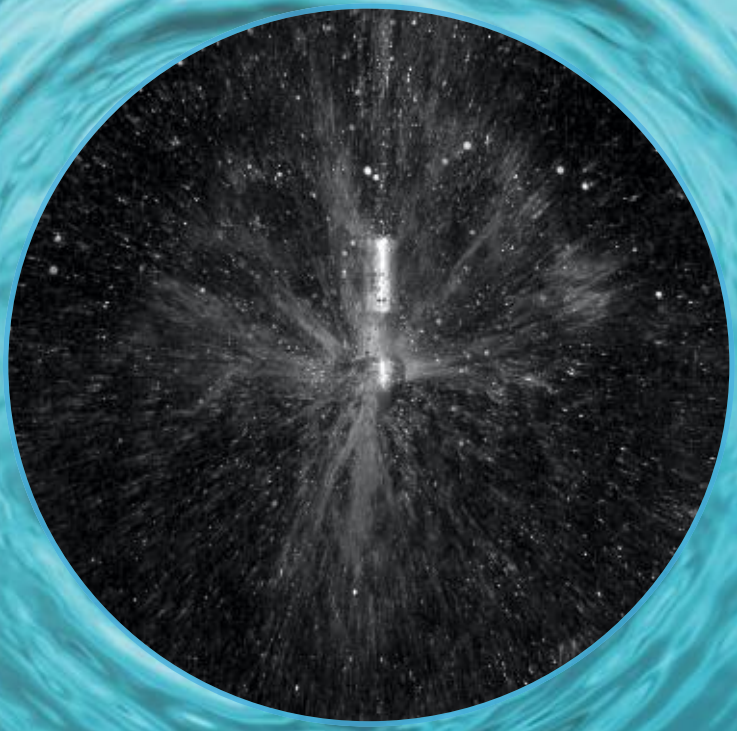
BETE®

NOZZLES FOR BOTTLE, DRUM, AND TANK WASHING



TW 0213

BETE®
PERFORMANCE THROUGH ENGINEERING

TANK WASHING

When choosing a suitable tank cleaning nozzle, three different designs are available:

- Stationary tank cleaning nozzles
- Rotating tank cleaning nozzles
- Tank cleaning machines

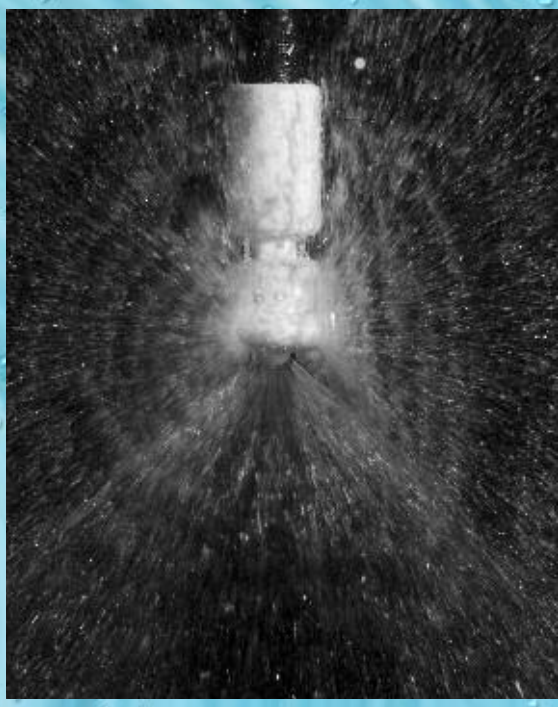
Stationary tank washing nozzles
Stationary nozzles, such as the CLUMP spray head, are characterized by a particularly large cross-section. In addition, these nozzles are extremely low maintenance. Due to the special design of the TW series, only small intake pipes are needed on the tanks.

Rotating tank cleaning nozzles
Rotating nozzles are agent-driven spray heads that remove soiling through their droplet impact pressure and the quantity of cleaning agent. The standard spray angle is 360°. HydroWhirl® S nozzles are used where cleaning needs to be done with a stong fan of liquid, and they are ATEX-approved.

Tank cleaning machines
The areas of application of a tank cleaning machine are where the highest cleaning efficiency are necessary, such as:

- Beer tanks, boilers, and malt containers
- Raw milk storage, processing containers, spray dryers, and silos

A tank cleaning machine features optimized full jet nozzles, so that containers with diameters of 100 feet or more can be cleaned. The maximum water flow volumes are up to 160 gpm at 40 psi. In order to shorten the cleaning time, target jet cleaners can be equipped with up to 4 full jet nozzles.



