ENGINEERING
YOUR SPRAY SOLUTION

TANK AND EQUIPMENT CLEANING

Cleaning diversity of the highest quality

GENERAL INDUSTRY

A CLEAN SOLUTION
140 YEARS OF HYGIENE COMPETENCE

For over 140 years, we at Lechler have been researching drops and their applications. Our nozzles ensure optimum cleanliness particularly in locations that are difficult to access, where it is dangerous or where things have to be especially clean.

With more than 700 employees, we work worldwide to provide the right nozzle for every application. With our own Development and Technology Center in Metzingen we simulate complex spray characteristics, check nozzles in endurance tests and optimize cleaning patterns so that the ideal relationship between flow rate, range and spray force is achieved.

Over the course of all these years, we have developed a deep understanding of the processes in a large number of different industries. That is why we do not just support our customers with high-performance precision nozzles for tank and equipment cleaning, but also help them to optimize their processes.

1879 Company founded by Paul Lechler

1893 Patent for liquid atomization

1967 Relocation of production to Metzingen

1978 Expansion to the USA and then to other countries

1995 Production, sales and administration are concentrated in Metzingen

CONTENTS

140
1879 – 2019

2010
Expansion of production with a new, 13,000 m² production hall

2016
Opening of the state-of-the-art Development and Technology Center in Metzingen

2019
Lechler celebrates 140th anniversary

2021
New factory in China

2022
New logistics center in Metzingen

PLAYING A PART IN THE **ONGOING CLEANUP PROCESS**

An excellent understanding of cleaning processes, tank shapes and nozzle design is required in order to achieve optimum cleaning of tanks and equipment. We have been an industry leader in all three areas for decades, however, there are still always new challenges for us. Thanks to state-of-the-art CFD analysis and precise measuring instruments for droplet sizes and speeds, we are able to quickly develop suitable solutions for these applications.

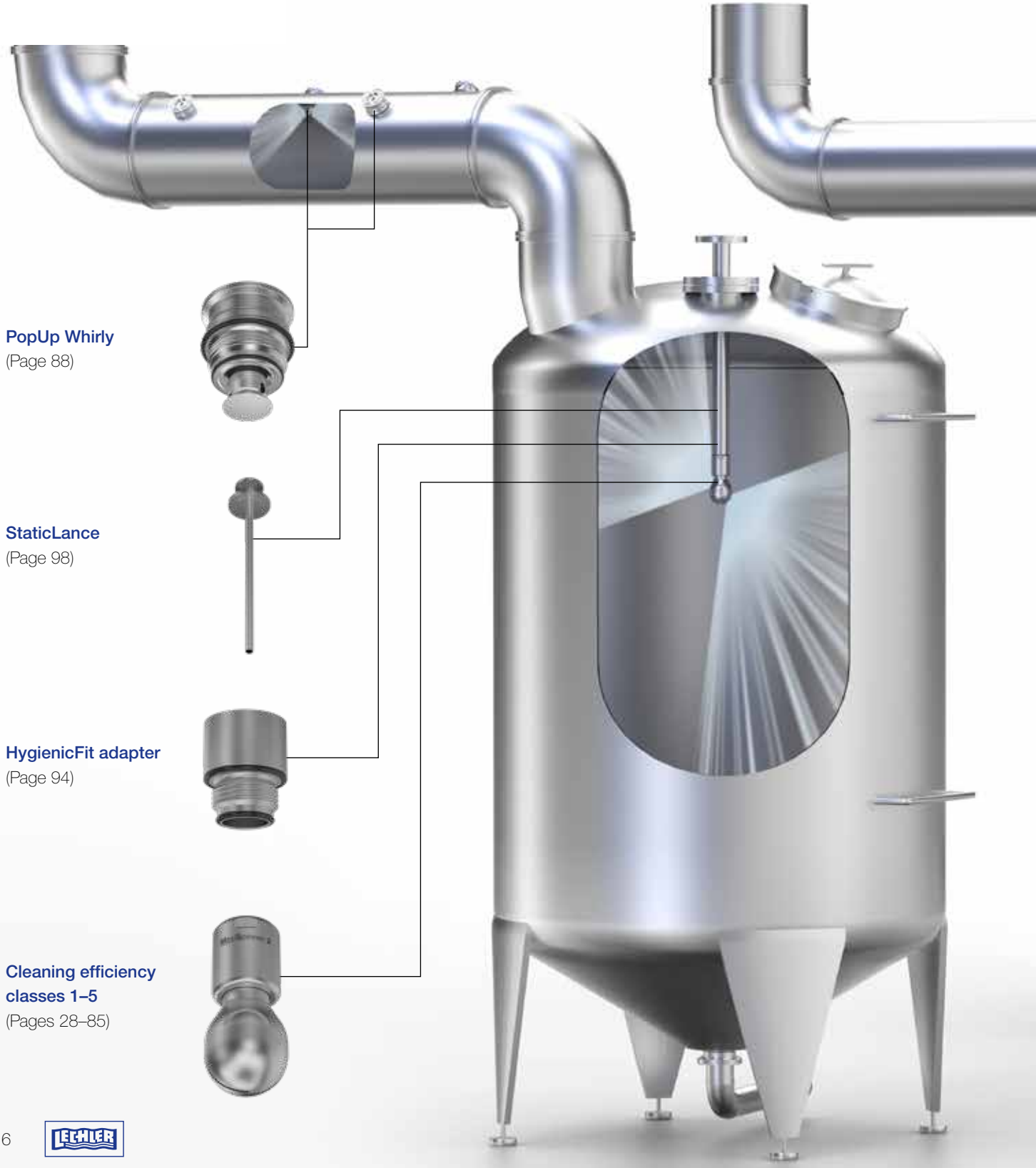
With our proprietary Tank**Clean** software, we are able to simulate complex tank shapes and spray processes with different nozzles. Together with our extensive range of cleaning nozzles, we can develop tailor-made solutions for your tank and equipment cleaning requirements – particularly if complex applications are involved.

Why Lechler?

- **Unique product variety**
- **Cleaning efficiency classes – for easy nozzle selection**
- **Reliable planning thanks to TankClean simulation software**
- **Solutions for agitator, filler neck and line cleaning**
- **Extensive accessories for complete solutions**
- **Individual advice – on-the-spot worldwide**
- **Short delivery times thanks to high stock availability**

MORE THAN JUST NOZZLES
OUR COMMITMENT TO TANK AND EQUIPMENT CLEANING

Effective tank and equipment cleaning cannot just be limited to the tanks. Lechler therefore offers a comprehensive and coordinated product range to allow fast, efficient and thorough cleaning from the feed lines through to the discharge lines.



PopUp Whirly
(Page 88)

StaticLance
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HygienicFit adapter
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Cleaning efficiency classes 1–5
(Pages 28–85)

FlexLance
(Page 99)

Rotation monitoring sensor
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Cleaning efficiency classes 1–5
(Pages 28–85)

PopUp Clean
(Page 92)

GIVE DIRT NO CHANCE
TIME TO GET CLEANING

Nobody likes dirt or contaminations: they reduce product quality. Removal takes time – and money.

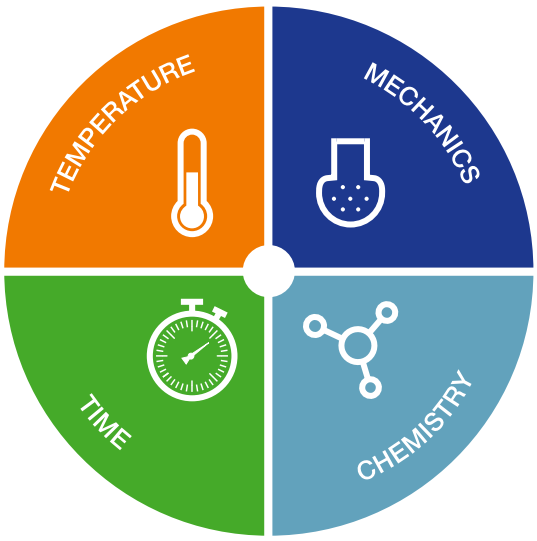
As your partner, we help to minimize these costs as much as possible.

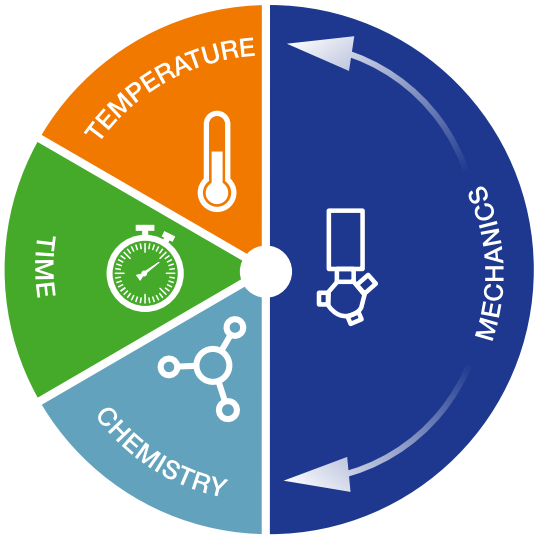
This is how efficient cleaning works – Sinner's circle

Every cleaning process is based on four main factors:

- Chemical (choice and concentration of the cleaning agents)
- Mechanical (detachment of dirt by impact or shear stress)
- Temperature (at which cleaning takes place)
- Time (duration of the overall cleaning process)

The four cleaning factors can be clearly demonstrated by the Sinner's circle. Together, they always result in 100 % of the cleaning effort. Depending on the cleaning process, the individual factors may be of different magnitudes and they mutually influence each other. The cleaning nozzle directly influences the mechanical factor.





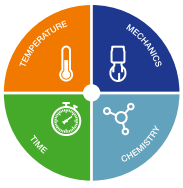


Fig. 1

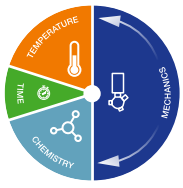


Fig. 2

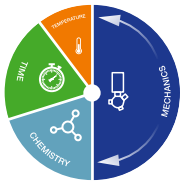
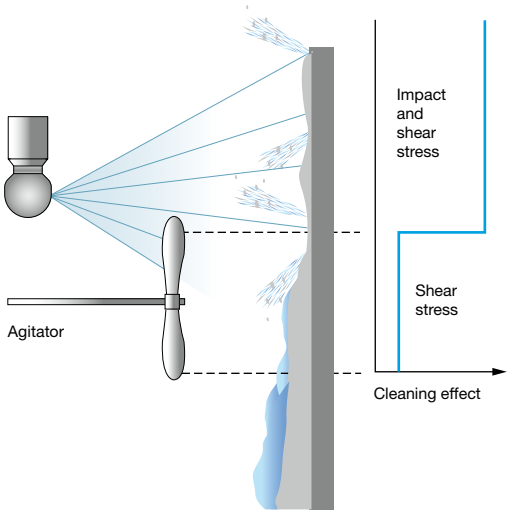


Fig. 3

Example

Assumption: A given tank can be successfully cleaned with equal shares for the time, temperature, chemical and mechanical factors (Fig. 1). Choosing a different nozzle with more powerful cleaning force results in additional freedom for cleaning faster (Fig. 2) or with a lower temperature (Fig. 3) and more energy-efficiently.



Cleaning by impact only occurs
if it takes place directly

If a jet is sprayed onto a surface, this generates a direct impact. This direct impact leads to a better cleaning effect. As a result of shear forces or shear stresses produced by the cleaning fluid as it runs down, areas that are not impacted directly are also rinsed. However, the cleaning effect there is much weaker in comparison to direct impact.

Important: The best cleaning effect is obtained by high impact at the location to be cleaned.

Cleaning in the low-pressure range (30 psi to 75 psi) is normally most effective and efficient. This is because large tanks which are cleaned with higher pressures would lead to a high level of atomization and a reduced cleaning effect.

Good to know

The impact is sufficient for a rough assessment of the cleaning force. However, things are often much more complex during production. In specific applications, it is sometimes possible to find additional savings by conducting a more detailed analysis. Talk to us. We will gladly advise you: by phone on (800) 777-2926 or by email at info@lechlerusa.com.

QUICK DECISION-MAKING AID
LECHLER CLEANING EFFICIENCY CLASSES

Our promise: Lechler has the right cleaning nozzle for every application. We have separated our extensive range of nozzles into five different cleaning efficiency classes so that you can easily find the product that is right for your application. Below you will find the typical soiling types for the respective efficiency class. Here, the higher the efficiency class, the more powerful and efficient the mechanical cleaning effect (see page 8, Sinner's circle).

1

Possible soiling type

Type	Spray ball, static
Cleaning effect	
Drive	No drive, no rotating parts
Typical soiling	Light soiling such as non-adhering powder or liquids
Nozzle design	Static spray pattern with solid stream impact

2

Possible soiling type

Type	Rotating cleaner, free-spinning
Cleaning effect	
Drive	By the medium
Typical soiling	Low-viscosity to slightly viscous substances such as fresh ketchup
Nozzle design	Slot design or bore layout with direct impact on the entire tank surface

3

Possible soiling type

Type	Rotating cleaner, free-spinning
Cleaning effect	
Drive	By the medium
Typical soiling	More viscous substances such as chocolate sauce
Nozzle design	Special flat fan design with direct impact on the entire tank surface

4

Possible soiling type

Type	Rotating cleaner, controlled rotation
Cleaning effect	
Drive	By the medium, drive unit with turbine and gear unit
Typical soiling	Medium soiling such as high-viscosity creams
Nozzle design	Special flat fan nozzle inserts with direct impact on the entire tank surface

5

Possible soiling type

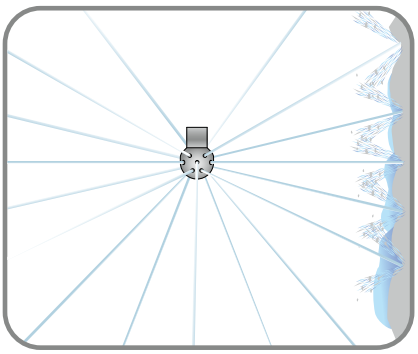
Type	High impact tank cleaning machine, controlled rotation about two axes
Cleaning effect	
Drive	By the medium, drive unit with turbine and gear unit
Typical soiling	Persistent soiling such as make-up
Nozzle design	Solid stream nozzles with controlled rotation about two axes, direct impact on the entire tank surface during a cleaning cycle

Good to know

The individual cleaning efficiency classes are not sharply defined. Depending on application, nozzles from the next-higher or next-lower cleaning efficiency class may be suitable. Please ask us in case of doubt. We will gladly advise you: by phone on 800-777-2926 or by email at info@lechlerusa.com.

OPERATING PRINCIPLES
DESIGN AND CLEANING CAPACITY

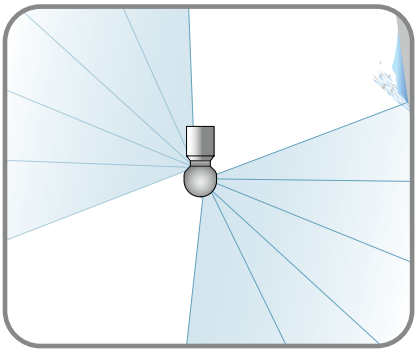
Different operating principles influence the impact and the cleaning effect. The cleaning efficiency can also be influenced by choosing the appropriate nozzle.



Spray ball, static

Static spray balls do not have any moving parts and are largely maintenance-free.

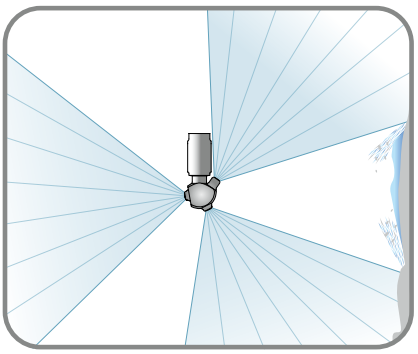
- The impact of the spray jets is solid stream and the surfaces are cleaned by the shear stress of the liquid running down the surface.
- The water consumption is comparatively high
- Increased soiling results in a significantly longer cleaning time, and cleaning may not be complete
- Simple, inexpensive solution



Rotating cleaner, free-spinning

Thanks to their special nozzle design, free-spinning rotating cleaners permit area impact on the tank walls. They are particularly suitable for small to medium-sized tanks.

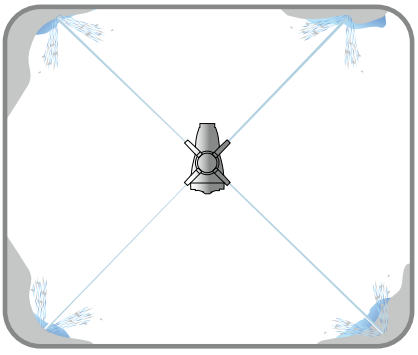
- Drive by cleaning fluid
- Fast impact repetition
- Optimum cleaning performance in the low pressure range



Rotating cleaner, controlled rotation

These rotating cleaners are characterized by their controlled rotation and a stronger cleaning effect thanks to special flat fan design. They are particularly suitable for medium-sized to large tanks.

- Increased impact thanks to low rotation speed and resultant larger drops
- Optimum cleaning performance in medium pressure ranges



High impact tank cleaning machines, controlled rotation about two axes

High impact tank cleaning machines operate with few solid streams for maximum impact. The rotation of the nozzles about two axes means that every point on the tank wall is hit by the streams during the cleaning cycle.

- Solid stream impact over the entire tank surface
- Maximum impact
- Highest cleaning power

A few rules of thumb

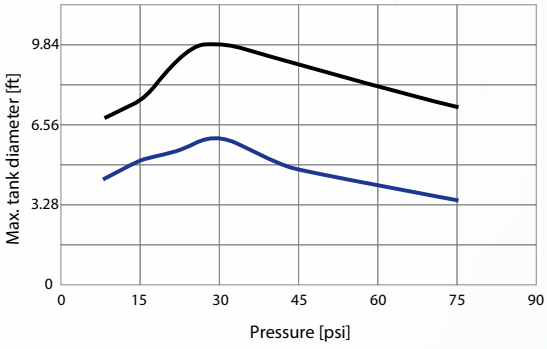
Flow rate and impact

The higher the flow rate, the greater the impact and the more intensive the cleaning effect. For the best possible results, the nozzles with the highest flow rate should be chosen from the suitable nozzles within a series.

Operating pressure

The best results can be achieved with the recommended operating pressure of the respective nozzle. Excessively high pressure leads to greater atomization and reduces the spraying range.

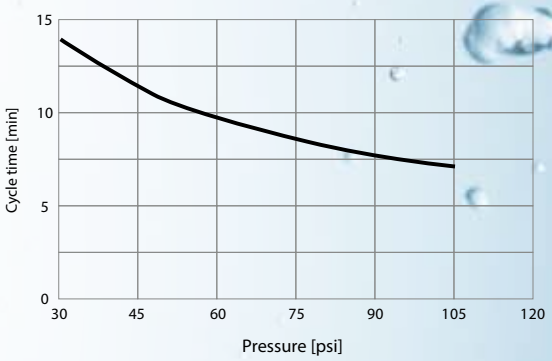
If there is more than one flow rate size within a series, the types with the largest and smallest spraying range are shown. If other flow rate sizes are available, their comparable curves run between the shown upper and lower limits. Information on the maximum tank diameter is provided in the table on the respective product page.



Cleaning cycle time

Rotating cleaners of cleaning efficiency classes 2 to 4 achieve fast, full-area impact in one revolution.

In contrast, high impact tank cleaning machines need several revolutions to complete a cleaning cycle. High impact tank cleaning machines of cleaning efficiency class 5 spray the tank wall in a defined pattern with their powerful solid jets. A certain number of revolutions of the high impact tank cleaning machine is needed to cover every point in the tank. The time required for this is referred to as “Cleaning cycle duration”.

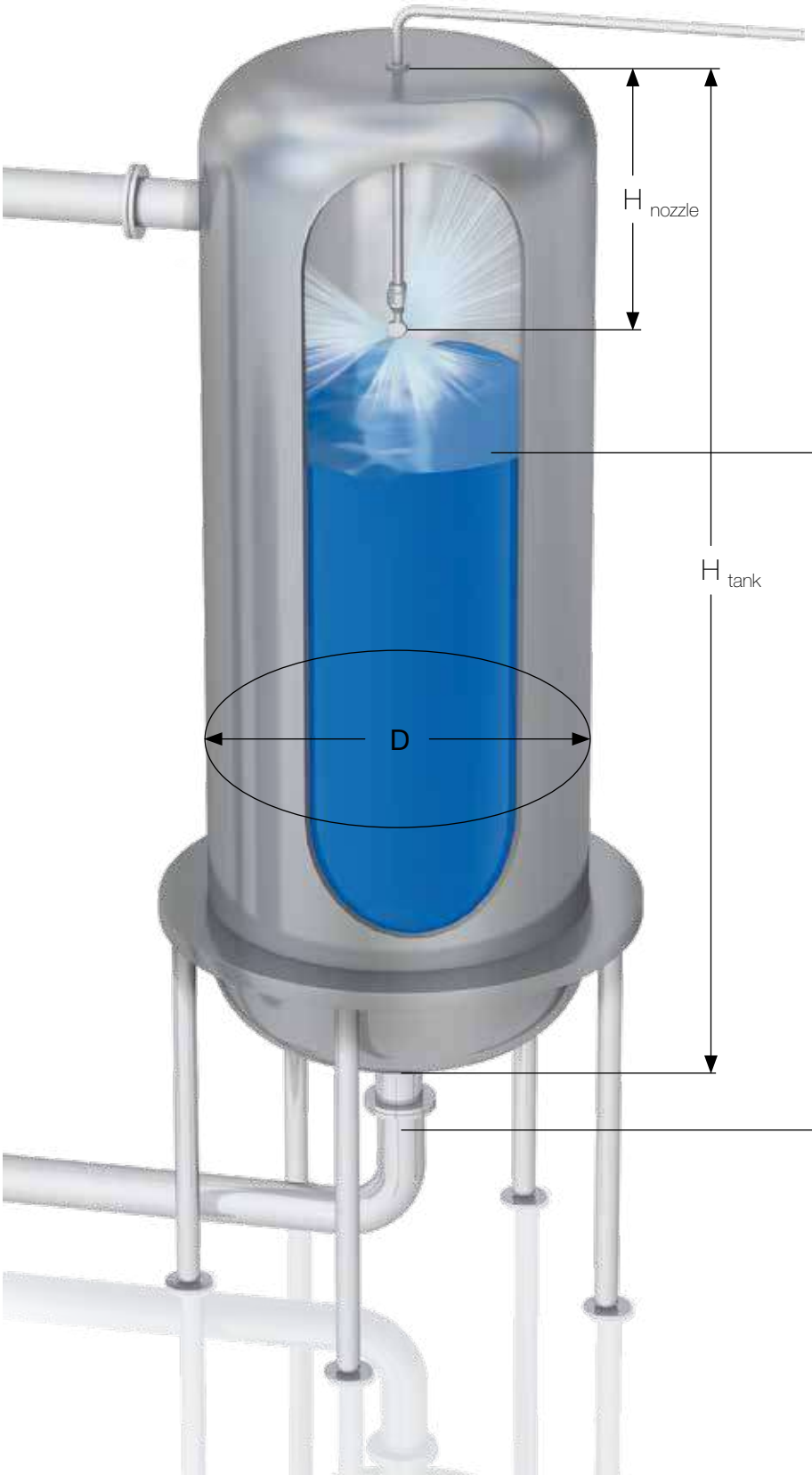


Good to know

There is at least one exception to every rule of thumb. If you are unsure or need further support, make life easier for yourself and just ask us. You can contact us by phone on (800) 777-2926 or by email at info@lechlerusa.com.

FOR YOUR PLANNING
CRITERIA FOR NOZZLE SELECTION

The size of the tank, its shape and possible fittings are important factors for selection of the right cleaning nozzle. Fittings in particular determine the number of nozzles required for optimum cleaning.



Tank size

The diameter of the tank to be cleaned should be smaller than the maximum tank diameter recommended in the product tables. You can find the necessary information on the product pages.

Fill level

If possible, the nozzle should not come into contact with the product during production. It is therefore recommended to install nozzles above the maximum tank fill level.

Arrangement

The nozzle must be positioned in the upper part of the tank if possible. The following recommendation applies:

$$H_{nozzle} = \frac{1}{3} \cdot H_{tank}$$

Make sure that sufficient cleaning fluid strikes the tank ceiling.

$$H_{nozzle} < \frac{1}{3} \cdot D_{max.\ nozzle}$$

Conversion

Flow rate according to density:
If the density of the cleaning agent (R) differs from that of water (W), the flow rate is calculated as follows:

$$\dot{V}_R = \dot{V}_W \sqrt{\frac{\rho_W}{\rho_R}}$$

Flow rate according to differential pressure:
If the tank cleaning nozzle is operated with a deviating differential pressure, the flow rate is calculated as follows:

$$\dot{V}_2 = \sqrt{\frac{p_2}{p_1}} \cdot \dot{V}_1$$

Differential pressure according to volume flow:

$$p_2 = \left(\frac{\dot{V}_2}{\dot{V}_1}\right)^2 \cdot p_1$$

Tank drainage rate

The tank drainage rate must be chosen so that the liquid level does not rise during the cleaning process. The following values are recommended for gravity fed drains.

Drain ["]	Drainage rate [gal/min]
1	6
1 1/2	13
2	23
2 1/2	35
3	50
4	87

Number of nozzles

When cleaning large tanks or complex installations, it is often necessary to install several nozzles. They must be positioned so that their spray jets overlap and that the jets strike every surface that is to be cleaned if.

Avoidance of spray shadows

Obstacles such as agitators, baffle plates or pipes can prevent the areas behind them from being reached directly by the spray jet. Impact cleaning is not possible there. In these cases, it is necessary to install several nozzles so that the spray shadows of the individual nozzles are eliminated. In addition, static spray nozzles can also be used for targeted removal of deposits left as a result of spray shadows or in areas that are difficult to clean.

Pump and pipes

The pipe dimensions depend on the flow rate to be delivered. The size should be chosen so that the pressure losses in the feed pipe system are kept as low as possible. The required static operating pressure must be present directly at the nozzle. The pump power must be matched to this.

FOR YOUR PLANNING
PROFESSIONAL SUPPORT

TankClean

On the previous pages we provided you with the most important information for planning efficient tank and equipment cleaning. In many cases, this will already allow you to find the optimum solution for your requirements.

However, what if the situation is more complex? For example, due to fitting-related spray shadows – or if you want to be absolutely sure that every area in the tank has been fully cleaned? The solution here is simple: we will gladly support you with our TankClean simulation software.

With TankClean we can ...

- precisely simulate tank applications with a large number of fittings
- select the right number of optimum nozzles and position them freely
- simulate the cleaning process and show spray shadows or other problematic areas
- record the simulation as a PDF and video

YOUR ADVANTAGES

PLANNING RELIABILITY
We assist you in planning your tank cleaning solution to ensure cleaning without any gaps.

