.2	6.8	8.4	9.7	10.8	11.8	13.7	15.3	16.7	25°	35°	42°		
	ZFP3540		3.78	31°	22 Hex	60.4	9.1	11.2	12.9	14.4	15.8	18.2	20.4	22.3	29°	35°	42°		
	ZFP3550		4.24	26°	25.4Hex	63.5	11.4	14.0	16.1	18.0	19.7	22.8	25.5	27.9	30°	35°	40°		
	ZFP3560		4.65	29°	27 Hex	73.0	13.7	16.7	19.3	21.6	23.7	27.3	30.6	33	27°	35°	40°		
		ZLFP3580		5.36	22°	31.8Hex	79.9	18.2	22.3	25.8	28.8	31.6	36.5	40.8	44.7	25°	35°	38°	
		ZLFP35100		5.61	24°	31.8Hex	88.9	22.8	27.9	32	36	39	46	51	56	25°	35°	40°	
	ZLFP35160		7.49	22°	31.8Hex	117.0	36	45	52	58	63	73	82	89	26°	35°	39°		
	ZLFP35200		8.46	24°	31.8Hex	110.3	46	56	64	72	79	91	102	112	31°	35°	42°		
25°	ZFP2540		3.78	24°	22 Hex	68.2	9.1	11.2	12.9	14.4	15.8	18.2	20.4	22.3	22°	25°	27°		
15°	ZFP1510		1.91	22°	17 Hex	49.0	2.28	2.79	3.2	3.6	3.9	4.6	5.1	5.6	--	15°	21°		
	ZFP1520		2.67	16°	17 Hex	57.2	4.6	5.6	6.4	7.2	7.9	9.1	10.2	11.2	--	15°	18°		
	ZFP1530		3.28	20°	22 Hex	73.4	6.8	8.4	9.7	10.8	11.8	13.7	15.3	16.7	8°	15°	24°		
	ZFP1540		3.78	13°	22 Hex	95.3	9.1	11.2	12.9	14.4	15.8	18.2	20.4	22.3	8°	15°	20°		
	ZFP1550		4.24	14°	22 Hex	92.1	11.4	14.0	16.1	18.0	19.7	22.8	25.5	27.9	8°	15°	22°		
	ZFP1560		4.65	14°	25.4Hex	111.8	13.7	16.7	19.3	21.6	23.7	27.3	30.6	33	11°	15°	18°		
		ZLFP1580		5.54	14°	28.6Hex	130.2	18.2	22.3	25.8	28.8	32	36	41	45	11°	15°	18°	
		ZLFP15100		5.99	15°	28.6Hex	138.1	22.8	27.9	32	36	39	46	51	56	11°	15°	17°	
		ZLFP15200		8.46	15°	38.1Hex	189.5	46	56	64	72	79	91	102	112	11°	15°	17°	
		ZLFP15300		10.36	15°	44.5Hex	190.5	68	84	97	108	118	137	153	167	12°	15°	18°	

QUICK DISCONNECT

ZFL SERIES

Flooding nozzles



SPRAY CHARACTERISTICS:

A wide, flat fan-shaped spray with low impact. The spray is deflected 75° away from the centerline of the pipe connection, as shown.

CONSTRUCTION:

The tip models listed are machined from bar stock, and are one piece construction. Standard materials are brass, 303 stainless steel and 316 stainless steel. Some models may also be available in other materials. Please see page 40 for body styles and adapters.

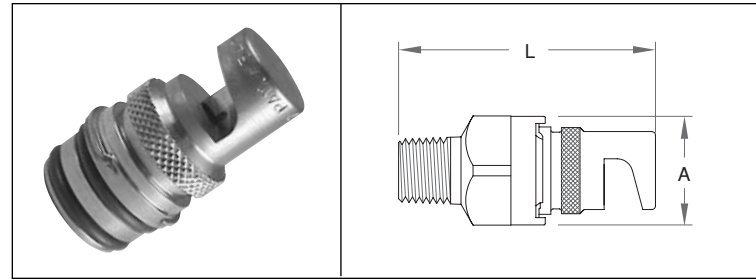
TYPICAL APPLICATIONS:

- Wherever a low impact, wide angle spray is required.
- Rinsing and Cooling
 - Dishwashing
 - Fertilizer Spraying
 - Metal Wash