ABOUT BETE

At BETE Fog Nozzle, Inc., our success has always been focused on understanding our customers' business and providing effective engineered solutions to their most difficult fluid process challenges. With more than 60 years of experience designing and fabricating spray nozzles, BETE has the engineering expertise on which customers can count.

BETE's mission goes beyond just selling spray nozzles: it is to provide engineered spraying solutions that exceed customer expectations in every detail. Extensive in-house capabilities; including integrated 3DCAD/CAM design, rapid prototyping, investment casting, CNC machining, welded fabrication, and spray testing; make it possible to offer the highest level of quality throughout every phase of production.

The BETE Difference is our unparalleled ability to respond quickly and effectively to any kind of spraying challenge anywhere in the world with the most knowledgeable customer service in the industry.

CHOOSING A TANK WASHING NOZZLE

Adequate coverage and effective scrubbing are of prime importance in bottle, drum, and tank washing. Choosing from the variety of tank washing nozzles can be confusing. In selecting BETE nozzles you should consider the following vessel characteristics and nozzle design criteria: size and shape of vessel to be cleaned, vessel opening, type of material to be removed, and spray coverage.

Size and Shape of Vessel to be Cleaned

BETE's tank washing nozzles can be used to clean, wash, and rinse every size vessel from small bottles, moderately sized tanks, to railroad tankers.

The TW series is the best choice for cleaning small bottles, kegs, and barrels due to its compact design. Medium-sized tanks up to 20' or are best cleaned using the HydroWhirl® S, HydroWhirl Poseidon®, or the CLUMP series because of their omni-directional spray.

Where higher impact and larger coverage is needed, BETE's tank washing machine, the HydroWhirl Orbitor, is the perfect choice.

Tank Washing Nozzle	up to	coverage distance in feet (diameter)											
		5	10	15	20	25	30	40	50	60	70	80+	
TW 12 - 20	6'												
TW 1	12'												
CLUMP	16'												
HydroWhirl S	20'												
HydroWhirl Poseidon	25'												
HydroWhirl Orbitor	130'												up to 130'

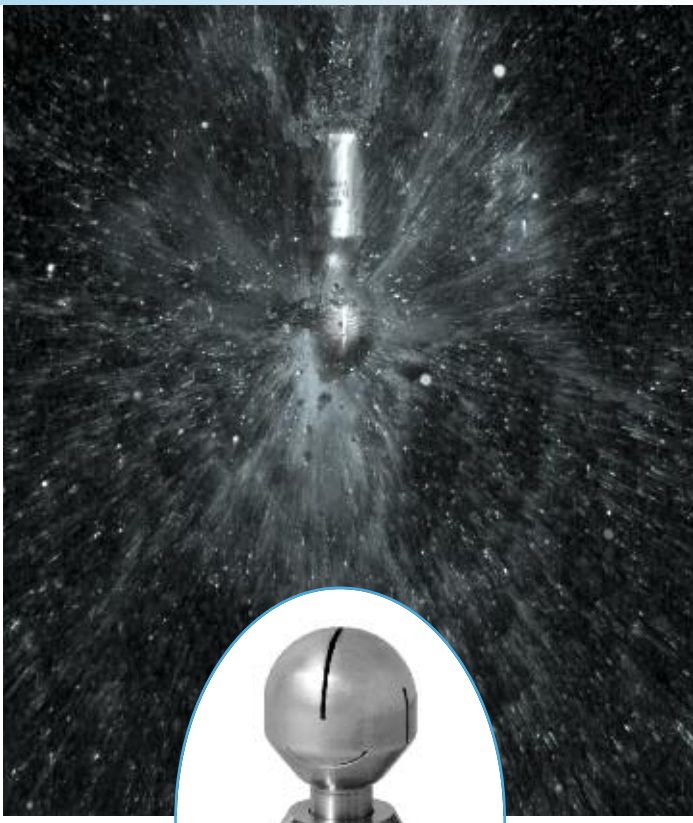
What is ATEX (Ex)?
ATEX is an acronym that stands for 'ATmosphere EXplosible'.
At the same time, ATEX is an abbreviation for European Directive 94/9/EC concerning the placement on the market of explosion-protected electrical and mechanical equipment.

All HydroWhirl S nozzles are available with ATEX approval for Zone 0.

HydroWhirl® S

slotted rotating spray nozzle for quick, efficient tank cleaning

The HydroWhirl® S nozzle directs the cleaning water through a rotating head at the tip of the spray assembly. This produces a vigorous moving spray action against all areas of the walls of a tank. The spray pattern from the HydroWhirl S head uses impact and repetition to quickly wash the tank. This spray pattern is especially effective at breaking up and removing contaminants.