PROCESS OPTIMIZATION
By simulating the existing cleaning processes, we show you the optimization potentials for these processes.

PROCESS RELIABILITY
Thanks to realistic and individually customizable process simulation, we can offer you individual solution concepts.

COST AND TIME SAVINGS
Simulation makes it possible to detect any potential problem areas before final definition of the cleaning concept. This makes it possible to significantly reduce the number of time- and cost-intensive practical cleaning tests.

See and understand TankClean

Discover the possibilities of TankClean: Visit **www.lechlerusa.com/en/tankclean** or scan the QR code.

THE PRODUCT RANGE
A BRIEF INTRODUCTION

Cleaning efficiency class 1

Cleaning efficiency class 2

Cleaning efficiency class 3

Cleaning efficiency class 4

Cleaning efficiency class 5

Perfect addition

FOR YOUR PLANNING
OPTIMUM PREPARATION

Every industry and every process has its own requirements. We know them all and supply the optimum cleaning nozzles for an extremely wide range of ambient conditions.

FOOD CONFORMITY
Many of the materials used for Lechler tank cleaning nozzles comply with the requirements of the FDA and conform to the regulation EU1935/2004.

HYGIENE REQUIREMENTS
Lechler cleaning nozzles meet the strictest hygiene requirements. Selected series are available as specially certified 3-A-compliant nozzles.

ATEX
Lechler offers specially approved nozzle series for use in explosive atmospheres.

MAXIMUM OPERATING TEMPERATURE
Maximum permitted temperature of the cleaning medium during operation.

MAXIMUM AMBIENT TEMPERATURE
Maximum permitted ambient temperature within the tank.

INSTALLATION
The installation symbol describes the position in which the nozzle must be installed so that it functions properly.

BEARING
The primary bearing used is described here.

MATERIAL
Here you can find all materials that are used in the nozzle. This list permits a simple check of the chemical resistance.

WEIGHT
The weight is specified from the lightest to the heaviest nozzle within a series.

SURFACE QUALITY
INSIDE AND OUTSIDE

We distinguish between surfaces inside the cleaning nozzle and outside surfaces. Excepted from this are threads, weld seams and gear wheels as well as areas in which the cleaning medium flows very quickly.

STEAM SUITABILITY
If the SIP process is based on the cleaning nozzle, the suitability for hot water or even steam operation should be taken into accoutnt. Our products have been tested in vertically downwards-facing installation position at a temperature of 302 °F and a pressure of 36 psi(g) specifically for the extreme conditions in steam operation. The wear behavior differs depending on the design and materials used. We therefore categorize the steam suitability of our products as follows:

- Suitable (only slight wear evident after test duration of 50 h)
- Conditionally suitable (clear wear already evident after test duration of 25 h)
- Not suitable (the tested type was worn so that is was no longer capable of operation within a very short time)

It must be noted that operation with steam means increased wear irrespective of suitability. The following rule of thumb therefore applies: The lower the pressure, the lower the rotation speed and load and also the lower the wear of the cleaning nozzle.

INSERTION DIAMETER
This is the minimum diameter of the opening that is required to insert the cleaning nozzle in the tank. Since the exact insertion diameter depends on the selected type, a range is specified for some series. If the size of the insertion opening is within the specified range, the exact insertion diameter must be requested from Lechler.

RECOMMENDED OPERATING PRESSURE
The recommended operating pressure is the optimum pressure at which the nozzle cleans most efficiently. The recommended operating pressure must be determined directly in front of the nozzle.

ADAPTER
The HygienicFit adapter guarantees hygienic connection of the supply line. Compatible products are identified by this pictogram.

ROTATION MONITORING
These nozzles are compatible with the Lechler rotation monitoring sensor.

MAINTENANCE
All nozzles with the maintenance symbol can be maintained. You can find further information on pages 100–101.

RECOMMENDED FILTER
We recommend a filter with the specified mesh size in order to prevent clogging and excessive wear of the cleaning nozzle.


Prüfstand 305

TANK CLEANING NOZZLES
SERIES OVERVIEW

		Cleaning efficiency class 1					
Series		**Spray ball 527**	**Spray ball 540/541**	**RinseClean 5B2/5B3**	**PicoWhirly 500.234**	**MicroWhirly 566**	**MiniWhirly 500.186**
Information on Page		30	32	34	38	40	42
							
	Operating principle						
	Max. tank diameter [ft]	17-27	21-31	6-18	3	5-5.5	4
	Insertion diameter [in]	1.3-4	1.22	.79-3.54	.35	.79-1.89	1.14
	Recommended operating pressure [psi]	20	45	30	45	30	30
	Flow rate at recommended operating pressure [gal/min]	13.0-92.0	5.81-38.95	4.03-180.00	2.63	4.03-5.64	4.84
	Food-compliant	●	●	●	●	●	
	ATEX available					●	
	Surface quality (outside) [µm]	≤ 0.8 µm	≤ 6.3 µm	≤ 0.8	≤ 1.6	≤ 1.6	≤ 1.6
	Steam suitability	suitable	suitable	suitable	suitable	suitable	not suitable
	Max. operating temperature [°F]	400	392	392	392	302	122
	Max. ambient temperature [°F]	400	482	482	392	392	212
	Compatible with HygienicFit						
	Rotation monitoring						
	Weight [lbs]	.11-1.43	.20-.22	.02-.66	.03	.11-.44	.09
	Maintainable						

Cleaning efficiency class 2					
PVDF MicroWhirly 500.191	**NanoSpinner 2 5M1**	**MicroSpinner 2 5M2**	**MiniSpinner 2 5M3**	**MaxiSpinner 2 5M4**	**PTFE Whirly 573/583**
44	46	48	50	54	56
					
					
2-3	4-5	5-6	5-8	13-16	8-10
1.18	.67-1.34	1.10-1.89	1.54-2.28	2.72	1.93-3.09
30	30	30	30	30	30
3.49-5.37	4.03-5.37	6.18-10.75	8.06-26.87	40.30-67.16	15.58-60.45
●	●	●	●	●	●
	●	●	●	●	
≤ 1.6	≤ 0.4	≤ 0.4	≤ 0.4	≤ 0.4	≤ 0.8
not suitable	not suitable	conditionally suitable	conditionally suitable	conditionally suitable	not suitable
203	392	392	392	392	203
302	482	482	482	482	392
		●	●	●	
.03-.07	.04	.15-.23	.55-.75	2.43-3.75	.4-1.98

		Cleaning efficiency class 3		
Series		**HygienicWhirly 594/595**	**Whirly 2 5W9**	**Gyro 577**
Information on Page		62	64	66
				
	Operating principle			
	Max. tank diameter [ft]	2-9	6–10	11–18
	Insertion diameter [in]	1.24–1.89	2.56-2.6	3.98–6.14
	Recommended operating pressure [psi]	45	30	45
	Flow rate at recommended operating pressure [gal/min]	3.76–22.03	12.90–38.95	53.73–177.04
	Food-compliant	●	●	●
	ATEX available		●	
	Surface quality (outside) [µm]	≤ 0.8	≤ 0.4	≤ 0.8
	Steam suitability	suitable	not suitable	conditionally suitable
	Max. operating temperature [°F]	302	302	203
	Max. ambient temperature [°F]	302	392	392
	Compatible with HygienicFit		●	
	Rotation monitoring			
	Weight [lbs]	.20–.64	.66–2.05	1.62–4.19
	Maintainable			

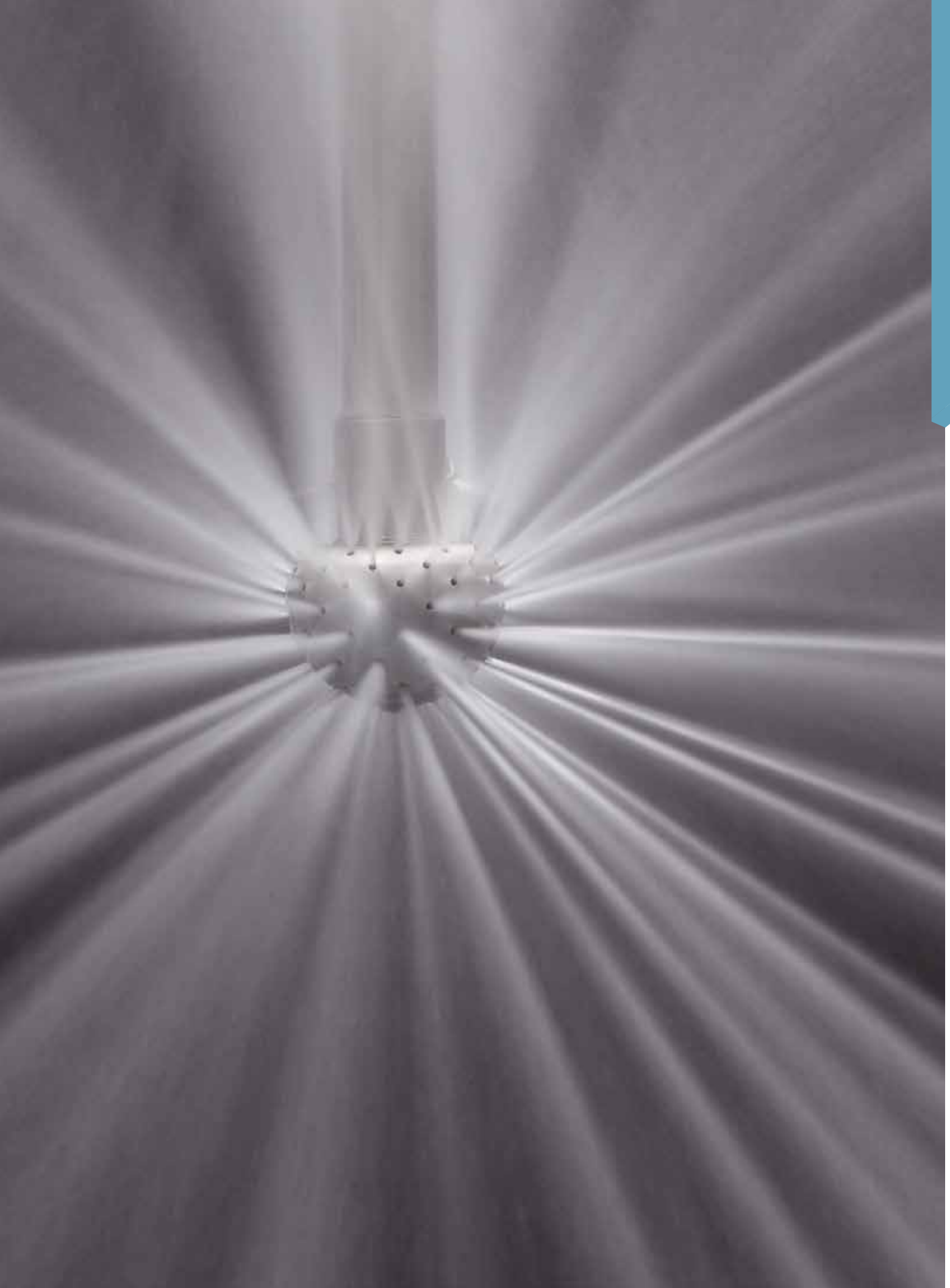
Cleaning efficiency class 4		Cleaning efficiency class 5			
XactClean HP 2 5S6/5S7	XactClean HP+ 5S5	MeshClean 5T2/5T3	MeshClean Plus 5T5	IntenseClean 5TM	Pressure Clean 5TP
70	74	78	80	82	84
					
					
11–26	29–13	37–42	50-57	59–79	3-11
1.97–3.11	3.54–5.51	2.68–3.23	5.12	6.3–9.06	2.5
45	45	75	75	75	1450
8.33–44.33	54.27–98.60	5.28–20.87	29.82–72.27	53–110	2.6-7.9
●	●	●	●	●	
●		●	●	●	
≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	≤ 1.6
suitable	suitable	suitable	suitable	not suitable	not suitable
302	302	302	302	203	194
302	302	302	302	284	122
	●	●			
●	●	●	●	●	●
1.43–1.98	3.97–4.05	2.20	8.12	16.5	6.4-11.7
●	●	●	●	●	●

		Perfect Additions		
Series		PopUp Whirly 5P2	PopUp Whirly 5P3	PopUp Clean 5P5
Information on Page		88	90	92
				
	Section		●	
	Max. tank diameter [ft]	2-3	7	10
	Insertion diameter [in]	1.97-2.2	2.46-2.76	1.97-2.2
	Recommended operating pressure [psi]	30	30	30
	Flow rate at recommended operating pressure [gal/min]	4.03-5.37	10.75	13.43
	Food-compliant	●	●	●
	ATEX available	●	●	●
	Surface quality (outside) [µm]	≤ 0.8	≤ 0.8	≤ 0.8
	Steam suitability	not suitable	not suitable	not suitable
	Max. operating temperature [°F]	284	284	203
	Max. ambient temperature [°F]	302	302	302
	Compatible with HygienicFit			
	Rotation monitoring			
	Weight [lbs]	1.1	1.2-4.52	.75
	Maintainable			

	PopUp Whirly Air 5P7	Adapter HygienicFit 05C	Rotation Monitor Sensoring	Static Lance	Flex Lance
	94	96	98	100	101
					
	+				
	36				
	•	•	•	•	•
				•	•
	≤ 1.6	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8
	not suitable	suitable	suitable	suitable	suitable
	203	302	212		
	149	302	140		
	9.9	.15-.66	.77		

CLEANING EFFICIENCY CLASS 1
RINSE EFFICIENTLY AND ACCURATELY

Type	Spray ball, static
Cleaning effect	
Drive	No drive, no rotating parts
Typical soiling	Light soiling such as non-adhering powder or liquids
Nozzle design	Static spray pattern with solid stream impact



Static spray balls
Series 527

Features:
- Complies with 3-A standards
- Powerful solid jest
- Resistant to high temperatures

FDA

Scan for Video

Series 527

Technical data:

Maximum operating temperature
400 °F

Maximum ambient temperature
400 °F

Installation
Operation in every installation position

Bearing
Static – no bearing

Material
Stainless steel 1.4404 (316L)

Weight
.11–1.43 lbs

Surface quality
≤ 0.8 µm
OUTSIDE

Surface quality
≤ 0.8 µm
INSIDE

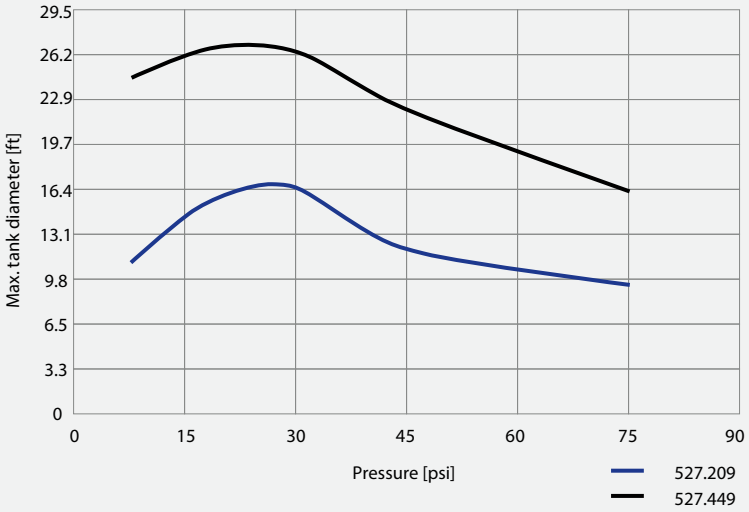
Steam suitability
Suitable

Insertion diameter
1.3- 4in

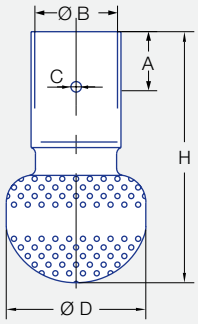
Recommended filter
Smaller than the narrowest cross-section

Recommended operating pressure
20 psi

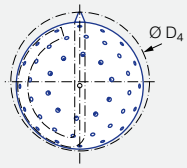
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



Overview of maximum tank diameter depending on pressure



Dimensions of slip-on connection according to ASME-BPE (OD tube)



Insertion diameter D_4 of slip-on connection

With the slip-on connection, the spray ball is pushed onto the connecting pipe and secured with the supplied cotter pin.

Spray angle	Ordering number Type	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 145 psi)							Dimensions approx. (in) Height H (in.)	Diameter D (in.)	B	C	A	Max. tank diameter [ft]
			20	30	Liters per min. **2 bar**	40	60	80	100						
360°	**527.209.1Y.00.75**	0.031	**13**	16	**60**	19	23	26	29	2.7	1.3	.75	.13	.50	17
	527.289.1Y.01.50	0.043	**37**	46	**170**	53	65	74	83	4.6	2.6	1.51	.19	1.00	20
	527.449.1Y.02.00	0.067	**92**	113	**420**	130	160	184	206	6.0	4.0	2.01	.19	1.00	27

Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) included.
- Depending on the adapter diameter, the flow rate may increase due to the leakage between the adapter and spray ball.

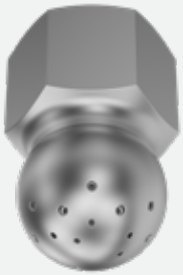
Information on operation

Use above the recommended pressure will have a negative effect on the cleaning result and wear.

Static spray balls
Series 540/541

Features:

- Robust and especially compact design
- Threaded connection
- Suitable for very high temperatures
- Also suitable for steam and air operation



FDA

Scan for Video

Series 540/541

Technical data:

Maximum operating temperature
392 °F

Maximum ambient temperature
482 °F

Installation
Operation in every installation position

Bearing
Static – no bearing

Material
Stainless steel 1.4305 (303)

Weight
.20–.22 lbs

Surface quality
≤ 6.3 µm
OUTSIDE

Surface quality
≤ 6.3 µm
INSIDE

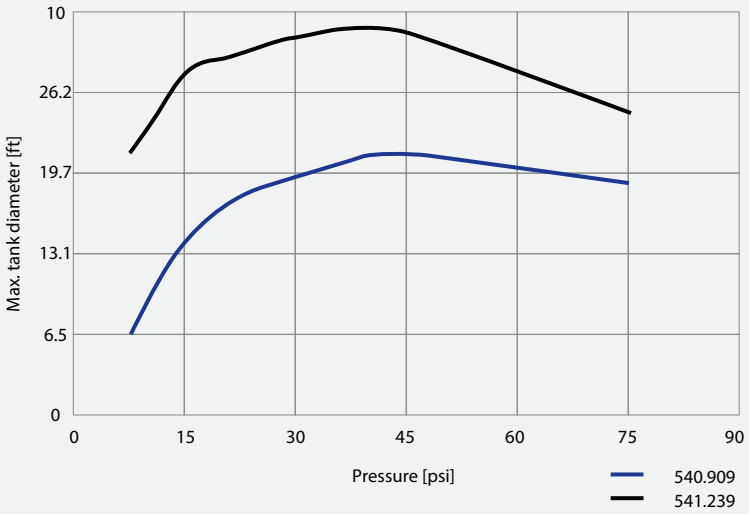
Steam suitability
Suitable

Insertion diameter
1.22 in

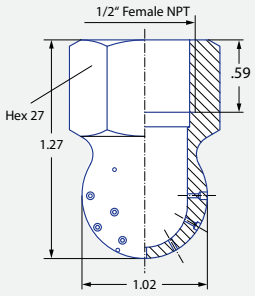
Recommended filter
Smaller than the narrowest cross-section

Recommended operating pressure
45 psi

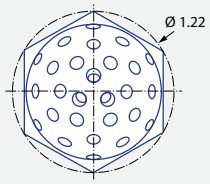
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



Overview of maximum tank diameter depending on pressure



Female thread



Insertion diameter

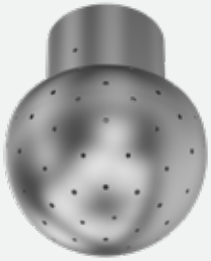
Spray angle	Ordering number: Type	Ordering number: Connection 1/2" Female NPT	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 145 psi) 10	20	30	40	45	Liters per min. 3 bar	60	80	100	Max. tank diameter [ft]
240°	**540.909.16**	**BH**	0.031	2.78	3.94	4.83	5.57	**5.91**	**22**	6.82	7.88	8.81	21
	540.989.16	**BH**	0.039	4.30	6.09	7.46	8.61	**9.13**	**34**	10.55	12.18	13.61	23
	541.109.16	**BH**	0.059	8.86	12.54	15.35	17.73	**18.81**	**70**	21.71	25.07	28.03	25
	541.189.16	**BH**	0.079	13.93	19.70	24.13	27.86	**29.55**	**110**	34.12	39.40	44.05	27
	541.239.16	**BH**	0.091	18.36	25.97	31.81	36.72	**38.95**	**145**	44.98	51.94	58.07	31

BSPP threads on request.

Information on operation
Use above the recommended pressure will have a negative effect on the cleaning result and wear.

Static spray balls RinseClean
Series 5B2/5B3

Features:
- No moving parts
- Self-draining
- Proven in numerous applications
- Suitable for very high temperatures and high hygiene requirements
- Also available in 2.4602 (Alloy 22)



FDA

Scan for Video

Series 5B2/5B3

Technical data:

Maximum operating temperature
392 °F

Maximum ambient temperature
482 °F

Installation
Operation in every installation position

Bearing
Static – no bearing

Material
Stainless steel 1.4404 (316L), cotter pin made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22), cotter pin made of 2.4602 (Alloy 22)

Weight
.02–.66 lbs

Surface quality
Ra ≤ 0.8 µm
OUTSIDE polished Ra ≤ 0.5 µm

Surface quality
Ra ≤ 0.8 µm
INSIDE

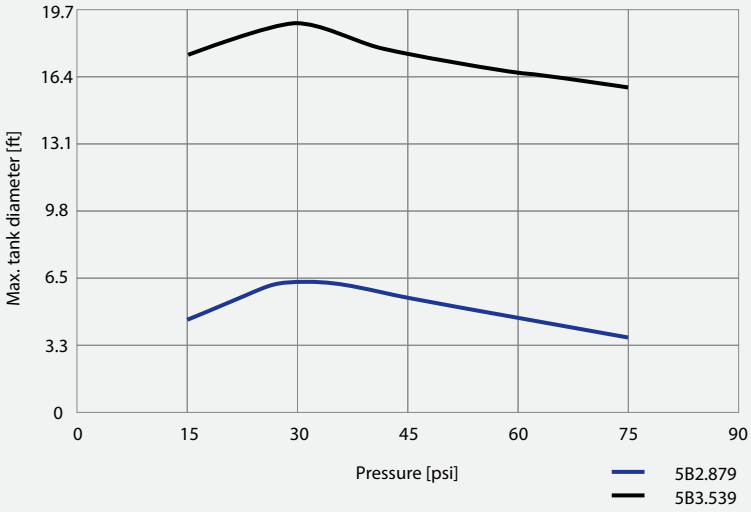
Steam suitability
Suitable

Insertion diameter
.79–3.54 in

Recommended filter
Smaller than the narrowest cross-section

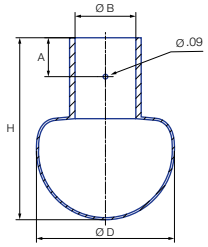
Recommended operating pressure
30 psi

Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



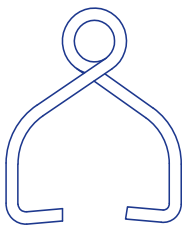
Overview of maximum tank diameter depending on pressure

Slip-on connection



Dimensions slip-on connection according to DIN 10357 Series D (ASME BPE 1997.0OD tube compatible)

Pin 1



Pin 2-5

Pin	Ordering no.
1	095.013.1Y.06.55
2	095.013.1Y.06.58
3	095.013.1Y.06.56
4	095.013.1Y.06.59
5	095.013.1Y.06.57

With the slip-on connection, the spray ball is pushed onto the customer's connection pipe and secured with the supplied cotter pin.

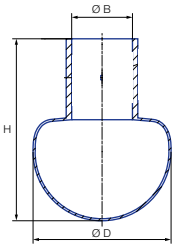
Spray angle	Ordering number Type	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 75 psi) 10	20	30	Liters per min. 2 bar	40	60	75	Dimensions [in] Distance to bore A	Connection B	Height H	Ø D	Pin	Max. tank diameter [ft]
360°	5B3.089.1Y.A1.00	0.04	7.75	10.97	**13.43**	**50**	15.51	18.99	21.24	0.35	0.48	1.65	1.10	1	7
	5B3.209.1Y.A1.90	0.06	15.51	21.93	**26.87**	**100**	31.02	37.99	42.48	0.35	0.72	1.65	1.10	1	8
	5B3.309.1Y.A2.90	0.07	27.92	39.48	**48.36**	**180**	55.84	68.39	76.46	0.71	0.87	3.31	2.52	2	11
	5B3.379.1Y.A2.60	0.08	40.33	57.03	**69.85**	**260**	80.65	98.78	110.44	0.71	1.11	3.31	2.52	3	17
	5B3.449.1Y.A3.80	0.12	63.59	89.93	**110.15**	**410**	127.19	155.77	174.16	0.71	1.11	3.31	2.52	3	18
	5B3.539.1Y.A5.10	0.13	103.92	146.97	**180.00**	**670**	207.84	254.55	284.60	0.98	2.06	4.37	3.54	5	18

Spray balls with other spray angles and connection options (various slip-on connections as well as threaded and welded connections) please reach out to us with your requirements.

Information about slip-on connections

- Stainless steel 316L pin supplied.
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the spray ball.

