

# HYDROPULSE® - PNEUMATIC

<b>Liquid inlet connection</b>	¼" NPT or BSPP, liquid; ⅜" NPT or BSPP, cylinder air; or DN10 tri-clamp
<b>Maximum flow rate</b>	57.7 LPM
<b>Maximum rated liquid pressure</b>	42 bar
<b>Operating temperature range</b>	-26°C to 204°C
<b>Air cylinder pressure</b>	2 bar to 17 bar
<b>Air cylinder operation</b>	Single acting (spring return) or double acting.
<b>Maximum cycle frequency</b>	3 cycles/sec
<b>Nozzle construction</b>	Stainless steel wetted components, Viton® (FKM) seals
<b>Interchangeable BJ, BJH, CW, and ST nozzle tip options.</b>	



Provides a controlled intermittent liquid spray using only liquid pressure as the force for atomization. Offers drip-free performance. Pneumatically actuated for crisp on/off precision spray performance.

## BJ Flow Rates and Dimensions

Fan, 0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110° Spray Angles



	LITERS PER MINUTE @ BAR								Equivalent Orifice Dia. (mm)	Available Spray Angles
	K Factor	0.3 bar	1 bar	2 bar	5 bar	10 bar	20 bar	40 bar		
BJ 0067	0.153	0.084	0.153	0.220	0.340	0.480	0.680	0.970	0.580	0°, 15°, 25°, 40°, 50°, 65°, 80°
BJ 01	0.228	0.120	0.228	0.320	0.510	0.720	1.02	1.44	0.710	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 015	0.342	0.190	0.342	0.480	0.760	1.08	1.53	2.16	0.970	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 02	0.456	0.250	0.456	0.640	1.02	1.44	2.04	2.88	0.990	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 03	0.684	0.370	0.684	0.970	1.53	2.16	3.06	4.32	1.19	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 04	0.912	0.500	0.912	1.29	2.04	2.88	4.08	5.77	1.40	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 05	1.14	0.620	1.14	1.61	2.55	3.60	5.10	7.21	1.55	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 06	1.37	0.750	1.37	1.93	3.06	4.32	6.11	8.65	1.70	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 08	1.82	1.00	1.82	2.58	4.08	5.77	8.15	11.5	1.88	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 10	2.28	1.25	2.28	3.22	5.10	7.21	10.2	14.4	2.18	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°
BJ 15	3.42	1.87	3.42	4.83	7.64	10.8	15.3	21.6	2.72	0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, 110°

$$\text{Flow Rate (l/min)} = K\sqrt{\text{bar}}$$

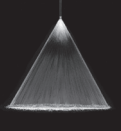
BJ Tip Materials: Brass, 303 Stainless Steel, and 316 Stainless Steel.

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

## BJH Flow Rates and Dimensions

5° to 120° Spray Angles, Tungsten Carbide Insert with 303 Stainless Steel Housing



	LITERS PER MINUTE @ BAR							Equivalent Orifice Dia. (mm)	Available Spray Angles
	K Factor	2 bar	3 bar	4 bar	7 bar	30 bar			
BJH-0.18	0.018	-	-	-	0.048	0.099	0.18	5°, 10°, 15°, 20°, 25°, 30°, 33°, 40°, 50°	
BJH-0.28	0.029	-	-	-	0.077	0.159	0.23	5°, 10°, 20°, 33°, 40°, 50°, 65°, 73°	
BJH-0.38	0.059	-	-	-	0.156	0.323	0.33	10°, 20°, 33°, 40°, 50°, 65°, 73°, 80°, 90°, 100°	
BJH-0.45	0.100	-	-	-	0.265	0.548	0.43	10°, 20°, 33°, 40°, 50°, 65°, 73°, 80°, 90°, 100°, 110°, 120°	
BJH-0.53	0.125	0.177	0.217	0.250	0.331	0.685	0.48		
BJH-0.66	0.216	0.305	0.374	0.432	0.571	1.18	0.63		
BJH-0.68	0.237	0.335	0.410	0.474	0.627	1.30	0.66	10°, 20°, 33°, 40°, 50°, 65°, 73°, 80°, 90°, 100°, 110°, 120°	
BJH-0.78	0.289	0.409	0.501	0.578	0.765	1.58	0.73		
BJH-0.89	0.383	0.542	0.663	0.766	1.01	2.10	0.84		
BJH-0.99	0.480	0.679	0.831	0.960	1.27	2.63	0.94		
BJH-1.14	0.645	0.912	1.12	1.29	1.71	3.53	1.09	20°, 33°, 40°, 50°, 65°, 73°, 80°, 90°, 100°, 110°, 120°	
BJH-1.29	0.835	1.18	1.45	1.67	2.21	4.57	1.24		
BJH-1.45	1.06	1.50	1.84	2.12	2.80	5.81	1.40	20°, 33°, 40°, 50°, 65°, 73°, 80°, 90°, 100°, 110°	
BJH-1.60	1.34	1.90	2.32	2.68	3.55	7.34	1.57	20°, 33°, 40°, 50°, 65°, 73°, 80°, 90°, 100°	
BJH-1.80	1.66	2.35	2.88	3.32	4.39	9.09	1.75	20°, 33°, 40°, 50°, 65°, 73°, 80°, 90°	
BJH-1.91	1.98	2.80	3.43	3.96	5.24	10.8	1.91	20°, 33°, 40°, 50°, 65°, 73°, 80°	

