

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.



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# 140

1879 - 2019

2010

Expansion of production with a new, 13,000 m<sup>2</sup> 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

2023

Start of construction of the new Lechler Campus



# EVERY DROP ON TARGET HOW WE HELP TO CLEAN UP AGAIN

An excellent understanding of cleaning processes, tank geometries and nozzle design is required in order to achieve optimum cleaning of tanks and equipment. We have been at home in all three fields for a long time now. But there are still always new challenges for us. Thanks to state-of-the-art CFD analysis and highly precise measuring instruments for drop sizes and speeds, we are quickly able to develop suitable solutions in these cases.

With our proprietary *TankClean* software, we are also able to simulate complex tank geometries 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?

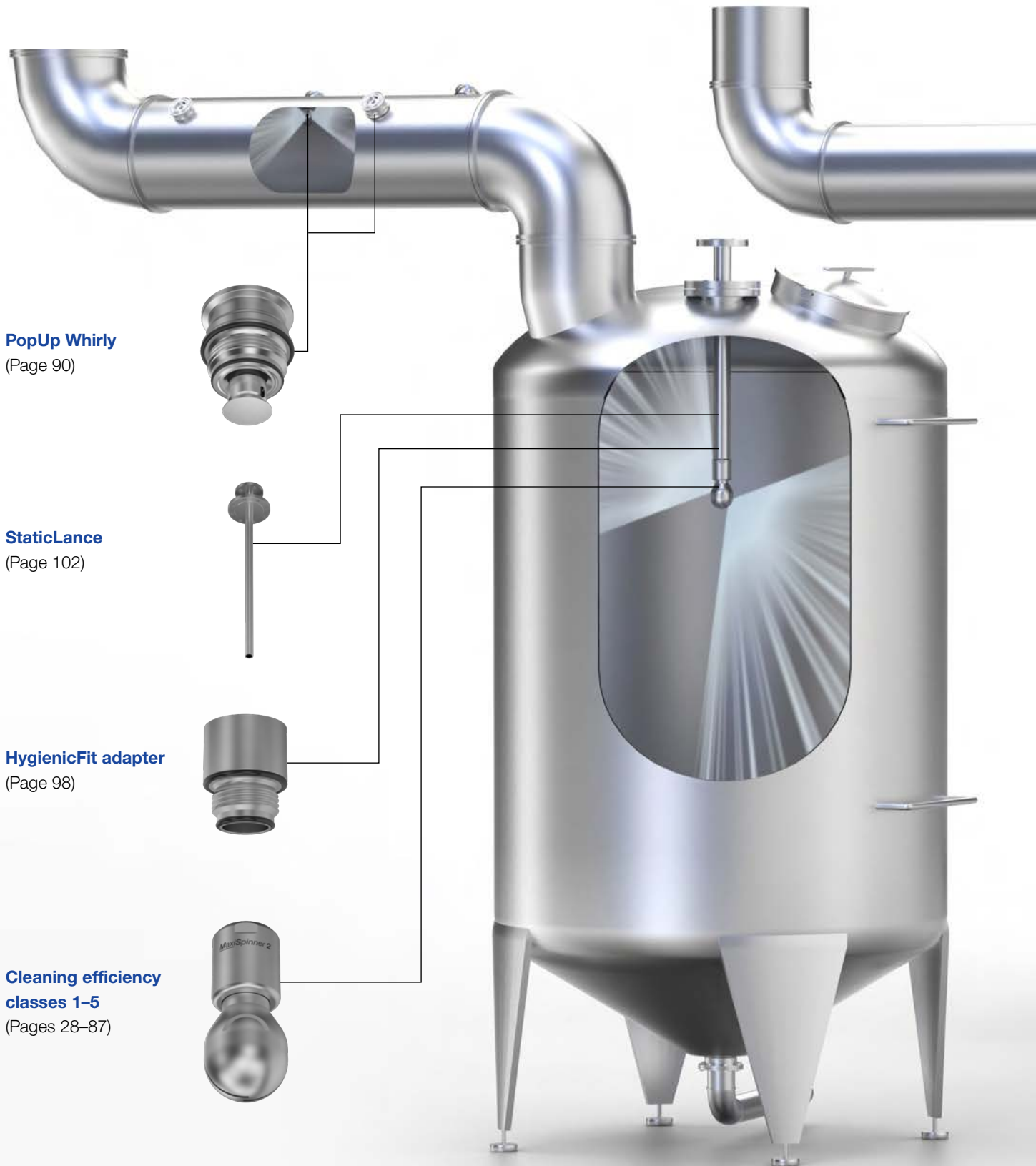
- Unique product variety of the market leader
- Cleaning efficiency classes – for easy nozzle selection
- Planning security thanks to *TankClean* simulation software
- Solutions for agitator, filler neck and line cleaning
- Extensive accessories for complete solutions
- Individual advice – on-the-spot 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 90)

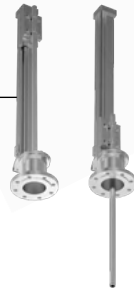
**StaticLance**  
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**Cleaning efficiency  
classes 1–5**  
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**FlexLance**  
(Page 103)



**Rotation monitoring sensor**  
(Page 100)



**Cleaning efficiency classes 1–5**  
(Pages 28–87)



**PopUp Clean**  
(Page 94)



# ➤➤ GIVE DIRT NO CHANCE TIME TO GET CLEANING

Nobody likes dirt or contaminations: they impair product quality. But removal takes time – and causes costs.

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 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.

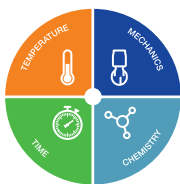
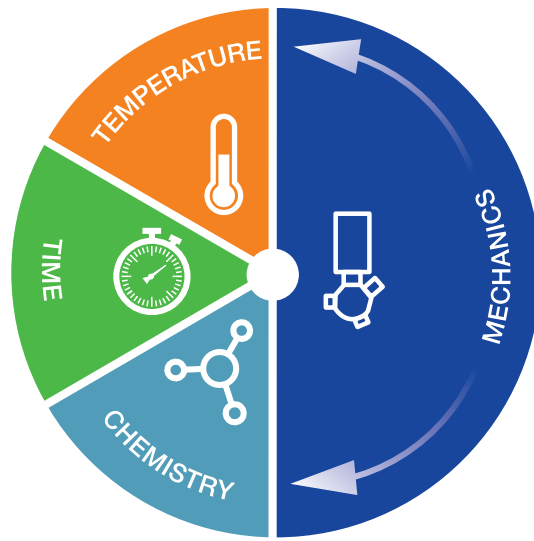
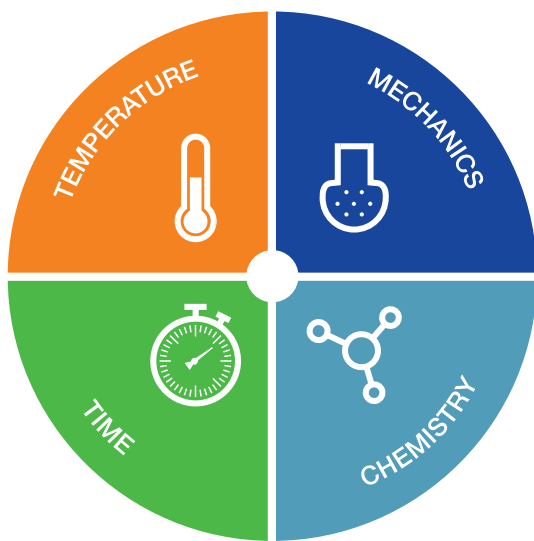


Fig. 1

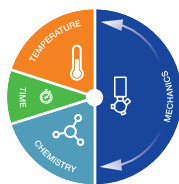


Fig. 2

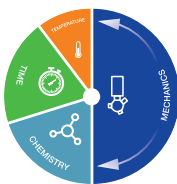
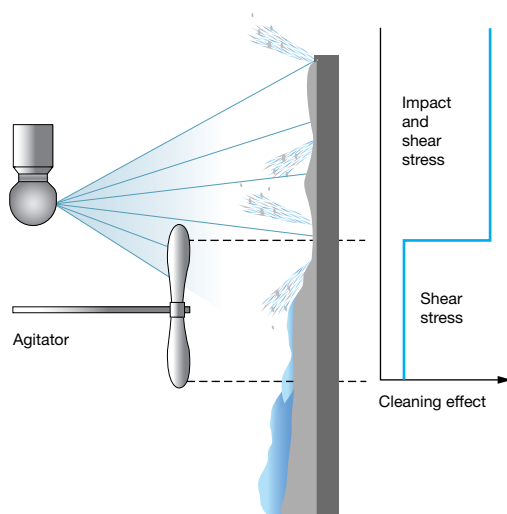


Fig. 3

### 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 thus more energy-efficiently, for example.





Cleaning by impact only occurs  
if it takes place directly

If a jet is sprayed on to a surface, this generates an 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 with direct impact.

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

Cleaning in the low pressure range (2 bar to 5 bar) is normally most effective and efficient. This is because normally larger tanks are cleaned and higher pressures would lead there to a high level of atomization with a reduced cleaning effect. Lechler offers high pressure tank cleaning machines for cleaning small tanks with the most persistent soiling.

#### Good to know

The impact is sufficient for a rough assessment of the cleaning force. However, things are often much more complex in practice. In specific applications, it is sometimes possible to realize additional savings by conducting a more detailed analysis. Talk to us. We will gladly advise you: by phone on +49 7123 962-0 or by email at [info@lechler.de](mailto:info@lechler.de).



# 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 punctiform 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 geometry with direct impact on the entire tank surface

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 +49 7123 962-0 or by email at info@lechler.de.

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

5 HIGH PRESSURE



Possible soiling type

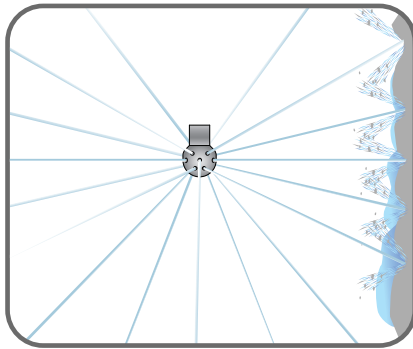


- Type** High pressure tank cleaning machine, controlled rotation about two axes
- Cleaning effect**
- Drive** Electric motor
- Typical soiling** Most persistent soiling such as dried dough in small tanks
- Nozzle design** Solid stream nozzles with controlled rotation about two axes, direct impact on the entire tank surface during a cleaning cycle



# OPERATING PRINCIPLES DESIGN AND CLEANING CAPACITY

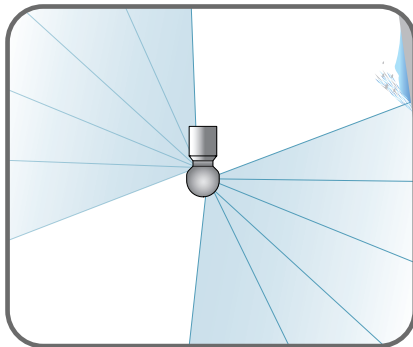
Different operating principles influence the impact and the cleaning effect. The cleaning efficiency can also be influenced by choosing the appropriate nozzle.



## Spray ball, static

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

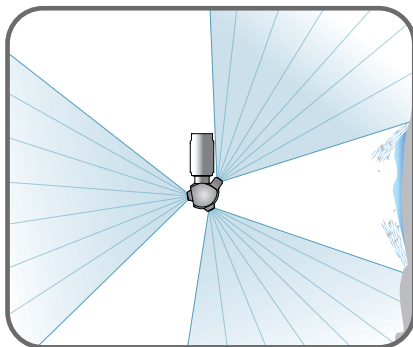
- The impact of the spray jets is punctiform and the surfaces are cleaned by the shear stress of the liquid running down the surface.
- The water consumption is comparatively high
- Increasing soiling results in a significantly longer cleaning time, and cleaning may not be complete
- Simple, inexpensive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



## Rotating cleaner, free-spinning

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

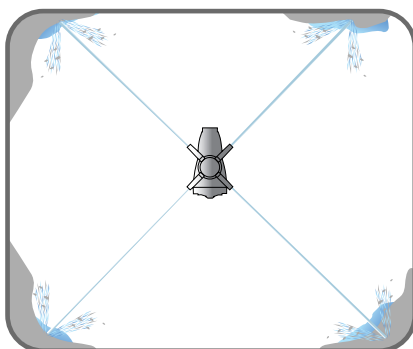
- Drive by cleaning fluid
- Fast impact repetition
- Optimum cleaning performance in the low pressure range



## Rotating cleaner, controlled rotation

These rotating cleaners are characterized by their controlled rotation and a stronger cleaning effect thanks to special flat fan geometries. 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.

- Punctiform impact over the entire tank surface
- Maximum impact
- Highest cleaning power

**A few rules of thumb**

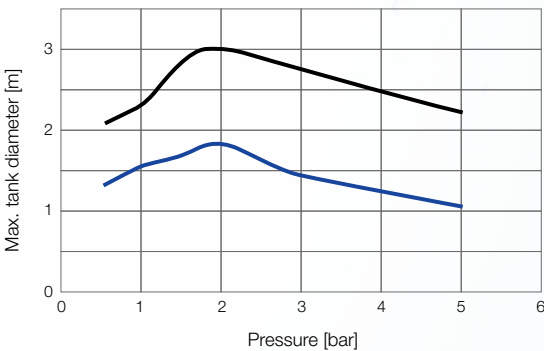
**Flow rate and impact**

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. An excessively high pressure leads to greater atomization and reduces the spraying range.

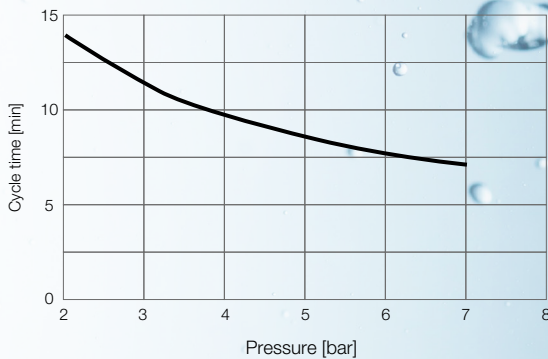
If there is more than one flow rate size within a series, the types with the largest and smallest spraying range are shown. If other flow rate sizes are available, their comparable curves run between the shown upper and lower limits. Information on the maximum tank diameter is provided in the table on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

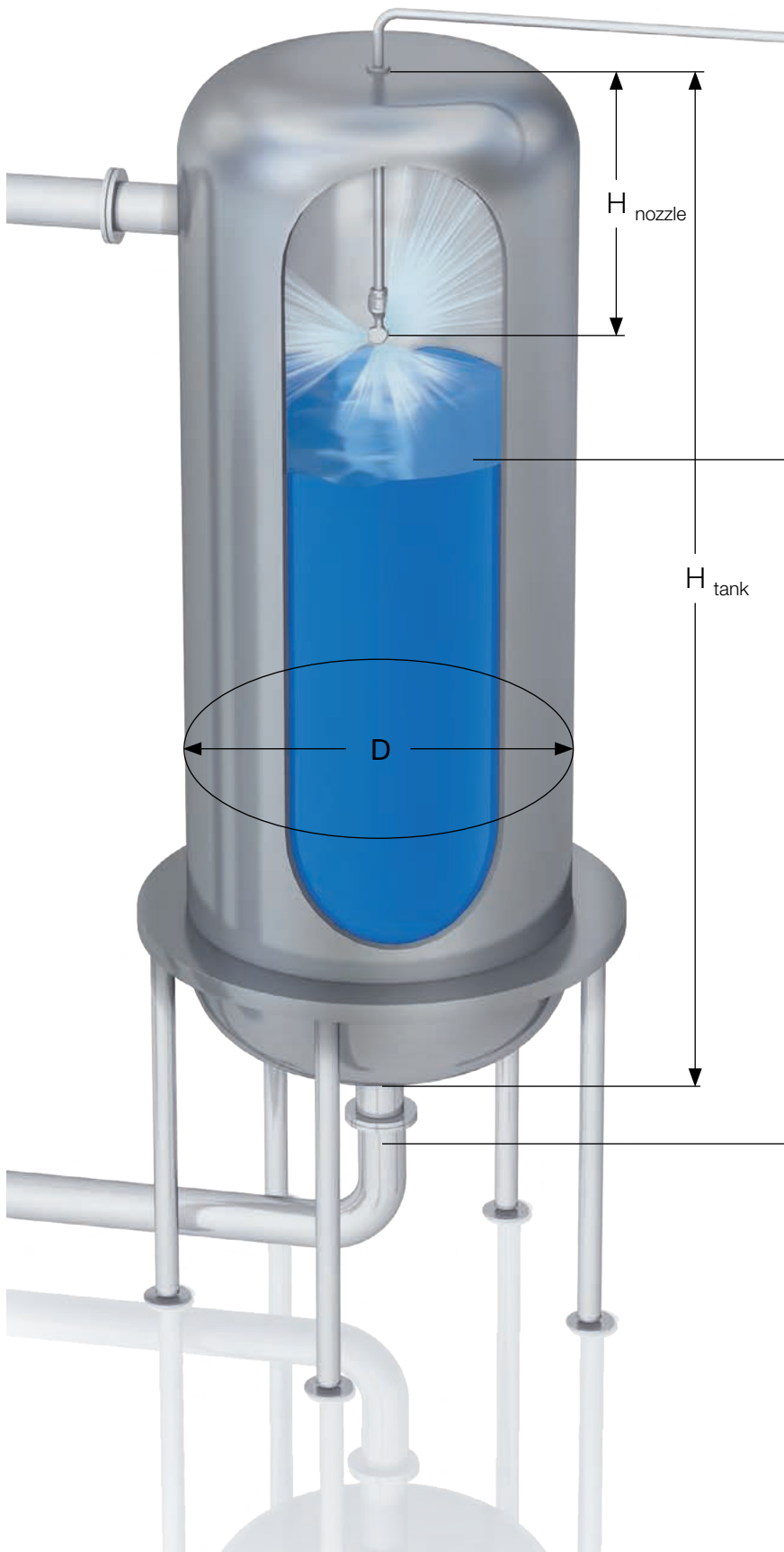
There is at least one exception to every rule of thumb. If you are unsure or need further support, make life easier for yourself and just ask us. You can contact us by phone on +49 7123 962-0 or by email at [info@lechler.de](mailto:info@lechler.de).



# 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:

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

Make sure that sufficient cleaning fluid strikes the tank ceiling.

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

### 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.

Drain ["]	Drainage rate [l/min]
1	23
1 1/2	50
2	87
2 1/2	132
3	190
4	330



#### 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 possible.

#### 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 such 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.

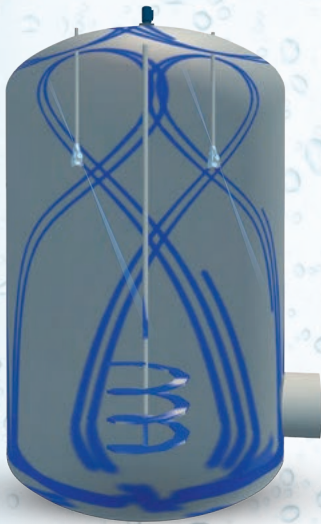
#### Pump and pipes

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 ...

- simulate tank geometries with a large number of fittings precisely and realistically
- select the right number of optimum nozzles and position them freely
- simulate the cleaning process and thus 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.lechler.com/de-en/tankclean](http://www.lechler.com/de-en/tankclean) or scan the QR code.



# 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, certified by the Chamber of Commerce and Industry.

# 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.



After free registration, you can download the required data packages in all common CAD formats from [www.lechler.com/de-en/service/cad](http://www.lechler.com/de-en/service/cad).

- 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.lechler.com/de-en/catalogues](http://www.lechler.com/de-en/catalogues).



## Good to know

You can find current information about Lechler and our products and services online at [www.lechler.com/de-en](http://www.lechler.com/de-en).





# 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 add







# 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.

## FDA



### 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.



INSIDE AND OUTSIDE

### SURFACE QUALITY

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 realized by the cleaning nozzle, the suitability for hot water or even steam operation is decisive. Our products have been tested in vertically downwards-facing installation position at a temperature of 150 °C and a pressure of 2.5 bar(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 it 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.


