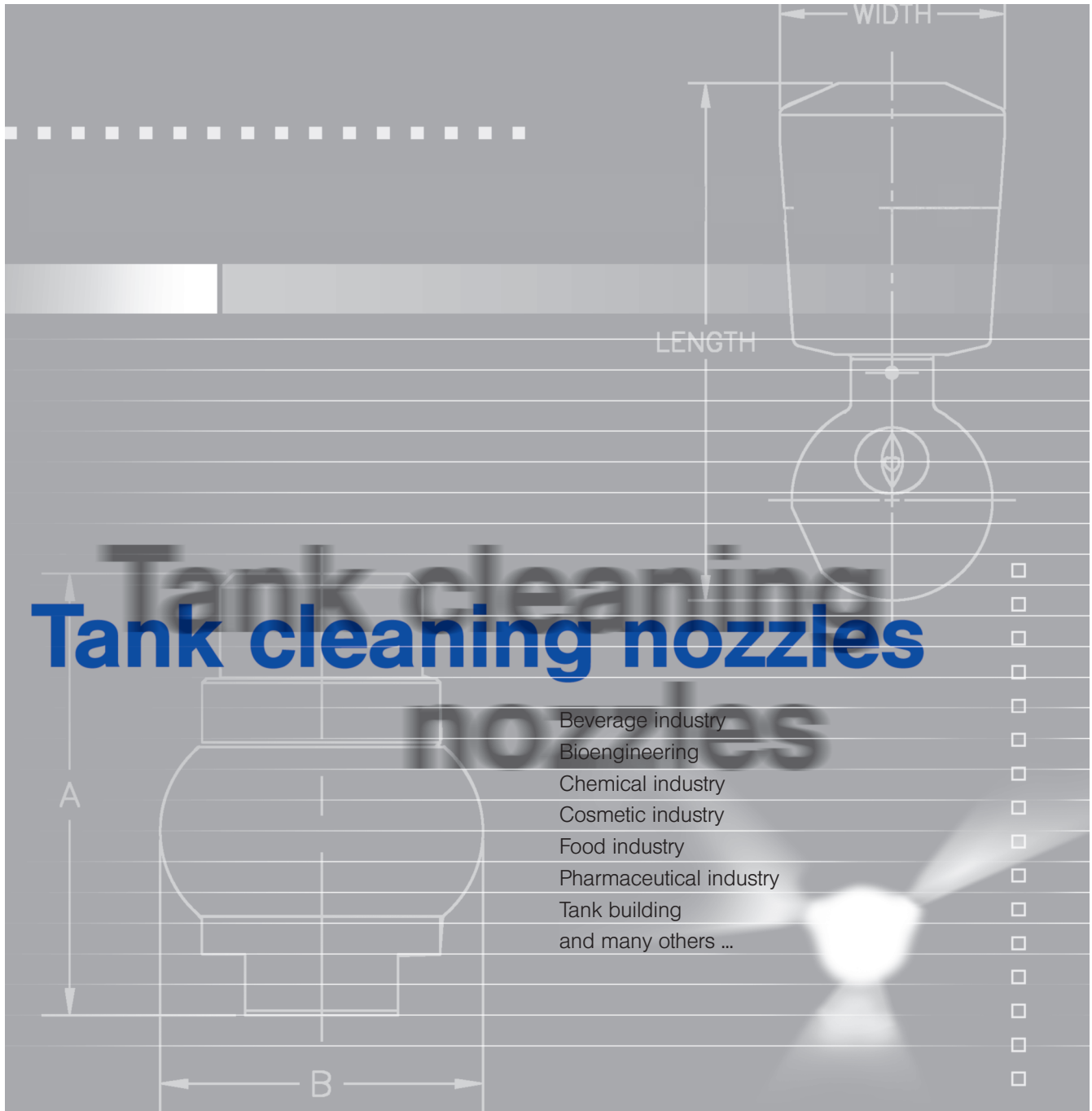




Tank cleaning nozzles

- 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,
5MC/5MI
566/569/573/583/594