Threaded connection



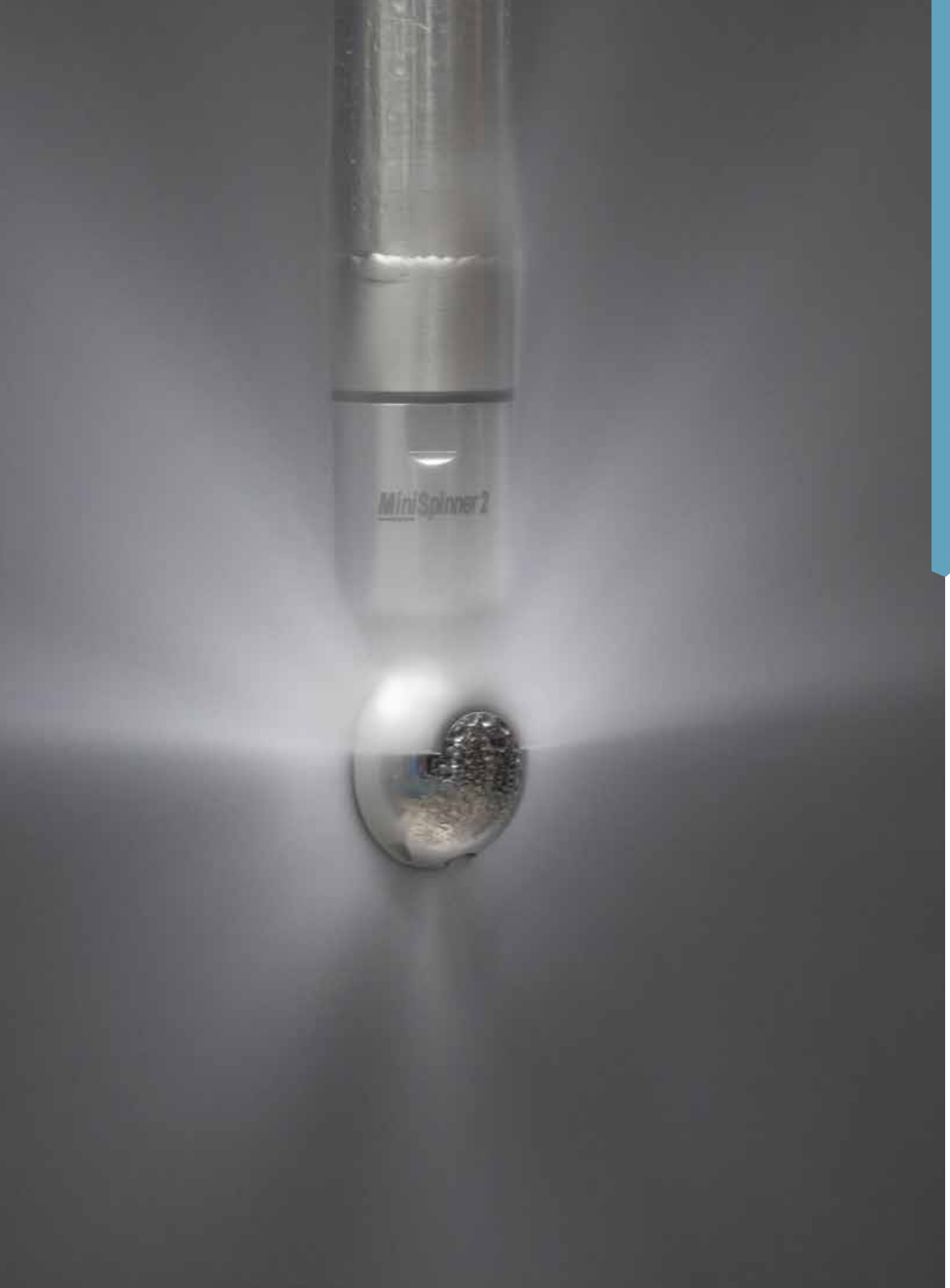
Spray angle	Ordering number Type	Connection ØB Female NPT	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 75 psi) 10	20	30	Liters per min. 2 bar	40	60	75	Dimensions (in) Height H	Ø D	Pin	Max. tank diameter [ft]
360°	5B2.879.1Y.BB	1/8"	0.03	2.32	3.29	**4.03**	**15**	4.65	5.70	6.37	1.46	0.79	1	6
	5B3.309.1Y.BH	1/2"	0.07	27.92	39.48	**48.36**	**180**	55.84	68.39	76.46	3.31	2.52	2	11
	5B3.379.1Y.BN	1"	0.08	40.33	57.03	**69.85**	**260**	80.65	97.78	110.44	3.31	2.52	3	17
	5B3.539.1Y.BW	2"	0.13	103.92	146.97	**180.00**	**670**	207.84	254.55	284.60	4.37	3.54	5	18

The maximum tank diameter applies to the recommended operating pressure and is meant as a recommendation only.
The cleaning result is also affected by the type of soiling.

Ordering	Type	+	Material no.	+	Connection	=	Order no.
example:	5B3.089	+	1Y	+	A1.00	=	5B3.089.1Y.A1.00

CLEANING EFFICIENCY CLASS 2
RINSING AND LIGHT CLEANING

Type	Rotating cleaner, free-spinning
Cleaning effect	
Drive	By the medium
Typical soiling	Low-viscosity to slightly viscous substances such as fresh ketchup
Nozzle design	Slot design or bore layout with direct impact on the entire tank surface


MiniSpinner 2

Rotating cleaning nozzle PicoWhirly
Series 500.234

Features:

- Cleaning with rotating solid jets
- Compact design for confined spaces
- Suitable for very high temperatures
- Made completely of stainless steel

FDA

Scan for Video

Series 500.234

Technical data:

Maximum operating temperature
392 °F

Maximum ambient temperature
392 °F

Installation
Operation in every installation position

Bearing
Kolsterised slide bearing

Material
Stainless steel 1.4404 (316L)

Weight
.03 lbs

Surface quality
Ra ≤ 1.6 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

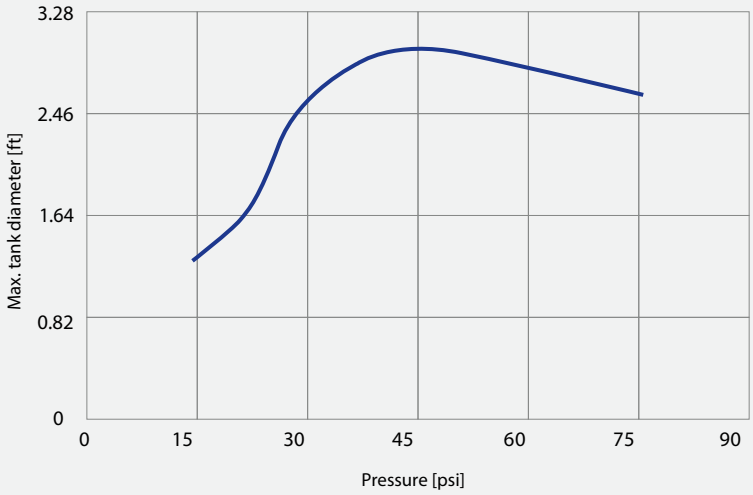
Steam suitability
Suitable

Insertion diameter
.35 in

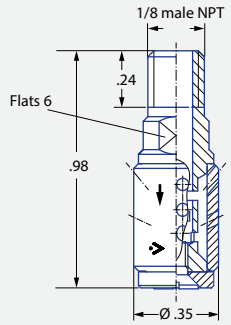
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
45 psi

Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



Overview of maximum tank diameter depending on pressure



Male thread

Spray angle	Ordering number		Narrowest free cross section Ø [in]	V̇ water [gal/min]							Max. tank diameter [ft]
	Type	Connection 1/8" Male NPT		p [psi] (p_{max} = 75 psi)							
				20	30	40	**45**	Liters per min. **3 bar**	60	75	
300°	**500.234.G9**	**BA**	0.07	1.75	2.15	2.48	**2.63**	**9.8**	3.04	3.40	3

The maximum tank diameter applies to the recommended operating pressure and is meant as a recommendation only.
The cleaning result is also affected by the type of soiling.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Also available with an M6 metric connection

Rotating cleaning nozzle MicroWhirly
Series 566

Features:

- Cleaning with effective flat jets
- Robust slide bearing made of PEEK
- Equipped with a thread, slip-on or weld-on connection
- Food grade compatibility

FDA

Series 566

Scan for Video

Technical data:

Maximum operating temperature
302 °F
194 °F (ATEX)

Maximum ambient temperature
392 °F
248 °F (ATEX)

Installation
Operation in every installation position

Bearing
Slide bearing made of PEEK

Material
Stainless steel 1.4404 (316L), PEEK ESD (only ATEX version)

Weight
.11–.44 lbs

Surface quality
Ra ≤ 1.6 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

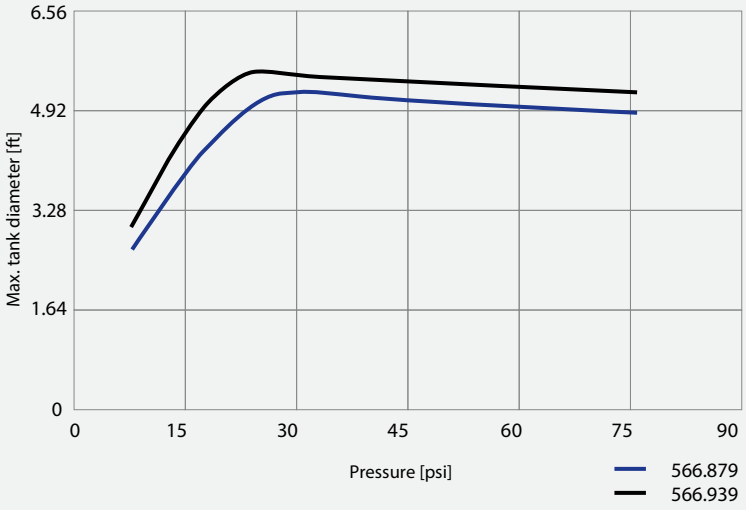
Steam suitability
Suitable

Insertion diameter
.78–1.89 in

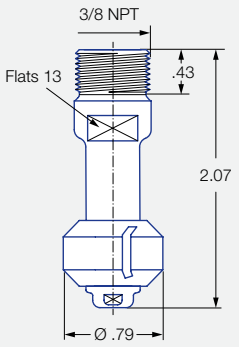
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
30 psi

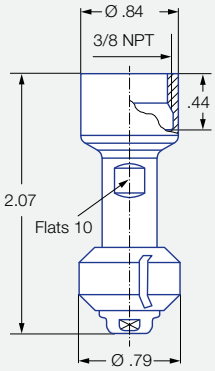
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



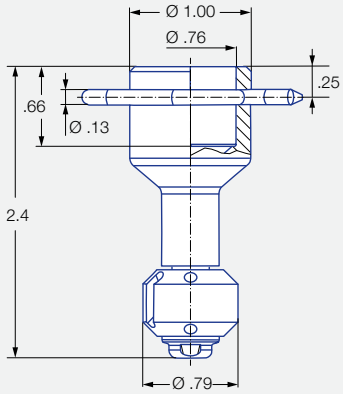
Overview of maximum tank diameter depending on pressure



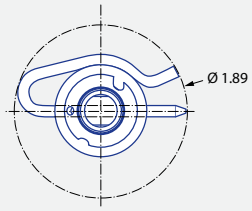
Male thread



Female thread



Dimensions of slip-on connection according to ASME-BPE (OD tube)



Insertion diameter of slip-on connection ASME-BPE (OD tube)

Spray angle	Ordering number: Type	Connection: 3/8" NPT Male	Connection: 3/8" NPT Female	Connection: 3/4"-Slip-on	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 90 psi): 20	30	Liters per min. 2 bar	40	60	80	Max. tank diameter [ft]
180°	**566.873.1Y**	**BE**	**BF**	**TF07**	0.04	3.29	**4.03**	**15**	4.65	5.70	6.58	5
	566.933.1Y	**BE**	**BF**	**TF07**	0.09	4.60	**5.64**	**21**	6.51	798	9.21	5.5
180°	**566.874.1Y**	**BE**	**BF**	**TF07**	0.04	3.29	**4.03**	**15**	4.65	5.70	6.58	5
	566.934.1Y	**BE**	**BF**	**TF07**	0.09	4.60	**5.64**	**21**	6.51	798	9.21	5.5
360°	**566.879.1Y**	**BE**	**BF**	**TF07**	0.04	3.29	**4.03**	**15**	4.65	5.70	6.58	5
	566.939.1Y	**BE**	**BF**	**TF07**	0.09	4.60	**5.64**	**21**	6.51	798	9.21	5.5

BSPP and weld-on version available upon request.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Information about slip-on connections

- Stainless steel 316L pin supplied.
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the rotating cleaning nozzle..

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Connection	=	Order no.
566.873.1Y	+	BE	=	566.873.1Y.BE

Ordering example with ATEX approval. No FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:

Ⓔx II 1G Ex h IIB T6…T3 Ga

Ⓔx II 1D Ex h IIIC T85 °C…T150 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for slip-on connection: 566.873.1Y.TF.EX

Type	+	Connection	+	ATEX	=	Order no.
566.873.1Y	+	BE	+	EX	=	566.873.1Y.BE.EX

Rotating cleaning nozzle MiniWhirly
Series 500.186

Features:

- Economical entry-level model
- Cleaning with effective flat fan jets
- Specially designed for barrel and canister cleaning

Series 500.186

Scan for Video

Technical data:

Maximum operating temperature
122 °F

Maximum ambient temperature
212 °F

Installation
Vertically downwards

Bearing
Ball bearing made of stainless steel 1.4401 (316)

Material
POM, stainless steel 1.4401 (316)

Weight
.09 lbs

Surface quality
Ra ≤ 1.6 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

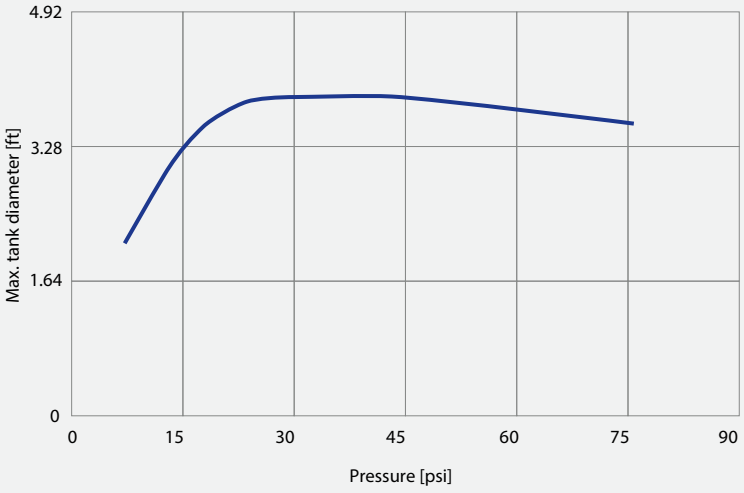
Steam suitability
Not suitable

Insertion diameter
1.14 in

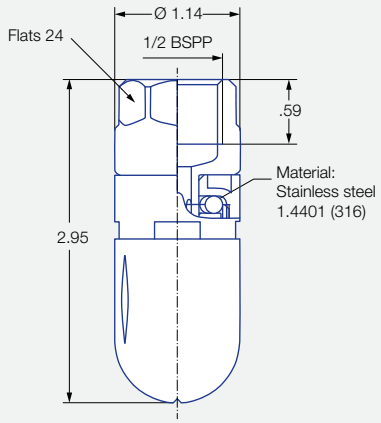
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
30 psi

Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



Overview of maximum tank diameter depending on pressure



Female thread

Spray angle	Ordering number Type 1/2" Female BSPP	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 75 psi) Liters per min.						Max. tank diameter [ft]
			20	**30**	**2 bar**	40	60	75	
300°	**500.186.56.AH**	0.07	3.95	**4.84**	**18**	5.58	6.84	7.64	4

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Also available with an 1/2" BSPP metric connection

Rotating cleaning nozzle PVDF MicroWhirly
Series 500.191

Features:

- Designed for work in a corrosive environment
- Suitable for contact with food and the application of foam
- Very good price-performance ratio
- Made entirely of PVDF

Series 500.191

Scan for Video

Technical data:

Maximum operating temperature
203 °F

Maximum ambient temperature
302 °F

Installation
Operation in every installation position

Bearing
Slide bearing made of PVDF

Material
PVDF

Weight
.03–.07 lbs

Surface quality
Ra ≤ 1.6 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

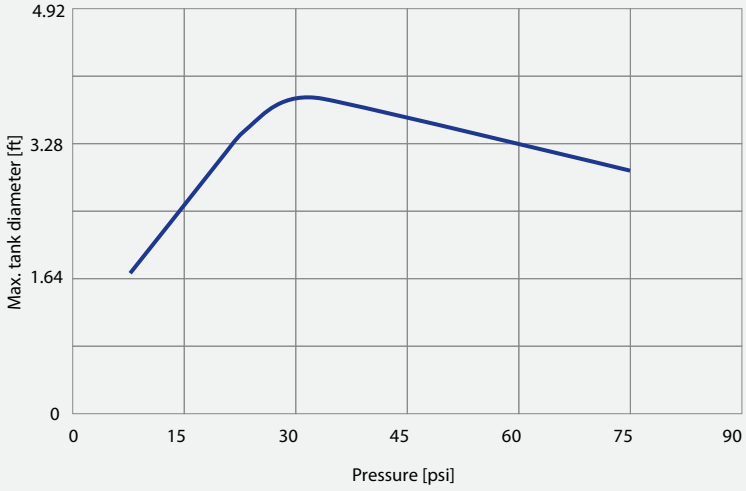
Steam suitability
Not suitable

Insertion diameter
1.18 in

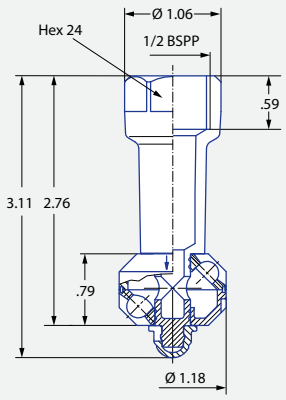
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
30 psi

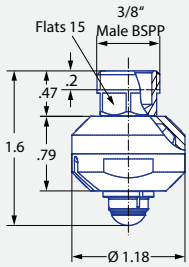
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



Overview of maximum tank diameter depending on pressure



Standard version
Female thread



Compact version
Male thread

Standard version with female thread

Spray angle	Ordering number Type 1/2" Female BSPP	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 75 psi) Liters per min.						Max. tank diameter [ft]
			20	**30**	**2 bar**	40	60	75	
180°	**500.191.5E.02**	0.09	2.85	**3.49**	**13**	4.03	4.94	5.52	2
180°	**500.191.5E.01**	0.09	2.85	**3.49**	**13**	4.03	4.94	5.52	2
270°	**500.191.5E.31**	0.09	4.38	**5.37**	**20**	6.20	7.60	8.49	3
360°	**500.191.5E.00**	0.09	4.38	**5.37**	**20**	6.20	7.60	8.49	3

Compact version with male thread

Spray angle	Order no. Type	Narrowest cross-section Ø [in]	V̇ water [gal/min] p [bar] (p_{max} = 75 psi) Liters per min.				Max. tank diameter [ft]
			15	**30**	**2 bar**	45	
180°	**500.191.5E.21**	0.09	2.47	**3.49**	**13**	4.28	2
360°	**500.191.5E.22**	0.09	3.80	**5.37**	**20**	6.58	3

Information on operation

The PVDF MicroWhirly is not suitable for operation with compressed air or another gas. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

Rotating cleaning nozzle NanoSpinner 2
Series 5M1

Features:

- Compact design for confined spaces
- Hygienic design
- Suitable for high temperatures
- Made entirely of stainless steel

FDA

Series 5M1

Scan for Video

Technical data:

Maximum operating temperature
392 °F
203 °F (ATEX)

Maximum ambient temperature
482 °F
392 °F (ATEX)

Installation
Operation in every installation position

Bearing
Double ball bearing made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Material
Stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Weight
.04 lbs

Surface quality
Ra ≤ 0.4 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

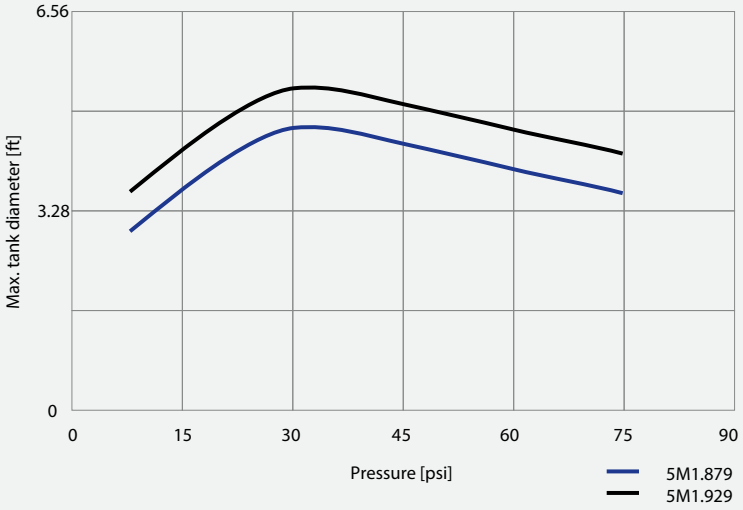
Steam suitability
Not suitable

Insertion diameter
.67-1.34 in

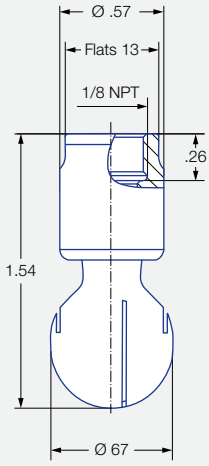
Recommended filter
Line strainer with a mesh size of 0.1 mm/170 mesh

Recommended operating pressure
30 psi

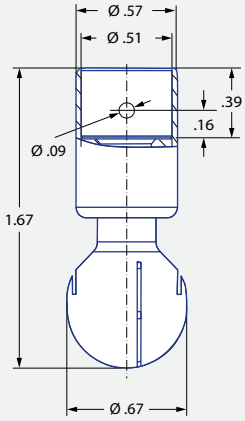
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



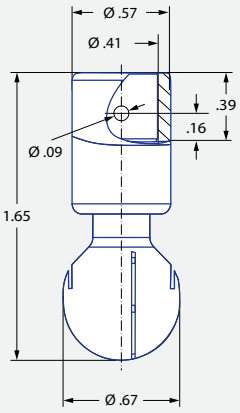
Overview of maximum tank diameter depending on pressure



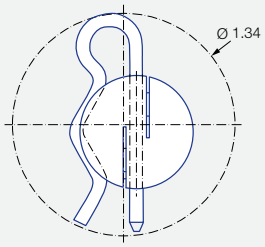
Female thread



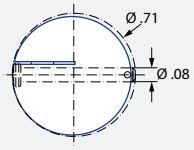
Dimensions of slip-on connection according to ASME-BPE (OD tube)



Dimensions of slip-on connection according to DIN 11866 series B



Insertion diameter of slip-on connection 1.4404 (316L)



Insertion diameter of slip-on connection 2.4602 (Alloy 22)

Spray angle	Ordering number: Type 1/8" Female NPT	Connection: 1/8 NPT	Connection: Ø .4 inches in accordance with DIN 11866 Series B	Connection: 1/2" slip-on connection	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 100 psi): 20	30	Liters per min. 2 bar	40	60	80	100	Max. tank diameter [ft]
360°	**5M1.879.1Y**	BB	TF04	TF05[1]	0.016	3.29	**4.03**	**15**	4.65	5.70	6.60	7.36	4
	5M1.929.1Y	BB	TF04	TF05[1]	0.020	4.40	**5.37**	**20**	6.20	7.60	8.77	9.81	5

[1] The connection variant TF05 is not available as an ATEX variant.

BSPP thread available on request.

The maximum tank diameter applies to the recommended operating pressure and is meant as a recommendation only.
The cleaning result is also affected by the type of soiling.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Information on slip-on connection

Cotter pin made of stainless steel 1.4404 (316L) included (Order no. 05M.130.1Y.00.00). For version made of 2.4602 (Alloy 22), bolt with head incl. cotter pin included (Order no. 05M.131.21.00.00).

- Depending on the adapter diameter, the flow rate may increase due to the leakage between the adapter and rotating cleaning nozzle..

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Material no.	+	Connection	=	Order no.
5M1.879	+	1Y	+	BB	=	5M1.879.1Y.BB

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
Ⓔx II 1G Ex h IIB T6…T2 Ga
Ⓔx II 1D Ex h IIIC T85 °C…T250 °C Da

Important
The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for slip-on connection: 5M1.879.1Y.T0.EX

Type	+	Material no.	+	Connection	+	ATEX	=	Order no.
5M1.879	+	1Y	+	BB	+	EX	=	5M1.879.1Y.BB.EX

Rotating cleaning nozzle MicroSpinner 2
Series 5M2

Features:
- Hygienic design
- Suitable for high temperatures
- Made entirely of stainless steel

FDA

Scan for Video

Series 5M2

Technical data:

Maximum operating temperature
392 °F
203 °F (ATEX)

Maximum ambient temperature
482 °F
392 °F (ATEX)

Installation
Operation in every installation position

Bearing
Double ball bearing made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Material
Stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Weight
Threaded 0.15 lbs
Slip-on 0.23 lbs

Surface quality
Ra ≤ 0.4 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

Steam suitability
Conditionally suitable

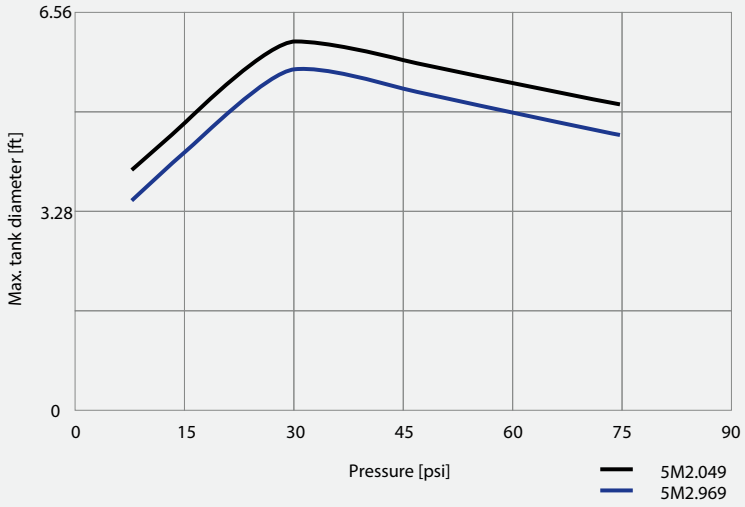
Insertion diameter
1.10–1.89 in

Recommended filter
Line strainer with a mesh size of 0.1 mm/170 mesh

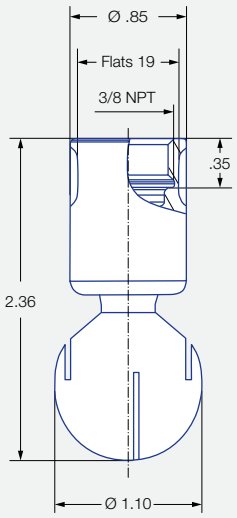
Recommended operating pressure
30 psi

Adapter
3/8 BSPP is compatible with HygienicFit

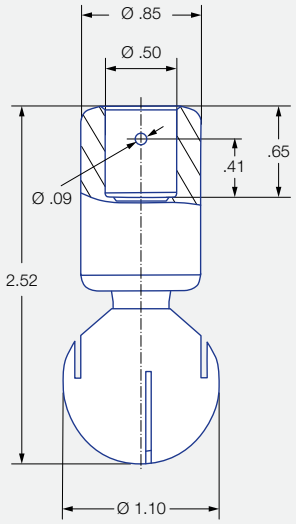
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



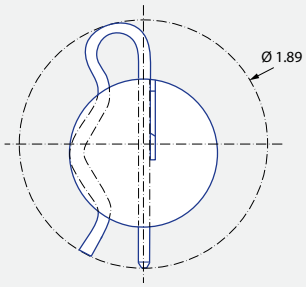
Overview of maximum tank diameter depending on pressure



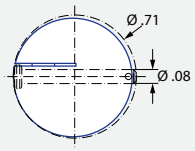
Female thread



Dimensions of slip-on connection according to ASME-BPE (OD tube)



Insertion diameter of slip-on connection Stainless steel 1.4404 (316L)



Insertion diameter of slip-on connection 2.4602 (Alloy 22)

Spray angle	Ordering number			Narrowest free cross section Ø [in]	V̇ water [gal/min]							Max. tank diameter [ft]
					p [psi] (p_{max} = 100 psi)							
	Type	Connection			20	30	Liters per min. 2 bar	40	60	80	100	
		3/8" Female NPT	1/2"-Slip-on									
60°	5M2.952.1Y	BF	TF05	0.06	5.04	**6.18**	**23**	7.13	8.74	10.10	11.28	–
	5M2.042.1Y	BF	TF05	0.12	8.77	**10.75**	**40**	12.41	15.19	17.55	19.62	–
180°	5M2.004.1Y	BF	TF05	0.04	7.02	**8.60**	**32**	9.93	12.16	14.04	15.70	6
360°	5M2.969.1Y	BF	TF05	0.03	5.50	**6.72**	**25**	7.75	9.50	10.97	12.26	5
	5M2.049.1Y	BF	TF05	0.04	8.55	**10.48**	**39**	12.10	14.82	17.11	19.13	6

BSPP thread, weld-on and further slip-on versions on request.