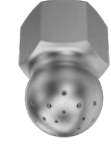
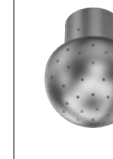
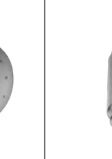




















### RECOMMENDED FILTER








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



# 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	40	42	44
							
	Operating principle						
	Max. tank diameter [m]	5.2–8.2	6.5–9.5	2.2–5.6	0.9	1.6–1.7	1.3
	Insertion diameter [mm]	35.0–102.0	31.0	20.0–90.0	9.0	20.0–48.0	29.0
	Recommended operating pressure [bar]	1.5	3.0	2.0	3.0	2.0	2.0
	Flow rate at recommended operating pressure [l/min]	52.0–364.0	22.0–145.0	15.0–1,000.0	9.8	15.0–21.0	18.0
	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 [°C]	200	200	200	200	150	50
	Max. ambient temperature [°C]	250	250	250	200	200	100
	Compatible with HygienicFit						
	Rotation monitoring						
	Weight [g]	50–660	90–100	10–300	10	50–200	40
	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
46	48	50	52	56	58
					
					
0.8–1.1	1.4–1.6	1.7–1.8	1.8–2.6	4.0–5.0	2.4–3.2
30.0	17.0–34.0	28.0–48.0	39.0–58.0	69.0	49.0–78.4
2.0	2.0	2.0	2.0	2.0	2.0
13.0–20.0	15.0–20.0	23.0–40.0	30.0–100.0	135.0–250.0	58.0–225.0
●	●	●	●	●	●
	●	●	●	●	
≤ 1.6	≤ 0.4	≤ 0.4	≤ 0.4	≤ 0.4	≤ 0.8
not suitable	not suitable	conditionally suitable	conditionally suitable	conditionally suitable	not suitable
95	200	200	200	200	95
150	250	250	250	250	200
		●	●	●	
12–30	20	80–100	230–340	1,100–1,500	140–300






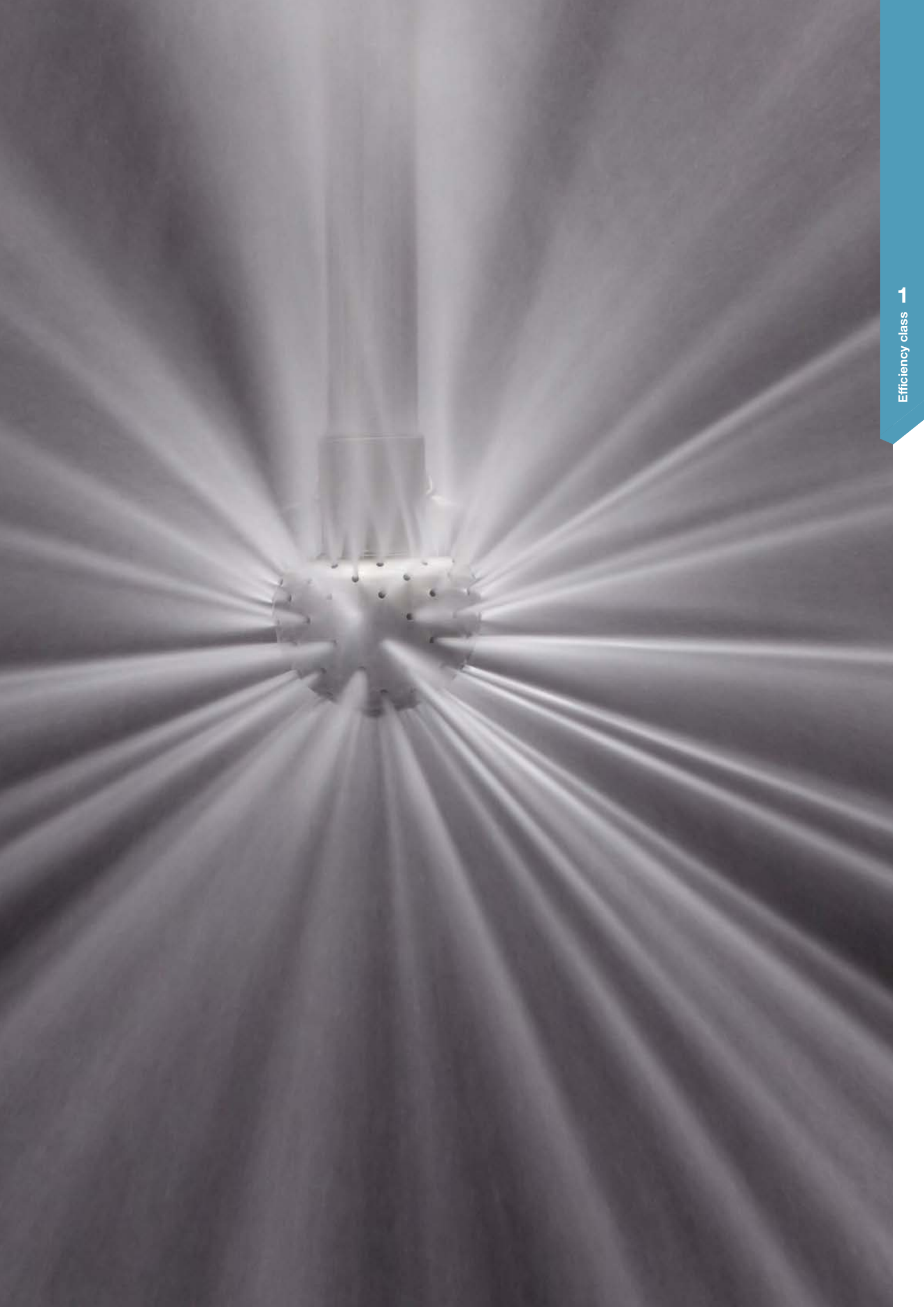
		Cleaning efficiency class 3		
Series		HygienicWhirly 594/595	Whirly 2 5W9	Gyro 577
Information on page		64	66	68
				
	Operating principle			
	Max. tank diameter [m]	0.8–2.7	1.8–3.0	3.4–5.4
	Insertion diameter [mm]	31.5–48.0	69.5	110.0–156.0
	Recommended operating pressure [bar]	3.0	2.0	3.0
	Flow rate at recommended operating pressure [l/min]	14.0–82.0	48.0–145.0	200.0–659.0
	Food-compliant	●	●	●
	ATEX available		●	
	Surface quality (outside) [µm]	≤ 0.8	≤ 0.4	≤ 0.8
	Steam suitability	suitable	not suitable	conditionally suitable
	Max. operating temperature [°C]	150	150	95
	Max. ambient temperature [°C]	150	200	200
	Compatible with HygienicFit		●	
	Rotation monitoring			
	Weight [g]	90–290	360–500	640–1,920
	Maintainable			

Cleaning efficiency class 4		Cleaning efficiency class 5			
XactClean HP 2 5S6/5S7	XactClean HP+ 5S5	MeshClean 5T2/5T3	MeshClean+ 5T5	IntenseClean 5TM	PressureClean 5TP
72	76	80	82	84	86
					
					
3.5–8.0	9.0–9.6	11.5–13.0	15.2–17.6	18.0–24.0	1.0–3.5
50.0–79.0	81.0–140.0	68.0–82.0	120.0	160.0–230.0	65.0
3.0	3.0	5.0	5.0	5.0	100.0
40.0–213.0	202.0–367.0	20.0–79.0	111.0–269.0	198.0–411.0	10.0–30.0
●	●	●	●	●	
●		●	●	●	
≤ 1.6	≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	≤ 1.6
suitable	suitable	suitable	suitable	not suitable	not suitable
150	150	150	150	95	90
150	150	150	150	140	50
●	●	●	●		
●	●	●	●	●	●
650–900	1,120–1,930	1,000	4,000	7,400–7,880	2,900–5,300
●	●	●	●	●	●



# CLEANING EFFICIENCY CLASS 1 RINSE EFFICIENTLY AND RELIABLY

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



# Static spray balls Series 527



## Features:













- Suitable for the highest hygiene requirements due to 3-A certification
- High surface quality
- Suitable for very high temperatures



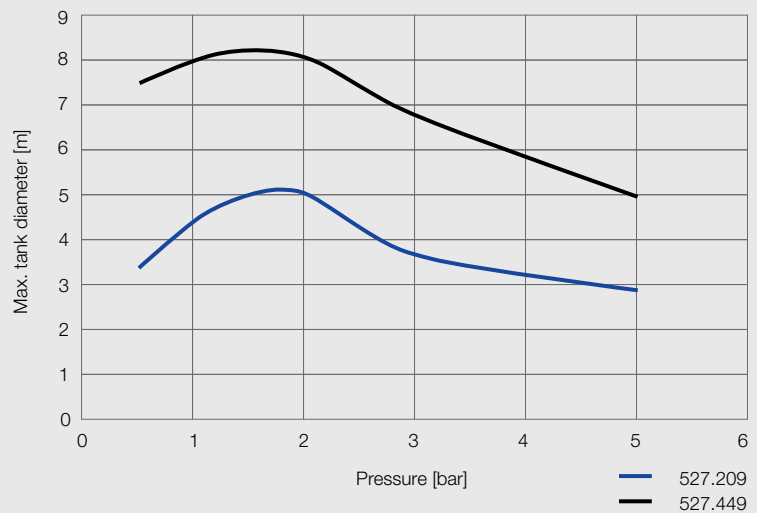
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

## Series 527

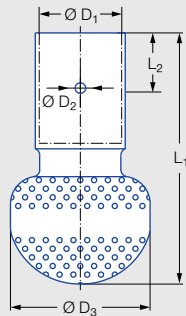
## Technical data:

 <b>Maximum operating temperature</b> 200 °C	 <b>Maximum ambient temperature</b> 250 °C	 <b>Installation</b> Operation in every installation position	 <b>Bearing</b> Static – no bearing
 <b>Material</b> Stainless steel 1.4404 (316L)	 <b>Weight</b> 50–660 g	 <b>Surface quality</b> ≤ 0.8 µm	 <b>Surface quality</b> ≤ 0.8 µm
 <b>Steam suitability</b> Suitable	 <b>Insertion diameter</b> 35–102 mm	 <b>Recommended filter</b> Smaller than the narrowest cross-section	 <b>Recommended operating pressure</b> 1.5 bar

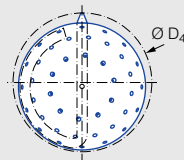
**Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



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 customer connecting pipe and secured with the supplied cotter pin.

Spray angle	Ordering no.	Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]				$\dot{V}$ water		Dimensions [mm]						Max. tank diameter [m]
	Type		p [bar] ( $p_{max} = 5$ bar)				at 1.5 bar [m <sup>3</sup> /h]	at 2 bar [m <sup>3</sup> /h]	L <sub>1</sub>	L <sub>2</sub>	$\varnothing D_1$	$\varnothing D_2$	$\varnothing D_3$	$\varnothing D_4$	
			1.0	1.5	2.0	3.0									
 360°	<a href="#">527.209.1Y.00.75</a>	0.8	42	<b>52</b>	60	73	3.1	3.6	68.0	12.7	19.0	3.3	32.0	35.0	5.2
	<a href="#">527.289.1Y.01.50</a>	1.1	120	<b>147</b>	170	208	8.8	10.2	116.0	25.4	38.3	4.9	65.0	71.0	6.0
	<a href="#">527.449.1Y.02.00</a>	1.7	297	<b>364</b>	420	514	21.8	25.2	152.0	25.4	51.0	4.9	102.0	102.0	8.2

#### 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.

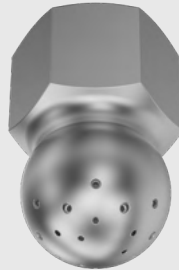
# Static spray balls

## Series 540/541



### Features:













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




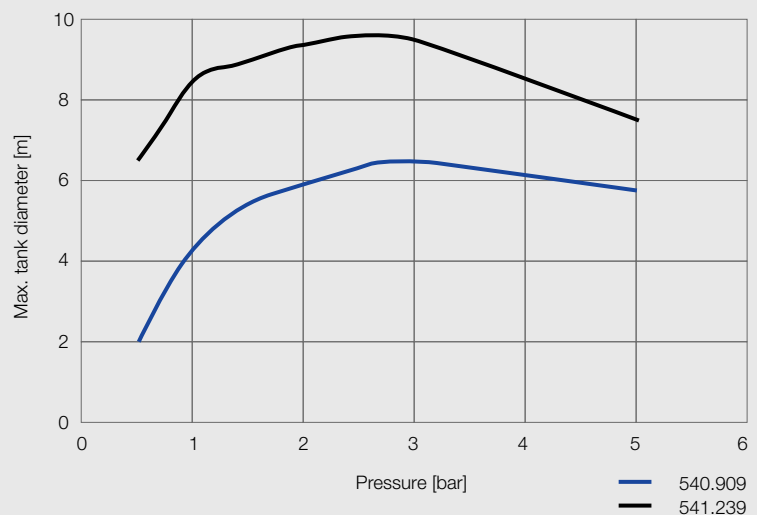
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 540/541

### Technical data:

 <b>Maximum operating temperature</b> 200 °C	 <b>Maximum ambient temperature</b> 250 °C	 <b>Installation</b> Operation in every installation position	 <b>Bearing</b> Static – no bearing
 <b>Material</b> Stainless steel 1.4305 (303)	 <b>Weight</b> 90–100 g	 <b>Surface quality</b> √Ra ≤ 6.3 μm <small>OUTSIDE</small>	 <b>Surface quality</b> √Ra ≤ 6.3 μm <small>INSIDE</small>
 <b>Steam suitability</b> Suitable	 <b>Insertion diameter</b> 31 mm	 <b>Recommended filter</b> Smaller than the narrowest cross-section	 <b>Recommended operating pressure</b> 3 bar

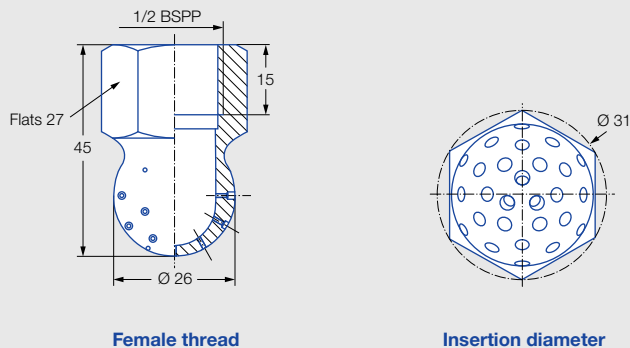
 **Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.




Overview of maximum tank diameter depending on pressure



Dimensions in mm.



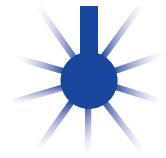
Spray angle	Ordering no.	Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]					$\dot{V}$ water	Max. tank diameter [m]
	Type		$p$ [bar] ( $p_{max} = 10$ bar)						
			0.5	1.0	2.0	<b>3.0</b>	5.0	at 3 bar [m <sup>3</sup> /h]	
240° 	<b>540.909.16</b>	0.8	9	13	18	<b>22</b>	28	1.3	6.5
	<b>540.989.16</b>	1.0	14	20	28	<b>34</b>	44	2.0	7.0
	<b>541.109.16</b>	1.5	29	40	57	<b>70</b>	90	4.2	7.5
	<b>541.189.16</b>	2.0	45	64	90	<b>110</b>	142	6.6	8.3
	<b>541.239.16</b>	2.3	59	83	118	<b>145</b>	187	8.7	9.5

NPT threads on request.

**Information on operation**

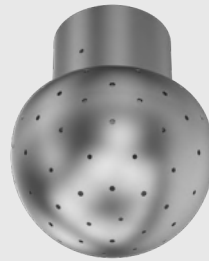
Use above the recommended pressure will have a negative effect on the cleaning result and wear.

# 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)



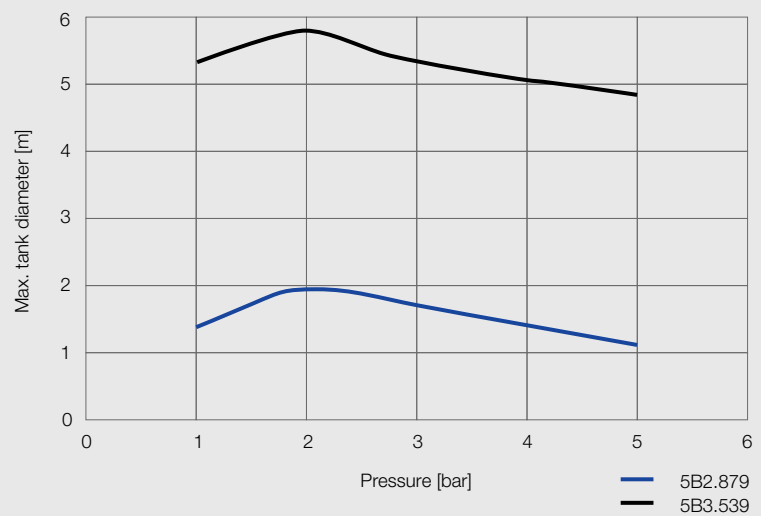
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

## Series 5B2/5B3

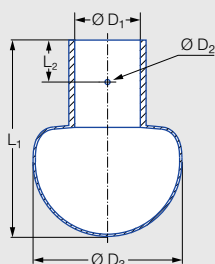
## Technical data:

<b>Maximum operating temperature</b> 200 °C	<b>Maximum ambient temperature</b> 250 °C	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Static – no bearing
<b>Material</b> 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)	<b>Weight</b> 10–300 g	<b>Surface quality</b> Ra ≤ 0.8 µm OUTSIDE polished Ra ≤ 0.5 µm	<b>Surface quality</b> Ra ≤ 0.8 µm INSIDE
<b>Steam suitability</b> Suitable	<b>Insertion diameter</b> 20–90 mm	<b>Recommended filter</b> Smaller than the narrowest cross-section	<b>Recommended operating pressure</b> 2 bar

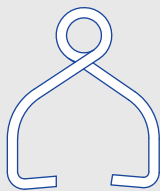
**Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



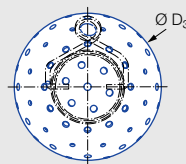
Overview of maximum tank diameter depending on pressure



Pin 1



Pin 2-5


 Insertion diameter  $D_3$   
of slip-on connection

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

### Slip-on connection according to DIN 10357, series B (replaces DIN 11850, series 1)

Spray angle	Ordering no.				Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]				$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]	Dimensions [mm]					Pin	Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] ( $p_{max} = 5$ bar)					$L_1$	$L_2$	$\varnothing D_1$	$\varnothing D_2$	$\varnothing D_3$		
		1Y	21			0.5	1.0	2.0	3.0								
		1.4404 (316L)	2.4602 (Alloy 22)														
180°	5B3.083	●	●	D1.80	1.2	25	35	50	61	3.0	42.0	9.0	18.2	2.2	28.0	1	2.2
	5B3.253	●	●	D2.20	1.8	65	92	130	159	7.8	84.0	18.0	22.2	2.2	64.0	2	3.0
	5B3.323	●	●	D2.80	2.3	100	141	200	245	12.0	84.0	18.0	28.2	2.2	64.0	3	3.5
	5B3.463	●	●	D5.20	3.3	230	325	460	563	27.6	111.0	25.0	52.3	3.0	90.0	5	5.4
180°	5B3.114	●	●	D1.80	1.4	30	42	60	74	3.6	42.0	9.0	18.2	2.2	28.0	1	2.2
	5B3.274	●	●	D2.20	2.3	75	106	150	184	9.0	84.0	18.0	22.2	2.2	64.0	2	3.0
	5B3.394	●	●	D2.80	3.0	145	205	290	355	17.4	84.0	18.0	28.2	2.2	64.0	3	5.0
	5B3.444	●	●	D5.20	3.2	200	283	400	490	24.0	111.0	25.0	52.3	3.0	90.0	5	5.2
270°	5B3.305	●	●	D2.20	1.9	90	127	180	221	10.8	84.0	18.0	22.2	2.2	64.0	2	3.5
	5B3.345	●	●	D2.80	2.1	115	163	230	282	13.8	84.0	18.0	28.2	2.2	64.0	3	5.0
	5B3.385	●	●	D3.40	2.2	140	198	280	343	16.8	84.0	18.0	34.3	2.2	64.0	4	5.2
	5B3.405	●	●	D3.40	2.4	160	226	320	392	19.2	84.0	18.0	34.3	2.2	64.0	4	5.2
	5B3.425	●	●	D2.80	2.8	180	255	360	441	21.6	84.0	18.0	28.2	2.2	64.0	3	5.2
	5B3.445	●	●	D4.00	2.7	205	290	410	502	24.6	84.0	18.0	40.3	2.2	64.0	4	5.4
	5B3.475	●	●	D3.40	3.1	235	332	470	576	28.2	84.0	18.0	34.3	2.2	64.0	4	5.4
	5B3.535	●	●	D5.20	3.6	335	474	670	821	40.2	111.0	25.0	52.3	3.0	90.0	5	5.6
	5B3.605	●	●	D5.20	4.5	500	707	1,000	1,225	60.0	111.0	25.0	52.3	3.0	90.0	5	5.6
360°	5B2.879	●	●	D0.80	0.8	8	11	15	18	0.9	37.0	9.0	8.2	2.2	20.0	1	2.0
	5B3.089	●	●	D1.20	1.0	25	35	50	61	3.0	42.0	9.0	12.2	2.2	28.0	1	2.2
	5B3.139	●	●	D1.20	1.6	33	46	65	80	3.9	42.0	9.0	12.2	2.2	28.0	1	2.3
	5B3.209	●	●	D1.80	1.5	50	71	100	123	6.0	42.0	9.0	18.2	2.2	28.0	1	2.5
	5B3.309	●	●	D2.20	1.7	90	127	180	221	10.8	84.0	18.0	22.2	2.2	64.0	2	3.5
	5B3.379	●	●	D2.80	2.1	130	184	260	318	15.6	84.0	18.0	28.2	2.2	64.0	3	5.2
	5B3.389	●	●	D4.00	2.1	140	198	280	343	16.8	84.0	18.0	40.3	2.2	64.0	4	5.2
	5B3.409	●	●	D3.40	2.3	160	226	320	392	19.2	84.0	18.0	34.2	2.2	64.0	4	5.2
	5B3.449	●	●	D2.80	3.0	205	290	410	502	24.6	84.0	18.0	28.2	2.2	64.0	3	5.4
	5B3.489	●	●	D3.40	2.9	255	361	510	625	30.6	84.0	18.0	34.2	2.2	64.0	4	5.5
	5B3.499	●	●	D4.00	2.8	270	382	540	661	32.4	84.0	18.0	40.3	2.2	64.0	4	5.5
	5B3.539	●	●	D5.20	3.2	335	474	670	821	40.2	111.0	25.0	52.3	3.0	90.0	5	5.6

Pin	Ordering no.	
	1Y	21
	1.4404 (316L)	2.4602 (Alloy 22)
1	095.013.1Y.06.55	095.013.21.06.55
2	095.013.1Y.06.58	095.013.21.06.58
3	095.013.1Y.06.56	095.013.21.06.56
4	095.013.1Y.06.59	095.013.21.06.59
5	095.013.1Y.06.57	

#### Note

Available in polished version on request.

