



# Tank cleaning nozzles

Beverage industry  
Bioengineering  
Chemical industry  
Cosmetic industry  
Food industry  
Pharmaceutical industry  
Tank building  
and many others ...

Tank  
cleaning  
nozzles



## General design families

### Shared characteristics:

#### ■ Low-pressure application.

Your benefit: lower energy consumption coupled with less wear and tear.

#### ■ Rotational cleaners:

driven and lubricated by the cleaning liquid.

Your benefit:

no need for elaborate drive mechanisms.

## Free-spinning heads

The cleaning liquid turns the spray head by means of specially positioned nozzles. Rapid-repetition impact loosens the dirt and washes it off of the tank surfaces. The effect is best at low pressures in small to medium-size tanks.

→ Series

500. 186, 500. 191,  
500. 234, 566/569/573/583

## Internal regulated drive

The liquid flow powers the head by way of an internal turbine. This keeps the speed of the head within its optimal range across a wider span of pressures, and the nozzle develops more powerful spray propagation and a wider range.

→ Series 515/519

## Static spray balls

Static spray balls do not rotate, so they require a comparatively large amount of liquid in order to generate turbulent flow. They are used primarily for washing down relatively small tanks and vessels.

→ Series 540/591

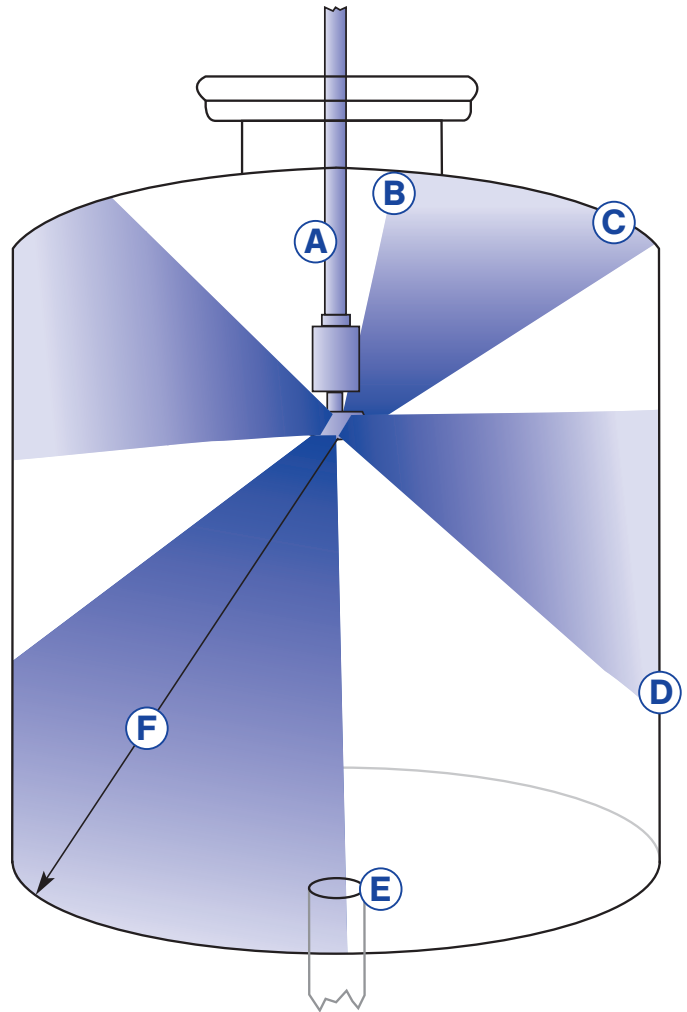
**For more information please ask for our special brochure »Tank Cleaning Nozzles«**



## ATEX- and FDA-approval

A number of Lechler tank cleaning nozzles are available with ATEX or FDA approval. For detailed information please ask for our brochure »Tank Cleaning Nozzles«