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 515/5TM

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

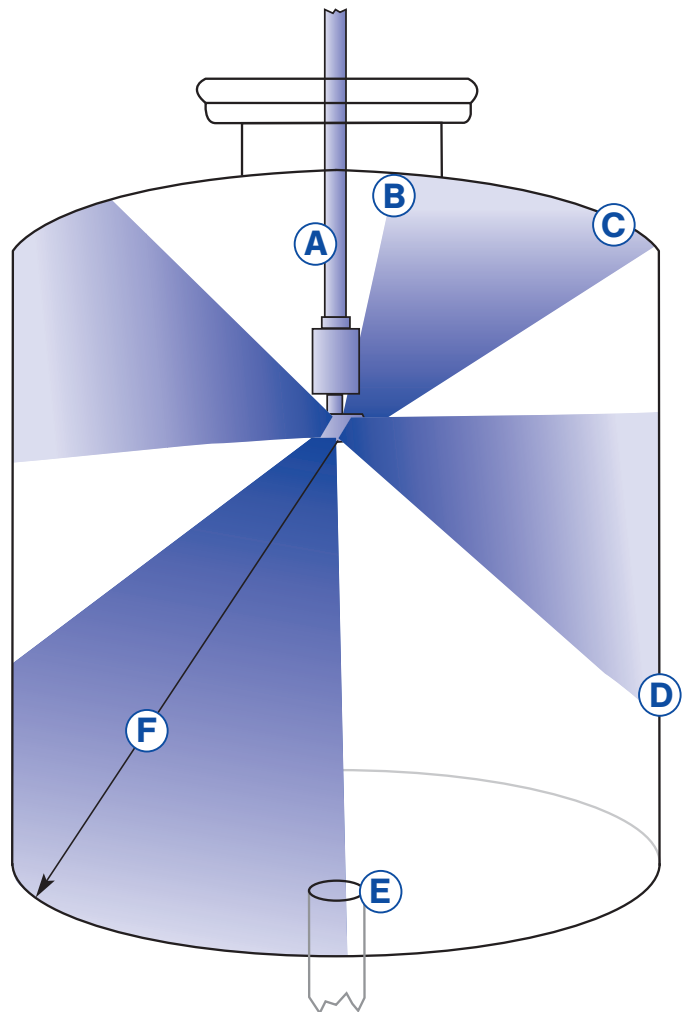
For more information please ask for our special brochure »Tank Cleaning Nozzles«



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"	23 l/min
1 1/2"	50 l/min
2"	87 l/min
2 1/2"	132 l/min
3"	190 l/min
4"	330 l/min



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
	500. 234 566	180° 300° 360°	8 – 21	M6 3/8 BSPP	Cleaning of small tanks, up to 1,5 m in diameter. Self-rotating. Stainless steel versions.	7.5
	500. 186 500. 191	180° 300° 360°	13 – 20	1/2 BSPP	Cleaning of small tanks, up to 1,5 m in diameter. Self-rotating. Plastic versions.	7.6
	5MC 5MI	60° 180° 360°	30 – 69	3/8 BSPP 3/4 BSPP	Cleaning of tanks up to 3 m in diameter. Self rotating. Stainless steel version.	7.7
	594 595	360°	48 – 145 11 – 67	3/8 BSPP 3/4 BSPP 3/8 Pin connection	Cleaning of tanks with liquid or foam up to 1,5 m in diameter. Self rotating. Stainless steel and plastic version.	7.8
	569	270° 360°	48 – 145	3/4 BSPP 3/4 Pin connection	Cleaning of tanks up to 3 m in diameter. Self-rotating. Double bearings.	7.9