$$\text{Flow Rate (l/min)} = K\sqrt{\text{bar}}$$


BJH Tip Materials: Tungsten Carbide Insert with 303 Stainless Steel Housing

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

## CW Flow Rates and Dimensions

Full Cone and Hollow Cone, 80° and 120° Spray Angles



	LITERS PER MINUTE @ BAR									Approx Orifice Dia. (mm.)
	K Factor	0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	10 bar	15 bar	
CW25	0.59	0.42	0.50	0.59	0.81	0.99	1.25	1.73	2.10	1.14
CW50	1.17	0.85	0.99	1.17	1.63	1.97	2.50	3.47	4.19	1.37
CW75	1.76	1.27	1.49	1.76	2.44	2.95	3.75	5.20	6.29	1.60
CW100	2.35	1.70	1.99	2.35	3.25	3.94	5.01	6.93	8.39	2.18

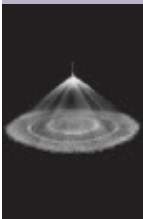
$$\text{Flow Rate (l/min)} = K(\text{bar})^{0.47}$$

CW Tip Materials: Brass, 303 Stainless Steel and 316 Stainless Steel.

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

# ST Flow Rates and Dimensions

Full Cone, 90° (FCN) and 120° (FC) Spray Angles



## LITERS PER MINUTE @ BAR

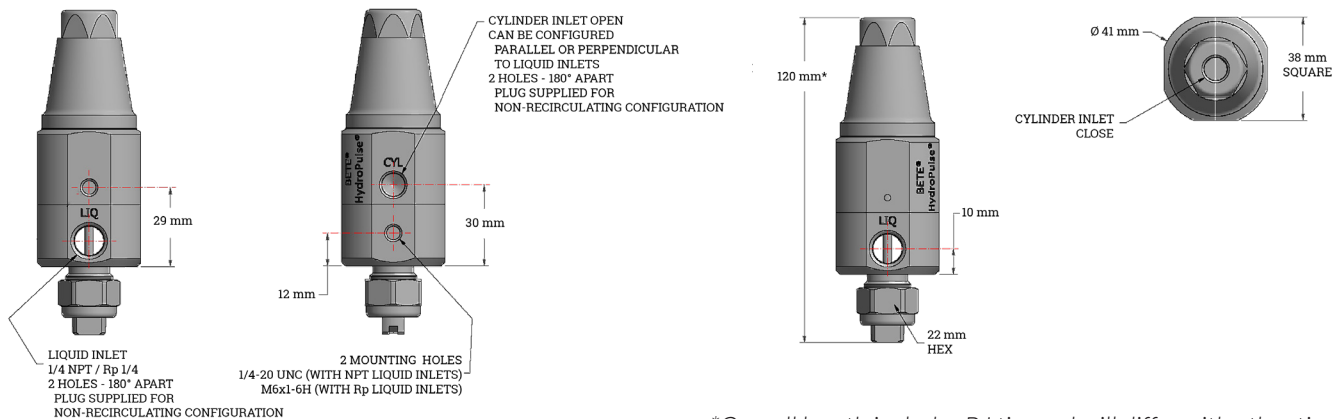
	K Factor	0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	10 bar	20 bar	Approx Orifice Dia. (mm.)
ST6	3.19	2.26	2.67	3.19	4.5	5.5	7.1	10.1	14.3	2.38
ST8	5.93	4.19	4.96	5.93	8.4	10.3	13.2	18.7	26.5	3.18
ST10	9.12	6.45	7.63	9.12	12.9	15.8	20.4	28.8	40.8	3.97

Flow Rate (l/min) =  $K\sqrt{\text{bar}}$

ST Tip Materials: Cobalt Alloy 6

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

### 1/4-PHP-00 (RECIRCULATING)



\*Overall length includes BJ tip, and will differ with other tips.