The max. tank diameter shown above applies for the recommended operating pressure and has to be seen as a recommendation.
The cleaning result is also affected by the type of soiling.

Operating with compressed air only for short-term usage. Operation above the recommended operating pressure has negative effects on the cleaning result and wear.

Information slip-on connection

- Pin made of stainless steal 316L included (ordering no. 05M.230.1Y.00.00.0).
- Depending on diameter of the adapter, the flow rate increase due to leakage between connecting pipe and rotating cleaning nozzle.
- Minimum insertion diameter (with mounted pin) is 1.91 in

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Material no.	+	Connection	=	Order no.
5M2.952	+	1Y	+	BF	=	5M2.952.1Y.BF

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:

Ex II 1G Ex h IIB T6…T2 Ga
Ex II 1D Ex h IIIC T85 °C...T250 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for slip-on connection: 5M2.952.1Y.T1.EX

Type	+	Material no.	+	Connection	+	ATEX	=	Order no.
5M2.952	+	1Y	+	BF	+	EX	=	5M2.952.1Y.BF.EX

Rotating cleaning nozzle MiniSpinner 2
Series 5M3

Features:
- Hygienic design
- Suitable for high temperatures
- Made entirely of stainless steel

FDA

Scan for Video

Series 5M3

Technical data:

Maximum operating temperature
392 °F
203 °F (ATEX)

Maximum ambient temperature
482 °F
392 °F (ATEX)

Installation
Operation in every installation position

Bearing
Double ball bearing made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Material
Stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Weight
Threaded 0.55 lbs
Slip-on 0.75 lbs

Surface quality
Ra ≤ 0.4 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

Steam suitability
Conditionally suitable

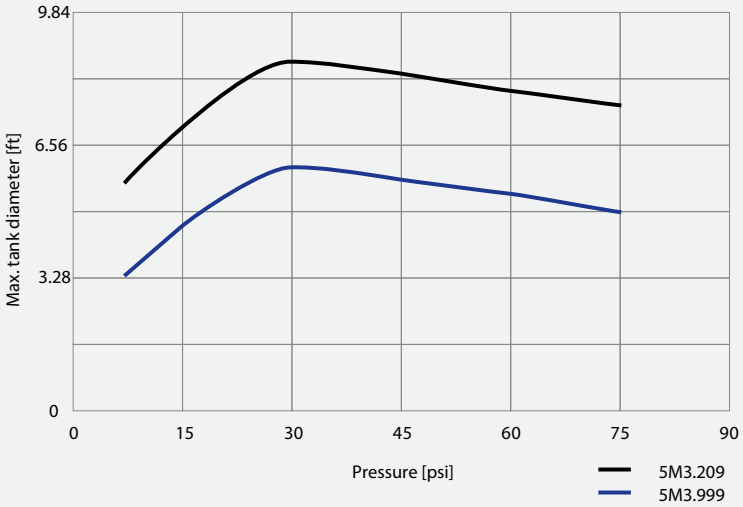
Insertion diameter
1.54–2.28 in

Recommended filter
Line strainer with a mesh size of 0.1 mm/170 mesh

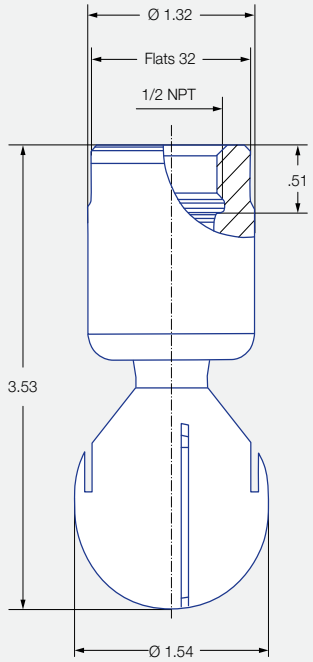
Recommended operating pressure
30 psi

Adapter
1/2 BSPP and 3/4 BSPP are compatible with HygienicFit

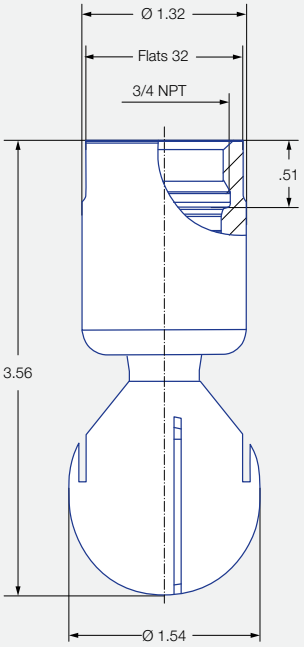
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



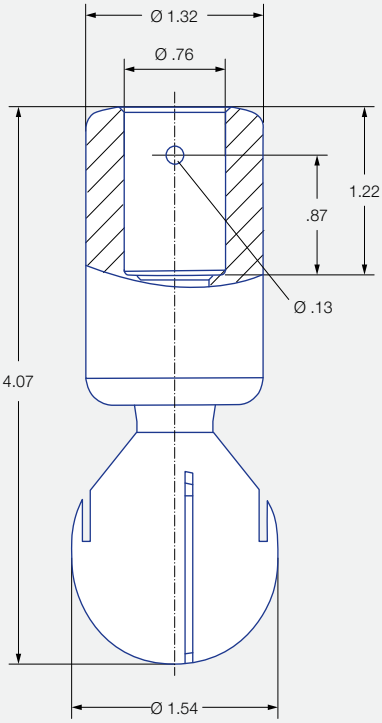
Overview of maximum tank diameter depending on pressure



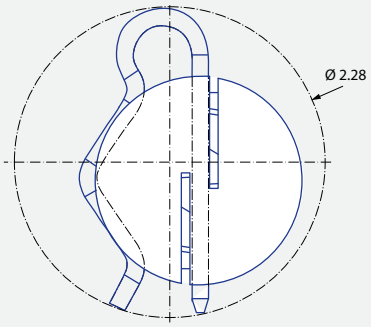
Female thread



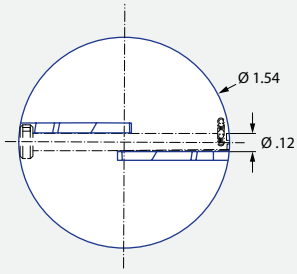
Female thread



Dimensions of slip-on connection according to ASME-BPE (OD tube)



Insertion diameter of slip-on connection stainless steel 1.4404 (316L)



Insertion diameter of slip-on connection 2.4602 (Alloy 22)

Spray angle	Ordering number				Narrowest free cross section Ø [in]	V̇ water [gal/min]							Max. tank diameter [ft]
	Type	Connection				p [psi] (p_{max} = 100 psi)							
		1/2" Female NPT	3/4" Female NPT	3/4"- Slip-on		20	**30**	Liters per min. **2 bar**	40	60	80	100	
60°	**5M3.122.1Y**	**BH**		**TF07**	0.102	13.82	**16.92**	**63**	19.54	23.93	27.64	30.90	–
180°	**5M3.133.1Y**		**BL**	**TF07**	0.047	14.70	**18.00**	**67**	20.78	24.45	29.40	32.86	8
180°	**5M3.134.1Y**		**BL**	**TF07**	0.051	14.70	**18.00**	**67**	20.78	24.45	29.40	32.86	8
360°	**5M3.999.1Y**		**BL**	**TF07**	0.016	6.58	**8.06**	**30**	9.30	11.40	13.16	14.71	5
	5M3.089.1Y		**BL**	**TF07**	0.028	10.75	**13.16**	**49**	15.20	18.62	21.50	24.03	6
	5M3.139.1Y		**BL**	**TF07**	0.031	15.13	**18.54**	**69**	21.40	26.21	30.27	33.84	7
	5M3.209.1Y		**BL**	**TF07**	0.059	21.93	**26.86**	**100**	31.02	37.99	43.87	49.05	8

BSPP thread, weld-on and further slip-on versions on request.

The max. tank diameter shown above applies for the recommended operating pressure and has to be seen as a recommendation.
The cleaning result is also affected by the type of soiling.

Operating with compressed air only for short-term usage. Operation above the recommended operating pressure has negative effects on the cleaning result and wear.

Information slip-on connection

- Pin made of stainless steal 316L included (Ordering no. 05M.330.1Y.00.00.0).
- Depending on diameter of the adapter, the flow rate increase due to leakage between connecting pipe and rotating cleaning nozzle.
- Minimum insertion diameter (with mounted pin) is 2.32 in.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Material no.	+	Connection	=	Order no.
5M3.122	+	1Y	+	BH	=	5M3.122.1Y.BH

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:

Ⓔx II 1G Ex h IIB T6…T2 Ga
Ⓔx II 1D Ex h IIIC T85 °C...T250 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for slip-on connection: 5M3.122.1Y.T2.EX

Type	+	Material no.	+	Connection	+	ATEX	=	Order no.
5M3.122	+	1Y	+	BH	+	EX	=	5M3.122.1Y.BH.EX

Rotating cleaning nozzle MaxiSpinner 2
Series 5M4

Features:
- Hygienic design
- Suitable for high temperatures
- Made entirely of stainless steel

Series 5M4

Scan for Video

Technical data:

Maximum operating temperature
392 °F
203 °F (ATEX)

Maximum ambient temperature
482 °F
392 °F (ATEX)

Installation
Operation in every installation position

Bearing
Double ball bearing made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Material
Stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)

Weight

1 1/4" threaded	2.43 lbs
1 1/2" threaded	3.75 lbs
1 1/2" slip-on	3.3 lbs
2" slip-on	2.87 lbs

Surface quality
Ra ≤ 0.4 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

Steam suitability
Conditionally suitable

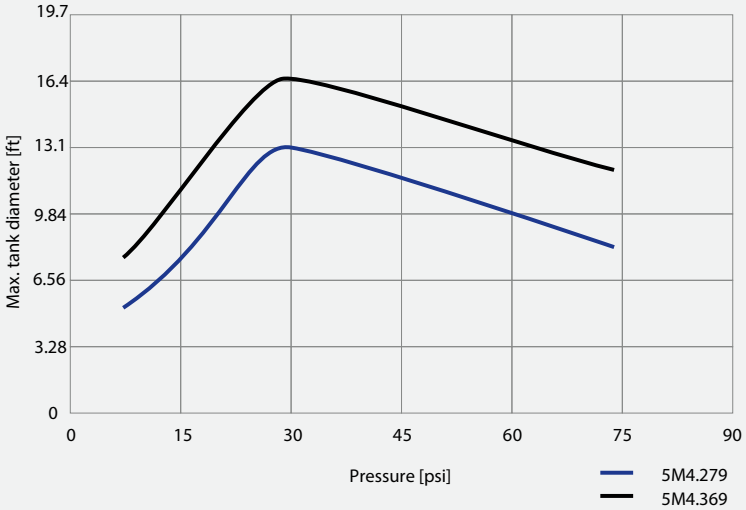
Insertion diameter
2.72 in

Recommended filter
Line strainer with a mesh size of 0.1 mm/170 mesh

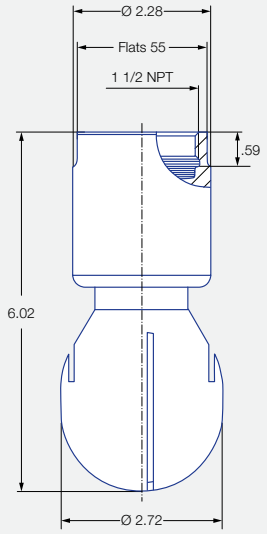
Recommended operating pressure
30 psi

Adapter
1 1/4 BSPP and
1 1/2 BSPP are compatible with HygienicFit

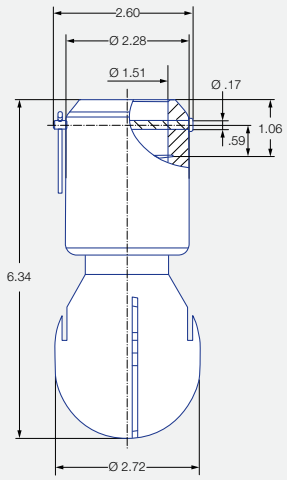
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



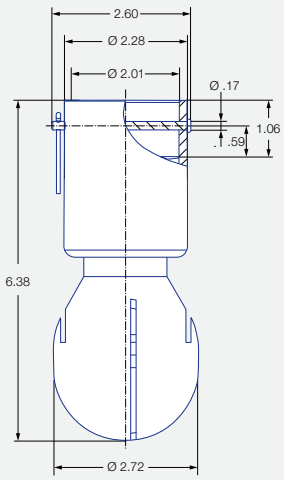
Overview of maximum tank diameter depending on pressure



Female thread



Dimensions of 1 1/2" slip-on connection according to ASME-BPE (OD tube)



Dimensions of 2" slip-on connection according to ASME-BPE (OD tube)

Spray angle	Ordering number: Type	Connection: 1 1/4" Female NPT	Connection: 1 1/2" Female NPT	Connection: 1 1/2" Slip-on	Connection: 2"- Slip-on	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 100 psi)*: 20	30	Liters per min. 2 bar	40	60	80	100	Max. tank diameter [ft]
360°	**5M4.279.1Y**	**BQ**	**BS**	**TF15**	**TF20**	0.07	32.90	**40.30**	**150**	46.53	56.99	65.80	49.05	13
	5M4.329.1Y	**BQ**	**BS**	**TF15**	**TF20**	0.08	43.87	**53.73**	**200**	62.04	75.98	87.74	98.10	15
	5M4.369.1Y	**BQ**	**BS**	**TF15**	**TF20**	0.09	54.84	**67.16**	**250**	77.55	94.98	109.68	122.62	16

BSPP thread and weld-on versions on request.
* Please note the maximum operating pressure of 58 psi for the 2" slip-on connection.

The max. tank diameter shown above applies for the recommended operating pressure and has to be seen as a recommendation.
The cleaning result is also affected by the type of soiling

Operating with compressed air only for short-term usage. Operation above the recommended operating pressure has negative effects on the cleaning result and wear.

Information slip-on connection

- Bolt with head incl. pin made of stainless steal 316L included (Ordering no. 05M.431.1Y.00.00.0).
- Depending on diameter of the adapter, the flow rate increase due to leakage between connecting pipe and rotating cleaning nozzle.
- Minimum insertion diameter (with mounted bolt) is the same as for the threaded variants 2.72 in

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Material no.	+	Connection	=	Order no.
5M4.253	+	1Y	+	BQ	=	5M4.253.1Y.BQ

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
Ex II 1G Ex h IIB T6…T2 Ga
Ex II 1D Ex h IIIC T85 °C…T250 °C Da

Important
The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for 1 1/2" slip-on connection: 5M4.253.1Y.T5.EX
Ordering example for 2" slip-on connection: 5M4.253.1Y.T6.EX

Type	+	Material no.	+	Connection	+	ATEX	=	Order no.
5M4.253	+	1Y	+	AQ	+	EX	=	5M4.253.1Y.AQ.EX

Rotating cleaning nozzle PTFE Whirly
Series 573/583

Features:

- Made entirely of PTFE
- Slip-on connection conforms to 3-A
- Suitable for corrosive environments
- Suitable for very hygienic requirements (e.g. contact with food)

FDA

Scan for Video

Series 573/583

Technical data:

Maximum operating temperature
203 °F

Maximum ambient temperature
392 °F

Installation
Operation in every installation position

Bearing
Slide bearing made of PTFE

Material
PTFE

Weight

3/4" slip-on	0.4 lbs
1" slip-on	1.98 lbs
3/4" slip-on	0.4 lbs
1" slip-on	1.98 lbs

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

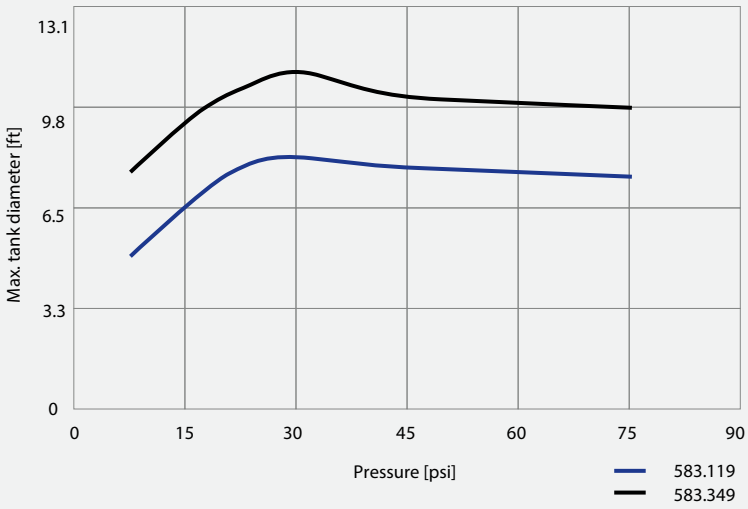
Steam suitability
Not suitable

Insertion diameter
1.93–3.09 in

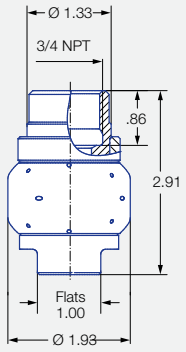
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
30 psi

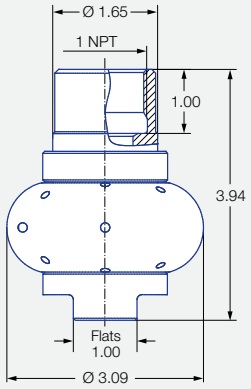
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



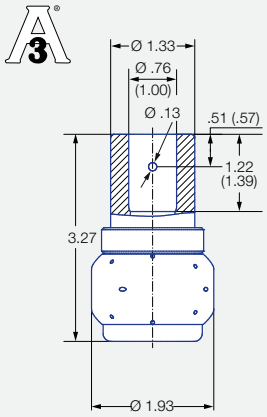
Overview of maximum tank diameter depending on pressure



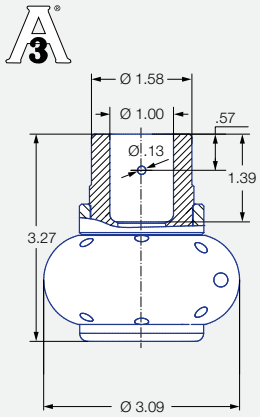
Female thread
3/4 NPT



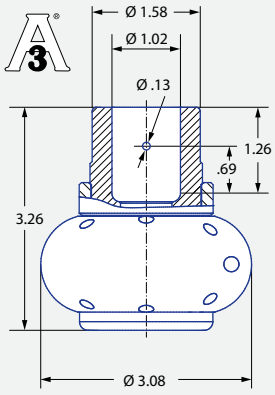
Female thread
1 NPT



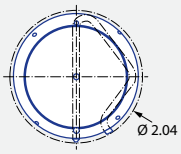
3/4" slip-on connection
(3-A-compliant)
Dimensions of slip-on connection
according to ASME-BPE (OD tube)



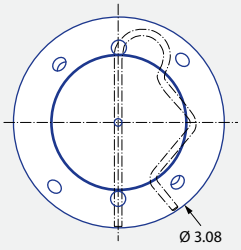
1" slip-on connection pin 1
(3-A-compliant)
Dimensions of slip-on connection
according to ASME-BPE (OD tube)



1" slip-on connection pin 2
(3-A-compliant)
Dimensions of slip-on connection
according to ASME-BPE (OD tube)



Insertion diameter of
slip-on connection according
to ASME-BPE (OD tube)



Insertion diameter of
slip-on connection according
to ASME-BPE (OD tube)

Spray angle	Ordering number					Narrowest free cross section Ø [in]	V̇ water [gal/min]						Pin	Max. tank diameter [ft]
	Type	Connection					p [psi] (p_{max} = 85 psi)							
		3/4" NPT	1" NPT	3/4" Slip-on	1" Slip-on		20	**30**	Liters per min. **2 bar**	40	60	80		
180°	**583.114.55**	**BL**		**TF07***		.083	14.69	**18.00**	**67**	20.78	25.45	29.39	1	8
	583.264.55	**BL**		**TF07***		.129	31.80	**38.95**	**145**	44.98	55.09	63.61	1	9
	583.344.55		**BN**			.279	49.35	**60.45**	**225**	69.79	85.48	98.71	2	10
180°	**573.114.55**	**BL**		**TF07***		.083	14.69	**18.00**	**67**	20.78	25.45	29.39	1	8
	573.264.55	**BL**		**TF07***		.129	31.80	**38.95**	**145**	44.98	55.09	63.61	1	9
	573.344.55		**BN**			.232	49.35	**60.45**	**225**	69.79	85.48	98.71	2	10
270° 	**583.116.55**	**BL**		**TF07***		0.09	14.69	**18.00**	**67**	20.78	25.45	29.39	1	8
	583.266.55	**BL**		**TF07***		.133	31.80	**38.95**	**145**	44.98	55.09	63.61	1	9
	583.346.55		**BN**		**TF10***	.232	49.35	**60.45**	**225**	69.79	85.48	98.71	2	10
270° 	**573.116.55**	**BL**		**TF07***		0.09	14.69	**18.00**	**67**	20.78	25.45	29.39	1	8
	573.226.55	**BL**		**TF07***		.133	31.80	**38.95**	**145**	44.98	55.09	63.61	1	9
	573.346.55		**BN**		**TF10***	.232	49.35	**60.45**	**225**	69.79	85.48	98.71	2	10
360° 	**583.119.55**	**BL**		**TF07***	**TF10[1]***	0.07	12.72	**15.58**	**58**	17.99	22.03	25.44	1	8
	583.209.55	**BL**		**TF07***	**TF10[1]***	0.14	21.93	**26.86**	**100**	31.02	37.99	13.87	1	8
	583.269.55	**BL**		**TF07***		0.19	31.80	**38.95**	**145**	44.98	55.09	63.61	1	9
	583.279.55		**BN**		**TF10***	0.15	32.90	**40.30**	**150**	46.53	56.99	65.80	2	10
	583.349.55		**BN**		**TF10***	0.22	49.35	**60.45**	**225**	69.80	85.48	98.71	2	10

BSPP thread available on request.

* Complies with and is authorized to use with 3-A®

The maximum tank diameter applies to the recommended operating pressure and is meant as a recommendation only.
The cleaning result is also affected by the type of soiling.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Information about slip-on connections

- Pin made of stainless steel 316L supplied (Ordering no. Pin 1: 095.013.17.06.60, Pin 2: 095.013.17.06.61).
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the rotating cleaning nozzle.