Tank cleaning nozzles

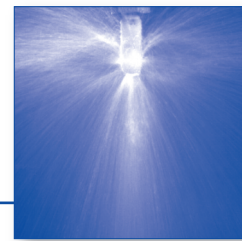
Self-rotating Tank cleaning nozzles	Series		\dot{V} [l/min] at p = 2 bar	Connection	Application/ Design	Page
	573/583	270° 360°	58 – 225	3/4 BSPP 1 BSPP Pin connection	Cleaning of tanks up to 3 m in diameter. Teflon Version. Self-rotating. Special version for CIP applications.	7.10
	ACCUClean 515 Stainless steel version	360°	97 – 419	3/4 BSPP 1 BSPP	Cleaning of tanks up to 6 m in diameter. Self-rotating. Controlled rotation for maximum spray impact.	7.11
	5TM	360°	120 – 247	1 1/2 BSPP 2/8 BSPP	Cleaning of tanks up to 24 m in diameter. Gear driven tank cleaning machine.	7.12
Static spray balls	Series		\dot{V} [l/min] at p = 2 bar	Connection	Application/ Design	Seite
	540	240°	18 - 118	1/2 BSPP	Cleaning of tanks up to 3 m in diameter. Static spray ball with sharp solid jets.	7.13
	591	180° 360°	14 - 460	Pin connection	Cleaning of tanks up to 5 m in diameter. Static spray ball for higher flow rates.	7.13



Miniature nozzles for kegs and drums

Stainless steel versions

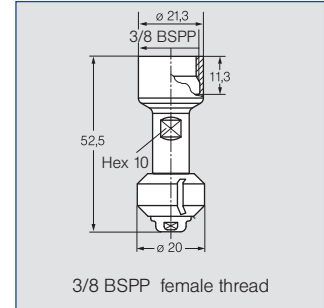
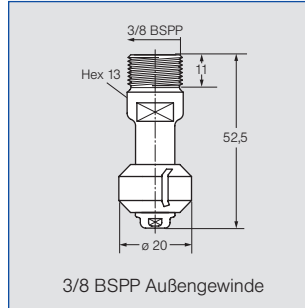
Series 566/500.234



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 (including slide bearing) are FDA-conform



Max. spray diameter:
1 - 1.5 m

Operating pressure:
1 - 2 bar

Max. Temperature:
80 °C

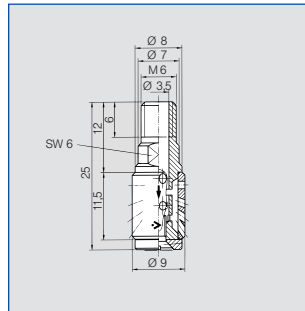
Installation:
Operates in every position

Spray-angle	Ordering no.			E Ø [mm]	V̇ [l/min]				Length [mm]	Ø [mm]	
	Type	Connection			p [bar] (p _{max} = 5 bar)						
		3/8 BSPP	3/8 BSPP		40 psi [US gal./min]						
180°		566.873.1Y	AE	AF	2.4	12	15	18	4.7	52.5	20
		566.933.1Y	AE	AF	2.4	15	21	26	6.5	52.5	20
180°		566.874.1Y	AE	AF	2.4	12	15	18	4.7	52.5	20
		566.934.1Y	AE	AF	2.4	15	21	26	6.5	52.5	20
360°		566.879.1Y	AE	AF	2.4	12	15	18	4.7	52.5	20
		566.939.1Y	AE	AF	2.4	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

Installation:
Operates in every position

Spray-angle	Ordering no. Type	E Ø [mm]	Connec- tion	V̇ [l/min]				Length [mm]	Ø [mm]
				p [bar] (p _{max} = 5 bar)					
				40 psi [US gal./ min]					
300°	500.234.G9.00	1.0	M6	5.7	8.0	9.8	2.5	25	9

E = narrowest free cross-section

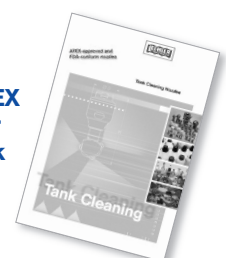
Common features of these series

- 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«



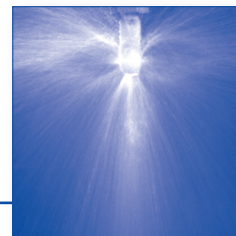
Please note: We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0.3 mm/50 mesh.