Typical gravity drainage flow	
1" l/min	22,71
1 1/2" l/min	49,20
2" l/min	87,10









## Typical applications

- A** - Position the tank cleaning nozzle(s) at the center of the tank, roughly one-quarter of the distance from top to bottom.
- B** - Nozzles invariably leave an unsprayed shadow area directly overhead, the size of which varies according to the type of nozzle and the piping.
- C** - The distance between the top of the tank and the nozzle should amount to approximately one-quarter of the nozzle's action radius. Size your unit to ensure sufficient flow to the top part of the tank wall.
- D** - The film of liquid grows thicker toward the bottom of the tank, where the washing effect is the most pronounced.
- E** - Standing water reduces impact and allows solids to accumulate. Make sure that the drain can handle whatever you put into the tank.
- F** - The longest spray distance is from the nozzle to the bottom corner, so the nozzle should be sized for this "effective washing distance".

All pressure data are stated in terms of differential pressure directly at the nozzle, so be sure to take the line-pressure drop into account.





## Tank cleaning nozzles

Self-rotating tank cleaning nozzles	Series		$\dot{V}$ [l/min] at $p = 2$ bar	Connection	Application / Design	Page
	<b>500. 234</b> <b>566</b>	180° 300° 360°	8 – 21	M6 3/8" BSPP	Cleaning of small tanks, up to 1,5 m in diameter. <b>Self-rotating.</b> <b>Stainless steel versions.</b>	<b>7.5</b>
	<b>500. 186</b> <b>500. 191</b>	180° 300° 360°	13 – 20	1/2" BSPP	Cleaning of small tanks, up to 1,5 m in diameter. <b>Self-rotating.</b> <b>Plastic versions.</b>	<b>7.6</b>
	<b>569</b>	270° 360°	48 – 145	3/4" BSPP	Cleaning of tanks up to 3 m in diameter. <b>Self-rotating.</b> <b>Double bearings.</b>	<b>7.7</b>
	<b>573/583</b>	270° 360°	58 – 225	3/4" BSPP 1" BSPP Sanitary pin connection	Cleaning of tanks up to 3 m in diameter. Teflon Version. <b>Self-rotating.</b> <b>Special version for CIP applications.</b>	<b>7.8</b>
	<b>ACCUClean</b> <b>515/519</b> <b>Stainless steel version</b>	360°	97 – 419	3/4" BSPP 1" BSPP 1 1/2" BSPP	Cleaning of tanks up to 6 m in diameter. <b>Self-rotating.</b> <b>Controlled rotation for maximum spray impact.</b>	<b>7.9</b>



## Tank cleaning nozzles

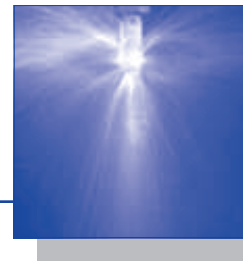
Static spray balls	Series		$\dot{V}$ [l/min] at $p = 2$ bar	Connection	Application / Design	Page
	540	240°	18 - 28	1/2" BSPP	Cleaning of tanks up to 3 m in diameter. <b>Static spray ball with sharp solid jets.</b>	7.10
	591	180° 360°	49 - 460	Pin connection	Cleaning of tanks up to 5 m in diameter. <b>Static spray ball for higher flow rates.</b>	7.10



# Miniature nozzles for kegs and drums

## Stainless steel versions

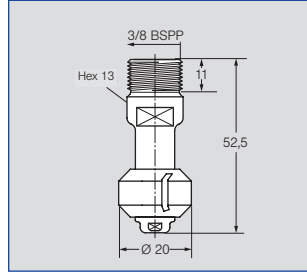
### Series 566/500.234



Also available  
with  
ATEX-approval

#### Micro Whirly series 566

- Only 20 mm diameter to insert in small openings
- Excellent cleaning power
- Stainless steel AISI 316L
- PEEK Slide Bearing
- All materials are FDA-conform