ZFL MODEL	ZFLT MODEL	ORIFICE DIA. (mm)	DIMENSIONS		CAPACITY (L/min) AT VARIOUS PRESSURES (bar)								SPRAY ANGLE @						
			"A"	"L"	0.2 bar	0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	0.2 bar	0.3 bar	0.5 bar	0.7 bar	1.5 bar	4 bar
	ZFLT.25	0.43	11mm	15.8	--	--	--	0.10	0.11	0.14	0.16	0.20	0.23	--	--	--	90°	106°	120°
	ZFLT.50	0.61	11mm	15.8	--	--	0.16	0.19	0.23	0.28	0.32	0.39	0.46	--	--	65°	78°	99°	120°
	ZFLT.75	0.74	11mm	19.9	--	--	0.24	0.29	0.34	0.42	0.48	0.59	0.68	--	--	72°	85°	112°	140°
	ZFLT1	0.84	11mm	19.9	--	--	0.32	0.38	0.46	0.56	0.64	0.79	0.91	--	--	90°	97°	135°	148°
	ZFLT1.3	0.97	11mm	20.7	--	0.32	0.42	0.50	0.59	0.73	0.84	1.03	1.19	--	73°	80°	92°	115°	134°
	ZFLT1.5	1.07	11mm	20.7	0.31	0.37	0.48	0.57	0.68	0.84	0.97	1.18	1.37	57°	69°	75°	87°	104°	125°
	ZFLT2	1.19	11mm	20.7	0.41	0.50	0.64	0.76	0.91	1.12	1.29	1.58	1.82	60°	73°	82°	86°	104°	125°
	ZFLT2.5	1.40	11mm	20.7	0.52	0.63	0.82	0.97	1.16	1.42	1.64	2.01	2.32	79°	87°	92°	101°	112°	130°
	ZFLT3	1.50	11mm	20.7	0.61	0.75	0.97	1.14	1.37	1.67	1.93	2.37	2.73	84°	97°	106°	115°	130°	140°
ZFL4		1.78	11mm	23.8	0.82	1.00	1.29	1.53	1.82	2.23	2.58	3.2	3.6	74°	87°	89°	101°	116°	127°
ZFL5		1.93	11mm	23.8	1.02	1.25	1.61	1.91	2.28	2.79	3.2	3.9	4.6	78°	89°	97°	103°	113°	132°
ZFL7.5		2.39	11mm	23.8	1.53	1.87	2.42	2.86	3.4	4.2	4.8	5.9	6.8	98°	105°	112°	120°	132°	144°
ZFL10		2.79	11mm	23.8	2.04	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	116°	125°	135°	137°	144°	150°
ZFL12		3.05	14mm	23.8	2.45	3.00	3.9	4.6	5.5	6.7	7.7	9.5	10.9	98°	105°	109°	118°	134°	139°
ZFL15		3.28	14mm	26.7	3.06	3.7	4.8	5.7	6.8	8.4	9.7	11.8	13.7	100°	110°	115°	124°	131°	139°
ZFL18		3.73	14mm	26.7	3.7	4.5	5.8	6.9	8.2	10.0	11.6	14.2	16.4	100°	112°	116°	124°	135°	137°
ZFL20		3.91	14mm	26.7	4.1	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	115°	125°	128°	134°	142°	147°
ZFL22		4.09	14mm	33.4	4.5	5.5	7.1	8.4	10.0	12.3	14.2	17.4	20.1	97°	108°	114°	120°	128°	132°
ZFL24		4.29	14mm	33.4	4.9	6.0	7.7	9.2	10.9	13.4	15.5	18.9	21.9	106°	118°	121°	127°	136°	154°
ZFL27		4.50	14mm	33.4	5.5	6.7	8.7	10.3	12.3	15.1	17.4	21.3	24.6	110°	120°	124°	129°	139°	146°
ZFL30		4.78	17mm	33.4	6.1	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	104°	116°	121°	127°	135°	138°
ZFL35		4.98	17mm	33.4	7.1	8.7	11.3	13.3	16.0	19.5	22.6	27.6	32	104°	114°	118°	126°	130°	137°
ZFL40		5.31	17mm	33.4	8.2	10.0	12.9	15.3	18.2	22.3	25.8	32	36	104°	116°	121°	127°	135°	138°
ZFL45		5.79	17mm	33.4	9.2	11.2	14.5	17.2	20.5	25.1	29.0	36	41	104°	114°	118°	126°	130°	137°
ZFL60		6.76	22mm	42.9	12.2	15.0	19.3	22.9	27.3	33	39	47	55	110°	120°	124°	126°	130°	135°

-- means not recommended at this pressure

QUICK DISCONNECT



SPRAY CHARACTERISTICS:

The FL series spray nozzles may also be used with air or steam, resulting in a deflected curtain of gas extending no more than a few inches away from the nozzle. For most applications, the maximum practical target distance from the nozzle is 25 cm.

CONSTRUCTION:

The models listed are machined from bar stock, and are one piece construction. Standard materials are brass, 303 stainless steel and 316 stainless steel. Some models may also be available in other materials. Please see page 40 for body styles and adapters.

TYPICAL APPLICATIONS:

For dispensing air or steam. Stainless steel construction recommended for steam applications.

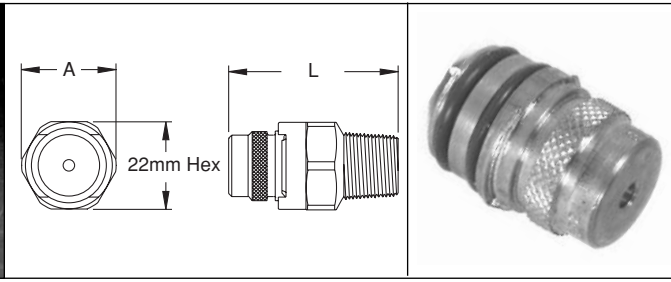
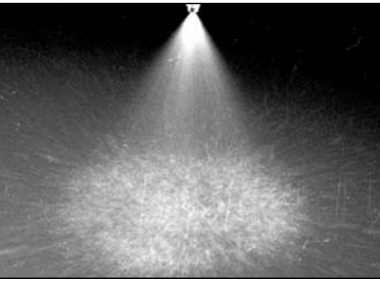
- Cleaning
- Cooling
- Blow-off of Surfaces