Ordering example:	Type	+	Connection	=	Order no.
	583.116.55	+	BL	=	583.116.55.BL

CLEANING EFFICIENCY CLASS 3
LIGHT TO MEDIUM SOILING

Type	Rotating cleaner, free-spinning
Cleaning effect	
Drive	By the medium
Typical soiling	More viscous substances such as chocolate sauce
Nozzle design	Special flat fan geometry with direct impact on the entire tank surface


Whirly2

Rotating cleaning nozzle HygienicWhirly
Series 594/595

Features:

- Cleaning with highly effective flat jets
- Good cleaning effect even at low pressure
- Suitable for the application of foam

FDA

Scan for Video

Series 594/595

Technical data:

Maximum operating temperature
302 °F

Maximum ambient temperature
302 °F

Installation
Operation in every installation position

Bearing
Slide bearing made of PEEK

Material
Stainless steel 1.4404 (316L), PEEK, version with slip-on connection: O-ring made of EPDM

Weight
3/8" 0.21 lbs
3/4" 0.64 lbs

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

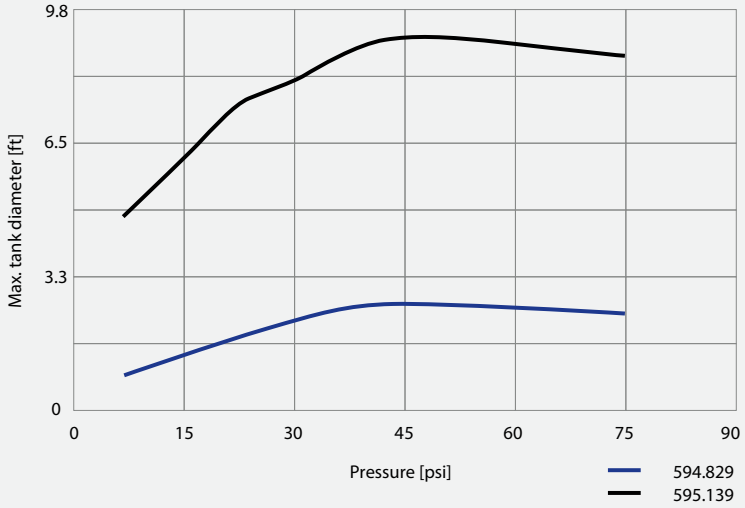
Steam suitability
Suitable

Insertion diameter
1.24–1.89 in

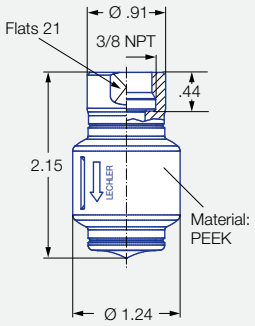
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
45 psi

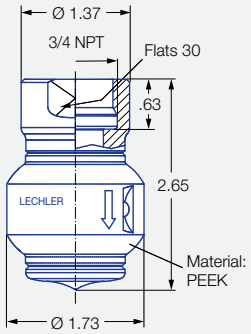
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



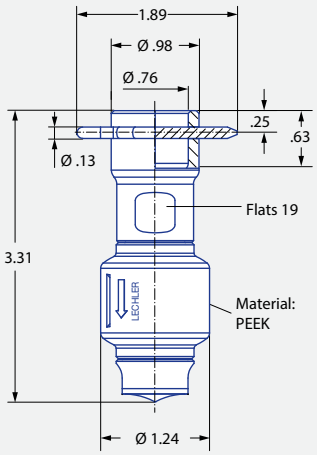
Overview of maximum tank diameter depending on pressure



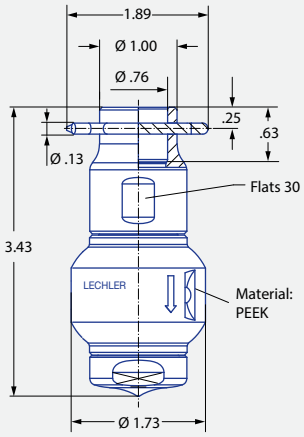
Standard version
Female thread
59x.xx9.1Y.AF



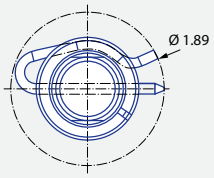
Standard version
Female thread
595.139.1Y.AL



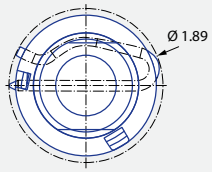
Dimensions of slip-on
connection according
to ASME-BPE (OD tube)
59x.xx9.1Y.67



Dimensions of slip-on
connection according to
ASME-BPE (OD tube)
595.139.1Y.67



Insertion diameter
of slip-on connection
59x.xx9.1Y.67



Insertion diameter
of slip-on connection
595.139.1Y.67

Spray angle	Ordering number				Narrowest free cross section Ø [in]	V̇ water [gal/min]								Max. tank diameter [ft]
	Type	Connection				p [psi] (p_{max} = 75 psi)								
		3/8" Female BSPP	3/4" Female BSPP	3/4" slip-on		10	20	30	40	45	Liters per min. 3 bar	60	75	
360°	**594.829.1Y**	**AF**		**67**	0.07	1.77	2.50	3.07	3.54	**3.76**	**14**	4.34	4.85	2
	594.879.1Y	**AF**		**67**	0.10	2.28	3.22	3.95	4.56	**4.84**	**18**	5.58	6.24	4
	595.009.1Y	**AF**		**67**	0.16	4.94	6.98	8.55	9.88	**10.48**	**39**	12.10	13.52	5
	595.049.1Y	**AF**		**67**	0.17	6.20	8.77	10.75	12.41	**13.16**	**49**	15.20	16.99	6
	595.139.1Y		**AL**	**67**	2.00	10.38	14.68	17.98	20.77	**22.03**	**82**	25.44	28.44	9

NPT thread available on request.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Information about slip-on connections

- Pin made of stainless steel 316L supplied (Ordering no.: 095.022.1Y.50.94.E).
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the rotating cleaning nozzle.

Ordering example:	Type	+	Connection	=	Order no.
	594.829.1Y	+	AF	=	594.829.1Y.AF

Rotating cleaning nozzle Whirly 2
Series 5W9

Features:

- Popular hygienic design
- Cleaning with effective flat fan jets
- Flexible connection options
- Available with many different flow rates and spray angles

FDA

Scan for Video

Series 5W9

Technical data:

Maximum operating temperature
302 °F
203 °F (ATEX)

Maximum ambient temperature
392 °F
284 °F (ATEX)

Installation
Operation in every installation position

Bearing
Double ball bearing made of stainless steel

Material
Stainless steel 1.4404 (316L), PEEK

Weight

3/4" threaded	0.66 lbs
3/4" slip-on	0.88 lbs
1" slip-on	1.10 lbs
1 1/2" slip-on	2.05 lbs

Surface quality
Ra ≤ 0.4 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

Steam suitability
Not suitable

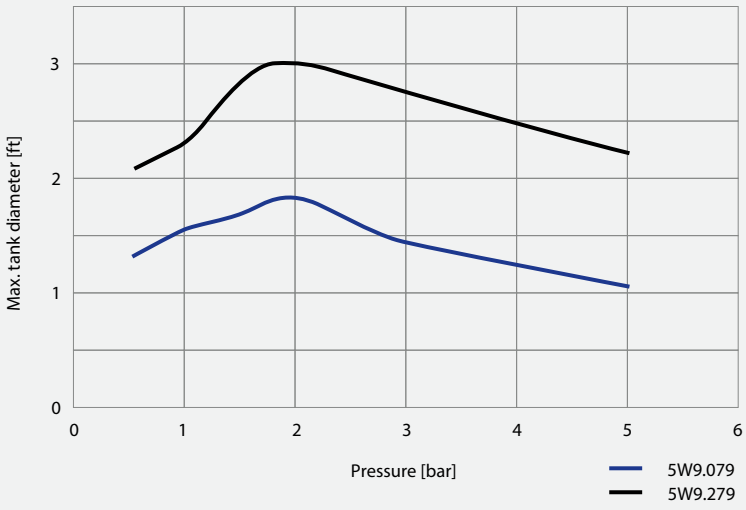
Insertion diameter
2.74 in.

Recommended filter
Line strainer with a mesh size of 0.1 mm/170 mesh

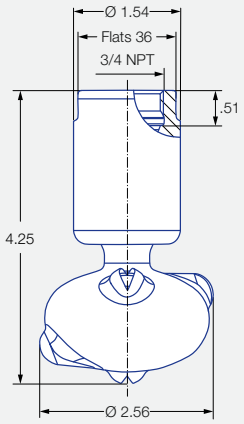
Recommended operating pressure
30 psi

Adapter
3/4 BSPP is compatible with HygienicFit

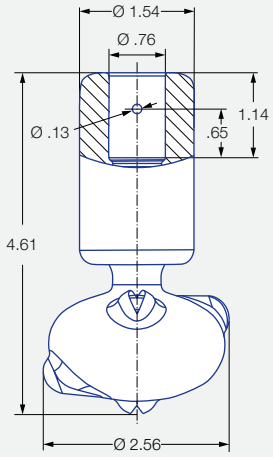
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



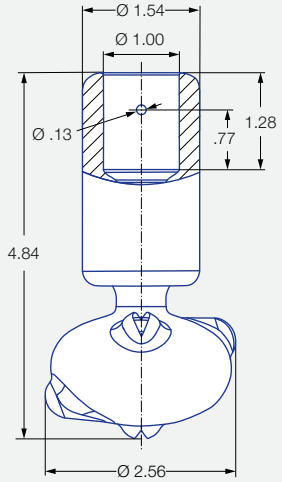
Overview of maximum tank diameter depending on pressure



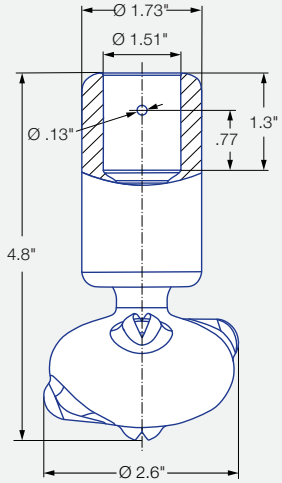
Female thread



Dimensions slip-on connection according to ASME-BPE (OD-tube)

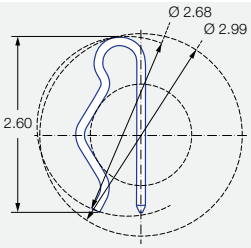


Dimensions slip-on connection according to ASME-BPE (OD-tube)



Dimensions slip-on connection according to ASME-BPE (OD-tube)

Dimensions slip-on connection top view



Spray angle	Ordering number: Type	Connection: 3/4" Female NPT	3/4" Slip-on	1" Slip-on	1.5" Slip-on	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 87 psi): 20	30	Liters per min. 2 bar	40	60	80	Max. tank diameter [ft]
270°	5W9.075.1Y	BL	TF07	TF10	TF15	0.08	10.53	**12.90**	**48**	14.89	18.23	21.06	6
	5W9.145.1Y	BL	TF07	TF10	TF15	0.11	15.57	**19.07**	**71**	22.02	26.97	31.15	7
	5W9.195.1Y	BL	TF07	TF10	TF15	0.13	21.27	**26.06**	**97**	30.09	36.85	42.55	8
270°	5W9.076.1Y	BL	TF07	TF10	TF15	0.08	10.53	**12.90**	**48**	14.89	18.23	21.06	6
	5W9.106.1Y	BL	TF07	TF10	TF15	0.10	12.72	**15.58**	**58**	17.99	22.03	25.44	7
	5W9.196.1Y	BL	TF07	TF10	TF15	0.13	21.27	**26.06**	**97**	30.09	36.85	42.55	8
360°	5W9.079.1Y	BL	TF07	TF10	TF15	0.06	10.53	**12.90**	**48**	14.89	18.23	21.06	6
	5W9.149.1Y	BL	TF07	TF10	TF15	0.09	15.57	**19.07**	**71**	22.02	26.97	31.15	7
	5W9.199.1Y	BL	TF07	TF10	TF15	0.12	21.27	**26.06**	**97**	30.09	36.85	42.55	8
	5W9.279.1Y	BL	TF07	TF10	TF15	0.14	31.80	**38.95**	**145**	44.98	55.09	63.61	10

BSPP thread available on request.
Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Information about slip-on connections

- Pin made of stainless steel 316L supplied (Ordering no.: 095.013.1Y.06.72.0).
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the rotating cleaning nozzle.
- Minimum insertion diameter (with mounted pin) is 2.68 in.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Connection	=	Order no.
5W9.075.1Y	+	BL	=	5W9.075.1Y.BL

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
Ⓔx II 1G Ex h IIB T6…T3 Ga
Ⓔx II 1D Ex h IIIC T85 °C…T170 °C Da

Important
The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for 3/4" slip-on connection: 5W9.075.1Y.T2.EX
Ordering example for 1" slip-on connection: 5W9.075.1Y.T3.EX

Type	+	Connection	+	ATEX	=	Order no.
5W9.075.1Y	+	BL	+	EX	=	5W9.075.1Y.BL.EX

Rotating cleaning nozzle Gyro
Series 577

Features:

- Cleaning with powerful nozzle inserts
- Suitable for very large tanks
- Available with a wide range of flow rates
- Non clogging and large free cross sections

Series 577

Scan for Video

Technical data:

Maximum operating temperature
203 °F

Maximum ambient temperature
392 °F

Installation
Vertically downwards

Bearing
Slide bearing made of PTFE

Material
Stainless steel 1.4404 (316L), PTFE

Weight
1" 1.62 lbs
2" 4.19 lbs

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 4.0 µm
INSIDE

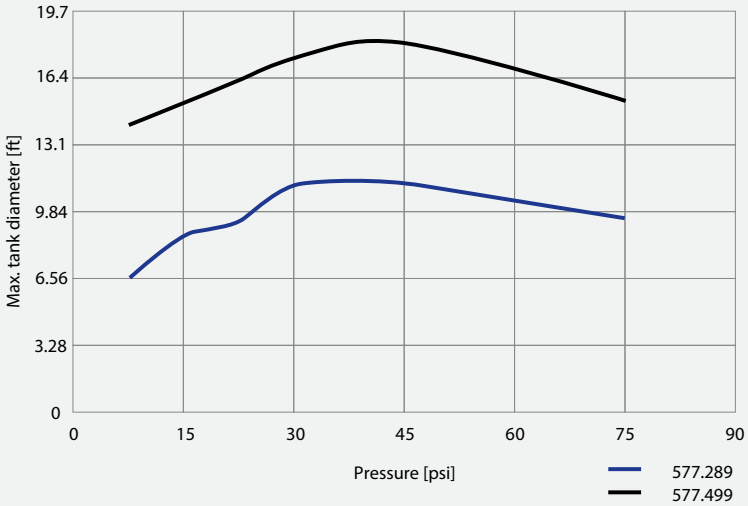
Steam suitability
Conditionally suitable

Insertion diameter
4.65–6.14 in

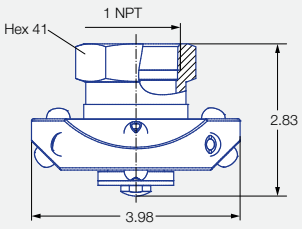
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
45 psi

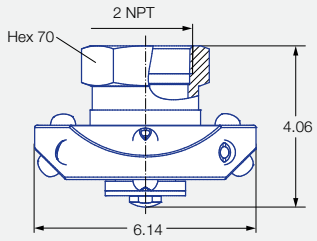
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



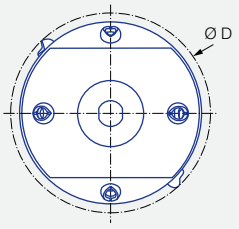
Overview of maximum tank diameter depending on pressure



Female thread



Female thread



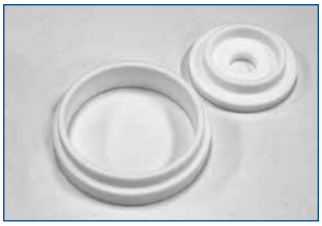
Insertion diameter

Spray angle	Ordering number: Type	Connection: 1" Female NPT	Connection: 2" Female NPT	V̇ water [gal/min] p [psi] (p_{max} = 75 psi): 20	30	40	Liters per min. 45	3 bar	60	75	Max. tank diameter [ft]
360°	**577.289.1Y**	**BN**		35.82	43.87	**50.66**	**53.73**	**200**	62.04	69.36	11
	577.369.1Y	**BN**		56.59	69.31	**80.04**	**84.89**	**316**	98.03	109.60	13
	577.409.1Y		**BW**	70.56	86.42	**99.79**	**105.85**	**394**	122.22	136.65	14
	577.439.1Y		**BW**	84.71	103.75	**119.80**	**127.07**	**473**	146.73	164.05	15
	577.499.1Y		**BW**	118.03	144.55	**44.84**	**177.04**	**659**	204.43	61.40	18

BSPP thread available on request.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Contents of Gyro rebuild kit



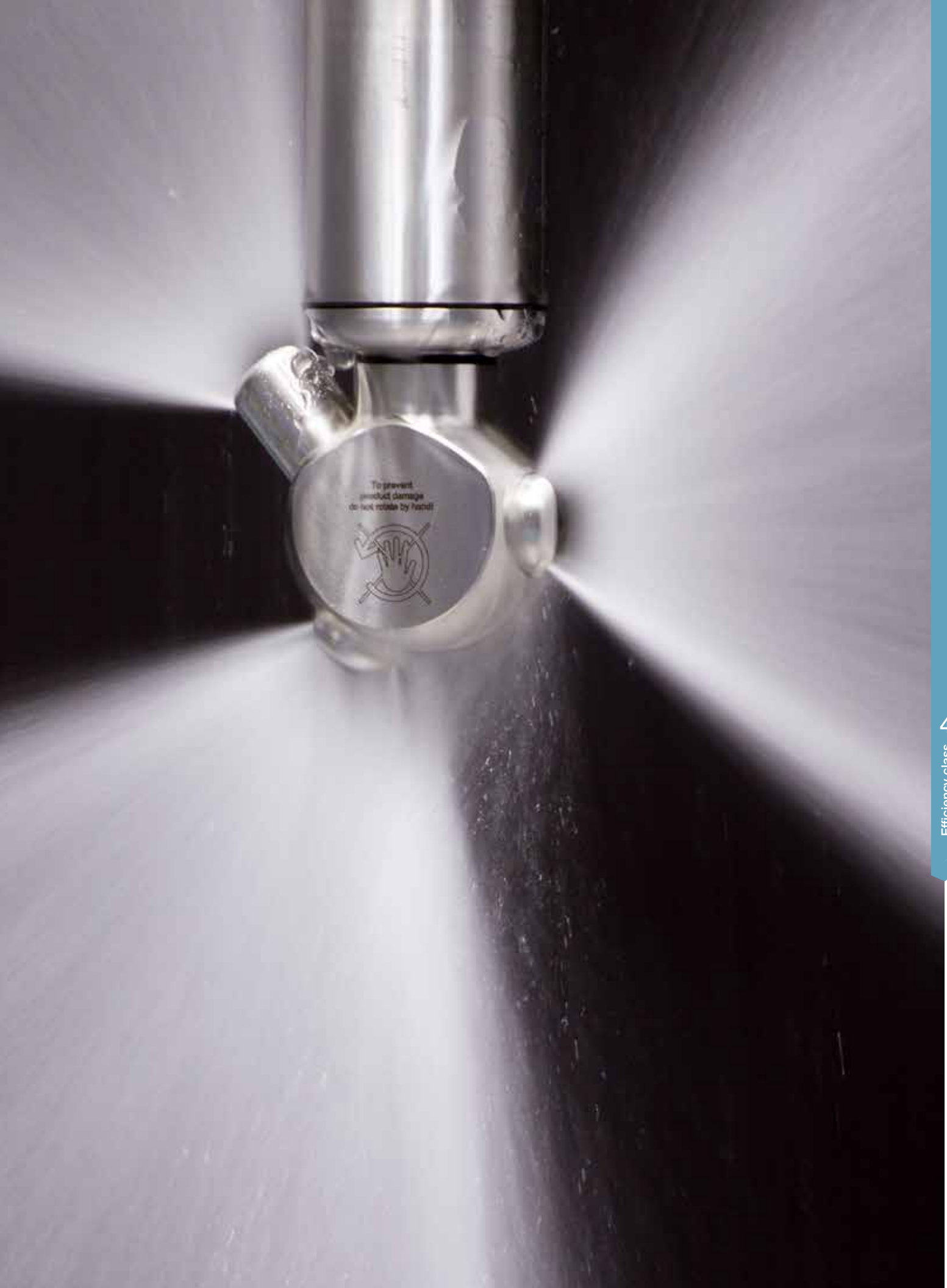
The PTFE bearings can be replaced easily to extend the life of the unit. A rebuild kit contains: Bearing sleeves and complete instructions.

Size	Product code
1"	057.701.55.01
2"	057.702.55.01

Ordering example:	Type	+	Connection	=	Order no.
	577.283.1Y	+	BN	=	577.283.1Y.BN

CLEANING EFFICIENCY CLASS 4
MEDIUM TO HEAVY SOILING

Type	Rotating cleaner, controlled rotation
Cleaning effect	
Drive	By the medium, drive unit with turbine and gear unit
Typical soiling	Medium soiling such as high-viscosity creams
Nozzle design	Special flat fan nozzle inserts with direct impact on the entire tank surface


To prevent
product damage
do not rotate by hand!

Rotating cleaning nozzle XactClean HP 2
Series 5S6/5S7

Features:

- Flat fan nozzle with high impact
- Uniform cleaning
- High efficiency due to controlled rotation
- Suitable for use with steam

FDA

Scan for Video

Series 5S6/5S7

Technical data:

Maximum operating temperature
302 °F

Maximum ambient temperature
302 °F

Installation
Operation in every installation position

Bearing
Double ball bearing

Material
Stainless steel 1.4404 (316L), PEEK, EPDM

Weight
1.43 lbs - 1.98 lbs

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

Steam suitability
Suitable

Insertion diameter
3.19–5.51 in

Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

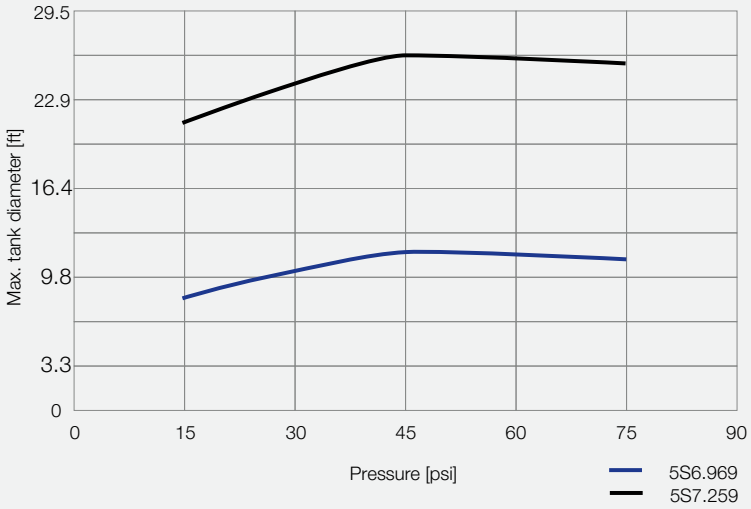
Recommended operating pressure
45 psi

Rotation monitoring
Sensor-compatible, information:
see pages 96–97

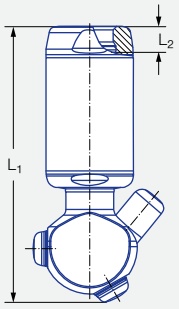
Maintainable

Adapter
3/8 BSPP, 1/2 BSPP, 3/4 BSPP and 1 BSPP are compatible with HygienicFit

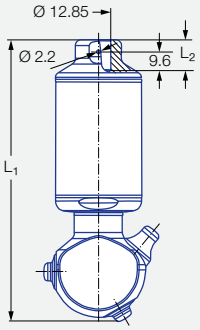
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



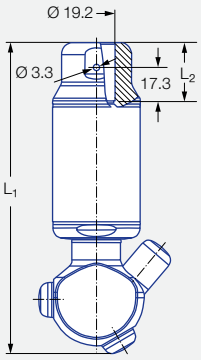
Overview of maximum tank diameter depending on pressure



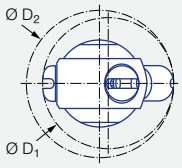
Female thread



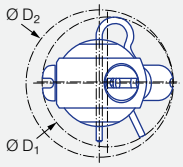
Dimensions of 1/2" slip-on connection according to ASME-BPE (OD tube)



Dimensions of 3/4" slip-on connection according to ASME-BPE (OD tube)



Insertion diameter D_1 and interference circle diameter D_2 of the threaded connection



Insertion diameter D_1 and interference circle diameter D_2 of the slip-on connection

Connection		Dimensions [in]			
		L_1	L_2	Insertion diameter D_1	Interference circle diameter D_2
BF	3/8 NPT	5.55	0.35	1.97–2.60	1.97–2.64
BH	1/2 NPT	5.63	0.51	1.97–2.91	1.97–2.99
BL	3/4 NPT	5.63	0.52	1.97–3.11	1.97–3.19
BN	1 NPT	5.51	0.65	2.01–3.11	2.09–3.15
TF05	1/2" slip-on connection	5.91	0.63	2.05–2.60	1.97–2.64
TF07	3/4" slip-on connection	6.30	1.18	2.60–3.11	1.97–3.19

Spray angle	Order number							Narrowest cross-section Ø [in]	V̇ water [gal/min]									Max. tank diameter [ft]
	Type	Connection							p [psi] (p_{max} = 217.5 psi)									
		3/8" Female NPT	1/2" Female NPT	3/4" Female NPT	1" Female NPT	1/2" slip-on	3/4" slip-on		20	30	40	**45**	Liters per min. **3 bar**	60	80	100	200	
180°	**5S6.963.1Y**	**BF**	**BH**			**TF05**		0.07	5.55	6.80	7.85	**8.33**	**31**	9.61	11.10	12.41	17.55	11
	5S7.043.1Y		**BH**				**TF07**	0.08	8.95	10.97	12.66	**13.43**	**50**	15.11	17.91	20.02	28.32	13
	5S7.113.1Y		**BH**	**BL**			**TF07**	0.08	13.07	16.01	18.49	**19.61**	**73**	22.64	26.15	29.23	41.34	19
	5S7.183.1Y			**BL**			**TF07**	0.08	19.52	23.91	27.61	**29.28**	**109**	33.81	39.04	43.65	61.73	23
	5S7.223.1Y			**BL**			**TF07**	0.08	24.36	29.83	34.44	**36.54**	**136**	42.19	48.71	54.46	77.02	24
	5S7.253.1Y			**BL**	**BN**		**TF07**	0.08	29.55	36.19	41.79	**44.33**	**165**	51.18	59.10	66.08	93.45	26
180°	**5S6.964.1Y**	**BF**	**BH**			**TF05**		0.07	5.55	6.80	7.85	**8.33**	**31**	9.61	11.10	12.41	17.55	11
	5S7.044.1Y		**BH**				**TF07**	0.08	8.95	10.97	12.66	**13.43**	**50**	15.11	17.91	20.02	28.32	13
	5S7.114.1Y		**BH**	**BL**			**TF07**	0.08	13.07	16.01	18.49	**19.61**	**73**	22.64	26.15	29.23	41.34	19
	5S7.184.1Y			**BL**			**TF07**	0.08	19.52	23.91	27.61	**29.28**	**109**	33.81	39.04	43.65	61.73	23
	5S7.224.1Y			**BL**			**TF07**	0.08	24.36	29.83	34.44	**36.54**	**136**	42.19	48.71	54.46	77.02	24
	5S7.254.1Y			**BL**	**BN**		**TF07**	0.08	29.55	36.19	41.79	**44.33**	**165**	51.18	59.10	66.08	93.45	26
270°	**5S6.965.1Y**	**BF**	**BH**			**TF05**		0.07	5.55	6.80	7.85	**8.33**	**31**	9.61	11.10	12.41	17.55	11
	5S7.045.1Y		**BH**				**TF07**	0.08	8.95	10.97	12.66	**13.43**	**50**	15.11	17.91	20.02	28.32	13
	5S7.115.1Y		**BH**	**BL**			**TF07**	0.08	13.07	16.01	18.49	**19.61**	**73**	22.64	26.15	29.23	41.34	19
	5S7.185.1Y			**BL**			**TF07**	0.08	19.52	23.91	27.61	**29.28**	**109**	33.81	39.04	43.65	61.73	23
	5S7.225.1Y			**BL**			**TF07**	0.08	24.36	29.83	34.44	**36.54**	**136**	42.19	48.71	54.46	77.02	24
	5S7.255.1Y			**BL**	**BN**		**TF07**	0.08	29.55	36.19	41.79	**44.33**	**165**	51.18	59.10	66.08	93.45	26