Surface finish ideal for sanitary applications

Advantages of the HydroWhirl S rotary spray nozzle.

- Cleans more quickly, and uses less water and lower pressure than static tank washers
- Complete 360° coverage
- Lower flow and pressure mean smaller pump size resulting in lower operating costs

The HydroWhirl S nozzle has been carefully designed for long service life.

Low-maintenance bearing design

- Self-cleaning bearings are lubricated by water flow to clear away particles

High-precision machining and finish

- Stainless steel construction – corrosion resistant
- Laser-welded design for durable assembly
- Surface finish of 0.8 microns R_a or better
- Made from FDA-approved materials for use in Clean-in-Place (CIP) applications

Comprehensive quality control

- Material traceability controlled throughout production
- Lifecycle lab testing validates minimum service life of 300 hours
- All HydroWhirl S nozzle are available with ATEX approval for Zone 0.

Design flexibility

- Available in many different sizes and connections: threaded, clip-on, or welded
- 360° omni-directional spray pattern standard; other spray angles available upon request
- Flow range: 1.26 – 90.9 gpm (14.2 – 334 L/min)
- Dual bearing design – nozzle operates effectively in any orientation

The HydroWhirl S nozzle is an outstanding combination of design, quality, and engineering. The HydroWhirl S nozzle is ideal for anyone who needs reliable, efficient cleaning of tanks and other interior spaces.

All HydroWhirl S nozzles are available with ATEX approval for Zone 0.

HydroWhirl® S

Tank Washing - Slotted Spray Nozzle

DESIGN FEATURES

- Cleans more quickly, and uses less water and lower pressure than static tank washers
- Surface finish ideal for sanitary applications
- Laser-welded design for durable assembly
- Stainless steel construction - corrosion-resistant material
- Three connections: threaded, clip-on, and welded
- Made from FDA approved materials for use in Clean-In-Place (CIP) applications.

SPRAY CHARACTERISTICS

- Self-cleaning bearings
- Vigorous moving spray action
- Complete 360° omnidirectional coverage

Flow rates: 1.26 to 90.9 gpm

All HydroWhirl S nozzles are available with ATEX approval for Zone 0.

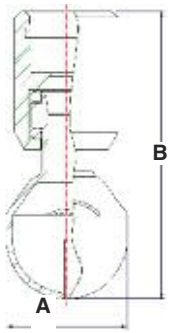
STANDARD CONNECTION SIZES

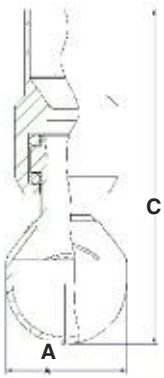
Additional connnection sizes available on request

Connection Type	Nozzle Number													
	HWS 20-3	HWS 20-4	HWS 20	HWS 30-5	HWS 30-6	HWS 30	HWS 40-7.5	HWS 40-8	HWS 40-9	HWS 40	HWS 40HF-11	HWS 40HF	HWS 50-16	HWS 50
Pipe Clip On	--	--	--	--	--	3/8"	--	--	--	3/4"	--	3/4"	--	1-1/2"
Tube Clip On	--	--	--	--	--	3/4"	--	--	--	1"	--	1"	--	2"
Pipe Weld On	--	--	1/4"	--	--	3/8", 1/2"	--	--	--	3/4", 1	--	3/4", 1	--	1-1/2", 2"
Tube Weld On	--	--	1/2"	--	--	3/4"	--	--	--	1"	--	1"	--	2"
FNPT/FBSP	1/8"	1/8"	1/8"	3/8"	3/8"	1/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1-1/2"	1-1/2"
DIN Clip On (mm)	--	--	8	--	--	15	--	--	--	20, 25	--	20, 25	--	40, 50
DIN Weld On (mm)	--	--	8, 10	--	--	15	--	--	--	15, 20, 25	--	15, 20, 25	--	40, 50