Miniature nozzles for kegs and drums

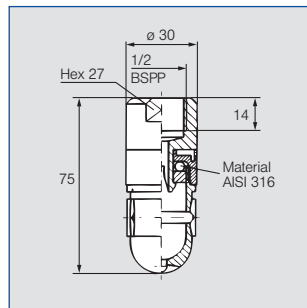
Plastic versions

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

Installation:

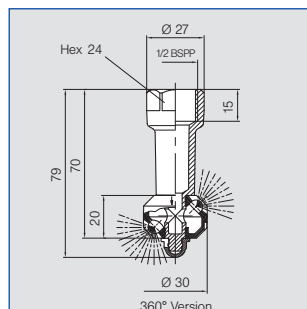
Vertically facing downward

Spray-angle	Ordering no. Type	E Ø [mm]	Connection	V̇ [l/min]				Length [mm]	Maximum width [mm]
				p [bar] (p _{max} = 5 bar)					
				1	2	3	40 psi [US gal./ min]		
300°	500.186.56.AH	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. tank diameter:

1 - 1.5 m

Operating pressure:

1 - 2 bar

Max. temperatur:

90 °C

Installation:

Operate in every position

Spray-angle	Ordering no. Type	E Ø [mm]	Connection	V̇ [l/min]				Length [mm]	Ø [mm]
				p [bar] (p _{max} = 5 bar)					
				1	2	3	40 psi [US gal./ min]		
180°	500.191.5E.02	2.2	1/2	9	13	16	4	79	30
180°	500.191.5E.01	2.2	1/2	9	13	16	4	79	30
360°	500.191.5E.00	2.2	1/2	14	20	24	6.2	79	30

E = narrowest free cross-section

Common features of these series

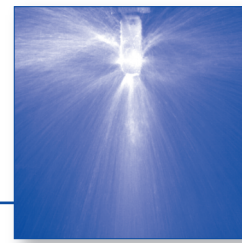
- Very compact design
- Self rotating
- Driven and lubricated by the cleaning fluid
- Operate in every position

Applications

- Kegs
- Cans
- Autoclaves
- Barrels
- Machines



MicroSpinner / MiniSpinner Series 5MC / 5MI



Series 5MC / 5MI

- Excellent coverage
- Cleaning at low pressures
- Driven and lubricated by the cleaning fluid
- All materials are FDA-conform

Applications

- Rinsing and cleaning of
- vessels
 - machines

Operating pressure:

1.0 - 2.5 bar

Max. Temperatur:

140°C

Installation:

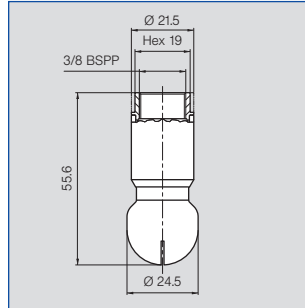
Operate in every position

Materials:

corrosion-resistant stainless steel AISI 316L





Bearing:

Double ball bearing made of corrosion-resistant stainless steel AISI 304

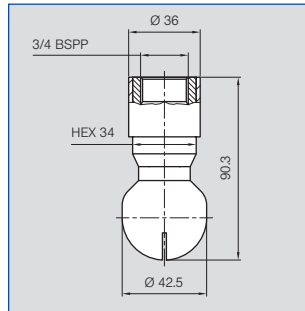


Max. tank diameter:

1.3 m





Spray-angle 	Ordering no.		E Ø [mm]	V̇ [l/min]			
	Type	Connection		p [bar] (p _{max} = 5 bar)			
		BSPP		1	2	3	40 psi [US gal./min]
60° 	5MC. 042. 1Y. AF	3/8	3.0	28	40	49	12
180° 	5MC. 004. 1Y. AF	3/8	0.8	22	32	39	10
360° 	5MC. 049. 1Y. AF	3/8	0.9	28	39	48	12

E = narrowest free cross-section

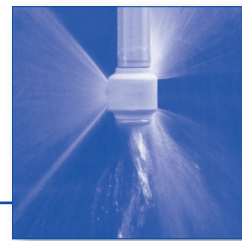


Max. tank diameter:

3.0 m

Spray-angle 	Ordering no.		E Ø [mm]	V̇ [l/min]			
	Type	Connection G ISO 228		p [bar] (p _{max} = 5 bar)			
				1	2	3	4
60° 	5MI. 162. 1Y. AH	1/2"	2.6	45	63	77	20
180° 	5MI. 114. 1Y. AL	3/4"	1.0	47	67	62	21
360° 	5MI. 054. 1Y. AL	3/4"	0.5	21	30	37	9
	5MI. 074. 1Y. AL	3/4"	0.6	35	49	60	15
	5MI. 014. 1Y. AL	3/4"	0.9	49	69	85	21

E = narrowest free cross-section



FDA-conform

Series 594 / 595

- Cleaning with water and foam
- High functional reliability during operation with liquids as well as with foam from detergent/water mixtures
- Low water and detergent consumption
- Optimum cleaning efficiency due to slow rotation
- All materials are FDA-conform

Applications

Cleaning of:

- Tanks with liquids and/or with foam from detergent/water mixtures
- Bottling machines, especially for cold aseptic filling

Max. tank diameter:

1.5 m

Type 595.139 up to 2.5 m

Operating pressure:

0.5 - 3.0 bar

Max. temperatur:

100°C, short-term up to 140°C

Installation:

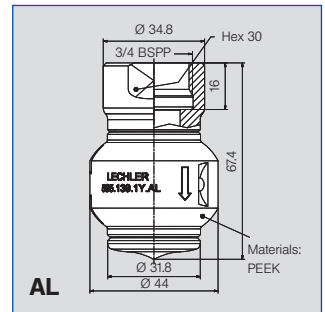
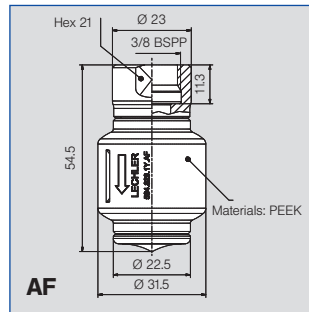
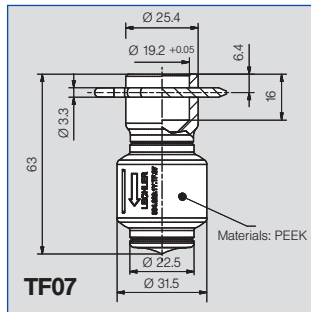
Operate in every position

Materials:

PEEK and 1.4404 (316L)

Surface roughness:

< 0.8 µm



Spray-angle 	Ordering no.				E Ø [mm]	V̇ [l/min]				
	Type	Connection				p [bar] (p _{max} = 6 bar)				
		3/8 BSPP*	3/4 BSPP*	3/8" Slip-on		0.5	1	2	3	40 psi [US gal./min]
	594.829.1Y	AF	-	TF07	1.7	6	8	11	14	3
	594.879.1Y	AF	-	TF07	2.5	8	11	15	18	5
	595.009.1Y	AF	-	TF07	4.0	16	22	32	39	10
	595.049.1Y	AF	-	TF07	4.2	20	28	40	49	12
	595.139.1Y	-	AL	-	5.0	34	47	67	82	21

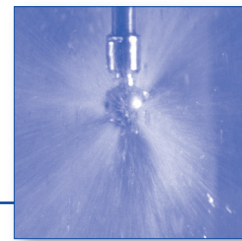
E = narrowest free cross-section · *NPT on request

Example	Type	+ Connection	= Ordering no.
for ordering:	594.829.1Y.	+ AF	= 594.829.1Y.AF



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:

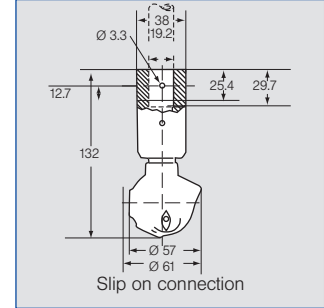
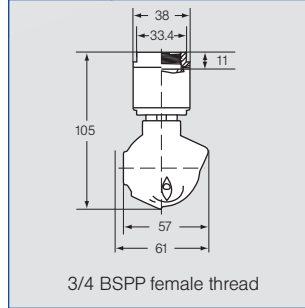
140 °C