Spray angle	Order number							Narrowest cross-section Ø [in]	V̇ water [gal/min]									Max. tank diameter [ft]
	Type	Connection							p [psi] (p_{max} = 217.5 psi)									
		3/8" Female NPT	1/2" Female NPT	3/4" Female NPT	1" Female NPT	1/2" slip-on	3/4" slip-on		20	30	40	**45**	Liters per min. **3 bar**	60	80	100	200	
270°	**5S6.966.1Y**	**BF**	**BH**			**TF05**		0.07	5.55	6.80	7.85	**8.33**	**31**	9.61	11.10	12.41	17.55	11
	5S7.046.1Y		**BH**				**TF07**	0.08	8.95	10.97	12.66	**13.43**	**50**	15.11	17.91	20.02	28.32	13
	5S7.116.1Y		**BH**	**BL**			**TF07**	0.08	13.07	16.01	18.49	**19.61**	**73**	22.64	26.15	29.23	41.34	19
	5S7.186.1Y			**BL**			**TF07**	0.08	19.52	23.91	27.61	**29.28**	**109**	33.81	39.04	43.65	61.73	23
	5S7.226.1Y			**BL**			**TF07**	0.08	24.36	29.83	34.44	**36.54**	**136**	42.19	48.71	54.46	77.02	24
	5S7.256.1Y			**BL**	**BN**		**TF07**	0.08	29.55	36.19	41.79	**44.33**	**165**	51.18	59.10	66.08	93.45	26
360°	**5S6.969.1Y**	**BF**	**BH**			**TF05**		0.06	5.55	6.80	7.85	**8.33**	**31**	9.61	11.10	12.41	17.55	11
	5S7.049.1Y		**BH**				**TF07**	0.08	8.95	10.97	12.66	**13.43**	**50**	15.11	17.91	20.02	28.32	13
	5S7.119.1Y		**BH**	**BL**			**TF07**	0.08	13.07	16.01	18.49	**19.61**	**73**	22.64	26.15	29.23	41.34	19
	5S7.189.1Y			**BL**			**TF07**	0.08	19.52	23.91	27.61	**29.28**	**109**	33.81	39.04	43.65	61.73	23
	5S7.229.1Y			**BL**			**TF07**	0.08	24.36	29.83	34.44	**36.54**	**136**	42.19	48.71	54.46	77.02	24
	5S7.259.1Y			**BL**	**BN**		**TF07**	0.08	29.55	36.19	41.79	**44.33**	**165**	51.18	59.10	66.08	93.45	26

BSPP thread available on request.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Information about slip-on connections

- Pin made of stainless steel 316L supplied (Ordering no.: 095.013.1Y.06.45).
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the rotating cleaning nozzle.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Connection	=	Order no.
5S6.965.1Y	+	BF	=	5S6.965.1Y.BF

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
Ⓔx II 1G Ex h IIB T6…T3 Ga
Ⓔx II 1D Ex h IIIC T85 °C...T190 °C Da

Important
The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for 1/2" slip-on connection: 5S6.963.1Y.T1.EX
Ordering example for 3/4" slip-on connection: 5S7.043.1Y.T2.EX

Type	+	Connection	+	ATEX	=	Order no.
5S6.965.1Y	+	BF	+	EX	=	5S6.965.1Y.BF.EX

Rotating cleaning nozzle XactClean HP+
Series 5S5

Features:

- High impact and uniform cleaning due to specially developed flat fan nozzles
- Effective cleaning of larger tanks due to higher flow rates
- High dependability and operational reliability due to robust drive unit
- Compatible with Lechler rotation monitoring sensor

FDA

Scan for Video

Series 5S5

Technical data:

Maximum operating temperature
302 °F

Maximum ambient temperature
302 °F

Installation
Operation in every installation position

Bearing
Double ball bearing

Material
Stainless steel 1.4404 (316L), stainless steel 1.4401 (316), PEEK, EPDM

Weight

1"	4.05 lbs
1 1/4"	3.97 lbs
1 1/2"	3.58 lbs
1 1/2" slip-on	3.97 lbs

Surface quality Outside
Ra ≤ 0.8 µm

Surface quality Inside
Ra ≤ 1.6 µm

Steam suitability
Suitable

Insertion diameter
3.19–5.51 in

Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

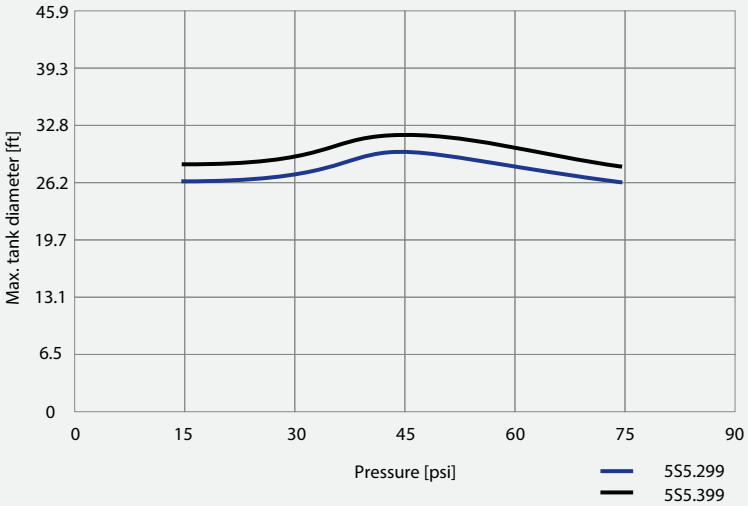
Recommended operating pressure
45 psi

Adapter
1 BSPP, 1 1/4 BSPP and 1 1/2 BSPP are compatible with HygienicFit

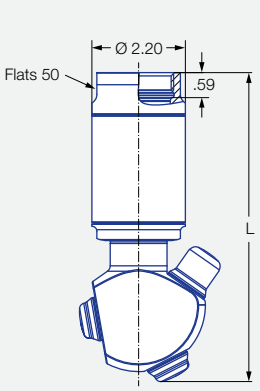
Rotation monitoring
Sensor-compatible, information:
see pages 96–97

Maintainable

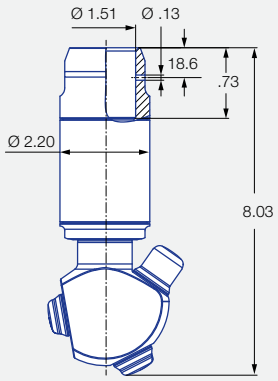
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



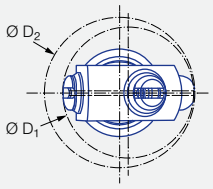
Overview of maximum tank diameter depending on pressure



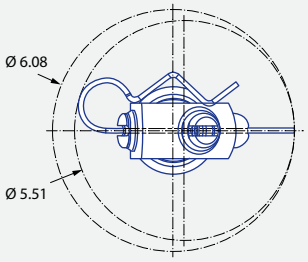
Female thread



Dimensions of slip-on connection according to ASME-BPE (OD tube)



Insertion diameter D_1 and interference circle diameter D_2 of the threaded connection



Insertion diameter and interference circle diameter of the slip-on connection

Connection		Dimensions [in]		
		L	Insertion diameter D_1	Interference circle diameter D_2
BN	1 NPT	7.28	3.19–3.62	3.23–3.86
BQ	1 1/4 NPT	7.28	3.19–3.62	3.23–3.86
BS	1 1/2 NPT	7.36	3.19–3.62	3.23–3.86

Spray angle	Ordering number					Narrowest free cross section Ø [in]	V̇ water [gal/min]								Max. tank diameter [ft]
	Type	Connection					p [psi] (p_{max} = 145 psi)								
		1" Female NPT	1 1/4" Female NPT	1 1/2" Female NPT	1 1/2"- Slip-on		20	30	40	**45**	liters per min. **3 bar**	60	80	100	
180°	**5S5.293.1Y**	**BN**			**TF15**	0.12	36.18	44.31	51.16	**54.27**	**202**	62.66	72.36	80.90	29
	5S5.323.1Y	**BN**	**BQ**		**TF15**	0.12	43.88	53.74	62.05	**65.82**	**245**	76.00	87.76	98.12	30
	5S5.363.1Y		**BQ**	**BS**	**TF15**	0.12	54.80	67.12	77.50	**82.21**	**306**	94.62	109.61	122.55	31
180°	**5S5.294.1Y**	**BN**			**TF15**	0.12	36.18	44.31	51.16	**54.27**	**202**	62.66	72.36	80.90	29
	5S5.324.1Y	**BN**	**BQ**		**TF15**	0.12	43.88	53.74	62.05	**65.82**	**245**	76.00	87.76	98.12	30
	5S5.364.1Y		**BQ**	**BS**	**TF15**	0.12	54.80	67.12	77.50	**82.21**	**306**	94.62	109.61	122.55	31
270°	**5S5.295.1Y**	**BN**			**TF15**	0.12	36.18	44.31	51.16	**54.27**	**202**	62.66	72.36	80.90	29
	5S5.325.1Y	**BN**	**BQ**		**TF15**	0.12	43.88	53.74	62.05	**65.82**	**245**	76.00	87.76	98.12	30
	5S5.365.1Y		**BQ**	**BS**	**TF15**	0.12	54.80	67.12	77.50	**82.21**	**306**	94.62	109.61	122.55	31
270°	**5S5.296.1Y**	**BN**			**TF15**	0.12	36.18	44.31	51.16	**54.27**	**202**	62.66	72.36	80.90	29
	5S5.326.1Y	**BN**	**BQ**		**TF15**	0.12	43.88	53.74	62.05	**65.82**	**245**	76.00	87.76	98.12	30
	5S5.366.1Y		**BQ**	**BS**	**TF15**	0.12	54.80	67.12	77.50	**82.21**	**306**	94.62	109.61	122.55	31
360°	**5S5.299.1Y**	**BN**			**TF15**	0.12	36.18	44.31	51.16	**54.27**	**202**	62.66	72.36	80.90	29
	5S5.329.1Y	**BN**	**BQ**		**TF15**	0.12	43.88	53.74	62.05	**65.82**	**245**	76.00	87.76	98.12	30
	5S5.369.1Y		**BQ**	**BS**	**TF15**	0.12	54.80	67.12	77.50	**82.21**	**306**	94.62	109.61	122.55	31
	5S5.399.1Y		**BQ**	**BS**	**TF15**	0.12	65.73	80.50	92.95	**98.60**	**367**	113.85	131.46	146.98	31

BSPP thread available on request.

Compressed air should be used for dry blowing for a short time only. Operation above the recommended operating pressure has a negative impact on the cleaning result and wear.

Information about slip-on connections

- Pin made of stainless steel 316L supplied (Ordering no.: 095.013.1Y.06.45).
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the rotating cleaning nozzle.

Ordering example:	Type	+	Connection	=	Order no.
	5S5.293.1Y	+	BN	=	5S5.293.1Y.BN

CLEANING EFFICIENCY CLASS 5
PERSISTENT SOILING

Type	High impact tank cleaning machine, controlled rotation about two axes
Cleaning effect	
Drive	By the medium, drive unit with turbine and gear unit
Typical soiling	Persistent soiling such as make-up
Nozzle design	Solid stream nozzles with controlled rotation about two axes, direct impact on the entire tank surface during a cleaning cycle

High impact tank cleaning machine MeshClean
Series 5T2/5T3

Features:

- High degree of effectiveness due to particularly powerful solid stream nozzles
- Suitable for smaller tanks with stubborn dirt
- Active self-cleaning due to engineered nozzle design
- Low maintenance

FDA

Series 5T2/5T3

Scan for Video

Technical data:

Maximum operating temperature
302 °F
302 °F (ATEX)

Maximum ambient temperature
302 °F
302 °F (ATEX)

Installation
Operation in every installation position

Bearing
Ball bearing

Material
Stainless steel 1.4404 (316L), PTFE, PEEK, EPDM

Weight
2.2 lbs

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

Steam suitability
Suitable

Insertion diameter
2.68–3.23 in

Recommended filter
Line strainer with a mesh size of 0.2 mm/80 mesh

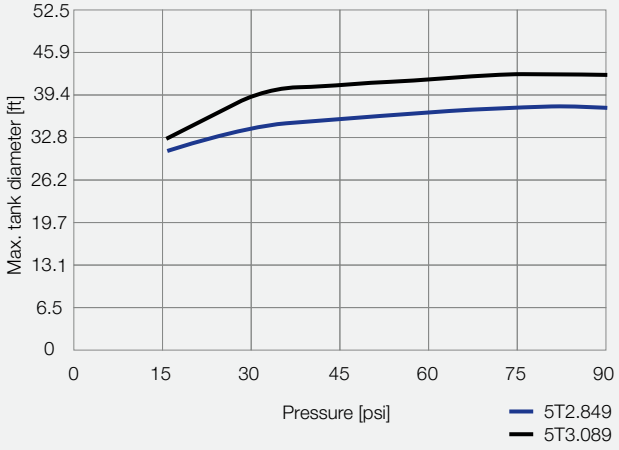
Recommended operating pressure
75 psi

Adapter
3/4 BSPP is compatible with HygienicFit

Rotation monitoring
Sensor-compatible, information:
see pages 96–97

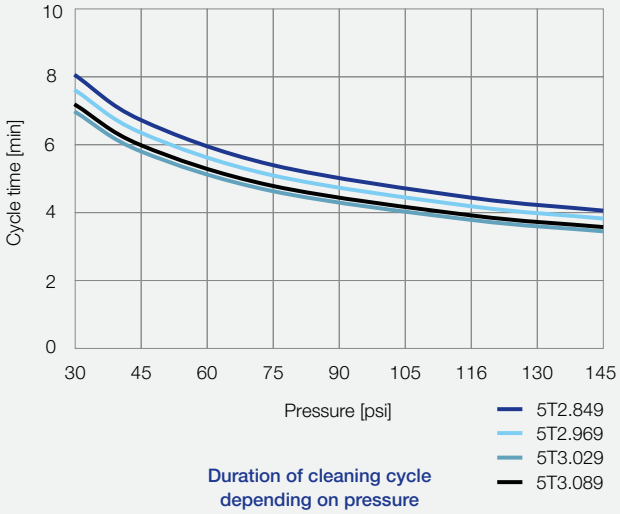
Maintainable

Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.

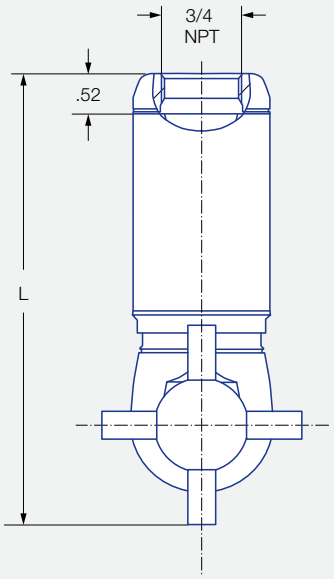


Overview of maximum tank diameter depending on pressure

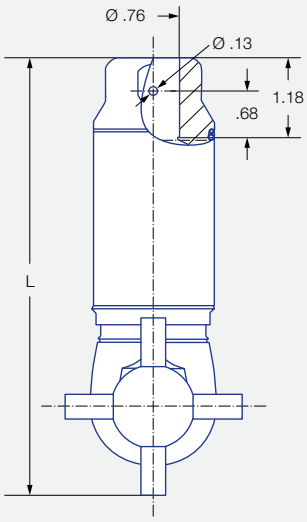
Duration of cleaning cycle



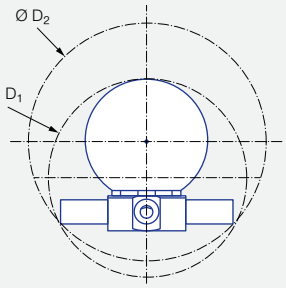
Duration of cleaning cycle depending on pressure



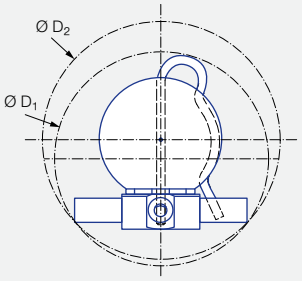
Female thread



Dimensions of slip-on connection according to ASME-BPE (OD tube)



Insertion diameter D_1 and interference circle diameter D_2 of the threaded connection



Insertion diameter D_1 and interference circle diameter D_2 of the slip-on connection

Spray angle	Ordering number			Narrowest free cross section Ø (in)	Number Ø Nozzles (mm)	V̇ water [gal/min]								Max. tank diameter [ft]
		Connection				p [psi] (p_{max} = 218 psi)								
	Type	3/4" Female NPT	3/4"-Slip-on			30	40	60	75	Liters per min. 5 bar	100	200	75 psi [SCFM]	
360°	**5T2.849.1Y**	**BL**	**TF07**	.067	4 x 1.75	3.40	3.92	4.80	**5.37**	**20**	6.20	8.77	0.7	37
	5T2.969.1Y	**BL**	**TF07**	.106	4 x 2.70	6.80	7.85	9.61	**10.75**	**40**	12.41	17.55	1.4	39
	5T3.029.1Y	**BL**	**TF07**	.126	4 x 3.20	9.35	9.34	10.79	**14.78**	**55**	17.06	24.13	1.9	41
	5T3.089.1Y	**BL**	**TF07**	.157	4 x 4.00	13.42	15.50	18.98	**21.22**	**79**	24.50	34.66	2.8	42

BSPP connection available on request.

Information about slip-on connections

- Pin made of stainless steel 316L supplied (Ordering no.: 095.022.1Y.50.60.E).
- Depending on the diameter of the adapter, the flow rate can increase due to a leakage between the adapter and the rotating cleaning nozzle.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Connection	=	Order no.
5T2.849.1Y	+	BL	=	5T2.849.1Y.BL

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:

Ex II 1G Ex h IIB T6...T3 Ga
Ex II 1D Ex h IIIC T85 °C...T190 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for 3/4" slip-on connection: 5T2.849.1Y.T2.EX

Type	+	Connection	+	ATEX	=	Order no.
5T2.849.1Y	+	BL	+	EX	=	5T2.849.1Y.BL.EX

High impact tank cleaning machine MeshClean+
Series 5T5

Features:
- Powerful solid jet nozzles
- Suitable for large tanks with persistent soiling
- Active self-cleaning through special nozzle geometry
- Low maintenance

FDA

Scan for Video

Series 5T5

Technical data:

Maximum operating temperature
302 °F
207 °F (ATEX)

Maximum ambient temperature
302 °F
302 °F (ATEX)

Installation
Operation in every installation position

Bearing
Ball bearing

Material
Stainless steel 1.4404 (316L), stainless steel 1.4532 (632), PTFE, PEEK, zirconium oxide, EPDM

Weight
8.12 lb

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

Steam suitability
Suitable

Insertion diameter
5.12 in

Recommended filter
Line strainer with a mesh size of 0.2 mm/80 mesh

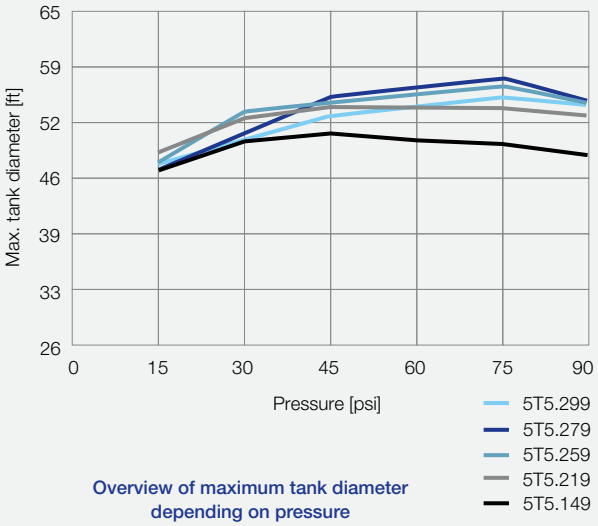
Recommended operating pressure
75 psi

Adapter
1 1/2 BSPP is compatible with HygienicFit

Rotation monitoring
Sensor-compatible

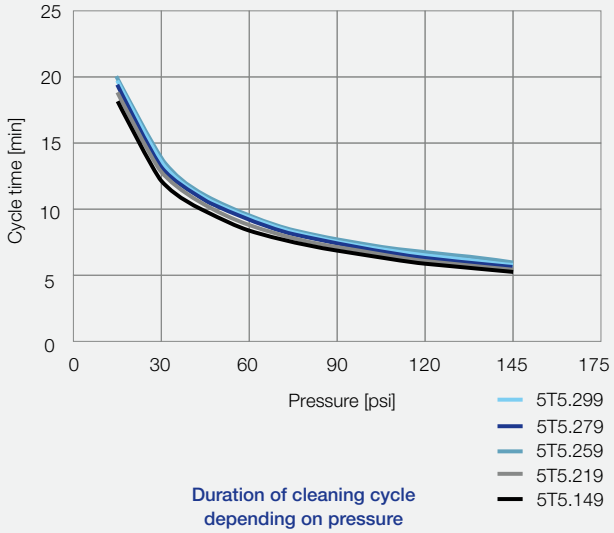
Maintainable

Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.

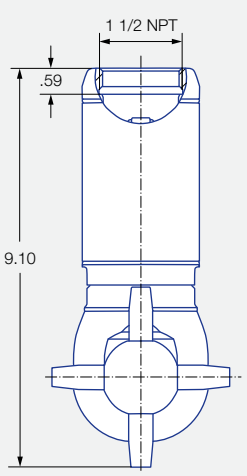


Overview of maximum tank diameter depending on pressure

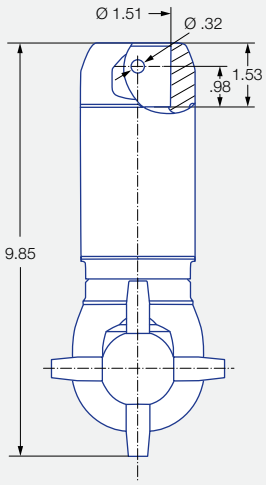
Duration of cleaning cycle



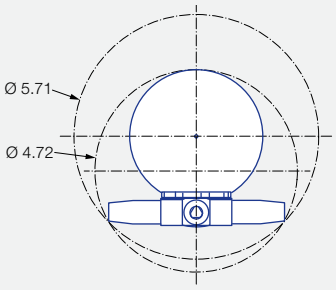
Duration of cleaning cycle depending on pressure



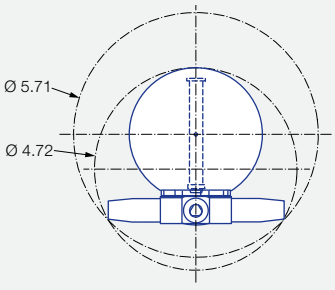
Female thread



Dimensions of slip-on connection according to ASME-BPE (OD tube)



Insertion diameter and interference circle diameter of the threaded connection



Insertion diameter and interference circle diameter of the slip-on connection

Spray angle	Ordering number					Narrowest cross-section Ø [in]	Quantity x Ø nozzle [in]	V̇ water [gal/min]					V̇ water	Max. tank diameter [ft]
	Type	Connection						p [psi] (p_{max} = 218 psi)					at 75 psi [SCFM]	
		1 1/2 NPT		1 1/2" slip-on connection				30	45	75	Liters per min. 5 bar	145		
		EPDM	FKM	EPDM	FKM									
360°	5T5.149.1Y	BS	45	TF15	34	0.17	4 × .17	18.86	23.10	**29.82**	**111**	41.46	3.9	50
	5T5.219.1Y	BS	45	TF15	34	0.22	4 × .22	28.72	35.17	**45.40**	**169**	63.13	5.9	54
	5T5.259.1Y	BS	45	TF15	34	0.25	4 × .25	35.51	43.49	**56.15**	**209**	78.07	7.4	56
	5T5.279.1Y	BS	45	TF15	34	0.28	4 × .28	40.44	49.53	**63.94**	**238**	88.90	8.4	57
	5T5.299.1Y	BS	45	TF15	34	0.31	4 × .31	45.71	55.98	**72.27**	**269**	100.48	9.5	55

BSPP thread available on request.

High impact tank cleaning machine IntenseClean
Series 5TM

Features:

- Very robust design
- High efficiency thanks to especially powerful solid jet nozzles
- High efficiency due to gear-controlled rotation
- Proven in the petrochemical industry

FDA

Scan for Video

Series 5TM

Technical data:

Maximum operating temperature
203 °F
203 °F (ATEX)

Maximum ambient temperature
284 °F
284 °F (ATEX)

Installation
Operation in every installation position

Bearing
Ball bearing

Material
Stainless steel 1.4404 (316L), stainless steel 1.4301 (304), stainless steel 1.4310 (302), PTFE, PEEK

Weight
16.5 lbs

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 4.5 µm
INSIDE

Steam suitability
Not suitable

Insertion diameter
6.30–9.06 in

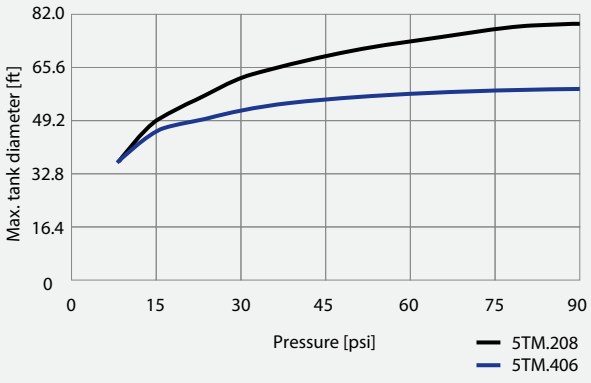
Recommended filter
Line strainer with a mesh size of 0.2 mm/80 mesh

Recommended operating pressure
75 psi

Rotation monitoring
Sensor-compatible, information: see pages 96–97

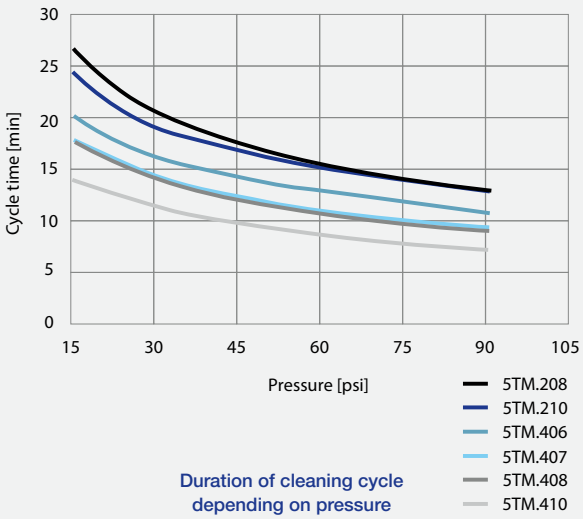
Maintainable

Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.