**Max. spray diameter:**  
1 - 1,5 m

**Operating pressure:**  
1 - 2 bar

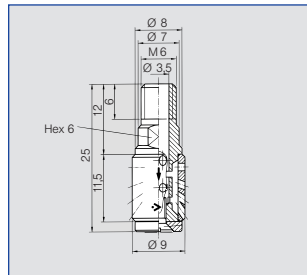
**Max. Temperature:**  
140 °C

Spray angle	Ordering no.	E Ø [mm]	Connection	Flow rate [l/min]				Length [mm]	Maximum width [mm]
				$\Delta p$ [bar]	$\Delta p_{max} = 5$ bar	40 psi [US gal/min]			
180°	566.933.1Y.AE	2,4	3/8"	15	21	26	6,5	52,5	20
180°	566.934.1Y.AE	2,4	3/8"	15	21	26	6,5	52,5	20
360°	566.939.1Y.AE	2,4	3/8"	15	21	26	6,5	52,5	20

E = narrowest free cross-section

#### Precision Whirly series 500.234

- Unique extremely small nozzle design
- For bottles and narrow spacing
- All stainless steel AISI 316L, colsterised
- Slide bearing
- All materials are FDA-conform



**Max. spray diameter:**  
1 m

**Operating pressure:**  
1 - 2 bar

**Max. Temperature:**  
200 °C

Spray angle	Ordering no.	E Ø [mm]	Connection	Flow rate [l/min]				Length [mm]	Maximum width [mm]
				$\Delta p$ [bar]	$\Delta p_{max} = 5$ bar	40 psi [US gal/min]			
300°	500.234.G9.00	1,8	M6	5,7	8,0	9,8	2,5	25	9

E = narrowest free cross-section

**Please note:** We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0,3 mm/50 mesh.

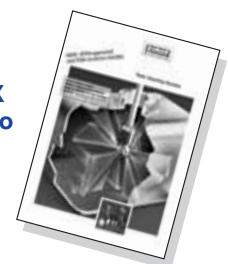
#### Common features of these series

- Very compact design
- Self rotating
- Driven and lubricated by the cleaning fluid
- Operate in every position

#### Applications

- Kegs
- Cans
- Autoclaves
- Barrels
- Machines

For versions with ATEX approval please refer to our brochure »Tank Cleaning Nozzles«





# Miniature nozzles for kegs and drums

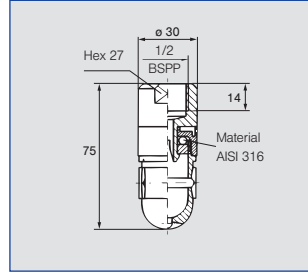
## Plastic versions

### Series 500.186/500.191



#### Mini Whirly series 500.186

- Robust design, especially reliable in operation
- 300° spray angle
- Material: POM
- Stainless steel ball bearing AISI 316



**Max. spray diameter:**  
1 - 1,5 m

**Operating pressure:**  
1 - 2 bar

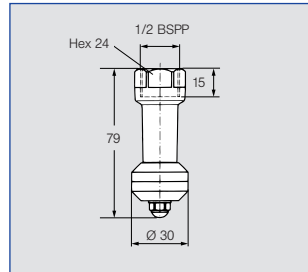
**Max. Temperature:**  
50 °C

Spray angle	Ordering no.	E Ø [mm]	Connection	Flow rate [l/min]				Length [mm]	Maximum width [mm]
				Δ p [bar]	(Δ p <sub>max</sub> = 5 bar)	40 psi [US gal/min]			
300°	<b>500.186.56.AH</b>	1,9	1/2"	13	18	22	5,5	75	30

E = narrowest free cross-section

#### Micro Whirly series 500.191

- Inexpensive rotating head
- Good corrosion resistance
- 360° and partial coverage
- Material: PVDF
- Slide bearing
- All materials are FDA-conform



**Max. spray diameter:**  
1 - 1,5 m

**Operating pressure:**  
1 - 2 bar

**Max. Temperature:**  
90 °C

Spray angle	Ordering no.	E Ø [mm]	Connection	Flow rate [l/min]				Length [mm]	Maximum width [mm]
				Δ p [bar]	(Δ p <sub>max</sub> = 5 bar)	40 psi [US gal/min]			
180°	<b>500.191.5E.02</b>	2,2	1/2"	9	13	16	4	79	30
180°	<b>500.191.5E.01</b>	2,2	1/2"	9	13	16	4	79	30
360°	<b>500.191.5E.00</b>	2,2	1/2"	14	20	24	6,2	79	30