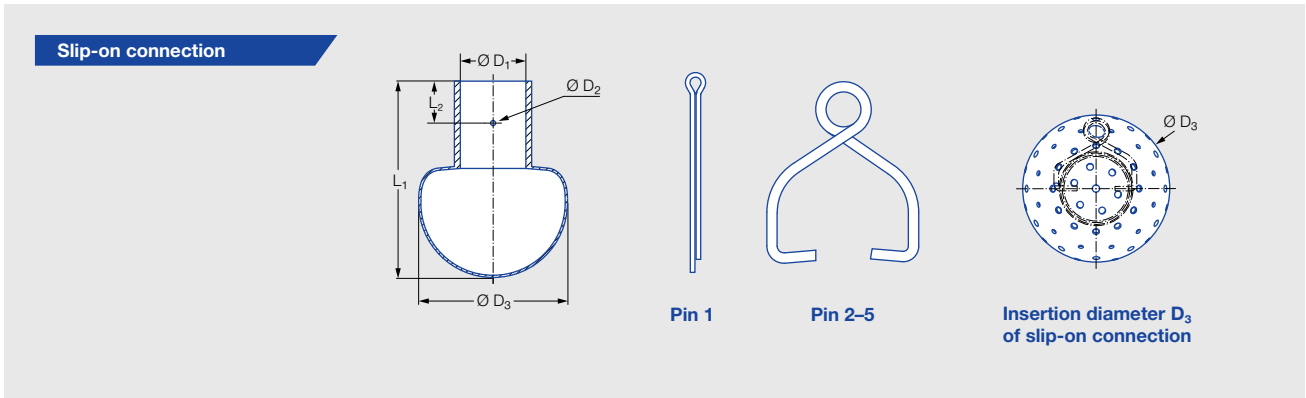
#### Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22) 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.


Ordering Type + Material no. + Connection = Ordering no.  
example: 5B3.083 + 1Y + D1.80 = 5B3.083.1Y.D1.80



**Slip-on connection according to DIN EN 10357 series A (replaces DIN 11850, series 2)**

Spray angle	Ordering no.				Narrowest cross-section Ø [mm]	V̇ water [l/min]				V̇ water at 2 bar [m³/h]	Dimensions [mm]					Pin	Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p <sub>max</sub> = 5 bar)					L <sub>1</sub>	L <sub>2</sub>	Ø D <sub>1</sub>	Ø D <sub>2</sub>	Ø D <sub>3</sub>		
		1Y	21			0.5	1.0	2.0	3.0								
		1.4404 (316L)	2.4602 (Alloy 22)														
360° 	5B3.149	●	●	D2.90	0.9	35	50	70	86	4.2	84.0	18.0	29.2	2.2	64.0	3	2.3
	5B3.299	●	●	D2.90	1.5	83	117	165	202	9.9	84.0	18.0	29.2	2.2	64.0	3	3.2
	5B3.359	●	●	D2.90	1.9	115	163	230	282	13.8	84.0	18.0	29.2	2.2	64.0	3	5.0
	5B3.399	●	●	D2.90	2.2	150	212	300	367	18.0	84.0	18.0	29.2	2.2	64.0	3	5.2
	5B3.429	●	●	D2.90	2.6	180	255	360	441	21.6	84.0	18.0	29.2	2.2	64.0	3	5.2
	5B3.539	●	●	D5.30	3.2	335	474	670	821	40.2	111.0	25.0	53.3	3.0	90.0	5	5.6

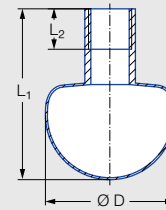
**Slip-on connection according to DIN EN 10357 series D (ASME BPE 1997, OD-tube compatible)**

Spray angle	Ordering no.				Narrowest cross-section Ø [mm]	V̇ water [l/min]				V̇ water at 2 bar [m³/h]	Dimensions [mm]					Pin	Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p <sub>max</sub> = 5 bar)					L <sub>1</sub>	L <sub>2</sub>	Ø D <sub>1</sub>	Ø D <sub>2</sub>	Ø D <sub>3</sub>		
		1Y	21			0.5	1.0	2.0	3.0								
		1.4404 (316L)	2.4602 (Alloy 22)														
360° 	5B3.089	●	●	A1.00	1.0	25	35	50	61	3.0	42.0	9.0	9.8	2.2	28.0	1	2.2
	5B3.209	●	●	A1.90	1.5	50	71	100	123	6.0	42.0	9.0	19.3	2.2	28.0	1	2.5
	5B3.309	●	●	A1.90	1.7	90	127	180	221	10.8	84.0	18.0	19.3	2.2	64.0	1	3.5
	5B3.379	●	●	A2.60	2.1	130	184	260	318	15.6	84.0	18.0	25.6	2.2	64.0	3	5.2
	5B3.449	●	●	A3.80	3.0	205	290	410	502	24.6	84.0	18.0	38.3	2.2	64.0	4	5.4
	5B3.539	●	●	A5.10	3.2	335	474	670	821	40.2	111.0	25.0	51.1	3.0	90.0	5	5.6


**Information on slip-on connection**

- Cotter pin made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22) included.
- Depending on the adapter diameter, the flow rate may increase due to the leakage between the adapter and spray ball.

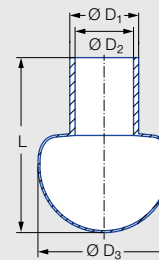
## Threaded connection




## Threaded connection

Spray angle	Ordering no.							Narrowest cross-section Ø [mm]	V̇ water [l/min]				V̇ water at 2 bar [m³/h]	Dimensions [mm]			Max. tank diameter [m]
	Type	Mat. no.		Connection					p [bar] (p <sub>max</sub> = 5 bar)					L <sub>1</sub>	L <sub>2</sub>	Ø D	
		1Y	21	1/8 BSPP male	1/2 BSPP	1 BSPP	2 BSPP		0.5	1.0	2.0	3.0					
		1.4404 (316L)	2.4602 (Alloy 22)														
360° 	5B2.879	●	●	AA				0.8	8	11	15	18	0.9	37	8	20	2.0
	5B3.309	●	●		AH			1.9	90	127	180	221	10.8	84	14	64	3.5
	5B3.379	●	●				AN	2.1	130	184	260	318	15.6	84	18	64	5.2
	5B3.539	●					AW	3.1	335	474	670	821	40.2	111	24	90	5.6

## Welded connection



## Welded connection according to ISO 2037


Spray angle	Ordering no.				Narrowest cross-section Ø [mm]	V̇ water [l/min]				V̇ water at 2 bar [m³/h]	Dimensions [mm]				Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p <sub>max</sub> = 5 bar)					L	Adapter			
		1Y	21			0.5	1.0	2.0	3.0			Ø D <sub>1</sub>	Ø D <sub>2</sub>	Ø D <sub>3</sub>	
		1.4404 (316L)	2.4602 (Alloy 22)												
360° 	5B2.879	●	●	W1.20	0.8	8	11	15	18	0.9	37.0	12.0	10.0	20.0	2.0
	5B3.089	●	●	W1.20	1.0	25	35	50	61	3.0	42.0	12.0	10.0	28.0	2.2
	5B3.209	●	●	W1.70	1.5	50	71	100	123	6.0	42.0	17.2	15.2	28.0	2.5
	5B3.309	●	●	W2.50	1.7	90	127	180	221	10.8	84.0	25.0	22.6	64.0	3.5
	5B3.379	●	●	W2.50	2.1	130	184	260	318	15.6	84.0	25.0	22.6	64.0	5.2
	5B3.449	●	●	W3.80	3.0	205	290	410	502	24.6	84.0	38.0	35.6	64.0	5.4

## Information on operation

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



# CLEANING EFFICIENCY CLASS 2 RINSING AND LIGHT CLEANING

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



# 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




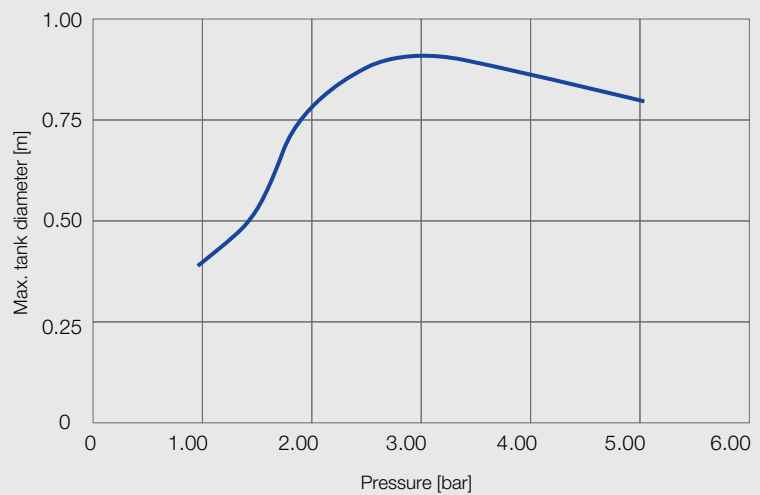
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 500.234

## Technical data:

 <b>Maximum operating temperature</b> 200 °C	 <b>Maximum ambient temperature</b> 200 °C	 <b>Installation</b> Operation in every installation position	 <b>Bearing</b> Kolsterised slide bearing
 <b>Material</b> Stainless steel 1.4404 (316L)	 <b>Weight</b> 10 g	 <b>Surface quality</b> Ra ≤ 1.6 µm <small>OUTSIDE</small>	 <b>Surface quality</b> Ra ≤ 1.6 µm <small>INSIDE</small>
 <b>Steam suitability</b> Suitable	 <b>Insertion diameter</b> 9 mm	 <b>Recommended filter</b> Line strainer with a mesh size of 0.3 mm/50 mesh	 <b>Recommended operating pressure</b> 3 bar

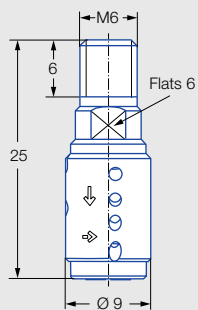
 **Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.




Overview of maximum tank diameter depending on pressure



Dimensions in mm.



Male thread

Spray angle	Ordering no.	Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]				$\dot{V}$ water	Max. tank diameter [m]
	Type		p [bar] ( $p_{max} = 5$ bar)					
			1.0	2.0	3.0	5.0	at 3 bar [m <sup>3</sup> /h]	
300° 	<b>500.234.G9.00</b>	1.8	5.7	8.0	<b>9.8</b>	12.7	0.6	0.9

**Information on operation**

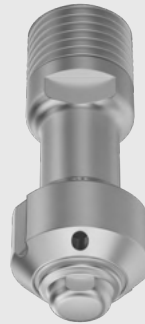
Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

# Rotating cleaning nozzle MicroWhirly Series 566



## Features:

- Cleaning with effective flat fan jets
- Robust slide bearing made of PEEK
- Connection via thread or slip-on connection



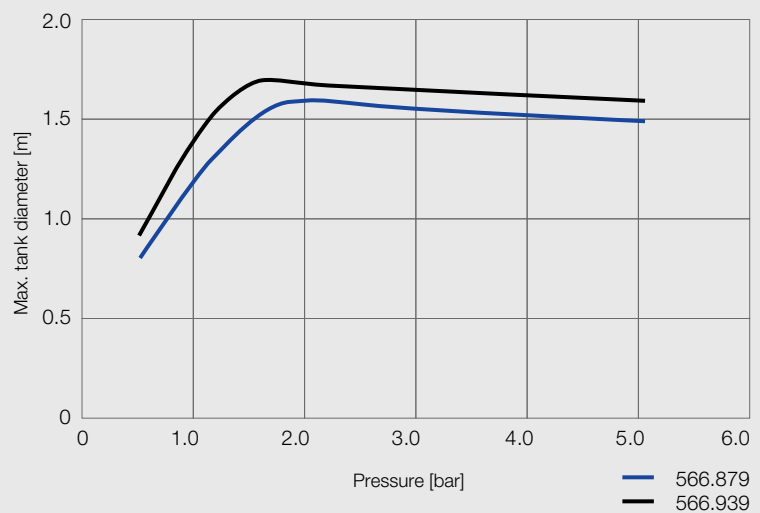
Function video  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 566

## Technical data:

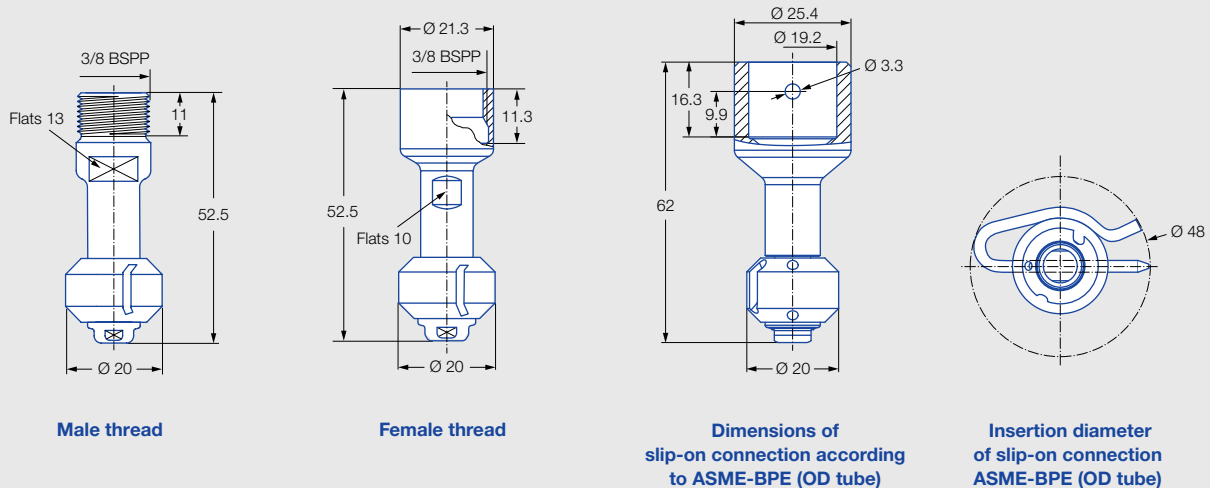
<b>Maximum operating temperature</b> 150 °C 90 °C (ATEX)	<b>Maximum ambient temperature</b> 200 °C 120 °C (ATEX)	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Slide bearing made of PEEK
<b>Material</b> Stainless steel 1.4404 (316L), PEEK ESD (only ATEX version)	<b>Weight</b> 50–200 g	<b>Surface quality</b> Ra ≤ 1.6 µm <small>OUTSIDE</small>	<b>Surface quality</b> Ra ≤ 1.6 µm <small>INSIDE</small>
<b>Steam suitability</b> Suitable	<b>Insertion diameter</b> 20–48 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.3 mm/50 mesh	<b>Recommended operating pressure</b> 2 bar




**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 in mm.



Spray angle	Ordering no.				Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water at 2 bar [m³/h]	Max. tank diameter [m]
	Type	Connection				p [bar] (p <sub>max</sub> = 6 bar)				
		3/8 BSPP male	3/8 BSPP female	3/4" slip-on connection		1.0	2.0	3.0		
180° 	566.873.1Y	AE	AF	TF07	1.0	12	15	18	0.9	1.6
	566.933.1Y	AE	AF	TF07	2.4	15	21	26	1.3	1.7
180° 	566.874.1Y	AE	AF	TF07	1.0	12	15	18	0.9	1.6
	566.934.1Y	AE	AF	TF07	2.4	15	21	26	1.3	1.7
360° 	566.879.1Y	AE	AF	TF07	1.0	12	15	18	0.9	1.6
	566.939.1Y	AE	AF	TF07	2.4	15	21	26	1.3	1.7

NPT threads and weld-on version on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

#### Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 095.022.1Y.50.94.E).
- 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 + Connection = Ordering no.  
566.873.1Y + AE = 566.873.1Y.AE

#### Ordering example with ATEX approval. No 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



##### 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 = Ordering no.  
566.873.1Y + AE + EX = 566.873.1Y.AE.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



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 500.186

## Technical data:



**Maximum operating temperature**  
50 °C



**Maximum ambient temperature**  
100 °C



**Installation**  
Vertically downwards



**Bearing**  
Ball bearing made of stainless steel 1.4401 (316)



**Material**  
POM, stainless steel 1.4401 (316)



**Weight**  
40 g



**Surface quality**  
Ra ≤ 1.6 µm



**Surface quality**  
Ra ≤ 1.6 µm



**Steam suitability**  
Not suitable



**Insertion diameter**  
29 mm



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

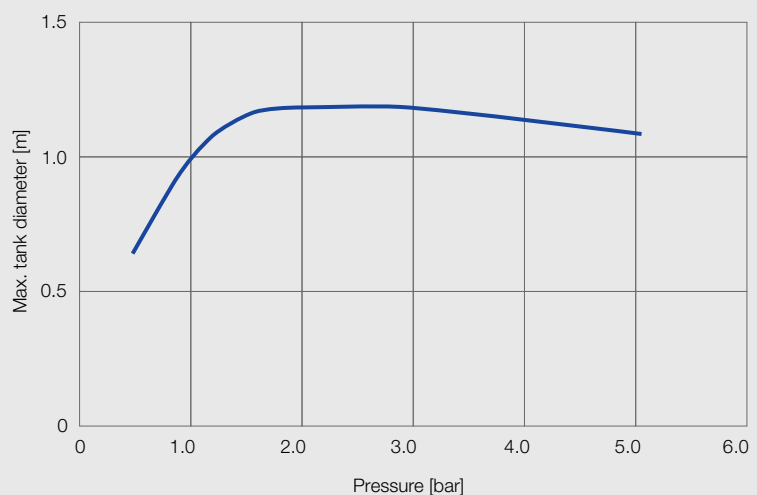


**Recommended operating pressure**  
2 bar



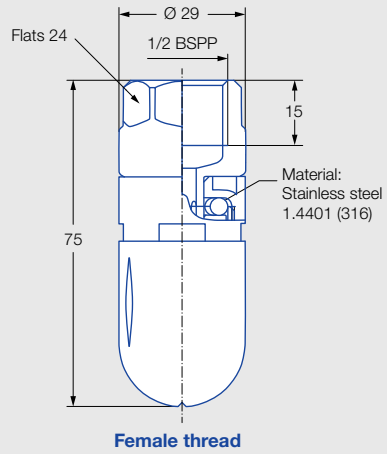
### Max. tank diameter


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 in mm.