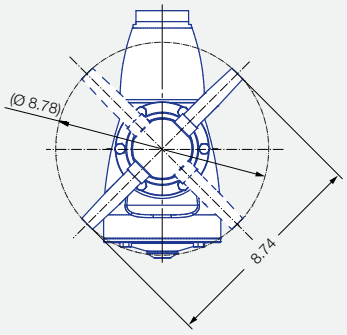


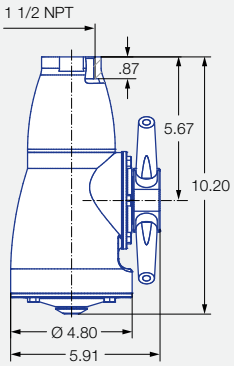
Overview of maximum tank diameter depending on pressure

Duration of cleaning cycle

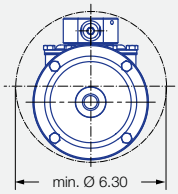


Duration of cleaning cycle depending on pressure

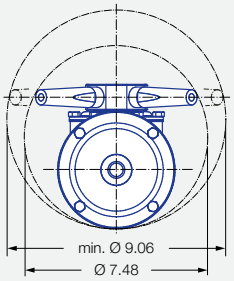




Female thread



Insertion diameter
5TM.2xx



Insertion diameter
5TM.4xx

Spray angle	Ordering number				Narrowest free cross section Ø [in]	Number, Ø Nozzles [mm]	V̇ water [gal/min]						Max. tank diameter [ft]
	Type	Connection					p [psi] (p_{max} = 100 psi)						
		1 1/2" Male NPT	1 1/2" Female NPT	1 1/2" CL 150 Flange			30	40	60	75	Liters per min. 5 bar	100	
360°	**5TM.208.1Y**	BR	BS	015	0.31	2 × 8.0	33	39	48	**53**	**198**	61	79
	5TM.209.1Y	BR	BS	015	0.35	2 x 9.0	38	45	55	**61**	**227**	70	79
	5TM.210.1Y	BR	BS	015	0.39	2 × 10.0	43	50	61	**68**	**253**	79	79
	5TM.211.1Y	BR	BS	015	0.43	2 x 11.0	50	58	71	**79**	**295**	92	75
	5TM.406.1Y	BR	BS	015	0.24	4 x 6.0	38	43	53	**59**	**224**	69	59
	5TM.407.1Y	BR	BS	015	0.28	4 × 7.0	45	53	65	**72**	**269**	83	66
	5TM.408.1Y	BR	BS	015	0.31	4 × 8.0	53	62	76	**85**	**316**	98	72
	5TM.409.1Y	BR	BS	015	0.35	4 x 9.0	63	73	89	**99**	**370**	115	75
	5TM.410.1Y	BR	BS	015	0.39	4 × 10.0	70	81	99	**110**	**411**	128	75

BSPP thread available on request.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Connection	=	Order no.
5TM.208.1Y	+	BS	=	5TM.208.1Y.BS

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
Ex II 1G Ex h IIB T6…T3 Ga
Ex II 1D Ex h IIIC T85 °C…T150 °C Da

Type	+	ATEX	=	Order no.
5TM.208.1Y.BS	+	EX	=	5TM.208.1Y.BS.EX

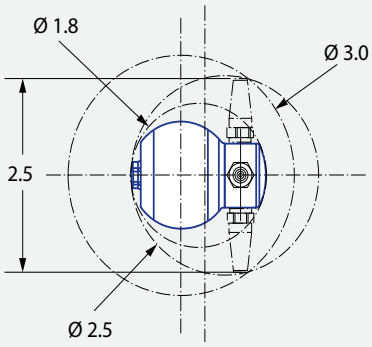
High pressure tank cleaning machine PressureClean
Series 5TP

Features:

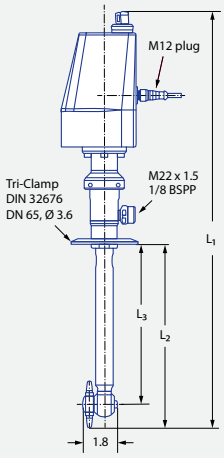
- Intense cleaning with minimal water and high pressure
- Ideal for small tanks with the persistent soiling
- Driven by an efficient 24 V motor
- "IP 65" certified motor housing
- Scope of delivery:
  - PressureClean
  - 16ft cable with matching plug and open cable end
  - Not included: power supply unit for power supply with 24 VDC/1.1 A

Series 5TP

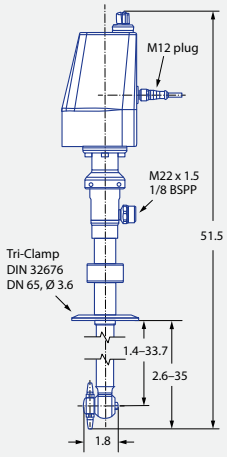
Scan for Video



Insertion diameter and interfence circle diameter



5TP.xx9.1Y.01
5TP.xx9.1Y.02



5TP.xx9.1Y.03

Type	Dimensions [in]		
	L_1	L_2	L_3
5TP.xx9.1Y.01	22.3	9.8	8.6
5TP.xx9.1Y.02	32.1	19.7	18.4

Technical data:

Maximum operating temperature
194 °F

Maximum ambient temperature
122 °F

Installation
Operation in every installation position

Bearing
Ball bearing

Material
Process side:Stainless steel 316L, PTFE with carbon, PEEK, Si_3N_4, EPDM

Weight
6.4 -11.7 lbs

Surface quality
Ra ≤ 1.6 µm
OUTSIDE

Surface quality
Ra ≤ 6.3 µm
INSIDE

Steam suitability
Not suitable

Insertion diameter
2.55 mm

Recommended filter
Line strainer with a mesh size of 0.2 mm/80 mesh

Recommended operating pressure
1450 psi

Rotation monitoring
Sensor-compatible, information: see pages 96–97

Maintainable

Spray angle	Ordering number				V̇ water [gal/min]				Max. tank diameter for most persistant soiling [ft]	Max. tank diameter for most medium soiling [ft]
	Type	Lance length			p [psi] (p_{max} = 2,900 psi)					
		10 [in]	20 [in]	39 [in] with adjustable flange	725	1450	Liters per min. **100 bar**	2175		
360° 	**5TP.469.1Y**	01	02	03	1.87	2.64	**10**	3.23	3.3	8.2
	5TM.589.1Y	01	02	03	3.73	5.28	**20**	6.47	3.9	9.8
	5TM.659.1Y	01	02	03	5.60	7.92	**30**	9.70	4.6	11.5

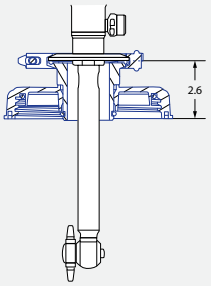
Information on operation
The electric motor may only be switched on when liquid is flowing through the nozzles.

Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.

Adapter for IBC containers:

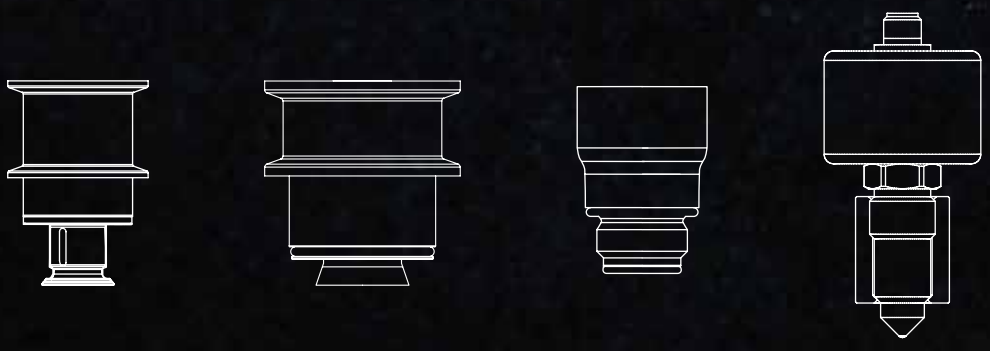
- Suitable for all types of PressureClean
- Fits into a G 2 female thread
- Scope of deliver:
  - Adapter with Tri-Clamp as interface for PressureClean
  - IBC cover (DN 150, thread S165 x 7) made of HDPE
  - Stainless steel joint clamp with EPDM seal

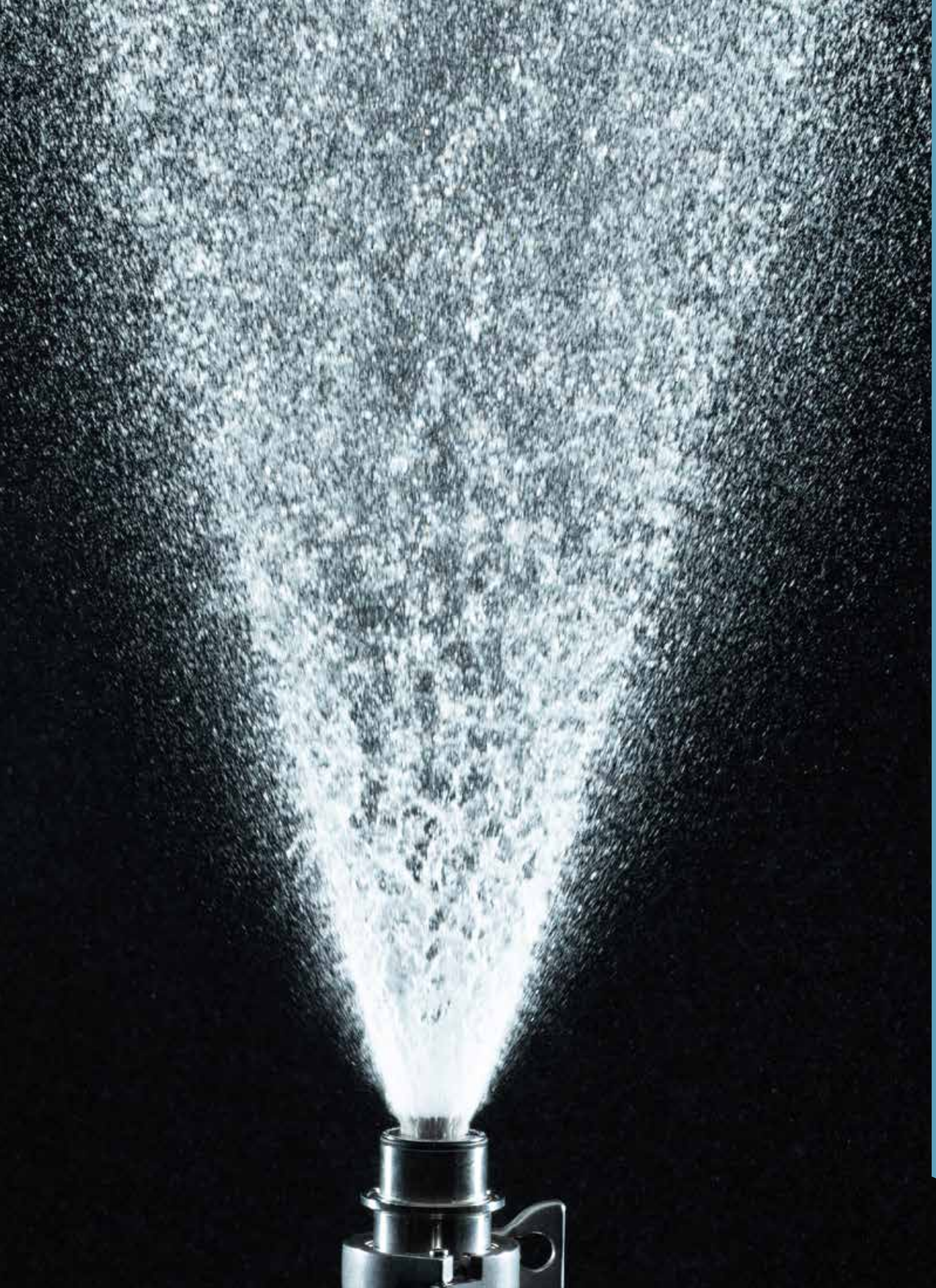
05TP.P30.00.00.00.0



Type	+	Lance length	=	Order no.
5TP.469.1Y	+	01	=	5TP.469.1Y.01

TANK CLEANING
PERFECT ADD





Extendable rotating cleaning nozzle PopUp Whirly
Series 5P2

Features:

- Rotating cleaning nozzle extends automatically depending on pressure
- Flush wall installation possible
- Good suitability for cleaning pipes
- Particularly suitable for applications in the pharmaceutical, chemical and food industries

FDA

Series 5P2

Scan for Video

Technical data:

Maximum operating temperature
284 °F
284 °F (ATEX)

Maximum ambient temperature
302 °F
284 °F (ATEX)

Installation
Operation in every installation position

Bearing
Slide bearing

Material
Stainless steel 1.4404 (316L), stainless steel 1.4571 (316Ti), stainless steel 1.4401 (316), FKM

Weight
1.1 lbs

Surface quality
OUTSIDE
Ra ≤ 0.8 µm on process side, remaining housing Ra ≤ 1.6 µm

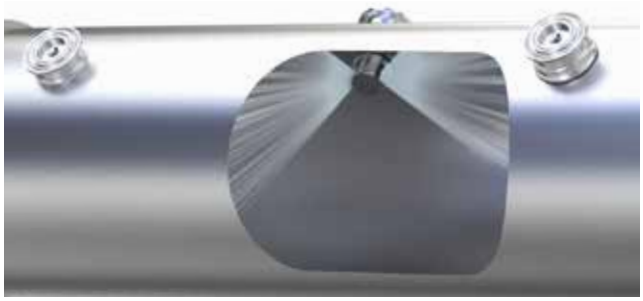
Surface quality
INSIDE
Ra ≤ 1.6 µm

Steam suitability
Not suitable

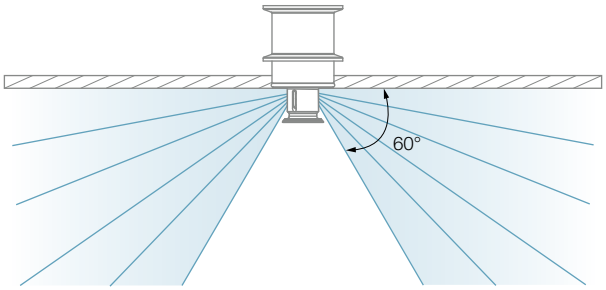
Recommended filter
Line strainer with mesh size of 0.3 mm/50 mesh

Recommended operating pressure
30 psi
Opening pressure approx. 15 psi, closing pressure approx. 7.25 psi

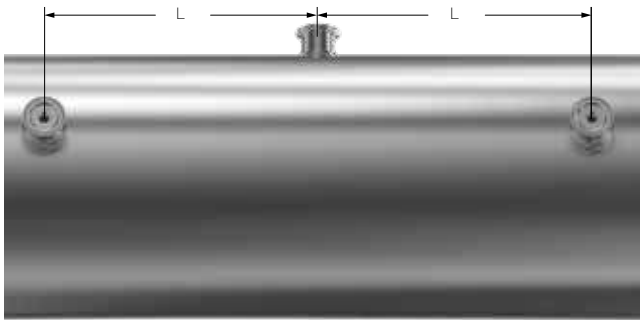
Installation example

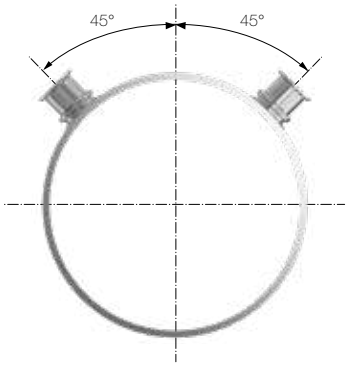


Spray distribution

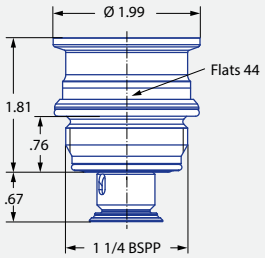


Recommendation for nozzle positioning

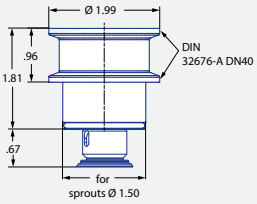




Type	Nozzle spacing L [ft]
5P2.873	2.6
5P2.923	3.3

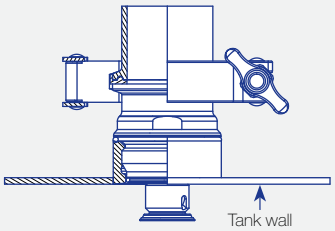


Male thread

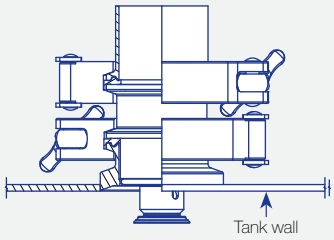


Tri-Clamp connection

Installation situation



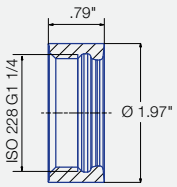
Male thread



Tri-Clamp connection

Weld-in socket for threaded connection

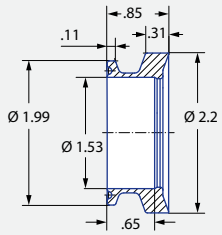
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Whirly).



Order no.: 050.020.1Y.AQ.00
Material: Stainless steel 1.4404 (316L)

Weld-in flange for Tri-Clamp connection

A joint clamp in accordance with DIN 32676-A DN50 with a connection diameter of 50.5 mm is required for connection of the nozzle at the weld-in flange. A gasket with a thickness of 2 mm is required if the flange is used in combination with the PopUp Whirly.



Order no.: 050.020.1Y.01.00
Material: Stainless steel 1.4404 (316L)

Spray angle	Ordering number: Type	Connection: 1 1/4" Male BSPP	Connection: 1 1/2" Male BSPP	Connection: Tri-Clamp	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 75 psi): 15	30	Liters per min. 2 bar	45	Max. tank diameter [ft]
	5P2.873.1Y	AP			0.10	2.85	**4.03**	**15**	4.94	2
	5P2.873.1Y			00	0.10	2.85	**4.03**	**15**	4.94	2
	5P2.923.1Y	AP			0.14	3.80	**5.37**	**20**	6.58	3
	5P2.923.1Y			00	0.14	3.80	**5.37**	**20**	6.58	3

Information on operation
The PopUp Whirly is not suitable for operation with compressed air or another gas. Use above the recommended pressure will have a negative influence on the cleaning result and wear.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Connection	=	Order no.
5P2.873.1Y	+	AP	=	5P2.873.1Y.AP

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
Ⓔx II 1G Ex h IIB T6…T3 Ga
Ⓔx II 1D Ex h IIIC T85 °C…T170 °C Da

Type	+	Connection	+	ATEX	=	Order no.
5P2.873.1Y	+	AP	+	EX	=	5P2.873.1Y.AP.EX

Perfect add

Extendable rotating cleaning nozzle PopUp Whirly
Series 5P3

Features:

- Rotating cleaning nozzle extends automatically depending on pressure
- Flush wall installation possible
- Good suitability for cleaning pipes
- Particularly suitable for applications in the pharmaceutical, chemical, food and beverage industries

Series 5P3

Scan for Video

Technical data:

Maximum operating temperature
284 °F
284 °F (ATEX)

Maximum ambient temperature
302 °F
284 °F (ATEX)

Installation
Operation in every installation position

Bearing
Slide bearing

Material
Stainless steel 1.4404 (316L), stainless steel 1.4571 (316Ti), stainless steel 1.4401 (316), FKM

Weight

1 1/4" threaded	1.2 lbs
1 1/2" threaded	2.54 lbs
1 1/4" slip-on	2.11 lbs
1 1/2" slip-on	4.52 lbs

Surface quality
Ra ≤ 0.8 µm on process side, remaining housing Ra ≤ 1.6 µm

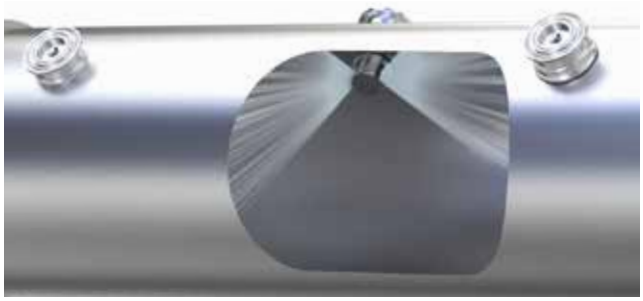
Surface quality
Ra ≤ 1.6 µm

Steam suitability
Not suitable

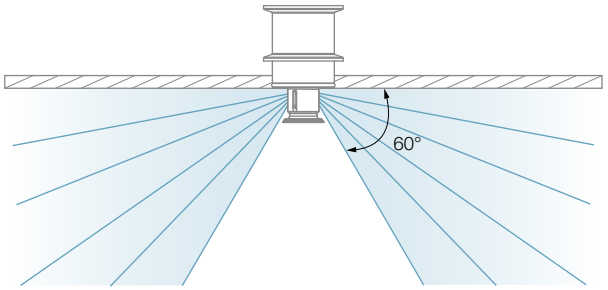
Recommended filter
Line strainer with mesh size of 0.3 mm/50 mesh

Recommended operating pressure
30 psi
Opening pressure approx. 13.5 psi, closing pressure approx. 7.25 psi

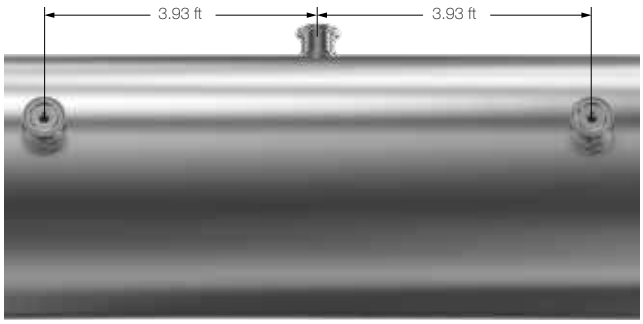
Installation example

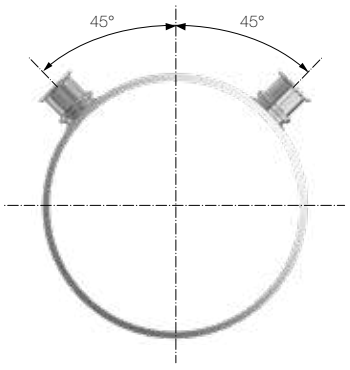


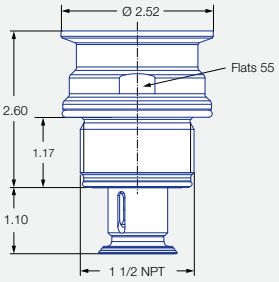
Spray distribution



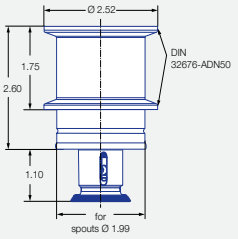
Recommendation for nozzle positioning





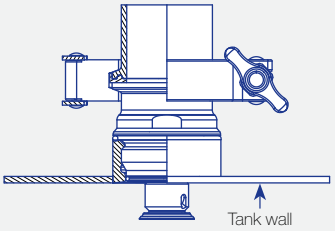


Male thread

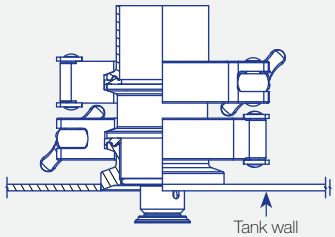


Tri-Clamp connection

Installation situation



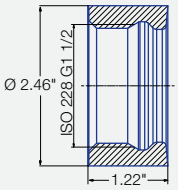
Male thread



Tri-Clamp connection

Weld-in socket for threaded connection

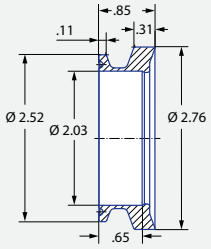
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Whirly).



Order no.: 050.020.1Y.AS.00
Material: Stainless steel 1.4404 (316L)

Weld-in flange for Tri-Clamp connection

A joint clamp in accordance with DIN 32676-A DN50 with a connection diameter of 64.0 mm is required for connection of the nozzle at the weld-in flange. A gasket with a thickness of 2 mm is required if the flange is used in combination with the PopUp Whirly.



Order no.: 050.020.1Y.01.01
Material: Stainless steel 1.4404 (316L)

Spray angle	Ordering number: Type	Connection: 1 1/4" Male BSPP	Connection: 1 1/2" Male BSPP	Connection: Tri-Clamp	Narrowest free cross section Ø [in]	V̇ water [gal/min] p [psi] (p_{max} = 75 psi): 15	30	Liters per min. 2 bar	45	Max. tank diameter [ft]
	5P3.043.1Y		**AR**		0.13	7.60	**10.75**	**40**	13.16	7
	5P3.043.1Y			**00**	0.13	7.60	**10.75**	**40**	13.16	7

Information on operation
The PopUp Whirly is not suitable for operation with compressed air or another gas. Use above the recommended pressure will have a negative influence on the cleaning result and wear.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Connection	=	Order no.
5P3.043.1Y	+	AR	=	5P3.043.1Y.AR

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
II 1G Ex h IIB T6…T3 Ga
II 1D Ex h IIIC T85 °C…T170 °C Da

Type	+	Connection	+	ATEX	=	Order no.
5P3.043.1Y	+	AR	+	EX	=	5P3.043.1Y.AR.EX

Extendable cleaning nozzle PopUp Clean
Series 5P5

Features:

- Cleaning nozzle extends automatically depending on pressure
- Flush wall installation possible
- For cleaning agitators and other spray shadow areas
- Compact, robust design

FDA

Ex

Series 5P5

Scan for Video

Technical data:

Maximum operating temperature
203 °F
203 °F (ATEX)

Maximum ambient temperature
302 °F
284 °F (ATEX)

Installation
Operation in every installation position

Bearing
Slide bearing

Material
Stainless steel 1.4404 (316L), stainless steel 1.4571 (316Ti), FKM or 2.4602 (Alloy 22), 2.4610 (Alloy 4), FKM

Weight
.75 lbs

Surface quality
Ra ≤ 0.8 µm on process side, remaining housing Ra ≤ 1.6 µm

Surface quality
Ra ≤ 1.6 µm

Steam suitability
Not suitable

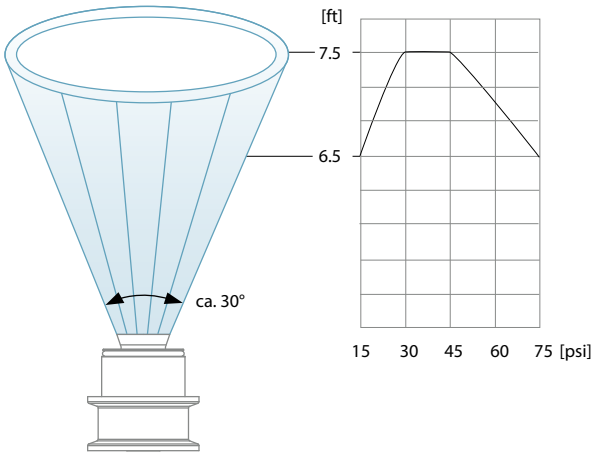
Recommended filter
Line strainer with mesh size of 0.3 mm/50 mesh

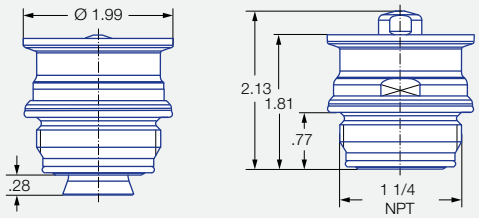
Recommended operating pressure
30 psi
Opening pressure: approx. 4 psi, closing pressure: approx. 4 psi

Installation example

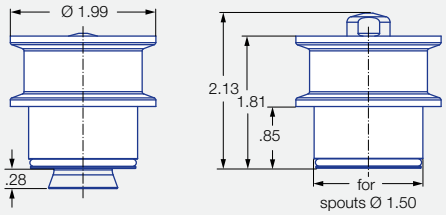
Spray height

Sprays upwards in vertical installation position.