ZFL	ZFLT MODEL	ORIFICE DIA. (mm)	DIMENSIONS		AIR CAPACITY (L/min)					COVERAGE AT 15 cm DISTANCE FROM THE NOZZLE	
			"A"	"L"	0.7 bar	1.5 bar	3 bar	4 bar	5 bar	0.7 bar	1 bar
	ZFLT.25	0.43	11mm	15.8	1.7	4.0	6.6	8.3	10.0	5	11
	ZFLT.50	0.61	11mm	15.8	3.1	7.6	12.8	16.0	19.2	5	13
	ZFLT.75	0.74	11mm	19.9	4.8	11.0	18.5	23.2	27.8	6	15
	ZFLT1	0.84	11mm	19.9	6.2	14.4	24.2	30.3	36.3	8	15
	ZFLT1.3	0.97	11mm	20.7	8.2	19.3	32.3	40	48	8	17
	ZFLT1.5	1.07	11mm	20.7	9.9	23.5	39	49	59	9	17
	ZFLT2	1.19	11mm	20.7	12.5	29.2	49	61	73	9	19
	ZFLT2.5	1.40	11mm	20.7	17.0	40	67	84	101	10	19
	ZFLT3	1.50	11mm	20.7	19.5	46	77	97	116	13	20
ZFL4		1.78	11mm	23.8	27.7	65	109	137	164	13	23
ZFL5		1.93	11mm	23.8	33	76	128	160	192	15	25
ZFL7.5		2.39	11mm	23.8	50	119	199	249	299	17	25
ZFL10		2.79	14mm	23.8	68	161	271	338	406	18	28
ZFL12		3.05	14mm	23.8	82	193	323	404	484	18	29
ZFL15		3.28	14mm	26.7	99	238	399	499	598	18	30
ZFL18		3.73	14mm	26.7	122	292	489	611	734	20	33
ZFL20		3.91	14mm	26.7	133	320	537	671	805	22	37
ZFL22		4.09	14mm	33.4	147	348	584	730	876	22	37
ZFL24		4.29	14mm	33.4	161	385	646	807	969	22	38
ZFL27		4.50	14mm	33.4	178	422	708	885	1061	22	38
ZFL30		4.78	17mm	33.4	201	476	798	997	1197	22	39

QUICK DISCONNECT

ZS SERIES

Full cone spray nozzles



TYPICAL APPLICATIONS:

- Chemical Processing
- Cooling Sprays
- Foam Breaking
- Continuous Casting

SPRAY CHARACTERISTICS:

Full cone spray pattern, with uniform distribution throughout the cone.

CONSTRUCTION:

The nozzle contains a patented insert with larger flow passages than older styles, and is less

susceptible to clogging. Standard materials are brass, 303 stainless steel and 316 stainless steel.

Please see page 40 for body styles and adapters.

U.S. Patent No. 4,142,682
Canadian Patent No. 1,050,589

ZS SERIES

One piece body + removable insert



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZS	41	25
1/4 ZS	43	25
3/8 ZS	44	25
1/2 ZS	46	25
3/8 ZLS	54	32
1/2 ZLS	56	32

ZGS SERIES

Two piece body + removable insert



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZGS	50	25
1/4 ZGS	54	25
3/8 ZGS	65	25
1/2 ZGS	67	28
3/8 ZLGS	71	32
1/2 ZLGS	73	32

ZHGS SERIES

Two piece body + removable insert



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZHGS	54	25
1/4 ZHGS	56	25
3/8 ZHGS	57	25
1/2 ZHGS	59	25
3/8 ZHGS	75	32
1/2 ZHGS	77	32

QUICK DISCONNECT

'ZS' one piece tip	'ZGS' two piece tip		'ZHGS' Right Angle two piece tip		MAXIMUM FREE PASSAGE (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)												Spray Angle @			
	ZGS	ZLGS	ZHGS	ZLHGS		0.2 bar	0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	8 bar	0.5 bar	1.5 bar	5 bar	
ZS1	ZGS1		ZHGS1		0.84	--	--	--	--	0.46	0.56	0.64	0.79	0.91	1.02	1.12	1.29	--	55°	52°	
ZS1.5	ZGS1.5		ZHGS1.5		1.17	--	--	--	0.57	0.68	0.84	0.97	1.18	1.37	1.53	1.67	1.93	--	65°	57°	
ZS2	ZGS2		ZHGS2		1.30	--	--	0.64	0.76	0.91	1.12	1.29	1.58	1.82	2.04	2.23	2.58	54°	59°	60°	
ZS3	ZGS3		ZHGS3		1.30	--	0.75	0.97	1.14	1.37	1.67	1.93	2.37	2.73	3.06	3.3	3.9	50°	53°	60°	
ZS3.5	ZGS3.5		ZHGS3.5		1.30	0.71	0.87	1.13	1.33	1.60	1.95	2.26	2.76	3.2	3.6	3.9	4.5	48°	58°	61°	
ZS5	ZGS5		ZHGS5		1.63	1.02	1.25	1.61	1.91	2.28	2.79	3.2	3.9	4.6	5.1	5.6	6.4	60°	75°	70°	
ZS6	ZGS6		ZHGS6		1.63	1.22	1.50	1.93	2.29	2.73	3.3	3.9	4.7	5.5	6.1	6.7	7.7	67°	72°	70°	
ZS6.5	ZGS6.5		ZHGS6.5		2.31	1.32	1.62	2.09	2.48	2.96	3.6	4.2	5.1	5.9	6.6	7.3	8.4	48°	56°	50°	
ZS7.5	ZGS7.5		ZHGS7.5		2.31	1.53	1.87	2.42	2.86	3.4	4.2	4.8	5.9	6.8	7.6	8.4	9.7	55°	65°	48°	
ZS8.5	ZGS8.5		ZHGS8.5		2.31	1.73	2.12	2.74	3.2	3.9	4.7	5.5	6.7	7.7	8.7	9.5	11.0	58°	65°	63°	
ZS10	ZGS10		ZHGS10		2.31	2.04	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	11.2	12.9	60°	65°	62°	
ZS14	ZGS14		ZHGS14		2.31	2.85	3.5	4.51	5.3	6.4	7.8	9.0	11.1	12.8	14.3	15.6	18.0	78°	85°	75°	
ZS15	ZGS15		ZHGS15		2.59	2.85	3.5	4.8	5.3	6.8	8.4	9.7	11.8	13.7	15.3	16.7	19.3	63°	65°	60°	
ZS18	ZGS18		ZHGS18		2.59	3.7	4.5	5.8	6.9	8.2	10.0	11.6	14.2	16.4	18.3	20.1	23.2	85°	88°	76°	
ZS20	ZGS20		ZHGS20		2.59	4.1	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	22.3	25.8	76°	82°	75°	
ZS22	ZGS22		ZHGS22		2.90	4.5	5.5	7.1	8.4	10.0	12.3	14.2	17.4	20.1	22.4	24.6	28.4	76°	78°	76°	
	ZLS16		ZLGS16		ZLHGS16	3.66	3.3	4.0	5.2	6.1	7.3	8.9	10.3	12.6	14.6	16.3	17.9	20.6	55°	60°	55°
	ZLS25		ZLGS25		ZLHGS25	3.66	5.1	6.2	8.1	9.5	11.4	14.0	16.1	19.7	22.8	25.5	27.9	32	68°	73°	65°
	ZLS32		ZLGS32		ZLHGS32	3.66	6.5	8.0	10.3	12.2	14.6	17.9	20.6	25.3	29.2	33	36	41	80°	90°	75°
	ZLS40		ZLGS40		ZLHGS40	4.11	8.2	10.0	12.9	15.3	18.2	22.3	25.8	32	36	41	45	52	86°	90°	81°