Spray angle	Ordering no.	Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water at 2 bar [m³/h]	Max. tank diameter [m]
	Type		p [bar] (p <sub>max</sub> = 5 bar)				
			1.0	2.0	3.0		
300° 	<b>500.186.56.AH</b>	1.9	13	<b>18</b>	22	1.1	1.3

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

# Rotating cleaning nozzle PVDF MicroWhirly Series 500.191



## Features:

- Developed for work in corrosive environments
- Good suitability for food contact and foam delivery
- Made completely of PVDF



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 500.191

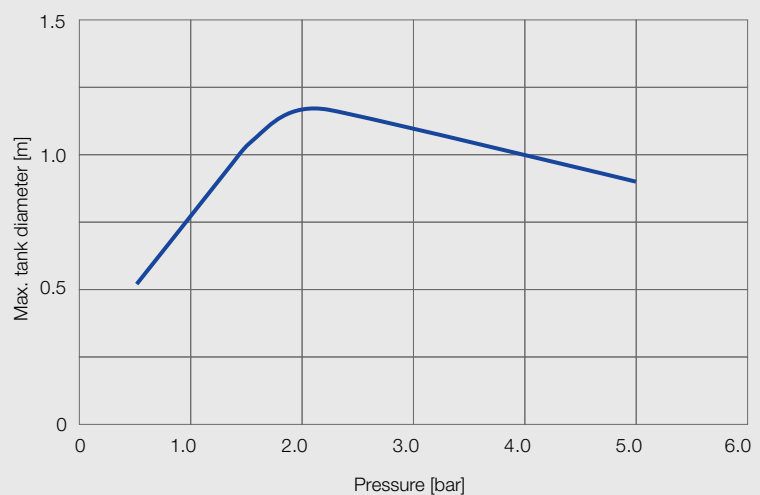
## Technical data:

<b>Maximum operating temperature</b> 95 °C	<b>Maximum ambient temperature</b> 150 °C	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Slide bearing made of PVDF
<b>Material</b> PVDF	<b>Weight</b> 12–30 g	<b>Surface quality</b> Ra ≤ 1.6 µm <small>OUTSIDE</small>	<b>Surface quality</b> Ra ≤ 1.6 µm <small>INSIDE</small>
<b>Steam suitability</b> Not suitable	<b>Insertion diameter</b> 30 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.3 mm/50 mesh	<b>Recommended operating pressure</b> 2 bar



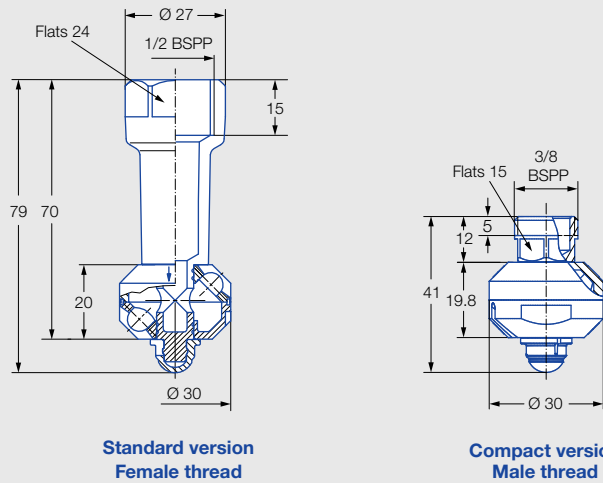
### Max. tank diameter





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 in mm.


**Standard version  
Female thread**
**Compact version  
Male thread**
**Standard version with female thread**

Spray angle	Ordering no.	Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]	Max. tank diameter [m]
	Type		p [bar] (p <sub>max</sub> = 5 bar)				
			1.0	2.0	3.0		
180° 	<b>500.191.5E.02</b>	2.2	9	<b>13</b>	16	0.8	0.8
180° 	<b>500.191.5E.01</b>	2.2	9	<b>13</b>	16	0.8	0.8
270° 	<b>500.191.5E.31</b>	2.2	14	<b>20</b>	25	1.2	1.1
360° 	<b>500.191.5E.00</b>	2.2	14	<b>20</b>	25	1.2	1.1

**Compact version with male thread**

Spray angle	Ordering no.	Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]	Max. tank diameter [m]
	Type		p [bar] (p <sub>max</sub> = 5 bar)				
			1.0	2.0	3.0		
180° 	<b>500.191.5E.21</b>	2.2	9	<b>13</b>	16	0.8	0.8
360° 	<b>500.191.5E.22</b>	2.2	14	<b>20</b>	25	1.2	1.1

**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
- Completely made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5M1

## Technical data:



**Maximum operating temperature**  
 200 °C  
 95 °C (ATEX)



**Maximum ambient temperature**  
 250 °C  
 200 °C (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**  
 20 g



**Surface quality**  
 $Ra \leq 0.4 \mu m$   
OUTSIDE



**Surface quality**  
 $Ra \leq 0.8 \mu m$   
INSIDE



**Steam suitability**  
 Not suitable



**Insertion diameter**  
 17–34 mm



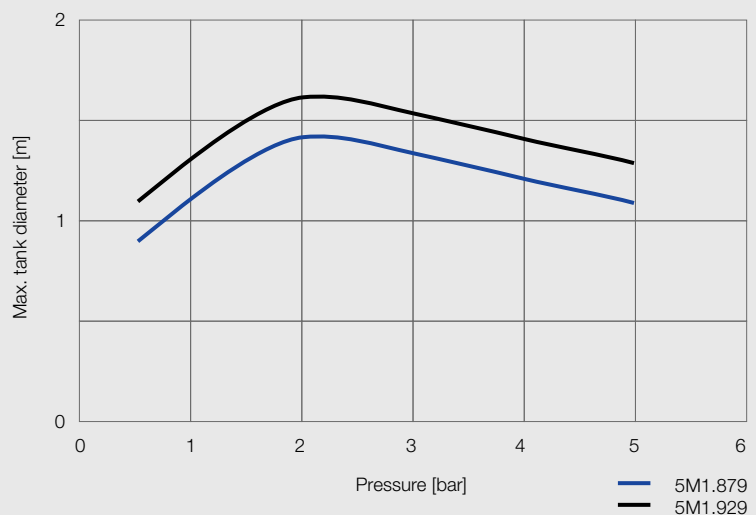
**Recommended filter**  
 Line strainer with a mesh size of 0.1 mm/170 mesh



**Recommended operating pressure**  
 2 bar

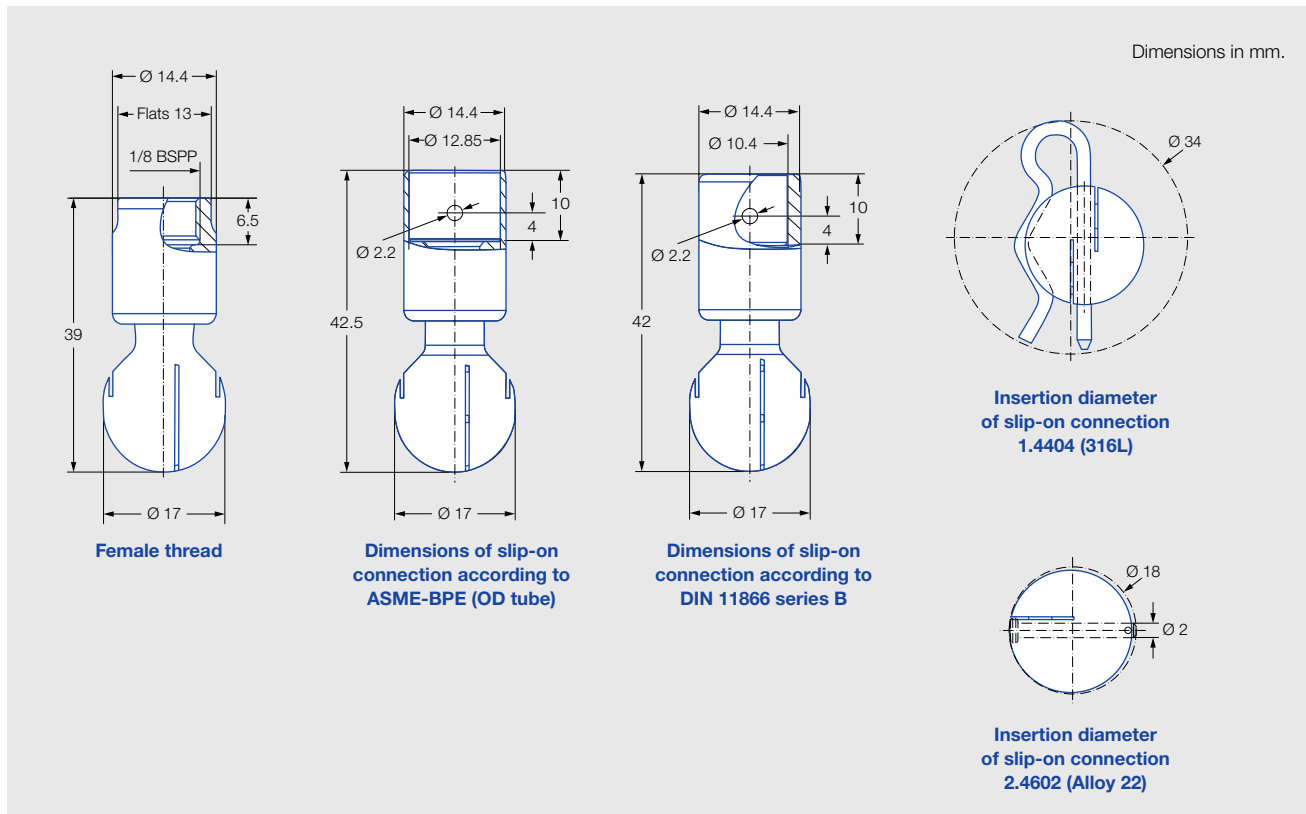



**Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



Overview of maximum tank diameter depending on pressure





Spray angle	Ordering no.						Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water at 2 bar [m³/h]	Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p <sub>max</sub> = 7 bar)						
		1Y	21	1/8 BSPP	Ø 10.2 mm in accordance with DIN 11866 Series B	1/2" slip-on connection		1.0	2.0	3.0		
360° 	5M1.879	●	●	AB	TF04	TF05 <sup>1</sup>	0.4	11	15	18	0.9	1.4
	5M1.929	●	●	AB	TF04	TF05 <sup>1</sup>	0.5	14	20	25	1.2	1.6

<sup>1</sup> The connection variant TF05 is not available as an ATEX variant.

NPT threads and weld-on version on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

#### Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 05M.130.1Y.00.00). For version made of 2.4602 (Alloy 22), bolt with head incl. cotter pin included (ordering 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 = Ordering no.  
5M1.879 + 1Y + AB = 5M1.879.1Y.AB

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

##### Unit group/Category/Zones:

- ⊕ II 1G Ex h IIB T6...T2 Ga
- ⊕ 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 = Ordering no.  
5M1.879 + 1Y + AB + EX = 5M1.879.1Y.AB.EX

# Rotating cleaning nozzle MicroSpinner 2 Series 5M2



## Features:

- Hygienic design
- Suitable for high temperatures
- Completely made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)



Function video  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5M2

## Technical data:



**Maximum operating temperature**  
 200 °C  
 95 °C (ATEX)



**Maximum ambient temperature**  
 250 °C  
 200 °C (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**  
 80–100 g



**Surface quality**  
 $Ra \leq 0.4 \mu m$   
 OUTSIDE



**Surface quality**  
 $Ra \leq 0.8 \mu m$   
 INSIDE



**Steam suitability**  
 Conditionally suitable



**Insertion diameter**  
 28–48 mm



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



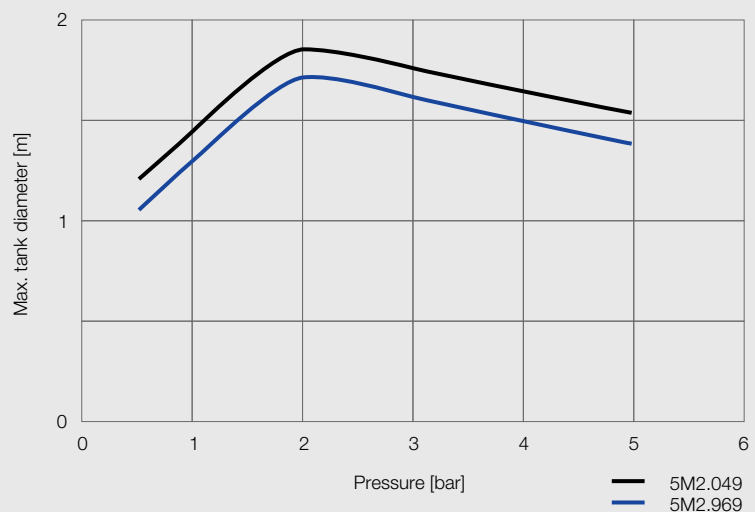
**Recommended operating pressure**  
 2 bar



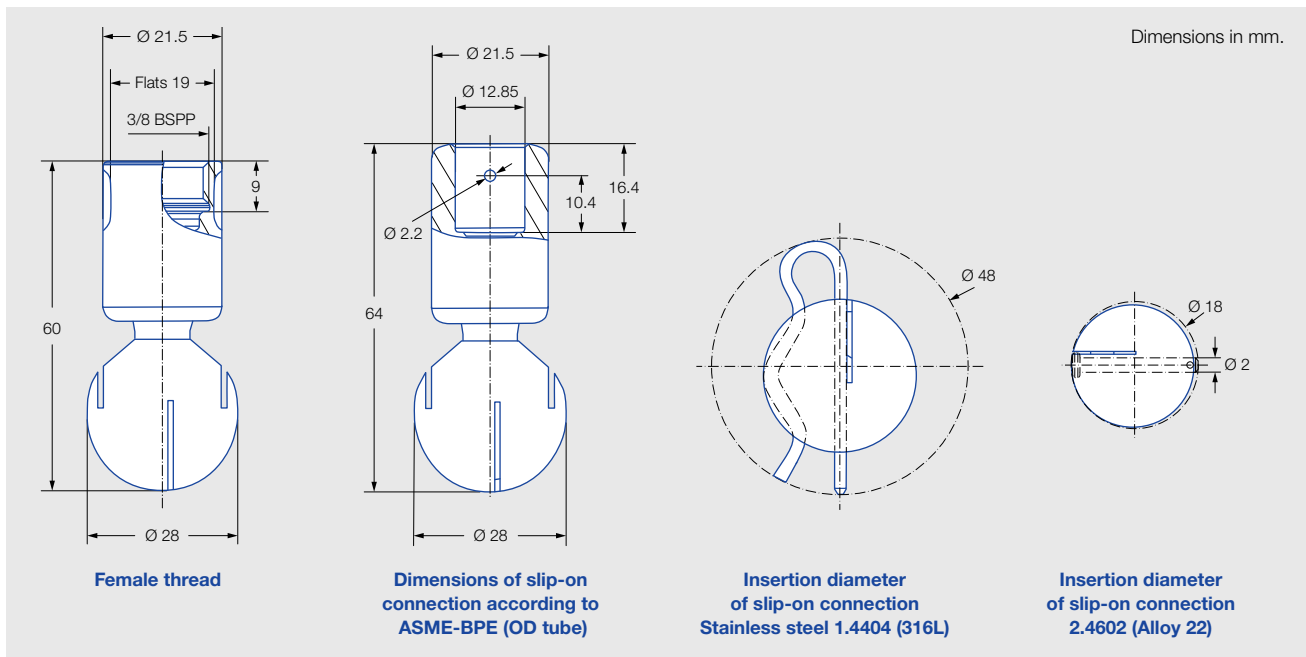
**Adapter**  
 3/8 BSPP is compatible with HygienicFit



**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



Spray angle	Ordering no.					Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]	Max. tank diameter [m]
	Type	Mat. no.		Connection			p [bar] (p <sub>max</sub> = 7 bar)				
		1Y	21	3/8 BSPP	1/2" slip-on connection		1.0	2.0	3.0		
60° 	5M2.952	●	●	AF	TF05	1.5	16	23	28	1.4	–
	5M2.042	●	●	AF	TF05	3.0	28	40	49	2.4	–
180° 	5M2.004	●	●	AF	TF05	0.9	22	32	39	1.9	1.8
360° 	5M2.969	●	●	AF	TF05	0.8	18	25	31	1.5	1.7
	5M2.049	●	●	AF	TF05	0.9	28	39	48	2.3	1.8

NPT threads, other slip-on connections and weld-on versions on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

#### Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 05M.230.1Y.00.00). For version made of 2.4602 (Alloy 22), bolt with head incl. cotter pin included (ordering no. 05M.231.21.00.00).
- 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 = Ordering no.  
5M2.952 + 1Y + AF = 5M2.952.1Y.AF

#### 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 IIC 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 = Ordering no.  
5M2.952 + 1Y + AF + EX = 5M2.952.1Y.AF.EX

# Rotating cleaning nozzle MiniSpinner 2 Series 5M3



## Features:

- Hygienic design
- Suitable for high temperatures
- Completely made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5M3

## Technical data:



**Maximum operating temperature**  
 200 °C  
 95 °C (ATEX)



**Maximum ambient temperature**  
 250 °C  
 200 °C (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**  
 230–340 g



**Surface quality**  
 $Ra \leq 0.4 \mu\text{m}$   
OUTSIDE



**Surface quality**  
 $Ra \leq 0.8 \mu\text{m}$   
INSIDE



**Steam suitability**  
 Conditionally suitable



**Insertion diameter**  
 39–58 mm



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



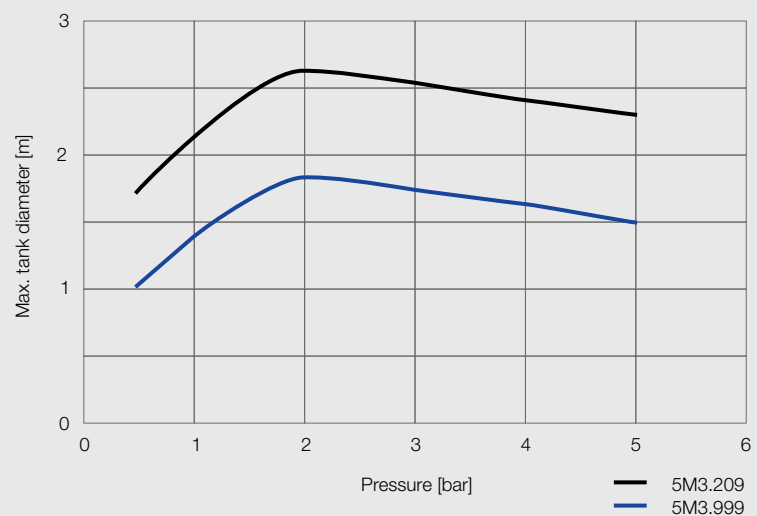
**Recommended operating pressure**  
 2 bar



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

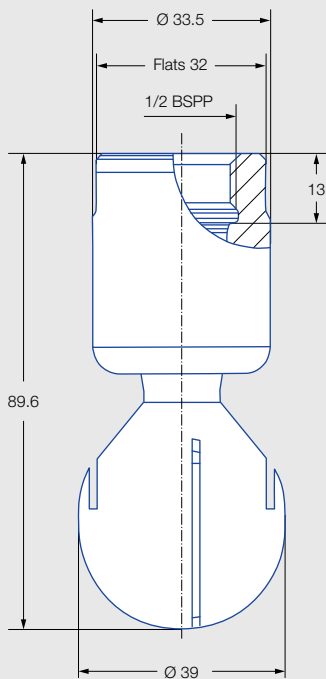


**Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.

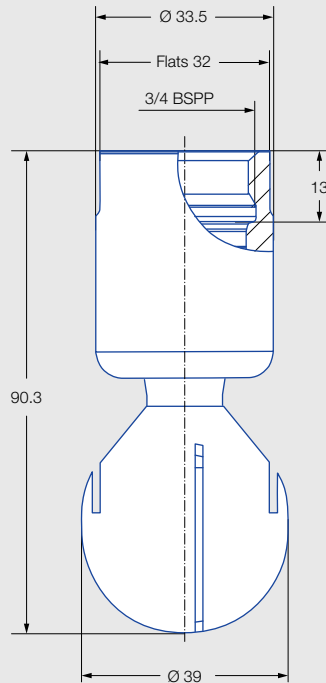


Overview of maximum tank diameter depending on pressure

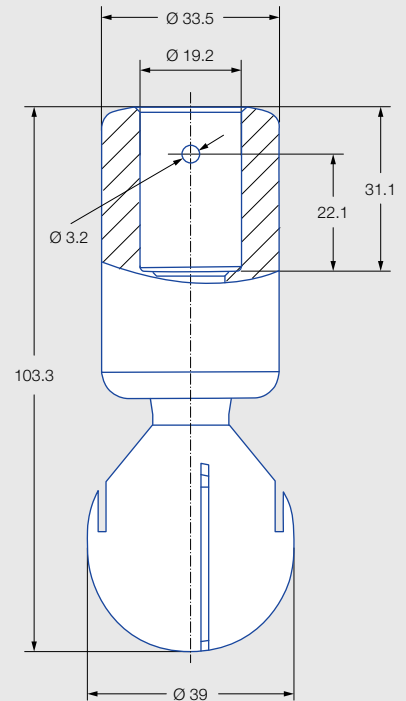
Dimensions in mm.