E = narrowest free cross-section

**Please note:** We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0,3 mm/50 mesh.

#### Common features of these series

- Very compact design
- Self rotating
- Driven and lubricated by the cleaning fluid
- Operate in every position

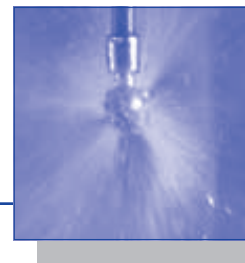
#### Applications

- Kegs
- Cans
- Autoclaves
- Barrels
- Machines



# Whirling Nozzle

## Series 569



Also available  
with  
ATEX-approval

- Flat jet nozzles with improved vertical coverage
- Better balance for smoother operation
- Fits through smaller openings
- Slip-on or thread connection (adapter) or Tri-Clamp
- Replaces former series 566-569.xxx.17
- In horizontal installation position no rotating until 2 bar
- All materials are FDA-conform



### Applications

For small and medium sized tanks e.g. in Chemical, Beverage, Food industries

There are three standard inlets available:

- For general industrial use: 3/4" ISO female
- For sanitary CIP use: Slip-on 3/4" or 1" OD tubing includes R-Clip made of stainless steel 316L (Ord. no. 095.022.1Y.50.60.E)
- For manual insertion: 1" Tri-Clamp (on request)

### Max. tank diameter:

Rinsing: 5 m  
Cleaning: 3 m

### Operating pressure:

1 – 2,5 bar

### Max. Temperature:

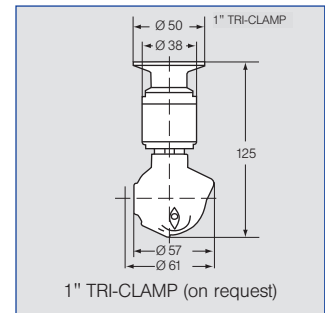
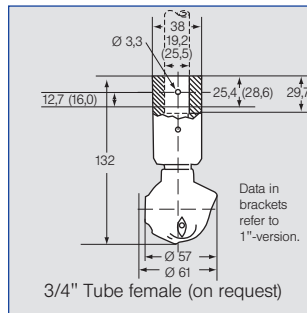
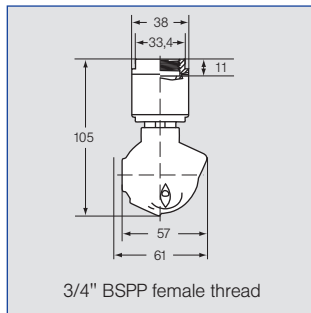
140 °C

### Material:

Stainless steel AISI 316L

### Bearing:

Double bearings made of stainless steel AISI 316L with PEEK-cage (FDA-conform) and Rulon bushing.



Spray angle	Ordering no.		E Ø [mm]	Flow rate [l/min]				40 psi [US gal./min]
	Type	Connection		Δ p [bar]		Δ p <sub>max</sub> = 6 bar		
270°	569.055.1Y	AL	3,6	34	48	59	15	
	569.135.1Y	AL	4,8	50	71	87	22	
	569.195.1Y	AL	5,6	68	97	118	30	
360°	569.059.1Y	AL	3,2	34	48	59	15	
	569.139.1Y	AL	3,6	50	71	87	22	
	569.199.1Y	AL	4,8	68	97	118	30	
	569.279.1Y	AL	7,1	103	145	178	45	

E = narrowest free cross-section · \*NPT on request

**Please note:** We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0,3 mm/50 mesh.

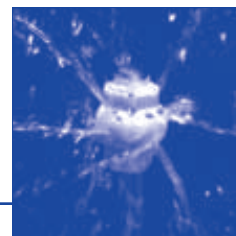
<b>Example for ordering:</b>	<b>Type</b>	<b>+</b>	<b>Connection</b>	<b>=</b>	<b>Ordering no.</b>
	569.055.1Y.	+	AL	=	569.055.1Y.AL

For versions with ATEX approval, for additional spray angles and nozzle sizes please refer to our brochure »Tank Cleaning Nozzles«.