Wide angle full cone spray nozzles

ZSW SERIES

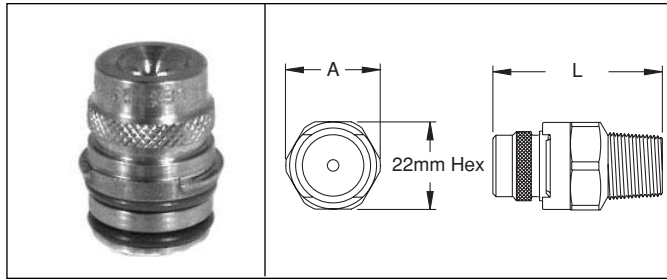
TYPICAL APPLICATIONS:

Anywhere a wide angle full cone spray is required:

- Chemical Processing
- Cooling Sprays
- Continuous Casting

U.S. Patent No. 4,142,682

Canadian Patent No. 1,050,589



SPRAY CHARACTERISTICS:

A wide angle full cone spray pattern, with uniform distribution throughout the cone.

CONSTRUCTION:

This nozzle tip contains a patented insert with larger flow passages than older styles, and is

less susceptible to clogging. Standard materials are brass, 303 stainless steel and 316 stainless steel.

Please see page 40 for body styles and adapters.

ZSW SERIES

One piece body + removable insert



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZSW	41	25
1/4 ZSW	43	25
3/8 ZSW	44	25
1/2 ZSW	46	25
3/4 ZLSW	54	32
1/2 ZLSW	56	32

ZGSW SERIES

Two piece body + removable insert



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZGSW	50	25
1/4 ZGSW	54	25
3/8 ZGSW	65	25
1/2 ZGSW	67	28
3/4 ZLGSW	71	32
1/2 ZLGSW	73	32

ZHGSW SERIES

Two piece body + removable insert



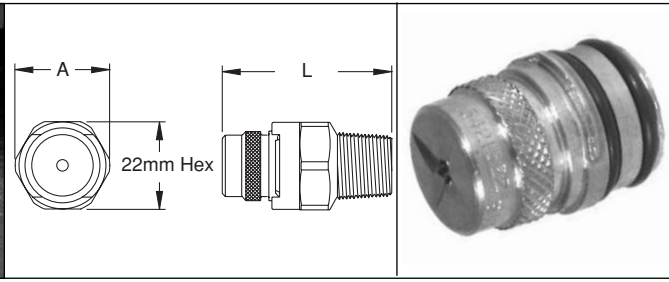
DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZHGSW	54	25
1/4 ZHGSW	56	25
3/8 ZHGSW	57	25
1/2 ZHGSW	59	25
3/4 ZHGSW	75	32
1/2 ZHGSW	77	32