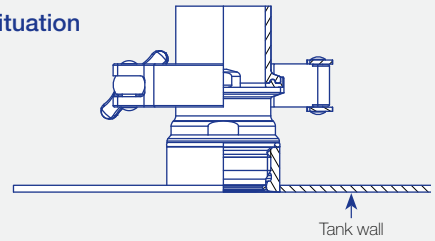


Male threaded connection

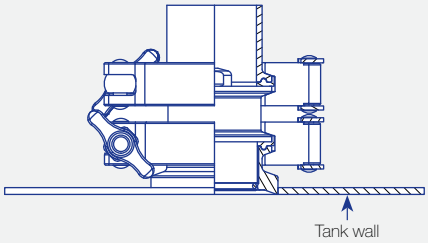


Tri-Clamp connection

Installation situation



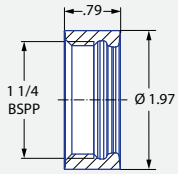
Threaded connection



Tri-Clamp connection

Weld-in socket for threaded connection

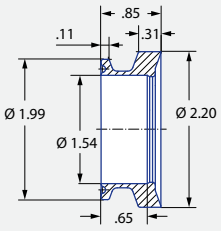
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Clean).



Order no.: 050.020.1Y.AQ.00
Material: Stainless steel 1.4404 (316L)

Weld-in flange for Tri-Clamp connection

A joint clamp in accordance with DIN 32676-A DN50 with a connection diameter of 50.5 mm is required for connection of the nozzle at the weld-in flange. A gasket with a thickness of 2 mm is required if the flange is used in combination with the PopUp Clean.



Order no.: 050.020.1Y.01.00
Material: Stainless steel 1.4404 (316L)

Spray angle	Ordering number			Flow Rate (Gallons Per Minute)							Max. tank diameter ft.
	Type	Connection					Liters per min.				
		G1 1/4A ISO 228	Tri-Clamp	10	20	**30**	**2 bar**	40	60	75	
30°	**5P5.081.1Y.00.00.0**	**AP**	**00**	7.75	10.97	**13.43**	**50**	15.51	19.00	21.24	10

Information on operation

The PopUp Clean is not suitable for operation with compressed air or another gas. Use above the recommended pressure will have a negative influence on the cleaning result and wear.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Material	+	Connection	=	Order no.
5P5.081	+	1Y	+	AP	=	5P5.081.1Y.AP

Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

Unit group/Category/Zones:
Ⓔx II 1G Ex h IIB T6…T3 Ga
Ⓔx II 1D Ex h IIIC T85 °C…T170 °C Da

Type	+	Material	+	Connection	+	ATEX	=	Order no.
5P5.081	+	1Y	+	AP	+	EX	=	5P5.081.1Y.AP.EX

Extendable rotating cleaning nozzle PopUp Whirly Air Hygienic
Series 5P7

Features:

- Position indication by means of sensor (IO-link capable)
- Self-draining in almost orientation
- Pneumatically extendable, independent of liquid pressure
- Flushable with air
- Installation flush with wall
- No additional installations in the process area

Series 5P7

FDA

Scan for Video

Technical data:

Maximum operating temperature
203 °F

Maximum ambient temperature
149 °F

Installation
Operation in every installation position

Bearing
Slide bearing made of PEEK

Material
Stainless steel 1.4404 (316L), stainless steel 1.4301 (304), PEEK, PTFE, FPM, EPDM

Weight
9.9 lbs

Surface quality
Ra ≤ 1.6 µm on process side

Surface quality
Ra ≤ 1.6 µm

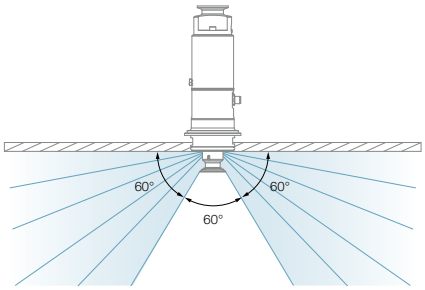
Steam suitability
Not suitable

Recommended filter
Line strainer with mesh size of 0.3 mm/50 mesh

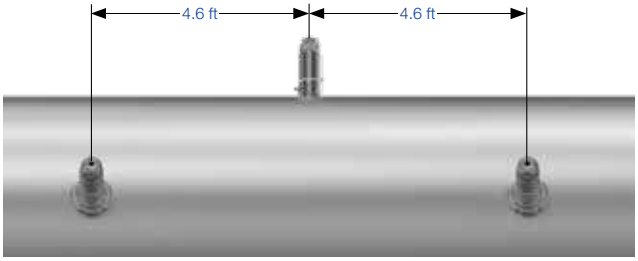
Recommended operating pressure
36 psi

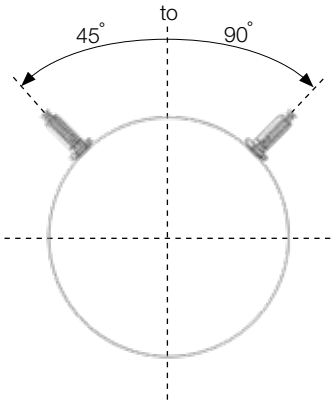
Installation example

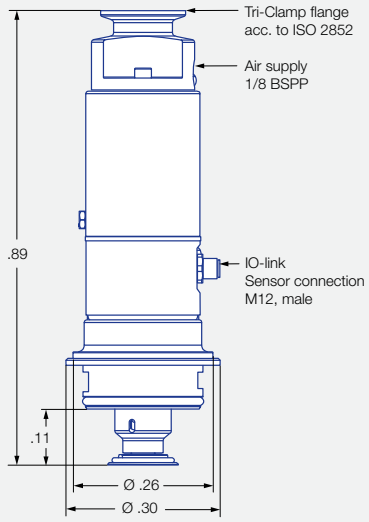
Spray distribution



Recommendation for nozzle positioning

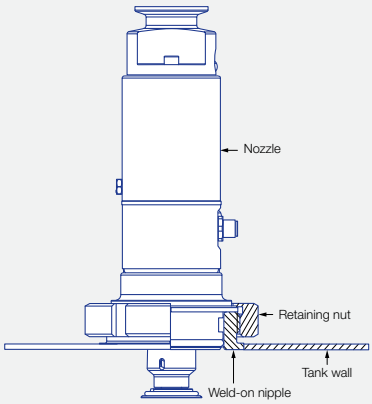






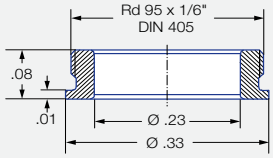
Tri-Clamp connection

Installation situation



Weld-on nipple for threaded connection

To connect the nozzle on the process side, the weld-in flange 500.605.1Y.00.08 and the retaining nut 095.011.1Y.00.89 (can be ordered from Lechler as an option) are required. The O-ring in the front area of the nozzle in conjunction with the weld-in flage ensures a reliable and hygienic seal.



Weld-on nipple
Order no.: 500.605.1Y.00.08
Material: Stainless steel 1.4404 (316L)

Weld-on nipple
Order no.: 095.011.1Y.00.89
Material: Stainless steel 1.4404 (316L)

Spray angle	Ordering number	V̇ water [gal/min]					Max. tank diameter ft.
	Type	p [psi] (p_{max} = 87 psi)					
		20	**30**	Liters per min. **2 bar**	40	60	
75°	**5P7.074.1Y.00**	10.97	**13.43**	**50**	15.51	19.00	10

Information on operation
Using more than the recommended pressure will have a negative influence on the cleaning result and wear.

Ordering example with FDA and (EC) 1935/2004 conformity.

All materials are suitable for contact with food.

Type	+	Material	+	Connection	=	Order no.
5P5.081	+	1Y	+	AP	=	5P5.081.1Y.AP

Adapter HygienicFit
Series 05C

Features:

- Hygienic threaded connection between equipment and nozzle
- Available for many thread sizes
- Weld-on side suitable for common pipe standards
- O-rings ensure a leak-tight connection
- O-rings fully encapsulate the thread

FDA

Series 05C

Technical data:

Maximum operating temperature
302 °F

Maximum ambient temperature
302 °F

Installation
Operation in every installation position

Material
1.4404 (316L), EPDM (O-ring)

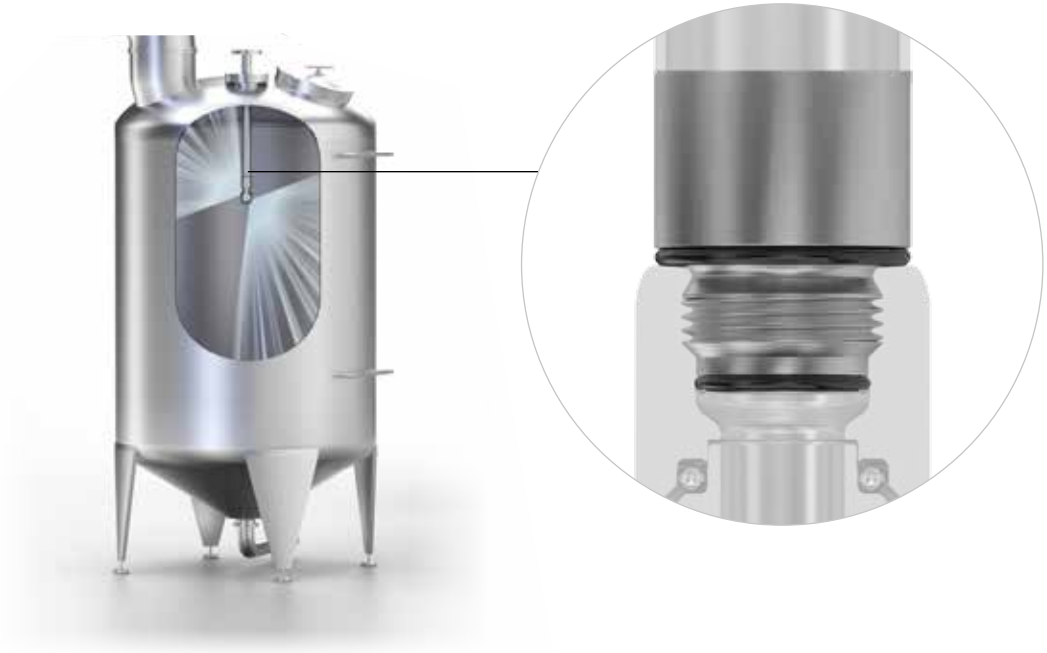
Weight
.15–.66 lbs

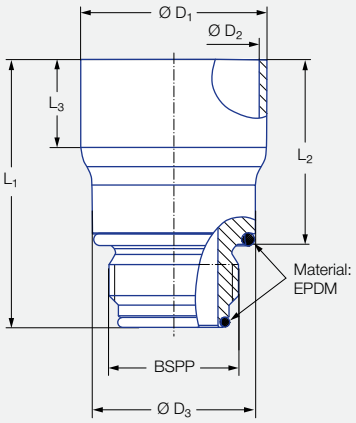
Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 0.8 µm
INSIDE

Steam suitability
Suitable

If you find this icon on our product pages, this means that the nozzle is compatible with the HygienicFit adapter.





Order no.		Dimensions [in]						Pipe standard
Type	Connection thread BSPP male	L_1	L_2	L_3	Ø D_1	Ø D_2	Ø D_3	
05C.190.1Y.AE.16	3/8	1.89	1.41	0.71	0.75	0.62	0.84	DIN EN 10357 series D
05C.230.1Y.AE.15	3/8	1.89	1.41	0.71	0.90	0.89	0.84	DIN EN 10357 series A
05C.250.1Y.AE.12	3/8	1.89	1.41	0.67	0.98	0.89	0.84	DIN EN 10357 series D
05C.250.1Y.AG.12	1/2	2.20	1.54	0.71	0.98	0.89	1.22	DIN EN 10357 series D
05C.350.1Y.AK.15	3/4	2.17	2.17	0.82	1.37	1.26	1.32	DIN EN 10357 series A
05C.380.1Y.AK.12	3/4	2.17	2.17	0.71	1.49	1.40	1.32	ISO 2037
05C.381.1Y.AK.15	3/4	2.17	2.17	0.71	1.50	1.38	1.32	DIN EN 10357 series D
05C.381.1Y.AM.16	1	2.32	1.54	0.90	1.50	1.37	1.59	DIN EN 10357 series D
05C.508.1Y.AP.15	1 1/4	2.24	1.50	0.86	2.00	1.88	1.94	DIN EN 10357 series D
05C.635.1Y.AR.16	1 1/2	63.00	1.73	0.86	2.50	2.37	56.00	DIN EN 10357 series D

Spare parts set of O-rings, EPDM

Thread type BSPP	Order no.
3/8	**05C.000.E9.AE.00**
1/2	**05C.000.E9.AG.00**
3/4	**05C.000.E9.AK.00**
1	**05C.000.E9.AM.00**
1 1/4	**05C.000.E9.AP.00**
1 1/2	**05C.000.E9.AR.00**

O-ring set also available in FKM on request.

Rotation monitoring sensor

Features:

- Reliable monitoring of cleaning processes
- Process connection EHEDG-compliant
- Simple operation and PLC connection possible
- Can be individually adapted to each cleaning task
- Operating principle: capacitive

FDA

Technical data:

Maximum operating temperature
212 °F

Maximum ambient temperature
140 °F

Installation
Operation in every installation position

Material
Sleeve (1/2 BSPP):
Stainless steel 1.4404 (316L)
Probe tip: PEEK
Housing: 1.4305 (303)

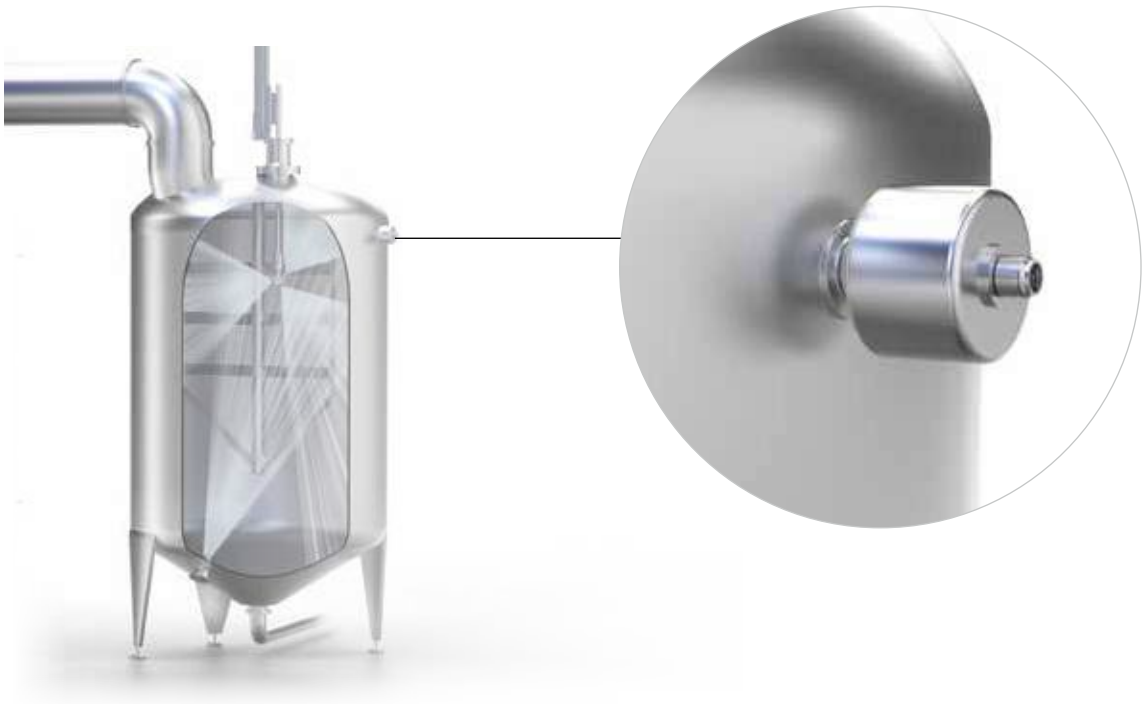
Weight
.77 lbs

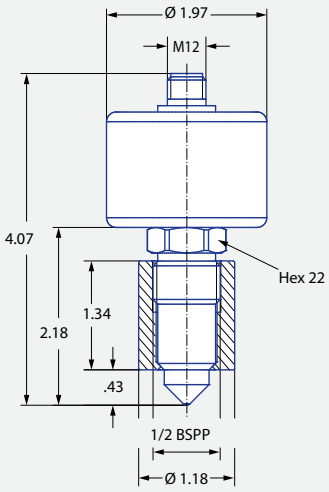
Surface quality
Ra ≤ 0.8 µm weld-in flange,
Ra ≤ 1.6 µm PEEK tip

Steam suitability
Max. 495 °F for max. 30 min. at ambient temperature ≤ 203 °F

Electrical data
Supply voltage:
Ub = 24 V +/–20 %
(18 to 32 VDC)
Power requirement: < 20 mA
Output signal: PNP, 50 mA, short circuit protected, active

If you find this icon on our product pages, this means that the nozzle is compatible with the rotation monitoring sensor.





Rotation monitoring sensor with weld-in sleeve

Cable set for commissioning

Power adapter

USB adapter with cable

Programming adapter Y-piece

Weld-in mandrel

Ordering data	Order no.
Rotation monitoring sensor with weld-in sleeve	050.040.00.00.00
Cable set for commissioning	050.040.00.00.01

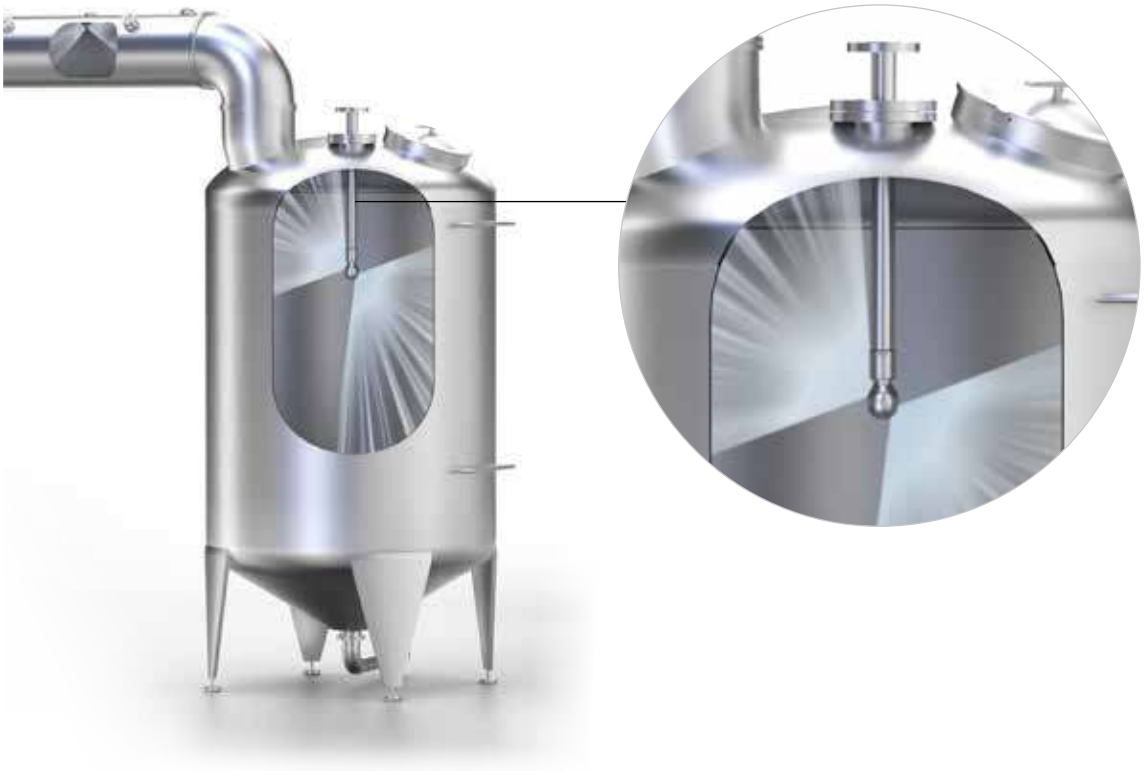
Cleaning lance StaticLance

Features:

- Optimum nozzle positioning and alignment in the tank
- Individual design possible depending on existing conditions
- Standard material 316L
- Different material versions optionally available

FDA

Static lance



Good to know

If you would like further information on our static lances, please contact us: (800) 777-2926 or info@lechlerusa.com.

Cleaning lance FlexLance

Features:

- Stroke length: .04 to 106.3 in
- Material: contact with process 316L
- Tank cleaning nozzle connection by means of EN 10226 R 3/4 thread
- Driven pneumatic rodless cylinder
- Position monitoring possible (optional)
- Sealed by rod seal on process side
- Process-side flange EN 1092-1 DN 100 PN 16
- Process-side components are food-compliant

Extendable cleaning lance

Good to know

Certain tank cleaning applications requires the nozzle to be removed during operation. Lechler offers pneumatically extendable cleaning lances so that the tank cleaning nozzle is only in the tank when it is used for cleaning. We would be happy to discuss your requirements. Contact us today at: (800) 777-2926 or info@lechlerusa.com.

STAY CLEAN
THE LECHLER MAINTENANCE SERVICES

Your systems should operate reliably and efficiently in the long term. That is why we recommend regular maintenance. Lechler offers two options to ensure the shortest possible downtimes of your system and to guarantee prompt recommissioning of your tank cleaning products. We will gladly advise you in person on the best solution for your needs.

Two maintenance options for maximum uptime

ZERO DOWNTIME SERVICE

Maintenance: on-the-spot by the customer.

You independently maintain your cleaning system with the genuine Lechler spare parts on the basis of detailed maintenance instructions and can reduce possible downtimes to zero in an ideal case.

YOUR ADVANTAGES

- Zero downtime possible
- Simply perform maintenance yourself on the basis of detailed instructions
- Use of Lechler genuine parts
- No complex import and export processes
- Cost-efficient maintenance

LECHLER FULL SERVICE

Maintenance: at Lechler by Lechler.

You send in your cleaning equipment and our experts will take care of everything else.

YOUR ADVANTAGES

- Immediate feedback if there are any issues
- Use of Lechler genuine parts
- Lechler Service Points also in your vicinity

Please note that maintenance of ATEX-certified products is possible only within the scope of Lechler Full Service for safety reasons.

If you find this icon on our product pages, this means that maintenance is possible.

Lechler Service
You can find detailed information on the Lechler maintenance concept at
www.lechlerusa.com/en/services
Or scan the QR code.

Good to know

Do you have any questions about maintenance? Talk to us. We will gladly advise you. By phone on (800) 777-2926 or by email at info@lechlerusa.com.

FOR YOUR PLANNING
CERTIFICATES AND DECLARATIONS

We can issue various certificates and declarations for our products. It must be checked in advance whether the desired document can be issued for a certain product. We will gladly inform you about the conditions for the documents on request.

Declaration of compliance EN 10204 - 2.1

This declaration confirms that the products have been manufactured and tested in accordance with the specifications.

Test report EN 10204 - 2.2

The report can be issued for the material (including the non-specific material certificate of the supplier), surface quality or spray parameters (spray angle and flow rate, without additional document).

Inspection certificate EN 10204 - 3.1

The inspection certificate is usually issued for the material. It can be issued for selected tank cleaning nozzles on request. In this case, production of the parts takes place on an order-specific basis with restamping.

However, a specific certificate can also be issued for the flow rate, spray angle nozzle dimensions, surface quality, etc.

FDA declaration of conformity

Confirmation that the material used complies with the specifications of the FDA.

3-A declaration of conformity

Confirmation that the product complies with the requirements of 3-A Sanitary Standards No. 78-03.

Declaration of conformity according to regulations (EC) No. 1935/2004 and (EC) No. 10/2011

Confirmation that the supplied product is suitable for use in contact with food and that the material complies with the above regulations.

ATEX type examination certificate

The ATEX type examination certificate certifies approval of the tank cleaning nozzle for corresponding ATEX environments.

Supplier declaration

Declaration on certificates of origin of the European Union, issued by Lechler. A supplier declaration can be issued for a specific order (individual supplier declaration) or as a long-term supplier declaration with a validity of two years.

Certificate of origin

Official confirmation of the origin of a product.

FOR YOUR PLANNING
LECHLER ONLINE-SERVICES

3D design data

We can support you in your design work with the freely available 3D design data of Lechler nozzles and accessories.

- Time-saving, immediate download of 3D drawings and technical data
- Simple product selection like in Lechler print catalog
- Preview function with product photo and 3D graphics
- Available in all common 3D file formats

Ready at all times – the Lechler Industry app

The Lechler Industry app offers all important calculation and conversion functions in one place:

- Units converter for pressure, volume and flow rate
- Pressure/flow rate calculator for single fluid nozzles including axial-flow full cone nozzles
- Determination of the pipe diameter

iOS (Apple)

Android (Google)

Available free of charge in the Apple App Store and Google Play Store.

Current brochure

We are continuously developing our product range. You can always access the latest version of this brochure at **www.lechlerusa.com/en/news-3/introducing-catalog-600.**

Good to know

You can find current information about Lechler and our products and services online at **www.lechlerusa.com**.

EVERYTHING COVERED
CLEAN ALL OVER THE WORLD

- Subsidiary
- Sales office/sales agent

Full range from one source

Efficient cleaning requires controlled generation and distribution of every single drop.

With over 140 years of nozzle expertise and over 45,000 immediately available nozzles, spray systems and accessories, we can realize every spray jet application in a short time. The wide range of proven solid jet, flat fan and solid cone nozzles allows us to offer optimized cleaning solutions for every application.

Global representation

We are at home right at the heart of Europe. In Metzingen we develop highly-efficient cleaning nozzles and test them under practically-based conditions.

We do not just see ourselves as a supplier and manufacturer, however. Because we also support you in optimization of your cleaning processes on-site. Thanks to our international network of production locations, subsidiaries and sales offices/sales representatives, we can always guarantee fast part availability and short distances for service work. Contact us and experience this for yourself.
We look forward to hearing from you.

- Headquarters
- Production
- Sales
- Service Points

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ENGINEERING
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Subject to technical modifications and mistakes.