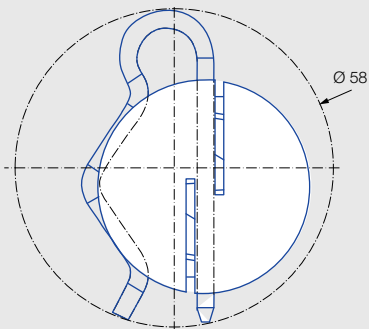
Female thread



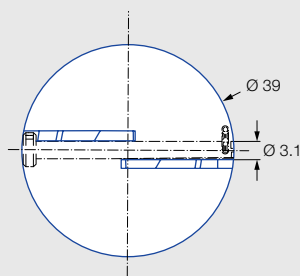
Female thread



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 no.						Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water at 2 bar [m³/h]	Max. tank diameter [m]
	Type	Mat. no.		Connection				p [bar] (p <sub>max</sub> = 7 bar)				
		1Y	21	1/2 BSPP	3/4 BSPP	3/4" slip-on connection		1.0	2.0	3.0		
60° 	5M3.122	●	●	AH		TF07	2.6	45	63	77	3.8	–
180° 	5M3.133	●	●		AL	TF07	1.2	47	67	82	4.0	2.6
180° 	5M3.134	●	●		AL	TF07	1.3	47	67	82	4.0	2.6
360° 	5M3.999	●	●		AL	TF07	0.4	21	30	37	1.8	1.8
	5M3.089	●	●		AL	TF07	0.7	35	49	60	2.9	2.1
	5M3.139	●	●		AL	TF07	0.8	49	69	85	4.1	2.3
	5M3.209	●	●		AL	TF07	1.5	71	100	122	6.0	2.6

NPT threads, other plug connections and weld-on versions on request.

**Information on operation**

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.


**Information on slip-on connection**

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 05M.330.1Y.00.00). For version made of 2.4602 (Alloy 22), bolt with head incl. cotter pin included (ordering no. 05M.332.21.00.00).
- 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.**

FDA



Type	+	Material no.	+	Connection	=	Ordering no.
5M3.122	+	1Y	+	AH	=	5M3.122.1Y.AH

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

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

Ex

FDA

**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	=	Ordering no.
5M3.122	+	1Y	+	AH	+	EX	=	5M3.122.1Y.AH.EX



# Rotating cleaning nozzle MaxiSpinner 2 Series 5M4



## Features:

- Hygienic design
- Suitable for high temperatures
- Completely made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22)



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

## Series 5M4

## Technical data:



**Maximum operating temperature**  
 200 °C  
 95 °C (ATEX)



**Maximum ambient temperature**  
 250 °C  
 200 °C (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**  
 1.1–1.5 kg



**Surface quality**  
 $Ra \leq 0.4 \mu m$   
OUTSIDE



**Surface quality**  
 $Ra \leq 0.8 \mu m$   
INSIDE



**Steam suitability**  
 Conditionally suitable



**Insertion diameter**  
 69 mm



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



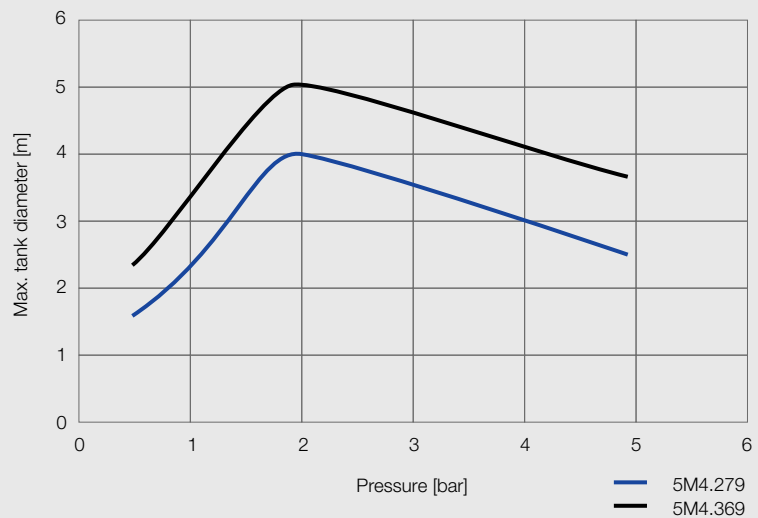
**Recommended operating pressure**  
 2 bar



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

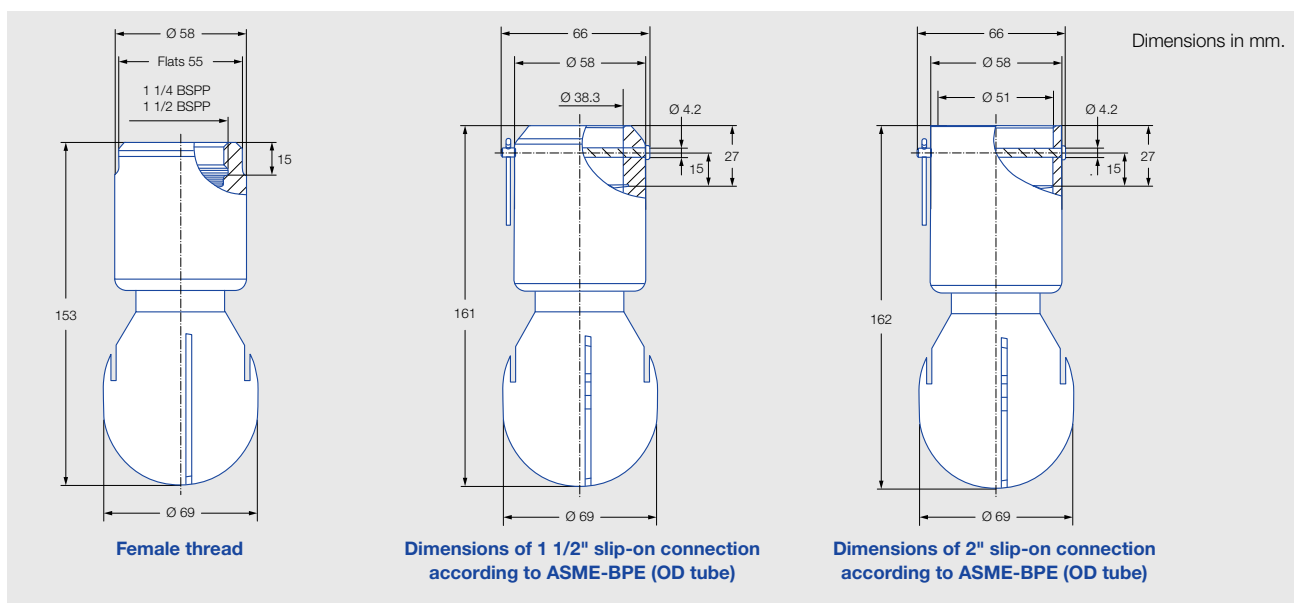


**Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



Overview of maximum tank diameter depending on pressure





Spray angle	Ordering no.							Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water at 2 bar [m³/h]	Max. tank diameter [m]
	Type	Mat. no.		Connection					p [bar] (p <sub>max</sub> = 7 bar) <sup>1</sup>				
		1Y 1.4404 (316L)	21 2.4602 (Alloy 22)	1 1/4 BSPP	1 1/2 BSPP	1 1/2" slip-on connection	2" slip-on connection		1.0	2.0	3.0		
180° 	5M4.253	●	●	AQ	AS	TF15	TF20	1.8	95	135	165	8.1	4.0
180° 	5M4.254	●	●	AQ	AS	TF15	TF20	2.1	95	135	165	8.1	4.0
270° 	5M4.365	●	●	AQ	AS	TF15	TF20	2.5	177	250	306	15.0	5.0
360° 	5M4.279	●	●	AQ	AS	TF15	TF20	1.7	107	150	184	9.0	4.0
	5M4.329	●	●	AQ	AS	TF15	TF20	2.0	141	200	245	12.0	4.5
	5M4.369	●	●	AQ	AS	TF15	TF20	2.3	177	250	306	15.0	5.0

<sup>1</sup> Please note the maximum operating pressure of 4 for the 2" slip-on connection variant. NPT threads and weld-on version on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

#### Information on slip-on connection

- Bolt with head incl. cotter pin made of 1.4404 (316L) included (ordering no. 05M.431.1Y.00.00). For version made of 2.4602 (Alloy 22), bolt with head incl. cotter pin included (ordering no. 05M.431.21.00.00).
- 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 = Ordering no.  
5M4.253 + 1Y + AQ = 5M4.253.1Y.AQ

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

##### Unit group/Category/Zones:

- ⊕ II 1G Ex h IIB T6...T2 Ga
- ⊕ 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 = Ordering no.  
5M4.253 + 1Y + AQ + EX = 5M4.253.1Y.AQ.EX

# Rotating cleaning nozzle PTFE Whirly Series 573/583



## Features:

- Entirely made of PTFE
- 3-A-compliant slip-on connection
- Suitable for corrosive environments
- Suitable for particularly high hygiene requirements (e.g. milk industry)



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 573/583

## Technical data:



**Maximum operating temperature**  
95 °C



**Maximum ambient temperature**  
200 °C



**Installation**  
Operation in every installation position



**Bearing**  
Slide bearing made of PTFE



**Material**  
PTFE



**Weight**  
140–300 g



**Surface quality**  
Ra ≤ 0.8 µm  
OUTSIDE



**Surface quality**  
Ra ≤ 0.8 µm  
INSIDE



**Steam suitability**  
Not suitable



**Insertion diameter**  
49.0–78.4 mm



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

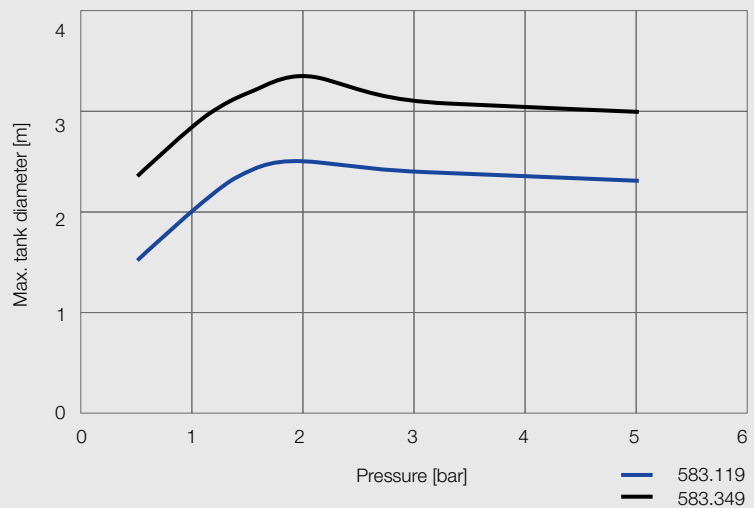


**Recommended operating pressure**  
2 bar



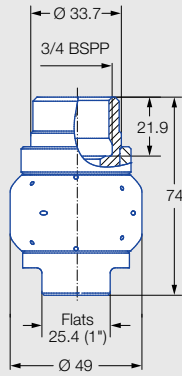
### Max. tank diameter

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.

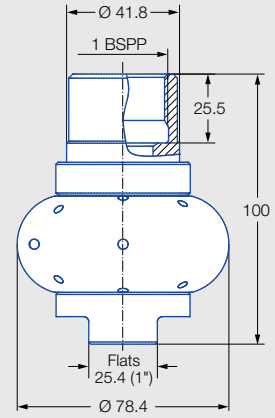


Overview of maximum tank diameter depending on pressure

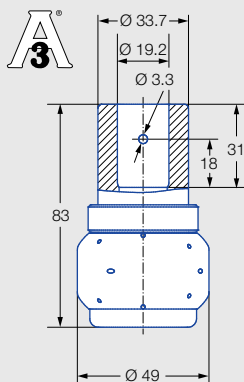
Dimensions in mm  
(unless stated otherwise).



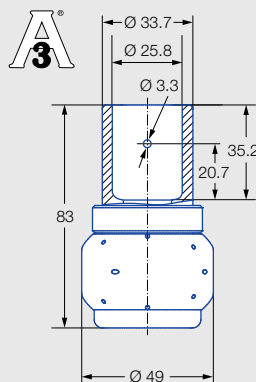
Female thread



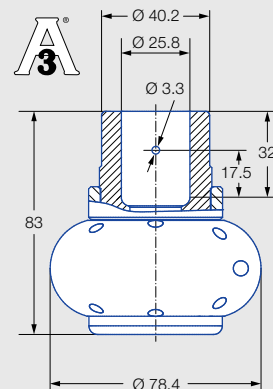
Female thread



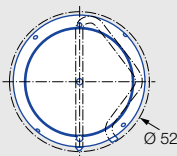
3/4" slip-on connection  
(3-A-compliant)  
Dimensions of slip-on connection  
according to ASME-BPE (OD tube)



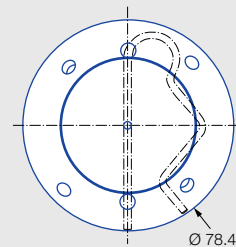
1" slip-on connection pin 1  
(3-A-compliant)  
Dimensions of slip-on connection  
according to ASME-BPE (OD tube)



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 no.					Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]	Pin	Max. tank diameter [m]
	Type	Connection					p [bar] (p <sub>max</sub> = 6 bar)					
		3/4 BSPP	1 BSPP	3/4" slip-on connection	1" slip-on connection		1.0	2.0	3.0			
270° 	583.116.55	AL		TF07		2.4	47	67	82	4.0	1	2.5
	583.346.55				TF10	5.9	159	225	276	13.5	2	3.2
270° 	573.116.55	AL		TF07		2.4	47	67	82	4.0	1	2.5
360° 	583.119.55	AL		TF07	TF10	1.8	41	58	71	3.5	1	2.4
	583.209.55	AL		TF07	TF10	3.5	71	100	122	6.0	1	2.5
	583.269.55	AL		TF07		4.8	103	145	178	8.7	1	2.8
	583.279.55		AN		TF10	3.7	106	150	184	9.0	2	3.0
	583.349.55		AN		TF10	5.6	159	225	276	13.5	2	3.2

NPT threads on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

#### Information on slip-on connection


- Cotter pin made of stainless steel 1.4401 (316) included (ordering no. for pin 1: 095.013.17.06.60, pin 2: 095.013.17.06.61).
- Depending on the adapter diameter, the flow rate may increase due to the leakage between the adapter and rotating cleaning nozzle.


Ordering Type + Connection = Ordering no.  
example: 583.116.55 + AL = 583.116.55.AL





## CLEANING EFFICIENCY CLASS 3 LIGHT TO MEDIUM SOILING

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

A close-up, vertical shot of a showerhead nozzle. The nozzle is made of polished metal and has a spherical tip. It is covered in water droplets, suggesting it is in use. The background is a blurred, light-colored surface, possibly a shower pan. The lighting is soft, highlighting the texture of the water droplets and the metallic finish.

*Whirly2*

# Rotating cleaning nozzle HygienicWhirly Series 594/595



## Features:

- Cleaning with effective flat fan jets
- Effective cleaning even at low pressure
- Suitable for foam delivery



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 594/595

## Technical data:



**Maximum operating temperature**  
150 °C



**Maximum ambient temperature**  
150 °C



**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**  
90–290 g



**Surface quality**  
Ra ≤ 0.8 µm  
OUTSIDE



**Surface quality**  
Ra ≤ 0.8 µm  
INSIDE



**Steam suitability**  
Suitable



**Insertion diameter**  
31.5–48.0 mm



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

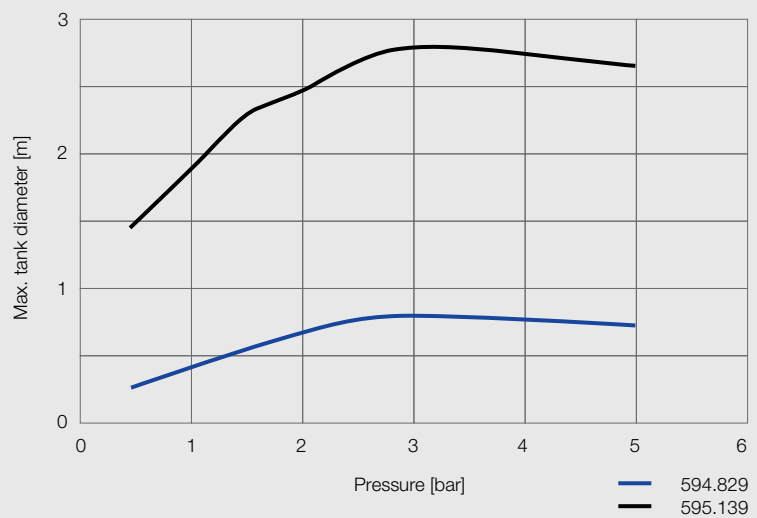


**Recommended operating pressure**  
3 bar



### Max. tank diameter

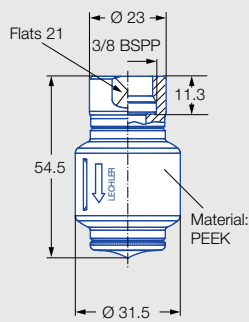
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



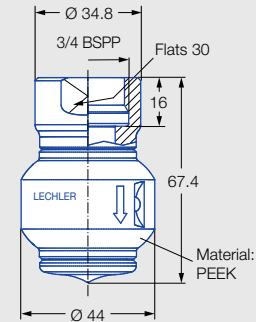
Overview of maximum tank diameter depending on pressure



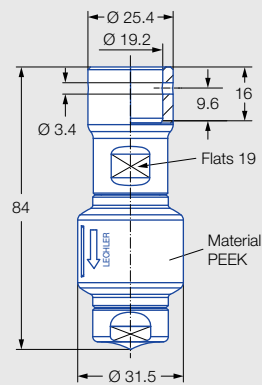
Dimensions in mm.



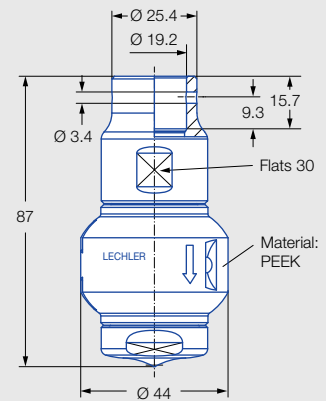
**Standard version  
Female thread  
59x.xx9.1Y.AF**



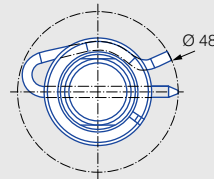
**Standard version  
Female thread  
595.139.1Y.AL**



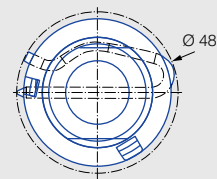
**Dimensions of slip-on  
connection according to  
ASME-BPE (OD tube)  
59x.xx9.1Y.67**




**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 no.				Narrowest cross-section Ø [mm]	V̇ water [l/min]					V̇ water at 3 bar [m³/h]	Max. tank diameter [m]
	Type	Connection				p [bar] (p <sub>max</sub> = 5 bar)						
		3/8 BSPP	3/4 BSPP	3/4" slip-on connection		0.5	1.0	2.0	3.0	5.0		
 360°	594.829.1Y	AF		67	1.7	6	8	11	14	18	0.8	0.8
	594.879.1Y	AF		67	2.5	8	11	15	18	23	1.1	1.2
	595.009.1Y	AF		67	4.0	16	22	32	39	50	2.3	1.5
	595.049.1Y	AF		67	4.2	20	28	40	49	63	2.9	2.0
	595.139.1Y		AL	67	5.0	34	47	67	82	106	4.9	2.7

NPT threads on request.