'ZSW' one piece tip	'ZGSW' two piece tip		'ZHGSW' Right Angle two piece tip		MAXIMUM FREE PASSAGE (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)												Spray Angle @		
	ZGSW	ZLGSW	ZHGSW	ZLHGSW		0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	8 bar	0.5 bar	1.5 bar	5 bar	
ZS2.8W	ZGS2.8W		ZHGS2.8W		1.30	--	0.90	1.07	1.28	1.56	1.80	2.21	2.55	2.85	3.13	3.6	110°	105°	96°	
ZS4.3W	ZGS4.3W		ZHGS4.3W		1.30	--	1.39	1.64	1.96	2.40	2.77	3.4	3.9	4.4	4.8	5.5	117°	108°	100°	
ZS5.6W	ZGS5.6W		ZHGS5.6W		1.63	--	1.80	2.14	2.55	3.13	3.6	4.4	5.1	5.7	6.3	7.2	117°	110°	100°	
ZS8W	ZGS8W		ZHGS8W		2.06	2.00	2.58	3.05	3.6	4.5	5.2	6.3	7.3	8.2	8.9	10.3	118°	110°	103°	
ZS10W	ZGS10W		ZHGS10W		2.31	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	11.2	12.9	118°	108°	102°	
ZS12W	ZGS12W		ZHGS12W		2.31	3.00	3.9	4.6	5.5	6.7	7.7	9.5	10.9	12.2	13.4	15.5	120°	112°	102°	
ZS14W	ZGS14W		ZHGS14W		2.31	3.5	4.5	5.3	6.4	7.8	9.0	11.1	12.8	14.3	15.6	18.0	118°	114°	104°	
ZS17W	ZGS17W		ZHGS17W		2.59	4.2	5.5	6.5	7.7	9.5	11.0	13.4	15.5	17.3	19.0	21.9	118°	117°	102°	
ZS20W	ZGS20W		ZHGS20W		2.59	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	22.3	25.8	120°	120°	106°	
ZS24W	ZGS24W		ZHGS24W		2.59	6.0	7.7	9.2	10.9	13.4	15.5	18.9	21.9	24.5	26.8	30.9	122°	118°	106°	
ZS27W	ZGS27W		ZHGS27W		2.59	6.7	8.7	10.3	12.3	15.1	17.4	21.3	24.6	27.5	30.1	35	122°	120°	107°	
	ZLS30W	ZLGS30W		ZLHGS30W	3.66	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.6	33	39	120°	118°	110°	
	ZLS35W	ZLGS35W		ZLHGS35W	3.66	8.7	11.3	13.3	16.0	19.5	22.6	27.6	32	36	39	45	122°	118°	108°	
	ZLS40W	ZLGS40W		ZLHGS40W	4.11	10.0	12.9	15.3	18.2	22.3	25.8	32	36	41	45	52	122°	119°	104°	
	ZLS45W	ZLGS45W		ZLHGS45W	4.11	11.2	14.5	17.2	20.5	25.1	29.0	36	41	46	50	58	141°	118°	108°	

ZSQ SERIES

Full square spray nozzles



SPRAY CHARACTERISTICS:

Full cone spray pattern, with uniform distribution throughout the approximately square cone.

CONSTRUCTION:

Standard materials are brass, 303 and 316 stainless. Larger sizes in cast 316 or 303 stainless bar.

Please see page 40 for body styles and adapters.

TYPICAL APPLICATIONS:

- Chemical Processing
- Cooling Sprays
- Continuous Casting

U.S. Patent No. 4,142,682

Canadian Patent No. 1,050,589

ZSQ SERIES

One piece body + removable insert



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZSQ	41	25
1/4 ZSQ	43	25
3/8 ZSQ	44	25
1/2 ZSQ	46	25
3/8 ZLSQ	54	32
1/2 ZLSQ	56	32

ZGSQ SERIES

Two piece body + removable insert



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZGSQ	50	25
1/4 ZGSQ	54	25
3/8 ZGSQ	65	25
1/2 ZGSQ	67	28
3/8 ZLGSQ	71	32
1/2 ZLGSQ	73	32

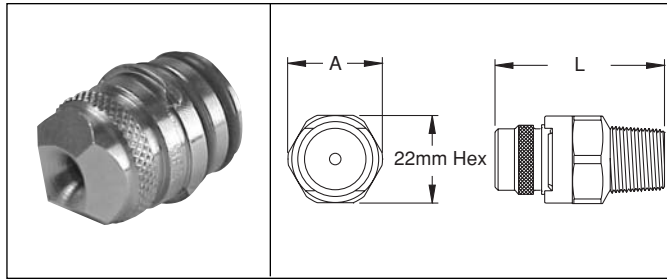
QUICK DISCONNECT

'ZSQ' one piece tip	'ZGSQ' two piece tip		'ZHGSQ' Right Angle two piece tip		MAXIMUM FREE PASSAGE (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)											Spray Angle @		
	ZGSQ	ZLGSQ	ZHGSQ	ZLHGSQ		0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	8 bar	0.5 bar	1.5 bar	5 bar
ZS3.6SQ	ZGS3.6SQ		ZHGS3.6SQ		1.45	--	1.16	1.37	1.64	2.01	2.32	2.84	3.3	3.7	4.0	4.6	42°	55°	50°
ZS4.8SQ	ZGS4.8SQ		ZHGS4.8SQ		1.63	--	1.55	1.83	2.19	2.68	3.09	3.8	4.4	4.9	5.4	6.2	50°	65°	60°
ZS6SQ	ZGS6SQ		ZHGS6SQ		2.06	--	1.93	2.29	2.73	3.3	3.9	4.7	5.5	6.1	6.7	7.7	30°	65°	60°
ZS10SQ	ZGS10SQ		ZHGS10SQ		2.31	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	11.2	12.9	61°	67°	60°
ZS12SQ	ZGS12SQ		ZHGS12SQ		2.31	3.00	3.9	4.6	5.5	6.7	7.7	9.5	10.9	12.2	13.4	15.5	71°	76°	69°
ZS14SQ	ZGS14SQ		ZHGS14SQ		2.31	3.5	4.5	5.3	6.4	7.8	9.0	11.1	12.8	14.3	15.6	18.0	78°	85°	75°
ZS18SQ	ZGS18SQ		ZHGS18SQ		2.59	4.5	5.8	6.9	8.2	10.0	11.6	14.2	16.4	18.3	20.1	23.2	70°	75°	68°
	ZLS29SQ	ZLGS29SQ		ZLHGS29SQ	3.66	7.2	9.3	11.1	13.2	16.2	18.7	22.9	26.4	29.6	32	37	70°	75°	68°
	ZLS36SQ	ZLGS36SQ		ZLHGS36SQ	3.66	9.0	11.6	13.7	16.4	20.1	23.2	28.4	33	37	40	46	80°	85°	77°