# Teflon® Whirling Nozzle – especially for CIP applications Series 573 / 583



**A<sup>®</sup><sub>3</sub>** Slip-on version  
»3-A<sup>®</sup>«\* certified.

Whirling nozzles made entirely from PTFE combine maximum corrosion resistance with minimum weight and size.

The rotating head uses solid stream nozzles, which offer concentrated impact combined with rinsing action between individual streams.

- Balanced rotating action
- Gap-free all-around cleaning
- All materials are FDA-conform

For environments with special sanitary requirements: use the Sanitary slip-on pin connection:

- design meets 3-A<sup>®</sup> standards, e.g.
- smooth surface finish
- self draining and flushing design

### Applications

For rinsing of small and medium sized vessels, e.g. in the Dairy, Chemical, Pharmaceutical, Food Industry

- Excellent for corrosive environments
- Recommended for glass-lined or email tanks

### Max. tank diameter:

Rinsing: 5 m  
Cleaning: 3 m

### Operating pressure:

1 – 2 bar

### Max. Temperature:

95 °C

### Materials:

PTFE (Teflon®)

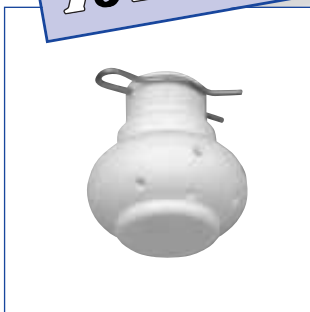
R-pin:

Stainless steel AISI 316L  
(Ord. no. 095.022.1Y.50.88.E)

### Bearing:

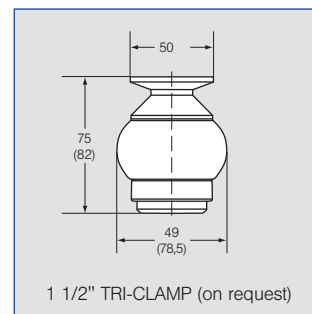
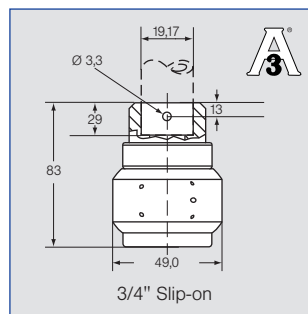
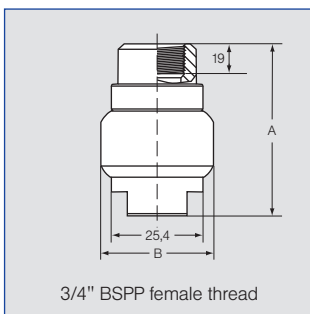
PTFE slide bearing

**Versions for use with higher temperatures on request.**



### There are three standard inlets available:

- For general industrial use: 3/4" or 1" ISO female
- For sanitary CIP use: Slip-on 3/4"
- For manual insertion: 1 1/2" Tri-Clamp (on request)
- 3/4" size fits through 2" opening



Spray angle	Ordering no.				E ∅ [mm]	Flow rate [l/min]					Length A [mm]	Max. width B [mm]
	Type	Connection				Δ p [bar]		Δ p <sub>max</sub> = 6 bar				
		3/4 BSPP*	1 BSPP*	3/4" Slip-on		1	2	3	4	40 psi [US gal./min]		
270°	583.266.55	AL	-	TF07	3,4	103	145	178	205	45	74	49
270°	573.266.55	AL	-	TF07	3,4	103	145	178	205	45	74	49
360°	583.119.55	AL	-	TF07	1,6	41	58	71	82	18	74	49
	583.209.55	AL	-	TF07	3,5	71	100	122	141	31	74	49
	583.269.55	AL	-	TF07	4,8	103	145	178	205	45	74	49
	583.279.55	-	AN	TF10	3,7	106	150	184	212	47	100	78,5
	583.349.55	-	AN	TF10	5,6	159	225	276	318	70	100	78,5

E = narrowest free cross-section · \*NPT on request

**Please note:** We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0,3 mm/50 mesh.

Example for ordering:	Type	+	Connection	=	Ordering no.
	583.266.55.	+	AL	=	583.266.55.AL

\* This product has been authorized to use the 3-A<sup>®</sup> Symbol by the 3-A<sup>®</sup> Sanitary Symbol Council Administrative Council for Spray Cleaning Devices (78-00).