HydroWhirl® S Flow Rates and Dimensions

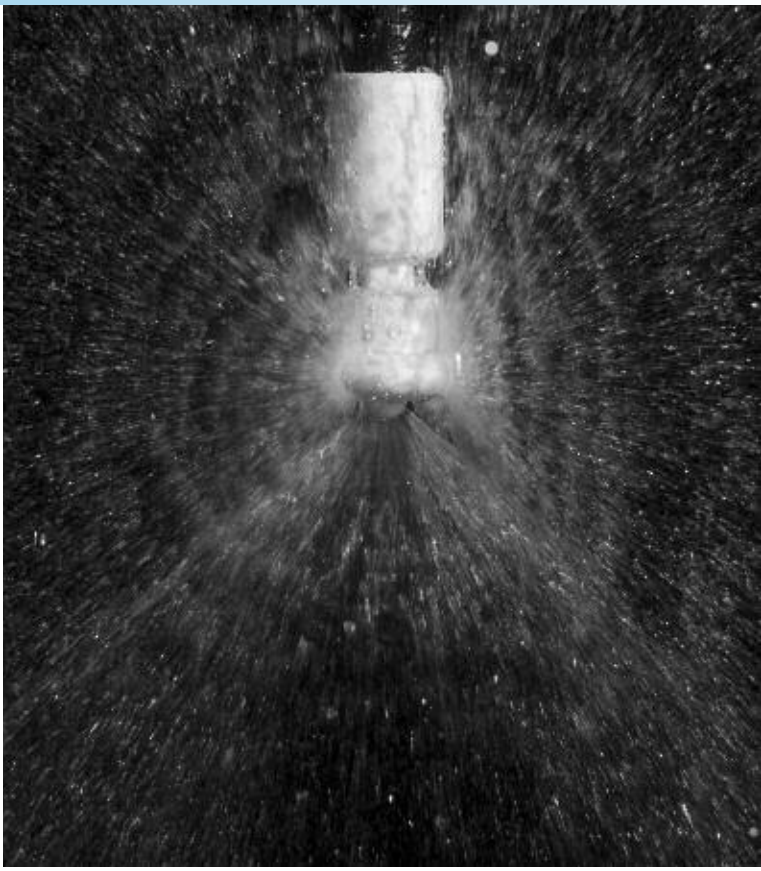
Female Pipe Size	Nozzle Number	GALLONS PER MINUTE @PSI						Dimensions (in)			Wt (oz)	Coverage Diameter (ft) @40PSI
		10 psi	20 psi	30 psi	40 psi	50 psi	60 psi	A	B	C		
1/8"	HWS-20-3	1.26	1.63	1.89	2.10	2.28	2.44	0.66	1.68	2.72	0.88	4.9
	HWS-20-4	2.14	2.79	3.26	3.64	3.97	4.26					6
	HWS-20	3.16	4.31	5.45	6.41	7.16	7.83					
3/8"	HWS-30-5	2.31	3.29	4.12	4.80	5.37	5.88	1.1	2.34	3.28	3.28	8
	HWS-30-6	5.54	6.97	7.98	8.78	9.46	10.1					
1/4"	HWS-30	5.70	8.10	9.96	11.5	12.9	14.3					
3/4"	HWS-40-7.5	5.60	7.87	9.60	11.1	12.4	13.6	1.53	3.65	4.25	10.8	11
	HWS-40-8	6.39	8.96	10.9	12.6	14.1	15.4					
	HWS-40-9	7.94	11.3	13.9	16.0	17.8	19.6					
	HWS-40	9.08	13.1	16.1	18.3	20.3	22.2					
	HWS-40HF-11	12.2	17.1	20.8	24.1	26.9	29.4	1.53	3.65	4.25	10.6	13
	HWS-40HF	15.0	21.3	26.0	29.7	32.6	35.4					
1 1/2"	HWS-50-16	24.2	33.8	41.4	47.8	53.4	58.5	2.72	6.21	7.09	53.8	18
	HWS-50	37.2	52.4	64.1	74.2	82.9	90.9					





Standard Materials: nozzle: 316L; ball bearings: 316 stainless steel
Flowrates may differ with clip-on connection.

HydroWhirl Poseidon®
spray nozzles for quick, efficient tank cleaning



The HydroWhirl Poseidon tank-washing nozzle directs the cleaning water through a rotating head at the tip of the spray assembly. This produces a slow-moving, high-impact spray action against internal surfaces of the tank. The HydroWhirl Poseidon nozzle head uses impact and repetition to quickly break up and wash away contamination. The combination of the spray pattern and slow rotation of the HydroWhirl Poseidon tank-washing nozzle is especially effective at removing scum rings or tougher, stuck-on material.

Advantages of the HydroWhirl® Poseidon™ rotary tank-washing nozzle:

- Cleans more quickly and uses less water and lower pressure than static tank washers
- Complete 360° omnidirectional coverage
- Slow rotation speed provides higher impact and more efficient cleaning.
- Durable PTFE nozzle construction withstands extreme chemical and elevated temperature environments.
- Simple internal design allows reliable flow-through operation
- Design validated by lab testing to 200°F (93°C)
- Maintenance-friendly design allows disassembly, inspection, and reassembly with basic hand tools.
- Made from FDA-approved materials for use in Clean-in-Place (CIP) applications

The HydroWhirl Poseidon tank-washing nozzle has been carefully designed for long service life

Comprehensive Quality Control:

- Material traceability controlled throughout production
- BETE product quality is maintained using a quality system registered to ISO 9001-2008

Design flexibility:

- Available with pipe, tube, or DIN clip-on connections. Threaded connections available upon request.
- Flow range: 15.3 to 89.5 gpm

The HydroWhirl Poseidon tank washing nozzle is an outstanding combination of design, quality, and performance.