Wide angle full square spray nozzles **ZSWSQ SERIES**

DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZSWSQ	41	25 HEX
1/4 ZSWSQ	43	25 HEX
3/8 ZSWSQ	44	25 HEX
1/2 ZSWSQ	46	25 HEX
3/8 ZLSWSQ	54	32 HEX
1/2 ZLSWSQ	56	32 HEX



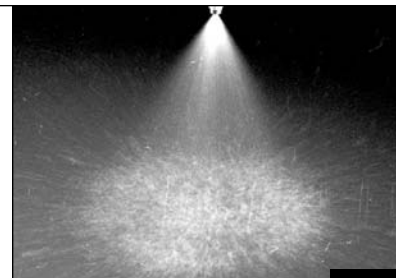
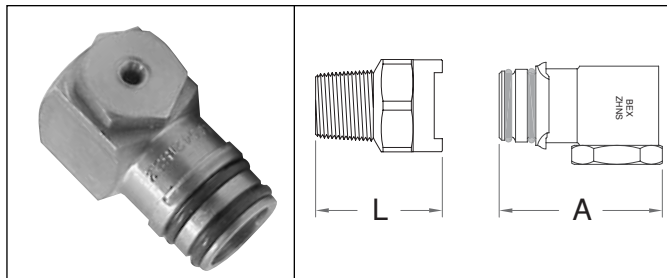
See page 25 for spray characteristics, construction and typical applications.

'ZSWSQ' one piece tip	MAXIMUM FREE PASSAGE (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)												Spray Angle @		
		0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	8 bar	0.5 bar	1.5 bar	5 bar	
ZS14WSQ	2.31	3.5	4.5	5.3	6.4	7.8	9.0	11.1	12.8	14.3	15.6	18.0	102°	98°	84°	
ZS17WSQ	2.59	4.2	5.5	6.5	7.7	9.5	11.0	13.4	15.5	17.3	19.0	21.9	50°	94°	82°	
ZS20WSQ	2.59	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	22.3	25.8	60°	102°	86°	
ZS24WSQ	2.59	6.0	7.7	9.2	10.9	13.4	15.5	18.9	21.9	24.5	26.8	30.9	104°	102°	86°	
ZS27WSQ	2.59	6.7	8.7	10.3	12.3	15.1	17.4	21.3	24.6	27.5	30.1	35	104°	102°	87°	
ZLS30WSQ	3.66	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.6	33	39	100°	96°	85°	
ZLS35WSQ	3.66	8.7	11.3	13.3	16.0	19.5	22.6	27.6	32	36	39	45	104°	99°	88°	
ZLS40WSQ	4.11	10.0	12.9	15.3	18.2	22.3	25.8	32	36	41	45	52	106°	104°	90°	
ZLS45WSQ	4.11	11.2	14.5	17.2	20.5	25.1	29.0	36	41	46	50	58	106°	104°	94°	
ZLS50WSQ	4.95	12.5	16.1	19.1	22.8	27.9	32	39	46	51	56	64	108°	102°	97°	
ZLS71WSQ	4.95	17.7	22.9	27.1	32	40	46	56	65	72	79	92	99°	102°	93°	

Vaneless full cone spray nozzles **ZHNS SERIES**

DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZHNS	54	34
1/4 ZHNS	56	34
3/8 ZHNS	57	34
1/2 ZHNS	59	34



See page 26 for spray characteristics, construction and typical applications.

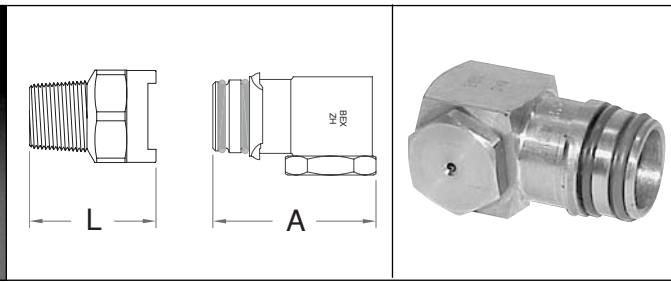
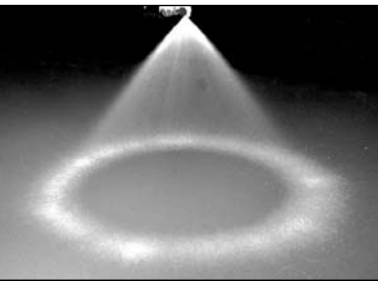
MODEL NUMBER	MAXIMUM FREE PASSAGE (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)											
		0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar	
ZHNS5	1.98	1.25	1.61	1.91	2.28	2.79	3.2	3.9	4.6	5.1	5.6	6.0	
ZHNS7	2.39	1.75	2.26	2.67	3.2	3.9	4.5	5.5	6.4	7.1	7.8	8.4	
ZHNS8	2.77	2.00	2.58	3.05	3.6	4.5	5.2	6.3	7.3	8.2	8.9	9.6	
ZHNS10	3.18	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	11.2	12.1	
ZHNS11	3.58	2.75	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.3	13.3	
ZHNS11	3.18	2.75	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.3	13.3	
ZHNS13	3.58	3.2	4.2	5.0	5.9	7.3	8.4	10.3	11.9	13.2	14.5	15.7	
ZHNS16	3.96	4.0	5.2	6.1	7.3	8.9	10.3	12.6	14.6	16.3	17.9	19.3	
ZHNS20	4.37	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	22.3	24.1	
ZHNS23	4.78	5.7	7.4	8.8	10.5	12.8	14.8	18.2	21.0	23.4	25.7	27.7	
ZHNS26	5.16	6.5	8.4	9.9	11.9	14.5	16.8	20.5	23.7	26.5	29.0	31	
ZHNS29	5.56	7.2	9.3	11.1	13.2	16.2	18.7	22.9	26.4	29.6	32	35	
ZHNS33	5.94	8.2	10.6	12.6	15.0	18.4	21.3	26.1	30.1	34	37	40	
ZLHNS32	5.16	8.0	10.3	12.2	14.6	17.9	20.6	25.3	29.2	33	36	39	
ZLHNS40	5.94	10.0	12.9	15.3	18.2	22.3	25.8	32	36	41	45	48	
ZLHNS48	7.14	12.0	15.5	18.3	21.9	26.8	30.9	38	44	49	54	58	
ZLHNS56	7.54	14.0	18.0	21.4	25.5	31.3	36	44	51	57	63	68	
ZLHNS64	8.33	16.0	20.6	24.4	29.2	36	41	51	58	65	71	77	
ZLHNS72	9.12	18.0	23.2	27.5	33	40	46	57	66	73	80	87	