## Pneumatic HydroPulse Ordering Nomenclature

**TRI-1/2 PHP 00 BJ 01 90**

### Connection

1/2" ASME Tri-clamp: TRI-1/2  
1/4" NPT thread: 1/4  
1/4" BSPP thread: 1/4 B  
DN10 DIN 32676/A Tri-clamp: TRE01-DN10

### Series Name

PHP

### Body Style

recirculating - 00  
non-recirculating - 01

Spray Angle  
series dependent

Tip Rating  
series dependent

### Tip Series

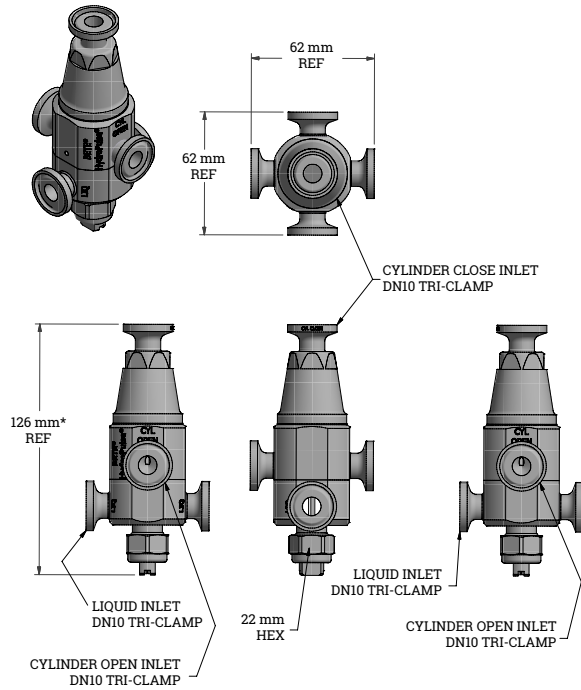
BJ  
BJH  
CW  
ST

# PNEUMATIC HYDROPULSE AUTOMATIC SPRAY NOZZLES WITH HYGIENIC TRI-CLAMP CONNECTIONS

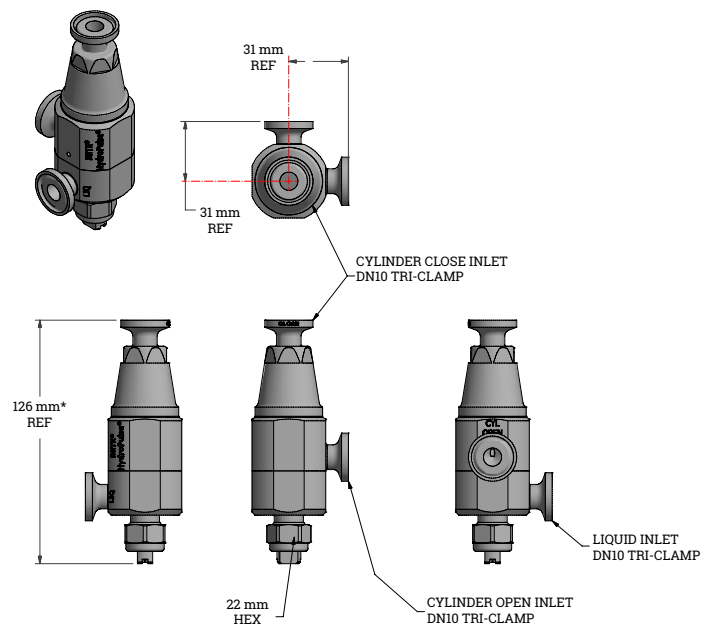
Tri-clamps are sanitary pipe connections commonly used in the food, beverage, biopharmaceutical, and personal care industries.



DN10 TRI-CLAMP PHP-00 (RECIRCULATING)



DN10 TRI-CLAMP PHP-01 (NON - RECIRCULATING)



\*Overall length includes BJ tip, and will differ with other tips.