The HydroWhirl Poseidon tank washing nozzle is ideal for anyone who needs a polymer nozzle for reliable, efficient cleaning of tanks and other interior spaces.

HydroWhirl® Poseidon®

Tank Washing - PTFE Spray Nozzle

DESIGN FEATURES

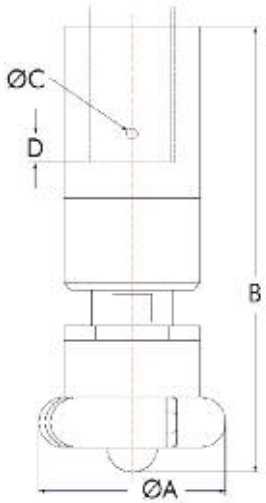
- Cleans more quickly, and uses less water and lower pressure than static tank washers
- PTFE construction:
  - Ideal for harsh chemical environments
  - Corrosion resistant
- Three connections: pipe, tube, or DIN clip-on. Threaded connections available upon request.
- Made from FDA-approved materials for use in Clean-In-Place (CIP) applications.

SPRAY CHARACTERISTICS

- Slow spinning, longer spray dwell time on the target surface increases impact over conventional rotating designs
- Complete 360° omnidirectional spray pattern

Flow rates: 15.3 to 89.5 gpm

Minimum Tank Opening:
Small: 3", Large: 3.3"



HydroWhirl Poseidon® Nozzle Coverage Chart
When spraying at 40 psi

Nozzle Number	Washing Diameter (ft)
HWP-32	15
HWP-37	12
HWP-48	18
HWP-55	22
HWP-65	20
HWP-73	17

CONNECTION SIZES

Connection Type	Body Size				
	SMALL		LARGE		
Pipe Clip On	3/4"	1"	1"	1-1/4"	1-1/2"
Tube Clip On	1"	1-1/4"	1-1/2"		1-3/4"
DIN Clip On	20mm	25mm	40mm		

Threaded connections available upon request

Dimensions are approximate. Check with BETE for critical dimension applications.
Not recommended for applications over 60 psi.

HydroWhirl Poseidon Nozzle Flow Rates* and Dimensions

Body Size	Nozzle Number	Spray Angle	GALLONS PER MINUTE @PSI						Dimensions (in)				Wt (oz)
			10 psi	20 psi	30 psi	40 psi	50 psi	60 psi	A	B	C	D MAX	
SMALL	HWP-32	360°	15.3	22.2	27.6	32.2	36.3	40.0	2.94	6.40	0.19	0.50	21
	HWP-37		17.8	25.6	31.7	36.9	41.5	45.7					
LARGE	HWP-48		22.4	32.7	40.7	47.6	53.8	59.3	3.25	7.30	0.19	0.50	29
	HWP-55		26.3	37.9	47.0	54.8	61.7	67.9					
	HWP-65		31.5	45.1	55.8	64.8	72.8	80.0					
	HWP-73		35.5	50.7	62.5	72.6	81.4	89.5					

Standard Materials: Nozzle: PTFE; Retaining Clip: 316 stainless steel
***Flowrates may differ with threaded connection. Contact BETE for more information.**

HydroWhirl® Orbitor
tank cleaning machine is ideal for high impact cleaning

The HydroWhirl® Orbitor is a versatile tank cleaning machine designed to meet the high standards required in the food, brewing, beverage, dairy, and chemical industries combining high performance cleaning efficiency with extended operating life and reduced life cycle costs.

Advantages of the HydroWhirl Orbitor tank cleaning machine.

- The HydroWhirl Orbitor can be stripped, maintained, and rebuilt in less than 15 minutes.
- The HydroWhirl Orbitor is self cleaning and self lubricated.
- Enhanced external cleaning with dedicated nozzles that clean the external surfaces of the machine and its mounting pipe.
- Designed for use where high impact cleaning is required.
- The HydroWhirl Orbitor is ideal for use in larger tanks and where the product is difficult to clean.
- Designed with minimum moving parts to ensure extended operating life and reduced down time.

Available Versions:

- 2 or 4 nozzle machines
- Variable cycle times
- Male or Female connections
- 360° wash pattern
- 180° down wash pattern
- 180° up wash pattern

Typical HydroWhirl Orbitor Applications:

Typically used where high impingement cleaning is required and where the most efficient use of utilities in necessary.