See pages 2, 3 and 4 for engineering data and spray coverage.

QUICK DISCONNECT

ZH SERIES

Hollow cone spray nozzles



DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8"ZH	54	34
1/4"ZH	56	34
3/8"ZH	57	34
1/2"ZH	59	34

SPRAY CHARACTERISTICS:

A hollow cone spray pattern, emerging at right angles to the centerline of the pipe connection. The standard included angle of the spray cone is 70° at 0.7 bar. At low pressures hollow cone nozzles produce medium size, uniform droplets. At higher pressures finer droplets are produced.

CONSTRUCTION:

The models listed are machined from bar stock, and are two piece construction. Standard materials are brass, 303 stainless steel and 316 stainless steel. Some models available in other materials. Please see page 40 for body styles and adapters.

TYPICAL APPLICATIONS:

- Air and Gas Washing
- Aerating, Rinsing and Humidifying
- Industrial Washers and Spray Ponds
- Cooling Tunnels
- Roof Cooling
- Degreasing
- Dust Suppression
- Metal Treatment

MODEL NUMBER		MAXIMUM FREE PASSAGE (mm)	CAPACITY (L/min) AT VARIOUS PRESSURES (bar)											SPRAY ANGLE @			
			0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	8 bar	0.7 bar	1.5 bar	3 bar	6 bar
ZH	ZLH	0.71	--	--	--	--	--	0.32	0.39	0.46	0.51	0.56	0.64	--	--	40°	45°
		1.35	--	--	--	0.46	0.56	0.64	0.79	0.91	1.02	1.12	1.29	--	61°	74°	69°
		2.18	--	--	--	0.91	1.12	1.29	1.58	1.82	2.03	2.23	2.58	70°	75°	83°	85°
		2.49	--	0.97	1.14	1.37	1.67	1.93	2.37	2.73	3.05	3.3	3.9	70°	70°	72°	74°
		3.25	1.25	1.61	1.91	2.28	2.79	3.2	3.9	4.6	5.14	5.6	6.4	70°	77°	80°	83°
		3.89	1.87	2.42	2.86	3.4	4.2	4.8	5.9	6.8	7.60	8.4	9.7	70°	70°	74°	75°
		4.34	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.1	11.2	12.9	70°	74°	76°	80°
		5.21	3.12	4.0	4.8	5.7	7.0	8.1	9.9	11.4	12.7	14.0	16.1	70°	82°	83°	83°
		5.89	3.7	4.8	5.7	6.8	8.4	9.7	11.8	13.7	15.3	16.7	19.3	70°	73°	75°	75°
		6.35	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.3	22.3	25.8	70°	73°	75°	75°
		7.09	6.2	8.1	9.5	11.4	14.0	16.1	19.7	22.8	25.5	27.9	32	70°	72°	73°	73°
		7.42	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.5	33	39	70°	70°	73°	72°
	ZLH40	9.35	10.0	12.9	15.3	18.2	22.3	25.8	32	36	40.2	45	52	70°	75°	75°	75°
	ZLH50	10.69	12.5	16.1	19.1	22.8	27.9	32	39	46	51.4	56	64	70°	70°	71°	73°
	ZLH60	11.13	15.0	19.3	22.9	27.3	33	39	47	55	61.5	67	77	70°	70°	71°	71°
	ZLH70	11.91	17.5	22.6	26.7	32	39	45	55	64	71.6	78	90	70°	74°	76°	76°
	ZLH80	12.29	20.0	25.8	30.5	36	45	52	63	73	81.6	89	103	70°	73°	75°	76°
	ZLH90	12.70	22.5	29.0	34	41	50	58	71	82	91.7	100	116	70°	70°	71°	73°
	ZLH100	12.88	25.0	32	38	46	56	64	79	91	101	112	129	70°	73°	76°	78°
	ZLH110	14.61	27.5	35	42	50	61	71	87	100	111	123	142	70°	72°	75°	72°
	ZLH120	14.43	30	39	46	55	67	77	95	109	122	134	155	70°	70°	71°	71°

"--" means not recommended at this pressure.