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]	V̇ [l/min]			
	Type	Connection			p [bar] (p _{max} = 6 bar)			
		3/4 BSPP	3/4" slip on connection		1	2	3	40 psi [US gal/min]
270°	569.055.1Y	AL	TF07	3.6	36	48	62	15
	569.135.1Y	AL	TF07	4.8	52	71	87	22
	569.195.1Y	AL	TF07	5.6	69	97	119	30
360°	569.059.1Y	AL	TF07	3.2	36	48	62	15
	569.139.1Y	AL	TF07	3.6	52	71	87	22
	569.199.1Y	AL	TF07	4.8	69	97	119	30
	569.279.1Y	AL	TF07	7.1	103	145	178	45

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

Example	Type	+ Connection	= Ordering no.
for ordering:	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«.

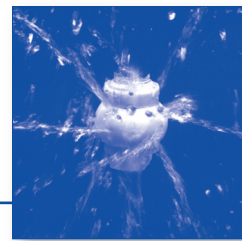


Please note: We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0.3 mm/50 mesh.





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



A³ Slip-on version
»3-A®«* 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® 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

Werkstoffe:

Completely made of PTFE (Teflon®).

R-pin: Stainless steel AISI 316L

1) Ordering no.
095.022.1Y.50.88.E

2) Ordering no.
095.022.1Y.50.60.E

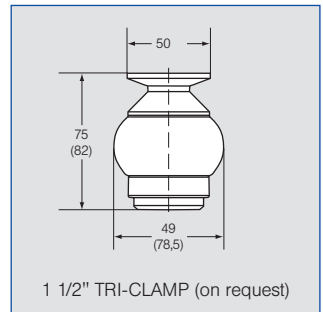
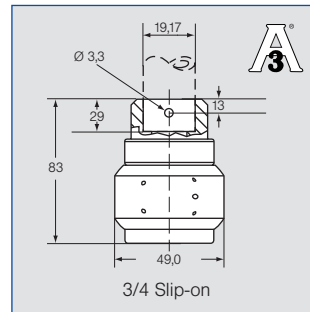
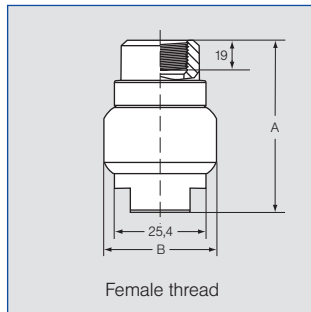
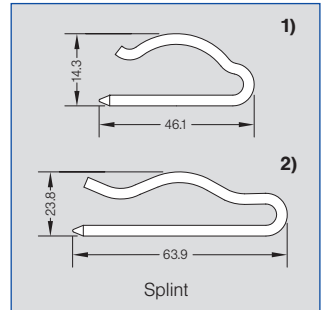
Bearing:

PTFE slide bearing



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)

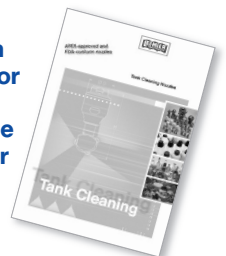


Spray-angle	Ordering no.					E Ø [mm]	V̇ [l/min]					Length A [mm]	Ø B [mm]
	Splint	Type	Connection				p [bar] (p _{max} = 6 bar)						
			3/4 BSPP*	1 BSPP*	Slip-on		1	2	3	4	40 psi [US gal./min]		
270°	1	583.266.55	AL	-	TF07	3.4	103	145	178	205	45	74	49
270°	1	573.266.55	AL	-	TF07	3.4	103	145	178	205	45	74	49
360°	1	583.209.55	AL	-	TF07	3.5	71	100	122	141	31	74	49
	1	583.269.55	AL	-	TF07	4.8	103	145	178	205	45	74	49
	2	583.279.55	-	AN	TF10	3.7	106	150	184	212	47	100	78.5
	2	583.349.55	-	AN	TF10	5.6	159	225	276	318	70	100	78.5