**Information on operation**

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

**Information on slip-on connection**

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 095.022.1Y.50.94.E).
- Depending on the adapter diameter, the flow rate may increase due to the leakage between the adapter and rotating cleaning nozzle.

Ordering Type + Connection = Ordering no.  
example: 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



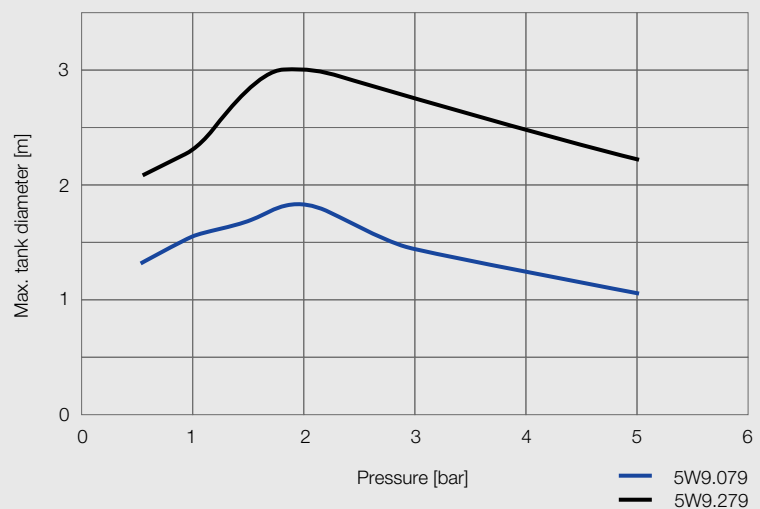
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5W9

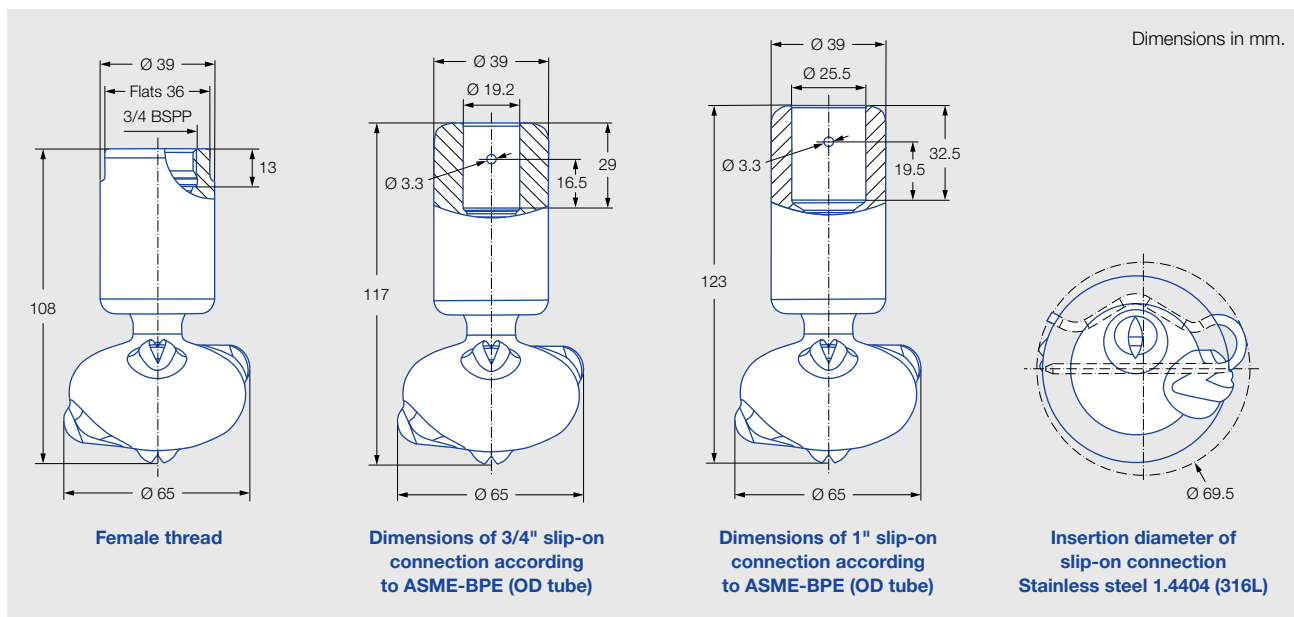
## Technical data:

<b>Maximum operating temperature</b> 150 °C 95 °C (ATEX)	<b>Maximum ambient temperature</b> 200 °C 140 °C (ATEX)	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Double ball bearing made of stainless steel
<b>Material</b> Stainless steel 1.4404 (316L), PEEK	<b>Weight</b> 360–500 g	<b>Surface quality</b> Ra ≤ 0.4 µm OUTSIDE	<b>Surface quality</b> Ra ≤ 0.8 µm INSIDE
<b>Steam suitability</b> Not suitable	<b>Insertion diameter</b> 69.5 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.1 mm/170 mesh	<b>Recommended operating pressure</b> 2 bar
<b>Adapter</b> 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



Spray angle	Ordering no.				Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]	Max. tank diameter [m]
	Type	Connection				p [bar] (p <sub>max</sub> = 6 bar)				
		3/4 BSPP	3/4" slip-on connection	1" slip-on connection		1.0	2.0	3.0		
270° 	5W9.075.1Y	AL	TF07	TF10	2.0	34	48	59	2.9	1.8
	5W9.145.1Y	AL	TF07	TF10	2.8	50	71	87	4.3	2.1
	5W9.195.1Y	AL	TF07	TF10	3.3	69	97	119	5.8	2.6
270° 	5W9.076.1Y	AL	TF07	TF10	2.0	34	48	59	2.9	1.8
	5W9.106.1Y	AL	TF07	TF10	2.5	41	58	71	3.5	2.1
	5W9.196.1Y	AL	TF07	TF10	3.4	69	97	119	5.8	2.6
360° 	5W9.079.1Y	AL	TF07	TF10	1.6	34	48	59	2.9	1.8
	5W9.149.1Y	AL	TF07	TF10	2.4	50	71	87	4.3	2.1
	5W9.199.1Y	AL	TF07	TF10	3.0	69	97	119	5.8	2.6
	5W9.279.1Y	AL	TF07	TF10	3.5	103	145	178	8.7	3.0

NPT threads on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

#### Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 095.013.1Y.06.72).
- 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 + Connection = Ordering no.**  
5W9.075.1Y + AL = 5W9.075.1Y.AL

**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

**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

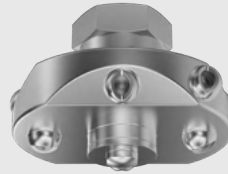
**Type + Connection + ATEX = Ordering no.**  
5W9.075.1Y + AL + EX = 5W9.075.1Y.AL.EX

# Rotating cleaning nozzle Gyro Series 577



## Features:

- Cleaning with powerful nozzle inserts
- Suitable for very large tanks
- Available with many different flow rates
- Clogging-resistant and large clear cross-sections



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 577

## Technical data:



**Maximum operating temperature**  
95 °C



**Maximum ambient temperature**  
200 °C



**Installation**  
Vertically downwards



**Bearing**  
Slide bearing made of PTFE



**Material**  
Stainless steel 1.4404 (316L), PTFE



**Weight**  
0.64–1.92 kg



**Surface quality**  
Ra ≤ 0.8 µm  
OUTSIDE



**Surface quality**  
Ra ≤ 4.0 µm  
INSIDE



**Steam suitability**  
Conditionally suitable



**Insertion diameter**  
110–156 mm



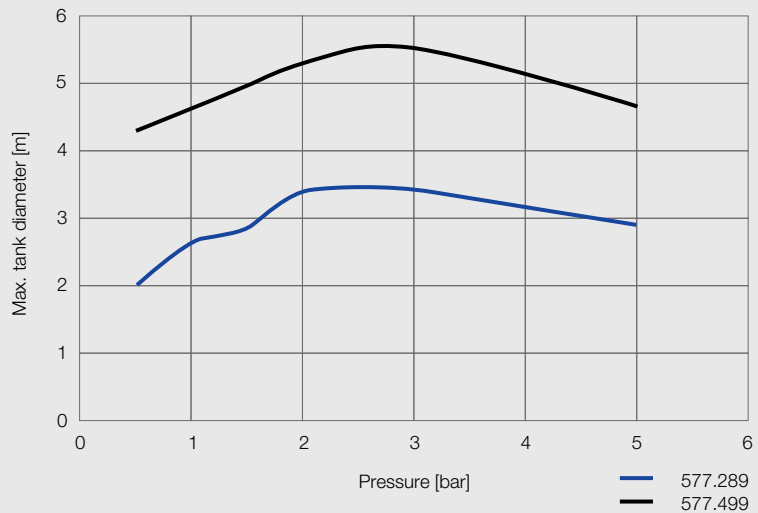
**Recommended filter**  
Line strainer with a mesh size of 0.3 mm/50 mesh



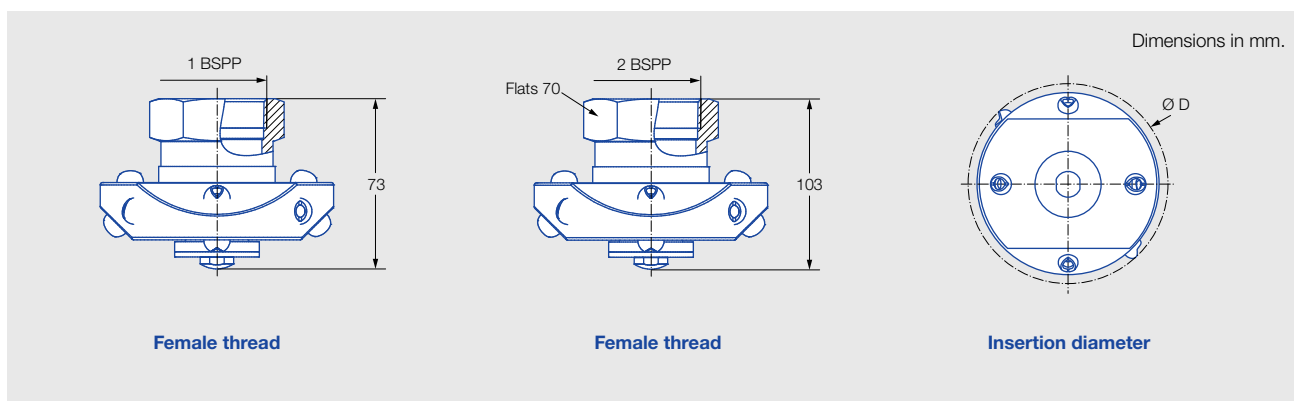
**Recommended operating pressure**  
3 bar







**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



Spray angle	Ordering no.		V̇ water [l/min]				V̇ water	Dimensions [mm]	Max. tank diameter [m]	
	Type	Connection		p [bar] (p <sub>max</sub> = 5 bar)						
		1 BSPP	2 BSPP	1.0	2.0	3.0	5.0	at 3 bar [m³/h]		Ø D
180° 	577.283.1Y	AN		115	163	200	258	12.0	118	3.4
	577.363.1Y	AN		182	258	316	408	19.0	118	3.9
	577.403.1Y		AW	228	322	394	509	23.6	156	4.2
	577.433.1Y		AW	273	386	473	610	28.4	156	4.6
	577.523.1Y		AW	452	639	783	1,010	39.5	156	5.4
180° 	577.284.1Y	AN		115	163	200	258	12.0	118	3.4
	577.364.1Y	AN		182	258	316	408	19.0	118	3.9
	577.404.1Y		AW	228	322	394	509	23.6	156	4.2
	577.434.1Y		AW	273	386	473	610	28.4	156	4.6
	577.494.1Y		AW	380	538	659	851	39.5	156	5.4
270° 	577.285.1Y	AN		115	163	200	258	12.0	118	3.4
	577.365.1Y	AN		182	258	316	408	19.0	118	3.9
	577.405.1Y		AW	228	322	394	509	23.6	156	4.2
	577.435.1Y		AW	273	386	473	610	28.4	156	4.6
	577.495.1Y		AW	380	538	659	851	39.5	156	5.4
360° 	577.289.1Y	AN		115	163	200	258	12.0	110	3.4
	577.369.1Y	AN		182	258	316	408	19.0	110	3.9
	577.409.1Y		AW	228	322	394	509	23.6	156	4.2
	577.439.1Y		AW	273	386	473	610	28.4	156	4.6
	577.499.1Y		AW	380	538	659	851	39.5	156	5.4

NPT threads on request.


#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

Ordering Type + Connection = Ordering no.  
example: 577.283.1Y + AN = 577.283.1Y.AN



# CLEANING EFFICIENCY CLASS 4 MEDIUM TO HEAVY SOILING

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



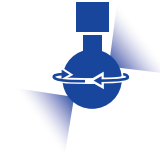
To prevent  
product damage  
do not rotate by hand!



# Rotating cleaning nozzle

## XactClean HP 2

### Series 5S6/5S7



#### Features:

- Flat fan nozzle with high impact
- Uniform cleaning
- High efficiency due to controlled rotation
- High operating reliability thanks to robust drive unit



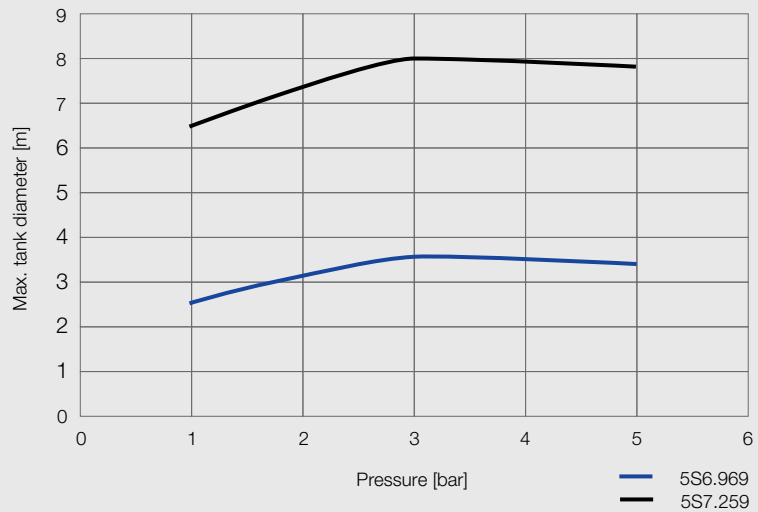
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5S6/5S7

#### Technical data:

<b>Maximum operating temperature</b> 150 °C 150 °C (ATEX)	<b>Maximum ambient temperature</b> 150 °C 150 °C (ATEX)	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Double ball bearing
<b>Material</b> Stainless steel 1.4404 (316L) or 2.4602 (Alloy 22), PEEK, EPDM or FKM	<b>Weight</b> 650–900 g	<b>Surface quality</b> Ra ≤ 0.8 µm <small>OUTSIDE</small>	<b>Surface quality</b> Ra ≤ 1.6 µm <small>INSIDE</small>
<b>Steam suitability</b> Suitable	<b>Insertion diameter</b> 50–79 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.3 mm/50 mesh	<b>Recommended operating pressure</b> 3 bar
<b>Rotation monitoring</b> Sensor-compatible, information: see pages 100–101	<b>Maintainable</b>	<b>Adapter</b> 3/8 BSPP, 1/2 BSPP, 3/4 BSPP and 1 BSPP are compatible with HygienicFit	

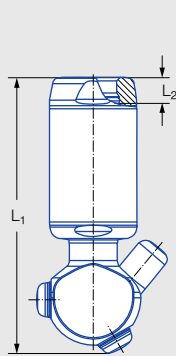
**Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



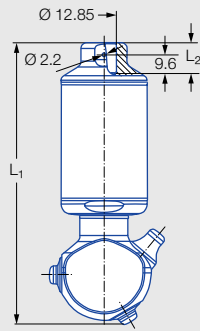
Overview of maximum tank diameter depending on pressure



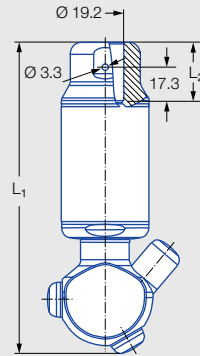
Dimensions in mm.



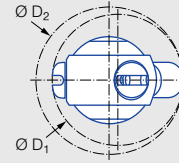
Female thread



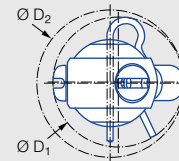
Dimensions of 1/2" slip-on connection according to ASME-BPE (OD tube)



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

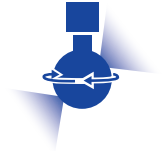


Insertion diameter  $D_1$  and interference circle diameter  $D_2$  of the slip-on connection

EPDM O-rings	FKM O-rings	Connection	Dimensions [mm]			
			$L_1$	$L_2$	Insertion diameter $D_1$	Interference circle diameter $D_2$
<b>AF</b>	<b>20</b>	3/8 BSPP	141.0	9.0	50.0–66.0	50.0–67.0
<b>AH</b>	<b>21</b>	1/2 BSPP	143.0	13.0	50.0–74.0	50.0–76.0
<b>AL</b>	<b>22</b>	3/4 BSPP	143.0	13.2	50.0–79.0	50.0–81.0
<b>AN</b>	<b>23</b>	1 BSPP	140.0	16.5	51.0–79.0	53.0–80.0
<b>TF05</b>	<b>30</b>	1/2" slip-on connection	150.0	16.0	52.0–66.0	50.0–67.0
<b>TF07</b>	<b>31</b>	3/4" slip-on connection	160.0	30.0	66.0–79.0	50.0–81.0

Spray angle	Ordering no.												Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]				$\dot{V}$ water at 3 bar [m <sup>3</sup> /h]	Max. tank diameter [m]						
	Type	Mat. no.		Connection								$p$ [bar] ( $p_{max} = 15$ bar)													
		1Y	21	3/8 BSPP		1/2 BSPP		3/4 BSPP		1 BSPP		1/2" slip-on connection		3/4" slip-on connection		2.0	3.0			5.0	10.0				
		1.4404 (316L)	2.4602 (Alloy 22)	EPDM	FKM	EPDM	FKM	EPDM	FKM	EPDM	FKM	EPDM		FKM	EPDM							FKM			
180°	<b>5S6.963</b>	●	●	<b>AF</b>	<b>20</b>	<b>AH</b>	<b>21</b>								<b>TF05</b>	<b>30</b>			1.7	25	<b>31</b>	40	57	1.9	3.5
	<b>5S7.043</b>	●	●			<b>AH</b>	<b>21</b>										<b>TF07</b>	<b>31</b>	2.0	41	<b>50</b>	65	92	3.0	4.0
	<b>5S7.113</b>	●	●			<b>AH</b>	<b>21</b>	<b>AL</b>	<b>22</b>								<b>TF07</b>	<b>31</b>	2.0	60	<b>73</b>	94	133	4.4	6.0
	<b>5S7.183</b>	●	●					<b>AL</b>	<b>22</b>								<b>TF07</b>	<b>31</b>	2.0	89	<b>109</b>	141	199	6.5	7.0
	<b>5S7.223</b>	●	●					<b>AL</b>	<b>22</b>								<b>TF07</b>	<b>31</b>	2.0	111	<b>136</b>	175	248	8.2	7.5
	<b>5S7.253</b>	●	●					<b>AL</b>	<b>22</b>	<b>AN</b>	<b>23</b>						<b>TF07</b>	<b>31</b>	2.0	135	<b>165</b>	213	301	9.9	8.0
180°	<b>5S6.964</b>	●	●	<b>AF</b>	<b>20</b>	<b>AH</b>	<b>21</b>								<b>TF05</b>	<b>30</b>			1.7	25	<b>31</b>	40	57	1.9	3.5
	<b>5S7.044</b>	●	●			<b>AH</b>	<b>21</b>										<b>TF07</b>	<b>31</b>	2.0	41	<b>50</b>	65	92	3.0	4.0
	<b>5S7.114</b>	●	●			<b>AH</b>	<b>21</b>	<b>AL</b>	<b>22</b>								<b>TF07</b>	<b>31</b>	2.0	60	<b>73</b>	94	133	4.4	6.0
	<b>5S7.184</b>	●	●					<b>AL</b>	<b>22</b>								<b>TF07</b>	<b>31</b>	2.0	89	<b>109</b>	141	199	6.5	7.0
	<b>5S7.224</b>	●	●					<b>AL</b>	<b>22</b>								<b>TF07</b>	<b>31</b>	2.0	111	<b>136</b>	175	248	8.2	7.5
	<b>5S7.254</b>	●	●					<b>AL</b>	<b>22</b>	<b>AN</b>	<b>23</b>						<b>TF07</b>	<b>31</b>	2.0	135	<b>165</b>	213	301	9.9	8.0