BREWING
Bright beer tanks, coppers, maltings

COATINGS AND PAINTS
Storage silos, process vessels, mixers

FOOD AND DAIRY
Raw milk storage, spray driers, process vessels, storage silos

CHEMICAL
Process vessels, mixers, storage silos

BEVERAGE
Process vessels, storage silos

Key Features and Benefits:

- Designed to meet hygienic standards
- Optimum consumption of water, chemicals, and time = reduced operating costs
- Minimum moving parts = reduced lifecycle costs
- Self cleaning; self lubricating = no process contamination
- High impact jets; orbital wash pattern = high efficiency cleaning process
- Compact design = will fit through small access flanges
- 2 or 4 nozzle configuration = wash pattern variable up to super intense
- External Surface Finish: 0.5 microns Ra or better

HydroWhirl® Orbitor

High Impact Rotary Tank Cleaning Machine

DESIGN FEATURES

- Reduced maintenance costs
- Minimum moving parts = reduced life-cycle costs
- Self cleaning; self lubricating = no process contamination
- High-impact jets; orbital wash pattern = high efficiency cleaning process
- Compact design
- 2 or 4 nozzle configurations = wash pattern variable up to super intense
- Male or female connections

SPRAY CHARACTERISTICS

- 360 wash pattern
- Variable cycle times
- High impact cleaning

Flow rates: 21.5 - 160 gpm
Working Pressure: 45 - 145 psi

Materials:
Housing: 316L
Nozzle Head: 316L
Gears: PEEK + 316 SS
Bushings/Seals: Carbon Filled PTFE

Max. Working Temp.: 203°F (95°C)
Max. Ambient Temp.: 284°F (140°C)
Weight: 13.2 Lbs

Minimum opening size is 125 mm (5") for either a 2-nozzle or 4-nozzle standard-capacity model.

Orbitor 2 nozzle spray pattern

Orbitor 4 nozzle spray pattern

Jet lengths are effective cleaning lengths

	4 X 4.2mm			4 x 5mm			4 x 6mm			4 x 7mm			4 x 8mm		
Connection Size	1" and 1-1/2"			1" and 1-1/2"			1-1/2"			1-1/2"			1-1/2"		
Pressure (PSI)	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**
45	22.6	9.5	11	31.4	13.1	13	38.6	17.4	15.5	59.1	21.3	20.1	68.3	23.6	15.5
60	26.5	9.8	9.3	36.4	13.8	10.8	45.7	18.7	12.9	67.7	23.3	15.2	79.0	26.2	12.9
75	30.0	11.5	7.9	40.8	15.4	9.4	52.1	20.3	11	75.2	25.3	14.9	88.4	29.5	11
90	33.3	13.1	6.9	44.8	17.1	8	58.0	23.0	9.5	81.9	27.9	13	96.9	32.5	9.5
100	35.3	16.4	6.3	47.2	20.7	7.3	61.8	26.2	8.4	86.0	30.8	11.7	102	34.8	8.5
115	38.1	20.3	5.8	50.8	24.6	6.8	67.0	30.8	7.6	91.9	33.8	10.4	110	36.7	7.8
130	40.8	23.3	5.6	54.0	27.9	6.5	72.1	33.8	7	97.3	36.7	9.3	117	40.0	7
145	43.4	25.6	5.5	57.2	29.5	6.4	76.8	36.7	6.9	102	39.4	8.9	123	42.6	6.9

	2 x 6mm			2 x 7mm			2 x 8mm			*2 x 10mm			*2 x 12.5mm		
Connection Size	1-1/2"			1-1/2"			1-1/2"			1-1/2"			1-1/2"		
Pressure (PSI)	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**	**Flow (gpm)**	**Jet Length (ft)**	**Cycle Time (min)**
45	21.5	18.0	33	26.1	21.3	37.5	33.5	23.6	25.7	59.1	32.1	41	89.4	33.1	26.8
60	25.4	19.7	27.2	31.3	23.6	31.6	39.3	26.2	22.9	68.7	34.4	34.2	103	36.7	24
75	28.8	20.7	24.7	36.0	25.9	28.2	44.4	29.5	20.5	77.2	37.7	30.5	115	39.7	21.7
90	31.9	23.0	22.6	40.4	27.9	25.8	49.1	32.5	18.9	84.9	41.7	28	126	44.0	19.8
100	33.9	26.2	21	43.2	29.2	24	52.0	34.8	17.5	89.8	45.6	26	133	48.5	18.4
115	36.7	29.5	19.5	47.2	30.2	22.3	56.2	36.7	16.4	96.6	49.9	24.5	143	53.8	17.2
130	39.4	33.5	18.4	51.1	37.0	21	60.1	40.0	15.6	103	55.8	23.2	152	60.0	16.3
145	41.9	37.7	17.4	54.7	40.4	20	63.8	42.6	14.9	109	61.7	22	160	65.9	15.5