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

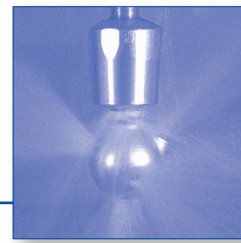
Example	Type	+ Connection	= Ordering no.
for ordering:	583.266.55.	+ AL	= 583.266.55.AL

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





ACCUClean Stainless steel version Series 515



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

Installation:

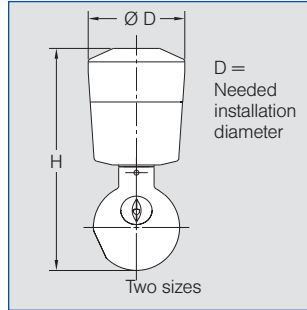
Vertically facing downward

Materials:

Body: Stainless steel 316L
Gear parts: PEEK

Bearing:

Ball bearing made of stainless steel AISI 316L



Spray-angle	Ordering no. Type	E Ø [mm]	Connection G*	V̇ [l/min]						Length H [mm]	Ø D [mm]
				p [bar] (p _{max} = 6 bar)							
				1	2	3	5	7	40 psi [US gal./ min]		
360°	515.219.7T.AL	1,0	3/4"	68	97	118	153	181	30	170	85
	515.289.7T.AL	1,0	3/4"	103	145	178	229	271	45	170	85
	515.339.7T.AN	1,0	1"	137	193	237	306	361	60	170	85

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

Please Note: We do not recommend the operation with compressed air. In order to protect the bearing a line-strainer with a mesh size of 0.3 mm/50 mesh is recommended. For further ordering data please turn to your Lechler contact person.

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

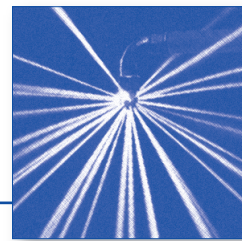


Please note: We do not recommend the operation with compressed air. Higher pressure generally means higher wear and smaller droplets. This might have adverse effects on the cleaning result. We recommend the use of a line strainer 0.3 mm/50 mesh.



High Impact Tank Cleaning Machine

Series 5TM



Series 5TM

Gear driven tank cleaning machine for the largest tanks and most difficult applications, this gear driven tank washing machine is our most powerful.

- Very high cleaning performance already at low pressures
- Driven and lubricated by the cleaning fluid
- Systematically cleans the entire tank interior (360°)
- Robust, low-maintenance stainless steel construction

The standard machine configuration uses two or four nozzles to blast the tank walls and rinse all surfaces. In operation, the unit has to run for the cycle time between 7 and 41 min depending on type and pressure. This ensures full cleaning. For extremely difficult applications the cleaning time might have to be extended.

Max. tank diameter for:

Rinsing: 24 m
Cleaning: 15 m

Operating pressure:

2 – 5 bar

Temperature range:

2 – 60 °C

Installation:

Operation in every direction is possible

Materials:

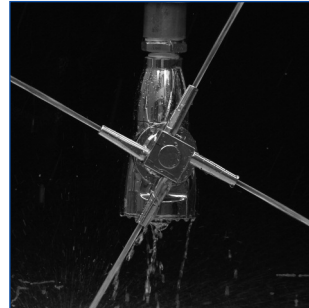
Stainless steel AISI 316L.
Gear components made of PTFE and carbon fibre.