Spray angle	Ordering no.													Narrowest cross-section Ø [mm]	ṽ water [l/min]				ṽ water at 3 bar [m³/h]	Max. tank diameter [m]		
	Type	Mat. no.		Connection											p [bar] (p <sub>max</sub> = 15 bar)							
		1Y	21	3/8 BSPP		1/2 BSPP		3/4 BSPP		1 BSPP		1/2" slip-on connection			3/4" slip-on connection		2.0	3.0			5.0	10.0
		1.4404 (316L)	2.4602 (Alloy 22)	EPDM	FKM	EPDM	FKM	EPDM	FKM	EPDM	FKM	EPDM	FKM		EPDM	FKM	EPDM	FKM				
270°	5S6.965	●	●	AF	20	AH	21						TF05	30		1.7	25	31	40	57	1.9	3.5
	5S7.045	●	●			AH	21							TF07	31	2.0	41	50	65	92	3.0	4.0
	5S7.115	●	●			AH	21	AL	22					TF07	31	2.0	60	73	94	133	4.4	6.0
	5S7.185	●	●					AL	22					TF07	31	2.0	89	109	141	199	6.5	7.0
	5S7.225	●	●					AL	22					TF07	31	2.0	111	136	175	248	8.2	7.5
	5S7.255	●	●					AL	22	AN	23			TF07	31	2.0	135	165	213	301	9.9	8.0
270°	5S6.966	●	●	AF	20	AH	21						TF05	30		1.7	25	31	40	57	1.9	3.5
	5S7.046	●	●			AH	21							TF07	31	2.0	41	50	65	92	3.0	4.0
	5S7.116	●	●			AH	21	AL	22					TF07	31	2.0	60	73	94	133	4.4	6.0
	5S7.186	●	●					AL	22					TF07	31	2.0	89	109	141	199	6.5	7.0
	5S7.226	●	●					AL	22					TF07	31	2.0	111	136	175	248	8.2	7.5
	5S7.256	●	●					AL	22	AN	23			TF07	31	2.0	135	165	213	301	9.9	8.0
360°	5S6.969	●	●	AF	20	AH	21						TF05	30		1.5	25	31	40	57	1.9	3.5
	5S7.049	●	●			AH	21							TF07	31	2.0	41	50	65	92	3.0	4.0
	5S7.119	●	●			AH	21	AL	22					TF07	31	2.0	60	73	94	133	4.4	6.0
	5S7.189	●	●					AL	22					TF07	31	2.0	89	109	141	199	6.5	7.0
	5S7.229	●	●					AL	22					TF07	31	2.0	111	136	175	248	8.2	7.5
	5S7.259	●	●					AL	22	AN	23			TF07	31	2.0	135	165	213	301	9.9	8.0

NPT threads on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

#### Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 095.022.1Y.50.60.E (TF07), 095.013.1E.05.59 (TF05)). For version made of 2.4602 (Alloy 22), bolt with head incl. cotter pin included (ordering no. 05M.332.21.00.00).
- 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 + Connection = Ordering no.  
5S6.965.1Y + AF = 5S6.965.1Y.AF

#### 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

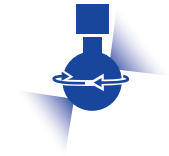
The code for the connection changes for the ATEX version with slip-on connection.  
Ordering example for 1/2" slip-on connection: 5S6.963.1Y.T1.EX  
Ordering example for 3/4" slip-on connection: 5S7.043.1Y.T2.EX



Type + Connection + ATEX = Ordering no.  
5S6.965.1Y + AF + EX = 5S6.965.1Y.AF.EX



# Rotating cleaning nozzle XactClean HP+ Series 5S5



## Features:

- High impact and uniform cleaning thanks to specially developed flat fan nozzles
- Effective cleaning of larger tanks through higher flow rates
- High operating reliability due to robust drive unit



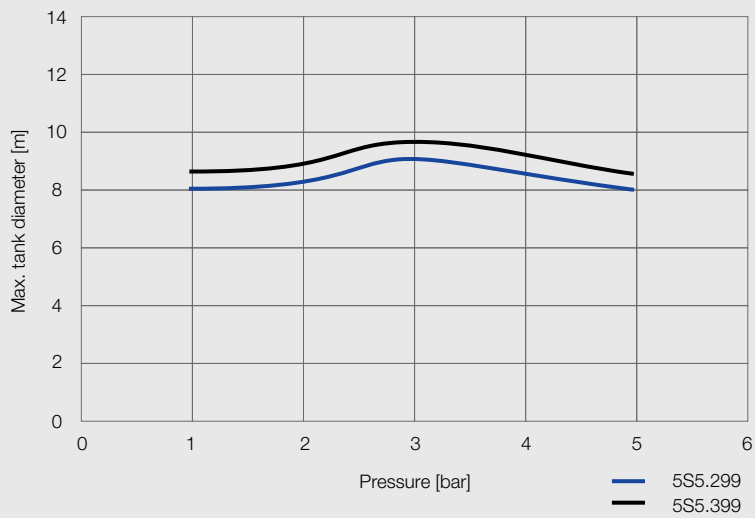
Function video  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

## Series 5S5

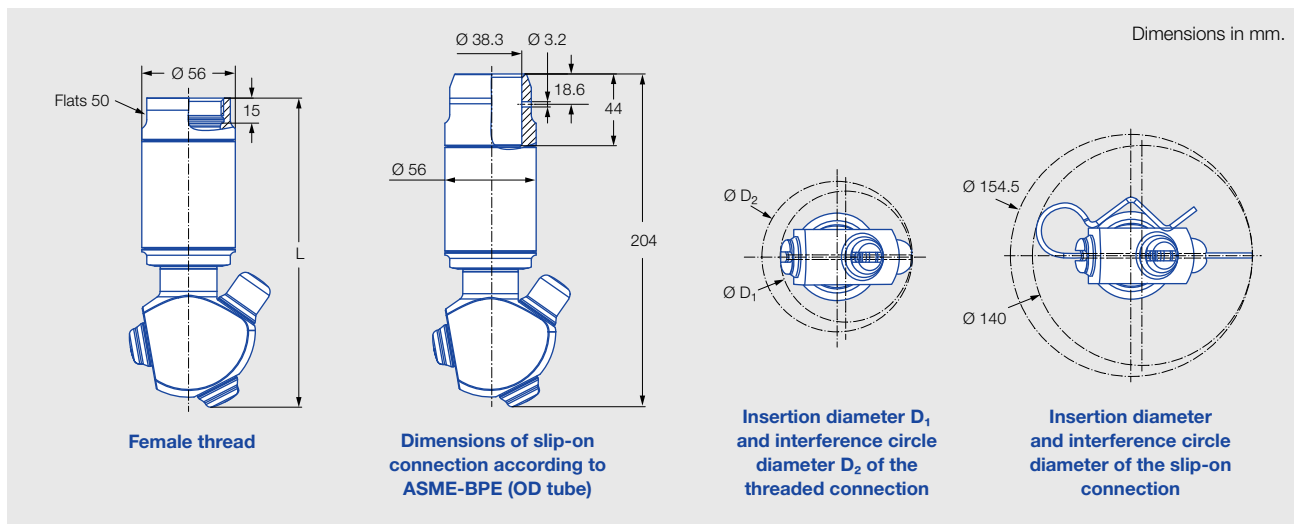
## Technical data:

<b>Maximum operating temperature</b> 150 °C	<b>Maximum ambient temperature</b> 150 °C	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Double ball bearing
<b>Material</b> Stainless steel 1.4404 (316L), stainless steel 1.4401 (316), PEEK, EPDM	<b>Weight</b> 1.12–1.93 kg	<b>Surface quality Outside</b> Ra ≤ 0.8 µm	<b>Surface quality Inside</b> Ra ≤ 1.6 µm
<b>Steam suitability</b> Suitable	<b>Insertion diameter</b> 81–140 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.3 mm/50 mesh	<b>Recommended operating pressure</b> 3 bar
<b>Adapter</b> 1 BSPP, 1 1/4 BSPP and 1 1/2 BSPP are compatible with HygienicFit	<b>Rotation monitoring</b> Sensor-compatible, information: see pages 100–101	<b>Maintainable</b>	

**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



Connection		Dimensions [mm]		
		L	Insertion diameter $D_1$	Interference circle diameter $D_2$
<b>AN</b>	1 BSPP	185	81-92	82-98
<b>AQ</b>	1 1/4 BSPP	185	81-92	82-98
<b>AS</b>	1 1/2 BSPP	187	81-92	82-98

Spray angle	Ordering no.					Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 3 bar [m <sup>3</sup> /h]	Max. tank diameter [m]
	Type	Connection					p [bar] ( $p_{max} = 10$ bar)				
		1 BSPP	1 1/4 BSPP	1 1/2 BSPP	1 1/2" slip-on connection		2.0	3.0	5.0		
180° 	<b>5S5.293.1Y</b>	<b>AN</b>			<b>TF15</b>	3.0	165	<b>202</b>	261	12.1	9.0
	<b>5S5.323.1Y</b>	<b>AN</b>	<b>AQ</b>		<b>TF15</b>	3.0	200	<b>245</b>	316	14.7	9.2
	<b>5S5.363.1Y</b>		<b>AQ</b>	<b>AS</b>	<b>TF15</b>	3.0	250	<b>306</b>	395	18.4	9.4
180° 	<b>5S5.294.1Y</b>	<b>AN</b>			<b>TF15</b>	3.0	165	<b>202</b>	261	12.1	9.0
	<b>5S5.324.1Y</b>	<b>AN</b>	<b>AQ</b>		<b>TF15</b>	3.0	200	<b>245</b>	316	14.7	9.2
	<b>5S5.364.1Y</b>		<b>AQ</b>	<b>AS</b>	<b>TF15</b>	3.0	250	<b>306</b>	395	18.4	9.4
270° 	<b>5S5.295.1Y</b>	<b>AN</b>			<b>TF15</b>	3.0	165	<b>202</b>	261	12.1	9.0
	<b>5S5.325.1Y</b>	<b>AN</b>	<b>AQ</b>		<b>TF15</b>	3.0	200	<b>245</b>	316	14.7	9.2
	<b>5S5.365.1Y</b>		<b>AQ</b>	<b>AS</b>	<b>TF15</b>	3.0	250	<b>306</b>	395	18.4	9.4
270° 	<b>5S5.296.1Y</b>	<b>AN</b>			<b>TF15</b>	3.0	165	<b>202</b>	261	12.1	9.0
	<b>5S5.326.1Y</b>	<b>AN</b>	<b>AQ</b>		<b>TF15</b>	3.0	200	<b>245</b>	316	14.7	9.2
	<b>5S5.366.1Y</b>		<b>AQ</b>	<b>AS</b>	<b>TF15</b>	3.0	250	<b>306</b>	395	18.4	9.4
360° 	<b>5S5.299.1Y</b>	<b>AN</b>			<b>TF15</b>	3.0	165	<b>202</b>	261	12.1	9.0
	<b>5S5.329.1Y</b>	<b>AN</b>	<b>AQ</b>		<b>TF15</b>	3.0	200	<b>245</b>	316	14.7	9.2
	<b>5S5.369.1Y</b>		<b>AQ</b>	<b>AS</b>	<b>TF15</b>	3.0	250	<b>306</b>	395	18.4	9.4
	<b>5S5.399.1Y</b>		<b>AQ</b>	<b>AS</b>	<b>TF15</b>	3.0	300	<b>367</b>	474	22.0	9.6

NPT threads on request.

#### Information on operation

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.


#### Information on slip-on connection

- Cotter pin made of stainless steel 1.4404 (316L) included (ordering no. 095.013.1Y.06.45).
- Depending on the adapter diameter, the flow rate may increase due to the leakage between the adapter and rotating cleaning nozzle.

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




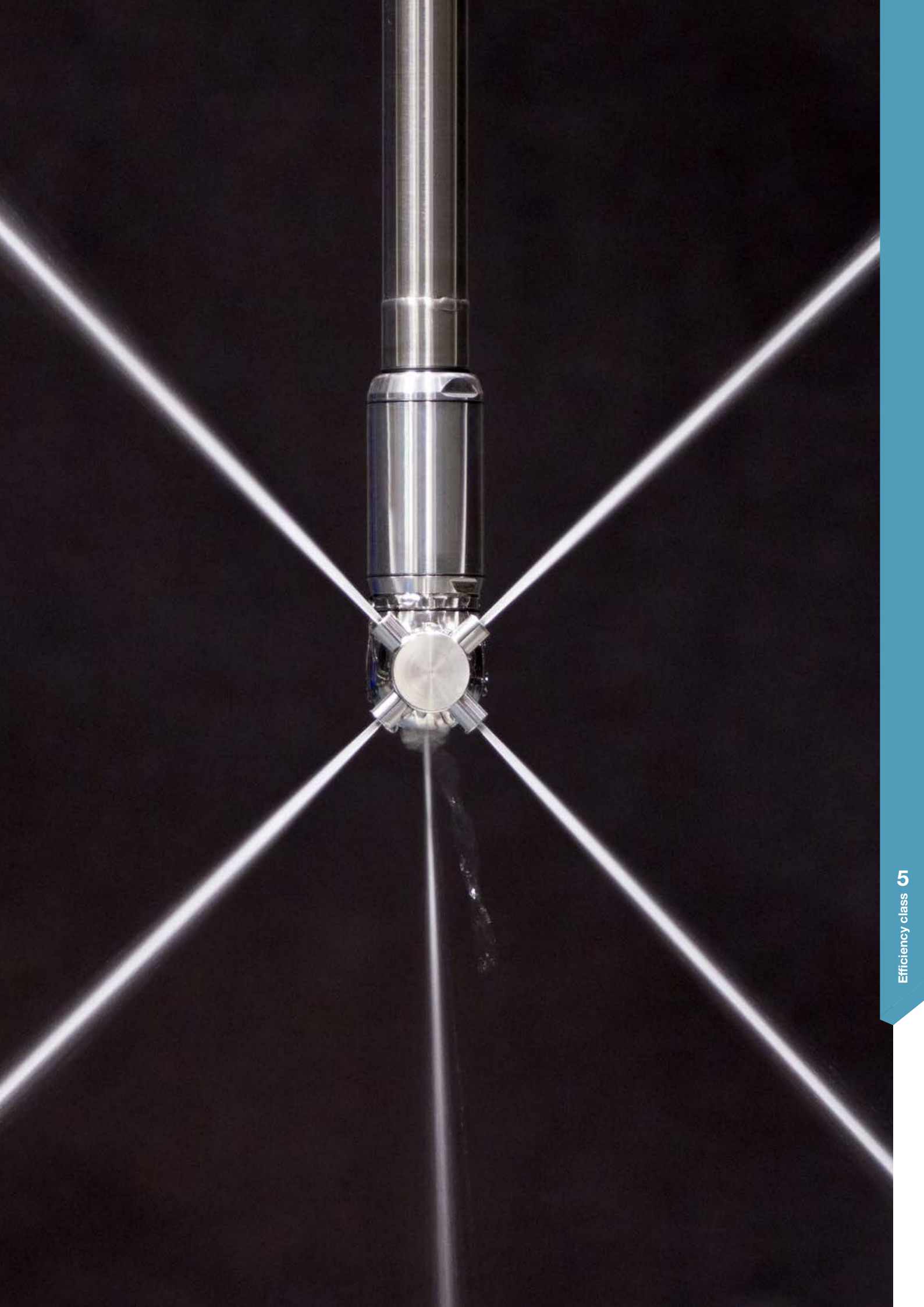
## CLEANING EFFICIENCY CLASS 5 PERSISTENT SOILING

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



## CLEANING EFFICIENCY CLASS 5 HIGH PRESSURE MOST PERSISTENT SOILING

<b>Type</b>	High pressure tank cleaning machine, controlled rotation about two axes
<b>Cleaning effect</b>	
<b>Drive</b>	Electric motor
<b>Typical soiling</b>	Most persistent soiling such as dried dough in small tanks
<b>Nozzle design</b>	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 efficiency thanks to especially powerful solid jet nozzles
- Also suitable for smaller tanks with persistent soiling
- Active self-cleaning through special nozzle geometry
- Particularly low-maintenance



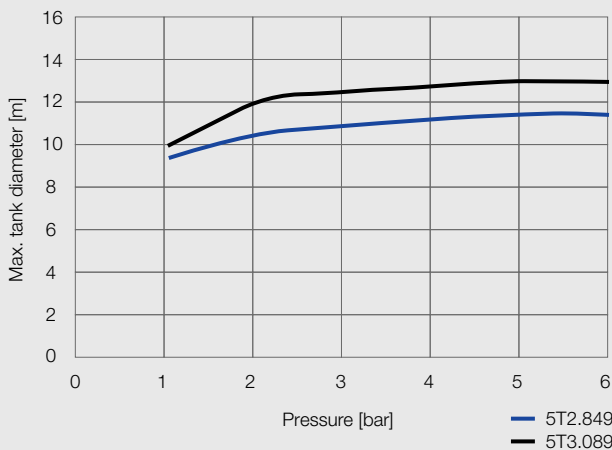
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

#### Series 5T2/5T3

#### Technical data:

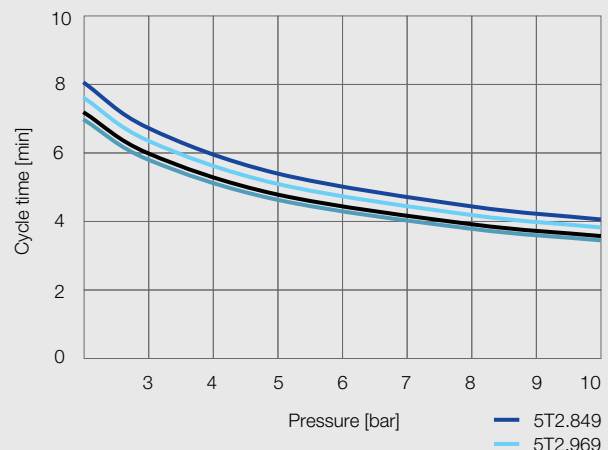
<b>Maximum operating temperature</b> 150 °C 150 °C (ATEX)	<b>Maximum ambient temperature</b> 150 °C 150 °C (ATEX)	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Ball bearing
<b>Material</b> Stainless steel 1.4404 (316L), PTFE, PEEK, EPDM or FKM	<b>Weight</b> 1.0 kg	<b>Surface quality</b> Ra ≤ 0.8 µm <small>OUTSIDE</small>	<b>Surface quality</b> Ra ≤ 1.6 µm <small>INSIDE</small>
<b>Steam suitability</b> Suitable	<b>Insertion diameter</b> 68–82 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.2 mm/80 mesh	<b>Recommended operating pressure</b> 5 bar
<b>Adapter</b> 3/4 BSPP is compatible with HygienicFit	<b>Rotation monitoring</b> Sensor-compatible, information: see pages 100–101	<b>Maintainable</b>	

**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

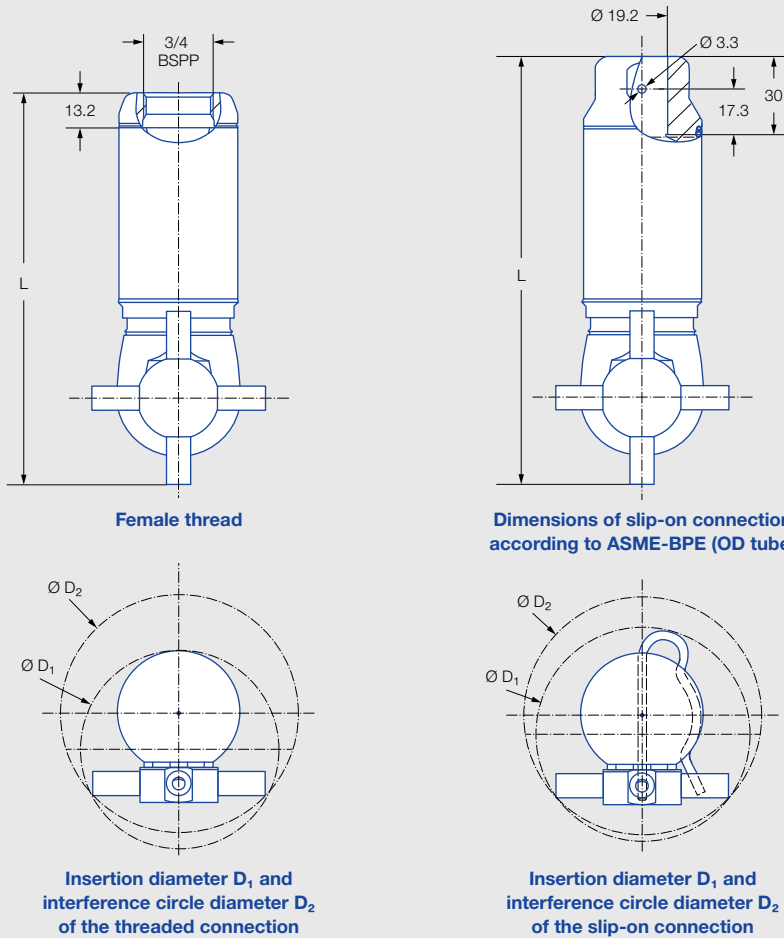
**Duration of cleaning cycle**



Duration of cleaning cycle depending on pressure



Dimensions in mm.