*High Capacity Jet Machine

TW

Tank Washing

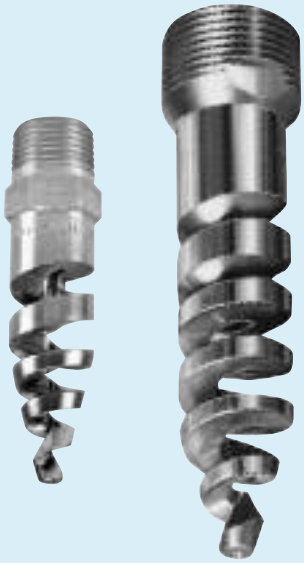
DESIGN FEATURES

- Clog-resistant spiral design
- Energy efficient
- Compact design; fits small openings

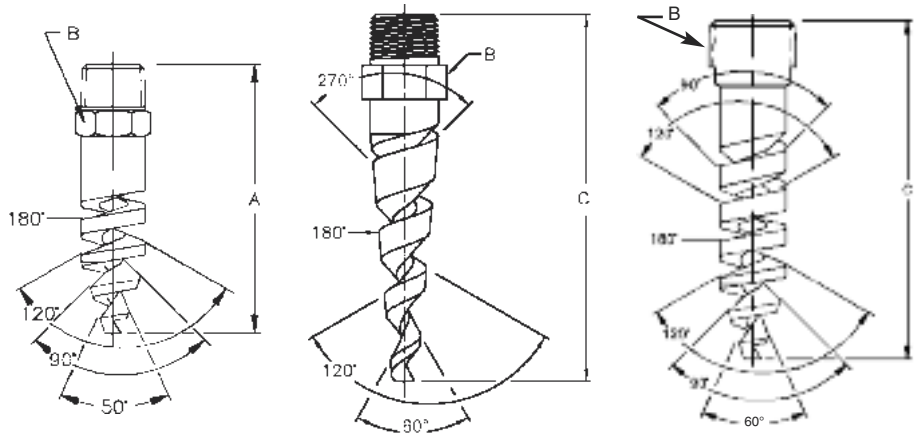
SPRAY CHARACTERISTICS

- Easy to maintain
- Unique patterns that spray in opposing directions

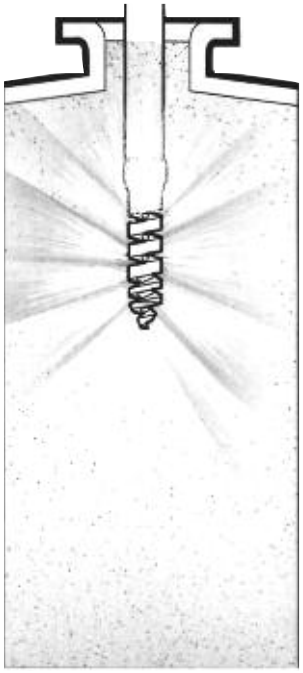
Flow rates: 3.0 to 163 gpm



TW 20 TW 1



TW 12-TW 20 (180°) TW 12-TW 20 (270°) TW 1



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

Tank Washing TW Coverage Chart
When spraying at 30-40 PSI

Pipe Size	Nozzle Number	Scrubbing Diameter (ft.)	Rinsing Diameter (ft.)
3/8	TW12	1.25	2.5
	TW14	1.5	4.0
	TW16	2.0	5.0
	TW20	3.0	7.0
1	TW1	8.0	20

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

Tank Washing Flow Rates and Dimensions
TW 180° and 270°, 3/8" and 1" Pipe Sizes

Male Pipe Size	Nozzle Number	Available Spray Angle	K Factor	GALLONS PER MINUTE @ PSI 10 PSI	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI	80 PSI	100 PSI	200 PSI	400 PSI	Approx. (in.) Orifice Dia	Free Pass. Dia.	Dimensions (in.) A	B	C	Wt. (oz.)
3/8	TW12	180° 270°	0.949	3.00	4.24	5.20	**6.00**	6.71	7.35	8.49	9.49	13.4	19.0	0.19	0.13				
	TW14	180° 270°	1.28	4.05	5.73	7.01	**8.10**	9.06	9.92	11.5	12.8	18.1	25.6	0.22	0.13	2.88	0.75	3.63	1.75
	TW16	180° 270°	1.68	5.30	7.50	9.18	**10.6**	11.9	13.0	15.0	16.8	23.7	33.5	0.25	0.13				
	TW20	180° 270°	2.61	8.25	11.7	14.3	**16.5**	18.4	20.2	23.3	26.1	36.9	52.2	0.31	0.13				
1	TW1	270°	8.06	26.0	36.0	45.0	**51.0**	57.0	63.0	72.0	80.6	115	163	0.56	0.20		1.13	5.75	10.5