Weight:

approx. 7.5 kg

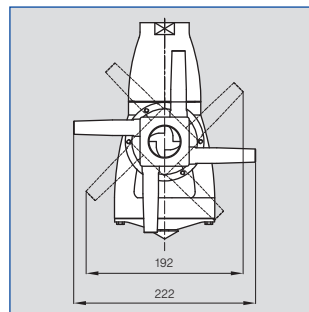
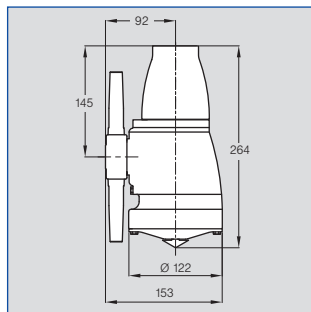
Connection:



Female thread 1 1/2 BSPP



Applications:

Large tanks and installations, e.g. in the chemical, beverage, food industry



Spray-angle 	Ordering no. Type	B Ø [mm]	Number Ø nozzles mm	V̇ [l/min]			
				p [bar]			
				2	3	5	40 psi [US gal/min]
360° 	5TM.208.1Y.AS	8	2 x 8.0	125	153	198	39
	5TM.210.1Y.AS	10	2 x 10.0	160	196	253	50
	5TM.406.1Y.AS	6	4 x 6.0	140	171	221	43
	5TM.407.1Y.AS	7	4 x 7.0	170	208	269	53
	5TM.408.1Y.AS	8	4 x 8.0	200	245	316	62
	5TM.410.1Y.AS	10	4 x 10.0	260	318	411	81

B = bore diameter. NPT on request.

The cycle time takes between 7 and 41 min depending on type and pressure.

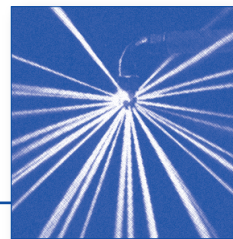
We recommend the use of a line strainer (approx. 0.2 mm/80 mesh).

If you are not sure what you need for your application, ask for assistance. We can discuss your specific needs and configure the best system.



Static spray balls

Series 540 / 541 / 591



Series 540

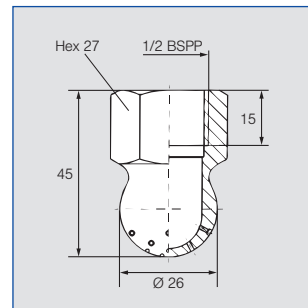
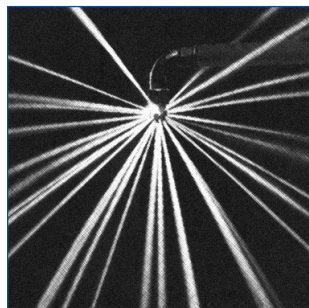
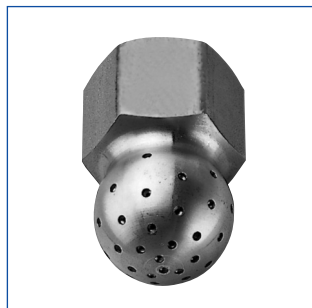
- Very compact static spray ball
- Sharp solids jets, excellent for rinsing small drums
- Also to use with saturated steam
- Nozzles 120° on request



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	E Ø [mm]	\dot{V} [l/min]				40 psi [US gal./min]
			p [bar]				
			0.5	2	5		
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	

E = narrowest free cross section. · NPT on request.

Series 591

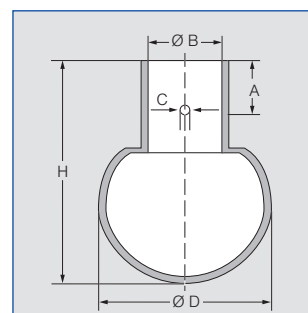
- Popular sprayball design
- For higher flow rates
- corrosion resistant material
- Available in different sizes
- All materials are FDA-conform





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



Spray-angle 	Ordering no. Type	E Ø [mm]	Effective cleaning ca. [m]	\dot{V} [l/min]					Dimensions ca. [mm]					
				p [bar] (p _{max} = 5 bar)					Ø	Length	Con- nection	Slip- on connection	C	A
				0.5 bar	1.0 bar	2.0 bar	3.0 bar	40 psi [US gal./ min]						
360° 	591.M11.17.00	0.8	0.5	7	10	14	17	4	20	32.5	8.2	DN8	2.2	9.0
	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
180° 	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.