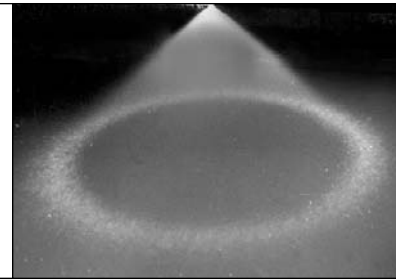
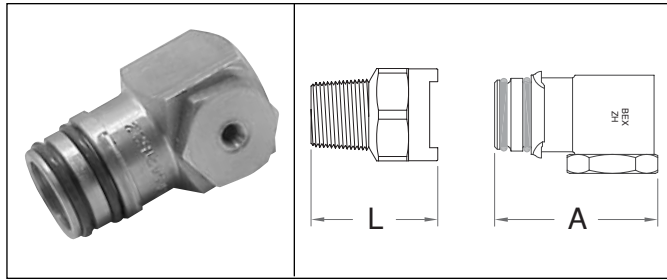
QUICK DISCONNECT

Wide angle hollow cone spray nozzles

ZHW SERIES

DIMENSIONS

NOZZLE BSPT PIPE SIZE	Length L (mm)	Dim. A (mm)
1/8 ZHW	54	34
1/4 ZHW	56	34
3/8 ZHW	57	34
1/2 ZHW	59	34



TYPICAL APPLICATIONS:

- Water Cooling
- Roof Cooling
- Air Cooling
- Air Washing

SPRAY CHARACTERISTICS:

A hollow cone spray pattern, similar to the BEX H series, but with wider spray angles. The included angle of the spray cone is 120° at 0.7 bar.

CONSTRUCTION:

The models listed are machined from bar stock, and are two piece construction. Standard materials are brass, 303 stainless steel and 316 stainless steel. Some models are also available in other materials. Please see page 40 for body styles and adapters.

MODEL NUMBER		MAXIMUM FREE PASSAGE (mm)	CAPACITY (L/min) AT VARIOUS PRESSURE (bar)											SPRAY ANGLE @			
ZHW	ZLHW		0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	8 bar	0.7 bar	1.5 bar	3 bar	6 bar
ZH1W		1.40	--	--	--	0.46	0.56	0.64	0.79	0.91	1.02	1.12	1.29	120°	110°	102°	90°
ZH2W		1.96	--	0.64	0.76	0.91	1.12	1.29	1.58	1.82	2.04	2.23	2.58	120°	110°	105°	92°
ZH3W		2.36	--	0.97	1.14	1.37	1.67	1.93	2.37	2.73	3.06	3.3	3.9	120°	114°	104°	90°
ZH5W		2.77	--	1.61	1.91	2.28	2.79	3.2	3.9	4.6	5.1	5.6	6.4	120°	113°	107°	98°
ZH7.5W		4.01	1.87	2.42	2.86	3.4	4.2	4.8	5.9	6.8	7.6	8.4	9.7	120°	115°	110°	92°
ZH10W		4.32	2.50	3.2	3.8	4.6	5.6	6.4	7.9	9.1	10.2	11.2	12.9	120°	115°	110°	93°
ZH12.5W		4.78	3.12	4.0	4.8	5.7	7.0	8.1	9.9	11.4	12.7	14.0	16.1	120°	118°	110°	94°
ZH15W		5.11	3.7	4.8	5.7	6.8	8.4	9.7	11.8	13.7	15.3	16.7	19.3	120°	115°	108°	92°
ZH20W		5.94	5.0	6.4	7.6	9.1	11.2	12.9	15.8	18.2	20.4	22.3	25.8	120°	118°	116°	110°
ZH25W		6.73	6.2	8.1	9.5	11.4	14.0	16.1	19.7	22.8	25.5	27.9	32	120°	117°	115°	110°
ZH30W		7.11	7.5	9.7	11.4	13.7	16.7	19.3	23.7	27.3	30.6	33	39	120°	115°	110°	102°
	ZLH50W	9.09	12.5	16.1	19.1	22.8	27.9	32	39	46	51	56	64	120°	115°	108°	103°
	ZLH80W	11.89	20.0	25.8	30.5	36	45	52	63	73	82	89	103	120°	117°	110°	103°



Hollow cone phosphating nozzles

ZPH SERIES

SPRAY CHARACTERISTICS:

A hollow cone spray pattern for phosphating applications. This large droplet, low impingement type of spray results in a tighter and more consistent phosphate crystalline structure.

CONSTRUCTION:

Two piece construction. Available in 303 stainless steel and 316 stainless steel. Please see page 40 for body styles and adapters.

MODEL NUMBER	ORIFICE DIAMETER (mm)		CAPACITY (L/min) AT VARIOUS PRESSURES (bar)										SPRAY ANGLE @		
	BODY	CAP	0.3 bar	0.5 bar	0.7 bar	1 bar	1.5 bar	2 bar	3 bar	4 bar	5 bar	6 bar	0.7 bar	1 bar	2 bar
			ZPH23	5.59	7.92	5.7	7.4	8.8	10.5	12.8	14.8	18.2	21.0	23.4	25.7
ZPH28	5.87	7.92	7.0	9.0	10.7	12.8	15.6	18.0	22.1	25.5	28.5	31	40°	43°	48°
ZPH51	8.74	9.53	12.5	16.1	19.1	22.8	27.9	32	39	46	51	56	40°	50°	50°
ZPH53	9.53	9.53	12.5	16.1	19.1	22.8	27.9	32	39	46	51	56	70°	70°	70°