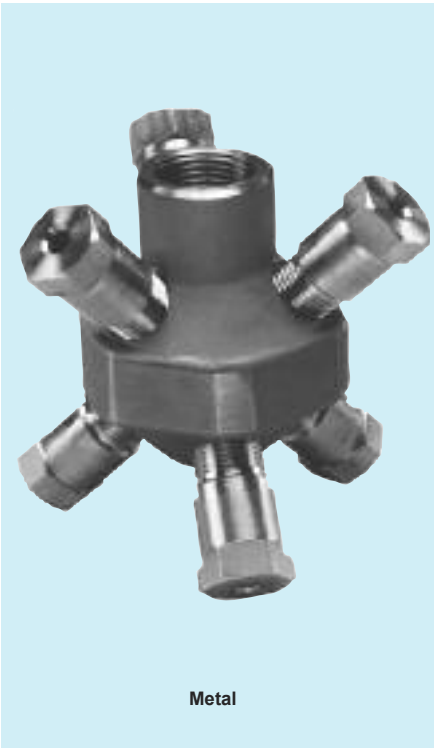
Flow Rate (GPM) = K $\sqrt{PSI}$

Standard Materials: Brass and 316 Stainless Steel.

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

CLUMP

Tank Washing Nozzles



Metal

DESIGN FEATURES

- Each nozzle in the stationary cluster is a BETE clog-resistant full cone nozzle of the MaxiPass® series
- Can be supplied with various other BETE nozzles for any desired application
- Female connection

SPRAY CHARACTERISTICS

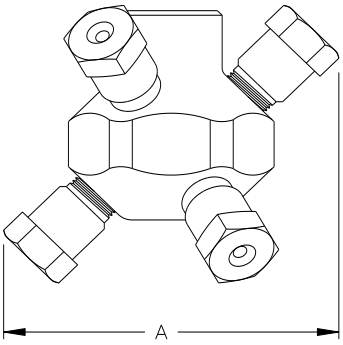
- Spherical omnidirectional coverage
- Six nozzles arranged in cluster to project spray in all directions

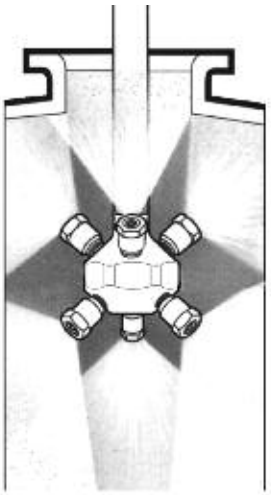
Flow rates: 7.52 to 80.6 gpm (Special flow rates available)

CLUMP Coverage Chart

When spraying at 40-50 psi

Female Pipe Size	Nozzle Number	Scrubbing Diameter (ft.)	Rinsing Diameter (ft.)
3/4"	CLUMP125	4	8
	CLUMP156	4	12
	CLUMP187	6	14
1"	CLUMP187	6	14
	CLUMP218	8	14
	CLUMP250	10	16





Typical CLUMP installation

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

CLUMP Flow Rates and Dimensions

Spherical, 360° Spray Angle, 3/4" and 1" Pipe Size

Female Pipe Size	Nozzle Number	K Factor	GALLONS PER MINUTE @ PSI 10 PSI	15 PSI	20 PSI	30 PSI	40 PSI	60 PSI	80 PSI	Minimum Entrance Opening (in.) A	Weight (oz.) Metal	Plas.
3/4"	CLUMP125	2.50	7.36	8.91	10.2	12.3	**14.1**	17.1	19.6	4.75	36.32	4.82
	CLUMP156	3.96	11.7	14.2	16.2	19.6	**22.4**	27.1	31.1			
	CLUMP187	5.72	16.9	20.4	23.4	28.3	**32.4**	39.2	44.9			
1"	CLUMP187	5.72	16.9	20.4	23.4	28.3	**32.4**	39.2	44.9	5.75	69.60	9.26
	CLUMP218	9.10	26.9	32.5	37.2	45.0	**51.5**	62.3	71.4			
	CLUMP250	10.30	30.3	36.7	42.0	50.8	**58.2**	70.4	80.6			

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

Standard Materials: 316 Stainless Steel and Brass. Other materials available on request.

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

BETE®

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