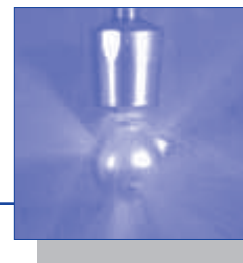
**For additional spray angles and nozzle sizes please refer to our brochure »Tank Cleaning Nozzles«.**







# ACCUClean Stainless steel version Series 515/519



The consequent redesign of the successful ACCUClean concept combines now even more efficient cleaning technology in an economical package:

- Controlled rotation for maximum spray impact
- Optimized drive mechanism
- Special nozzle geometry for sharp sprays
- Excellent vertical coverage
- Smooth, self-draining and self-flushing design
- Long-life bearing
- Wide flow and pressure range

### Applications

- For use in all applications, where a high cleaning performance is required

### Max. tank diameter:

Rinsing: 6 – 9 m  
Cleaning: 4 – 6 m  
depends on nozzle size

### Operating pressure:

2 – 5 bar

### Temperature range:

5 – 140 °C

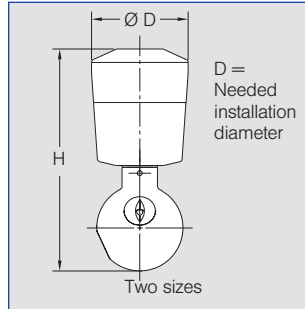
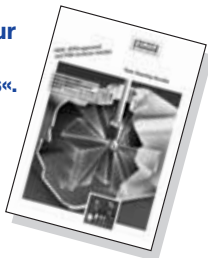
### Materials:

Body: Stainless steel 316L  
Gear parts: PEEK

### Bearing:

Ball bearing made of stainless steel AISI 316L

**For additional spray angles and nozzle sizes please refer to our brochure »Tank Cleaning Nozzles«.**



Spray angle	Ordering no.	E Ø [mm]	Connection BSPP*	Flow rate [l/min]					40 psi [US gal./min]	Length H [mm]	Max. width D [mm]
				$\Delta p$ [bar]							
360°				1	2	3	5	7			
360°	<b>515.219.7T.AL</b>	1,0	3/4"	68	97	118	153	181	30	170	85
	<b>515.289.7T.AL</b>	1,0	3/4"	103	145	178	229	271	45	170	85
	<b>515.339.7T.AN</b>	1,0	1"	137	193	237	306	361	60	170	85
	<b>519.379.7T.AS</b>	1,5	1 1/2"	171	242	296	382	451	75	267	140
	<b>519.429.7T.AS</b>	1,5	1 1/2"	228	322	395	509	602	100	267	140
	<b>519.469.7T.AS</b>	1,5	1 1/2"	296	419	513	662	782	130	267	140

E = narrowest free cross-section · \*NPT on request

**Please note:** We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0,3 mm/50 mesh.



# Static spray balls

## Series 540 / 541 / 591



### Series 540

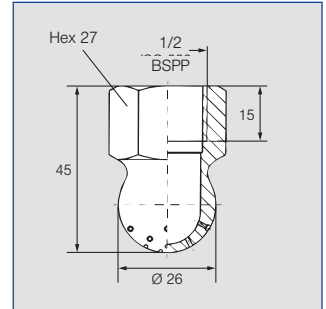
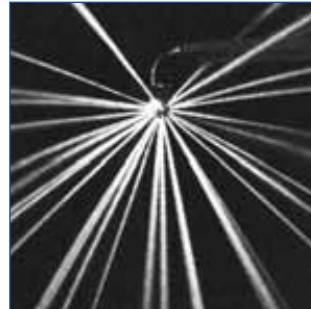
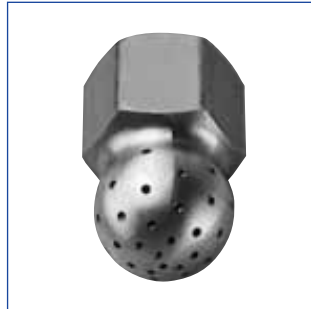
- Very compact static spray ball
- Sharp solids jets, excellent for rinsing small drums
- Also to use with saturated steam
- Nozzles 120° on request



**Max. tank diameter:**  
1 – 3 m

**Operating pressure:**  
1 – 3 bar

**Max. Temperature:**  
200 °C

**Materials:**  
Stainless steel AISI 303



Spray angle 	Ordering no. Type	B Ø [mm]	Flow rate [l/min]				40 psi [US gal/min]
			Δ p [bar]				
240° 	540.909.16	0,8	9,0	18,0	28,5	5,6	
	540.989.16	1,0	14,0	28,0	44,3	8,7	
	541.109.16	1,5	28,5	57,0	90,1	17,7	
	541.189.16	2,0	45,0	90,0	142,3	27,9	
	541.239.16	2,3	59,0	118,0	186,6	36,6	

B = Bore diameter · NPT on request.

### Series 591

- Popular sprayball design
- For higher flow rates
- corrosion resistant material
- Available in different sizes
- All materials are FDA-conform

**Max. tank diameter:**  
1 – 5 m

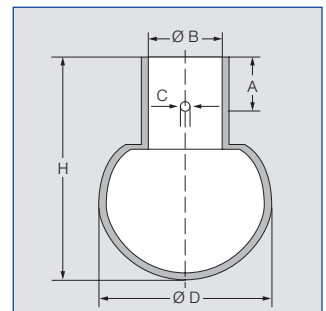
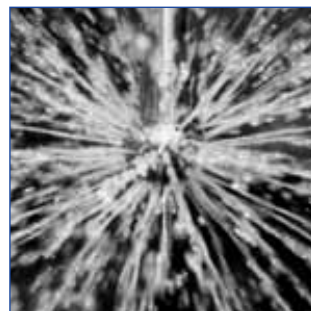
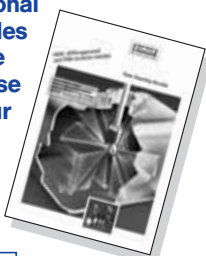
**Operating pressure:**  
1 – 3 bar





**Max. Temperature:**  
200 °C

**Materials:**  

- Stainless steel AISI 316Ti
- Pin: Stainless steel AISI 316L

**For additional spray angles and nozzle sizes please refer to our brochure »Tank Cleaning Nozzles«.**



Spray angle 	Ordering no. Type	E Ø [mm]	Effective cleaning Ø [m]	Flow rate [l/min]					Dimensions approx. [mm]					
				Δ p [bar] (Δ p <sub>max</sub> = 5 bar)					Ø D	Length H	Connection B	Slip-on		
				0,5 bar	1,0 bar	2,0 bar	3,0 bar	40 psi [US gal/min]						
360° 	591.X11.17.00	1,2	0,5-1,0	25	35	49	61	15	24	37,5	12,2	DN10	2,2	9,0
	591.Y11.17.00	1,2	1-1,5	49	70	99	121	31	30	42	18,2	DN15	2,2	9,0
	591.A21.17.00	2,0	2-2,5	91	128	181	222	56	40	53	22,2	DN20	2,5	9,0
	591.B31.17.00	2,1	2,0-3,0	130	183	259	318	80	64	90	28,2	DN25	2,8	18,0
	591.B51.17.00	3,0	3,0-4,0	206	292	412	505	128	64	90	28,2	DN25	2,8	18,0
180° 	591.A23.17.00	2,0	2,0-2,5	74	105	148	182	46	40	53	22,2	DN20	2,5	9,0
	591.B53.17.00	3,0	3,0-4,0	146	207	292	358	91	64	90	28,2	DN25	2,8	18,0
	591.B32.17.00	2,1	2,5-3,0	103	145	205	251	64	64	90	28,2	DN25	2,8	18,0
	591.D42.17.00	2,2	4,0-4,5	230	325	460	563	142	90	122	52,3	DN50	3,3	25,0

E = narrowest free cross section.

Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result.