Spray angle	Ordering no.					Narrowest cross-section Ø [mm]	Quantity x Ø nozzle [mm]	V̇ water [l/min]				V̇ water	Dimensions [mm]						Max. tank diameter [m]
	Type	Connection						p [bar] (p <sub>max</sub> = 15 bar)					at 5 bar [m³/h]	Female thread			Slip-on connection		
		3/4" BSPP		3/4" slip-on connection				2.0	3.0	5.0	10.0	L		Ø D <sub>1</sub>	Ø D <sub>2</sub>	L	Ø D <sub>1</sub>	Ø D <sub>2</sub>	
		EPDM	FKM	EPDM	FKM														
360°	5T2.849.1Y	AL	22	TF07	31	1.75	4 x 1.75	13	15	20	28	1,2	142	68	82	157	77	82	11.5
	5T2.969.1Y	AL	22	TF07	31	2.70	4 x 2.70	25	31	40	57	2,4	142	68	82	157	77	82	12.0
	5T3.029.1Y	AL	22	TF07	31	3.20	4 x 3.20	35	43	55	78	3,3	142	68	82	157	77	82	12.5
	5T3.089.1Y	AL	22	TF07	31	4.00	4 x 4.00	50	61	79	112	4,7	148	74	91	163	82	91	13.0

**Information on operation**

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect 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 = Ordering no.  
5T2.849.1Y + AL = 5T2.849.1Y.AL

**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 = Ordering no.  
5T2.849.1Y + AL + EX = 5T2.849.1Y.AL.EX

# High impact tank cleaning machine

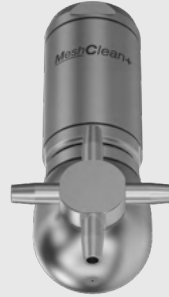
## MeshClean+

### Series 5T5



#### Features:

- High efficiency thanks to especially powerful solid jet nozzles
- Also suitable for large tanks with persistent soiling
- Active self-cleaning through special nozzle geometry
- Particularly low-maintenance



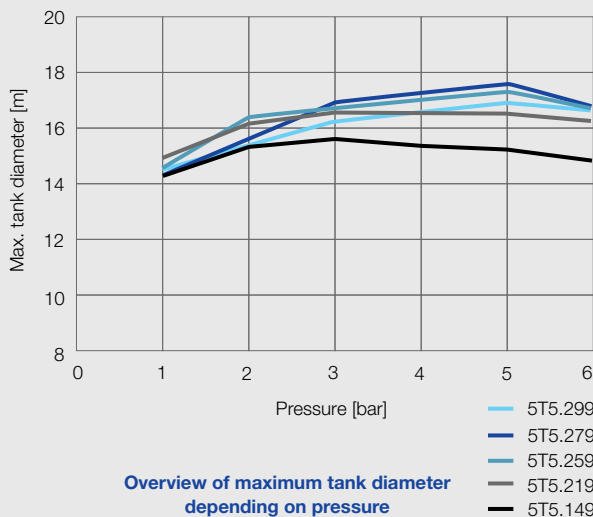
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5T5

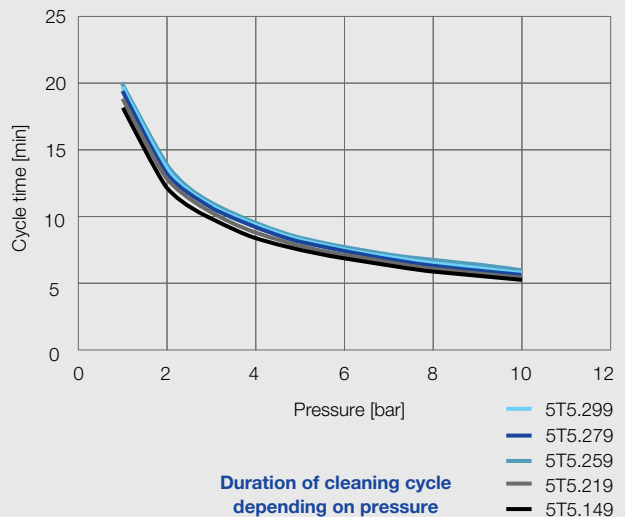
#### Technical data:

<b>Maximum operating temperature</b> 150 °C 150 °C (ATEX)	<b>Maximum ambient temperature</b> 150 °C 150 °C (ATEX)	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Ball bearing
<b>Material</b> Stainless steel 1.4404 (316L), PTFE, PEEK, EPDM or FKM	<b>Weight</b> 4.0 kg	<b>Surface quality</b> OUTSIDE Ra ≤ 0.8 µm	<b>Surface quality</b> INSIDE Ra ≤ 1.6 µm
<b>Steam suitability</b> Suitable	<b>Insertion diameter</b> 120 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.2 mm/80 mesh	<b>Recommended operating pressure</b> 5 bar
<b>Adapter</b> 1 1/2 BSPP is compatible with HygienicFit	<b>Rotation monitoring</b> Sensor-compatible, information: see pages 100–101	<b>Maintainable</b>	

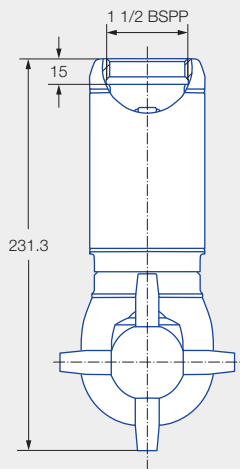
**Max. tank diameter**  
 The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



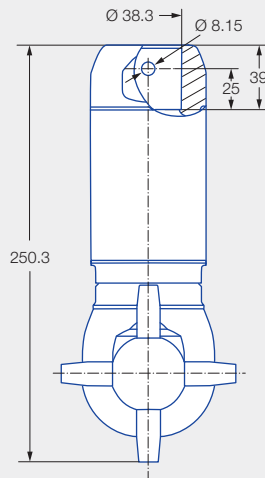
**Duration of cleaning cycle**



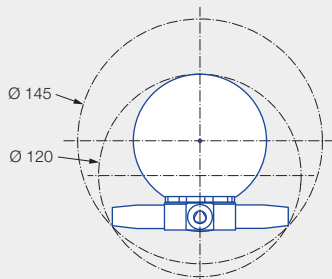
Dimensions in mm.



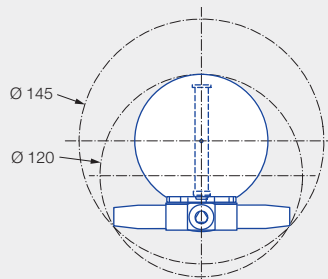
Female thread




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 no.					Narrowest cross-section Ø [mm]	Quantity x Ø nozzle [mm]	V̇ water [l/min]				V̇ water at 5 bar [m³/h]	Max. tank diameter [m]
	Type	Connection						p [bar] (p <sub>max</sub> = 15 bar)					
		1 1/2 BSPP		1 1/2" slip-on connection				2.0	3.0	5.0	10.0		
		EPDM	FKM	EPDM	FKM								
360° 	5T5.149.1Y	AS	25	TF15	34	4.40	4 x 4.40	70	86	111	157	6.6	15.2
	5T5.219.1Y	AS	25	TF15	34	5.55	4 x 5.55	107	131	169	239	10.1	16.5
	5T5.259.1Y	AS	25	TF15	34	6.45	4 x 6.45	132	162	209	296	12.5	17.3
	5T5.279.1Y	AS	25	TF15	34	7.10	4 x 7.10	150	184	238	336	14.2	17.6
	5T5.299.1Y	AS	25	TF15	34	7.75	4 x 7.75	170	209	269	380	16.1	16.9

NPT threads on request.

**Information on operation**

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect 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 = Ordering no.  
5T5.149.1Y + AS = 5T5.149.1Y.AS

**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 1 1/2" slip-on connection: 5T5.149.1Y.T5.EX



Type + Connection + ATEX = Ordering no.  
5T5.149.1Y + AS + EX = 5T5.149.1Y.AS.EX

# 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



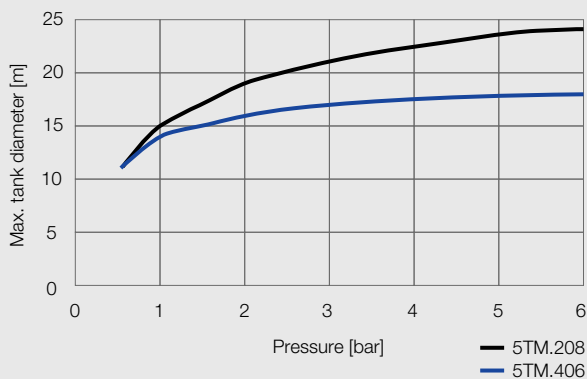
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

#### Series 5TM

#### Technical data:

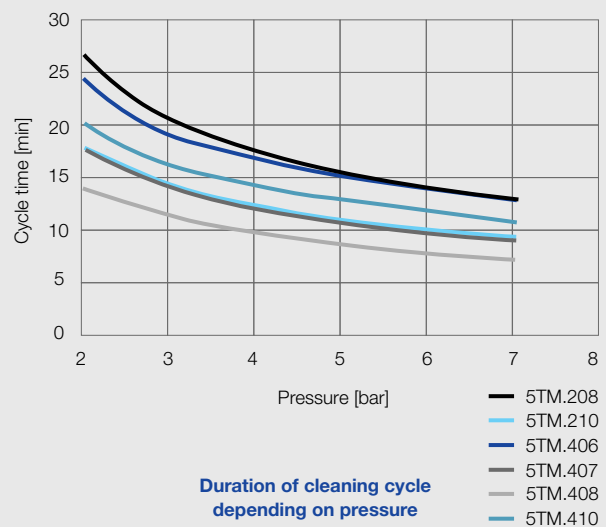
<b>Maximum operating temperature</b> 95 °C 95 °C (ATEX)	<b>Maximum ambient temperature</b> 140 °C 120 °C (ATEX)	<b>Installation</b> Operation in every installation position	<b>Bearing</b> Ball bearing
<b>Material</b> Stainless steel 1.4404 (316L), stainless steel 1.4301 (304), stainless steel 1.4310 (302), PTFE, PEEK	<b>Weight</b> 7.40–7.88 kg	<b>Surface quality</b> Ra ≤ 0.8 µm <small>OUTSIDE</small>	<b>Surface quality</b> Ra ≤ 4.5 µm <small>INSIDE</small>
<b>Steam suitability</b> Not suitable	<b>Insertion diameter</b> 160–230 mm	<b>Recommended filter</b> Line strainer with a mesh size of 0.2 mm/80 mesh	<b>Recommended operating pressure</b> 5 bar
<b>Rotation monitoring</b> Sensor-compatible, information: see pages 100–101	<b>Maintainable</b>		

**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.



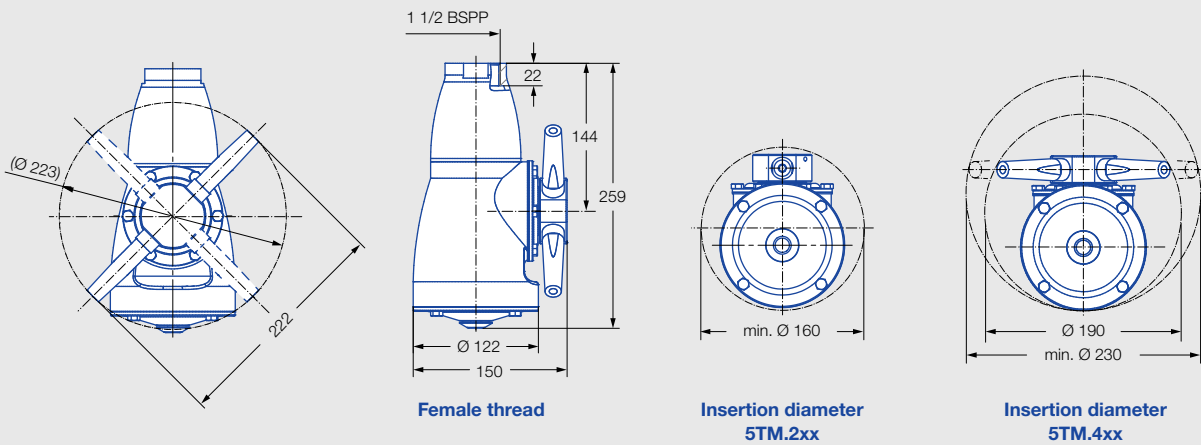
Overview of maximum tank diameter depending on pressure


**Duration of cleaning cycle**



Duration of cleaning cycle depending on pressure

Dimensions in mm.



Spray angle	Ordering no. Type	Narrowest cross-section Ø [mm]	Quantity x Ø nozzle [mm]	V̇ water [l/min]				V̇ water at 5 bar [m³/h]	Max. tank diameter [m]
				p [bar] (p <sub>max</sub> = 7 bar)					
				2.0	3.0	5.0	7.0		
360° 	<b>5TM.208.1Y.AS</b>	8.0	2 × 8.0	125	153	<b>198</b>	234	11.9	24.0
	<b>5TM.210.1Y.AS</b>	10.0	2 × 10.0	160	196	<b>253</b>	299	15.2	24.0
	<b>5TM.406.1Y.AS</b>	6.0	4 × 6.0	140	171	<b>221</b>	261	13.3	18.0
	<b>5TM.407.1Y.AS</b>	7.0	4 × 7.0	170	208	<b>269</b>	318	16.1	20.0
	<b>5TM.408.1Y.AS</b>	8.0	4 × 8.0	200	245	<b>316</b>	374	19.0	22.0
	<b>5TM.410.1Y.AS</b>	10.0	4 × 10.0	260	318	<b>411</b>	486	24.7	23.0

NPT threads on request.

**Information on operation**

Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect 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 = Ordering no.  
5TM.208.1Y + AS = 5TM.208.1Y.AS

**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...T150 °C Da



Type + ATEX = Ordering no.  
5TM.208.1Y.AS + EX = 5TM.208.1Y.AS.EX

# High pressure tank cleaning machine PressureClean Series 5TP



## Features:

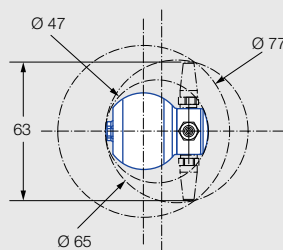
- Intensive cleaning with little water and high pressure
- Ideal for small tanks with the most persistent soiling
- Driven by an efficient 24 V motor
- "IP 65" certified motor housing
- Scope of delivery:
  - PressureClean
  - 5 m cable with matching plug and open cable end
  - Not included: power supply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



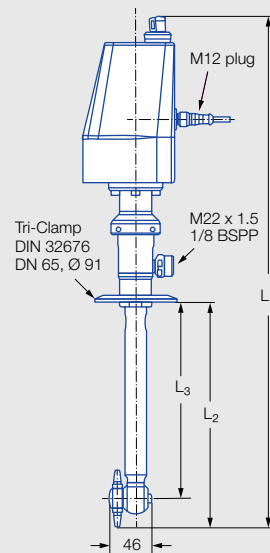
**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

## Series 5TP

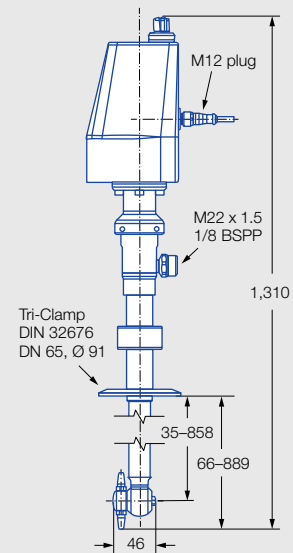
Type	Dimensions [mm]		
	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>
5TP.xx9.1Y.01	566	250	219
5TP.xx9.1Y.02	816	500	469



Insertion diameter and interference circle diameter



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



5TP.xx9.1Y.03  
(with adjustable flange)

## Technical data:



**Maximum operating temperature**  
90 °C



**Maximum ambient temperature**  
50 °C



**Installation**  
Operation in every installation position



**Bearing**  
Ball bearing



**Material**  
Process side:  
Stainless steel 316L,  
PTFE with carbon,  
PEEK, Si<sub>3</sub>N<sub>4</sub>, EPDM



**Weight**  
2.9–5.3 kg



**Surface quality**  
Ra ≤ 1.6 µm  
OUTSIDE



**Surface quality**  
Ra ≤ 6.3 µm  
INSIDE



**Steam suitability**  
Not suitable



**Insertion diameter**  
65 mm



**Recommended filter**  
Line strainer with a mesh size of 0.2 mm/170 mesh



**Recommended operating pressure**  
100 bar



**Rotation monitoring**  
Sensor-compatible, information: see pages 100–101



**Maintainable**

Dimensions in mm.



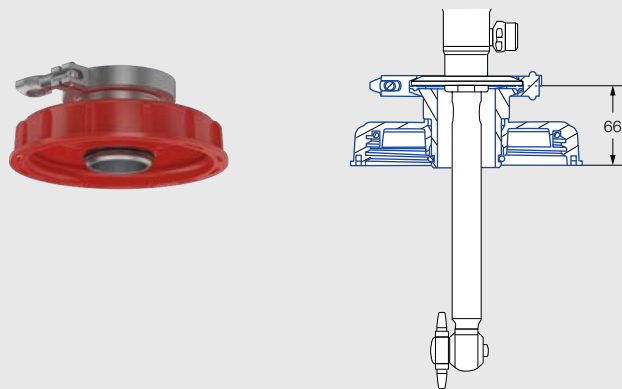
**Max. tank diameter**

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.

Type	Max. tank diameter for most persistent soiling [m]	Max. tank diameter for medium soiling [m]
<b>5TP.469.1Y</b>	1.0	2.5
<b>5TP.589.1Y</b>	1.2	3.0
<b>5TP.659.1Y</b>	1.4	3.5

**Adapter for IBC containers:**

- Suitable for all types of PressureClean
- Fits into a G 2 female thread
- Scope of delivery:
  - 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



Ordering no.: 05T.P30.00.00.00

Spray angle	Ordering no.				V̇ water [l/min]		
	Type	Lance length			p [bar] (p <sub>max</sub> = 200 bar)		
		250 [mm]	500 [mm]	1,000 [mm] with adjustable flange	50	100	150
360° 	<b>5TP.469.1Y</b>	<b>01</b>	<b>02</b>	<b>03</b>	7	<b>10</b>	12
	<b>5TP.589.1Y</b>	<b>01</b>	<b>02</b>	<b>03</b>	14	<b>20</b>	24
	<b>5TP.659.1Y</b>	<b>01</b>	<b>02</b>	<b>03</b>	21	<b>30</b>	37

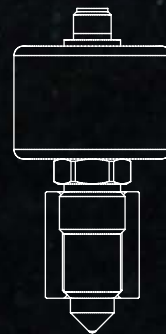
**Information on operation**

The electric motor may only be switched on when liquid is flowing through the nozzle.

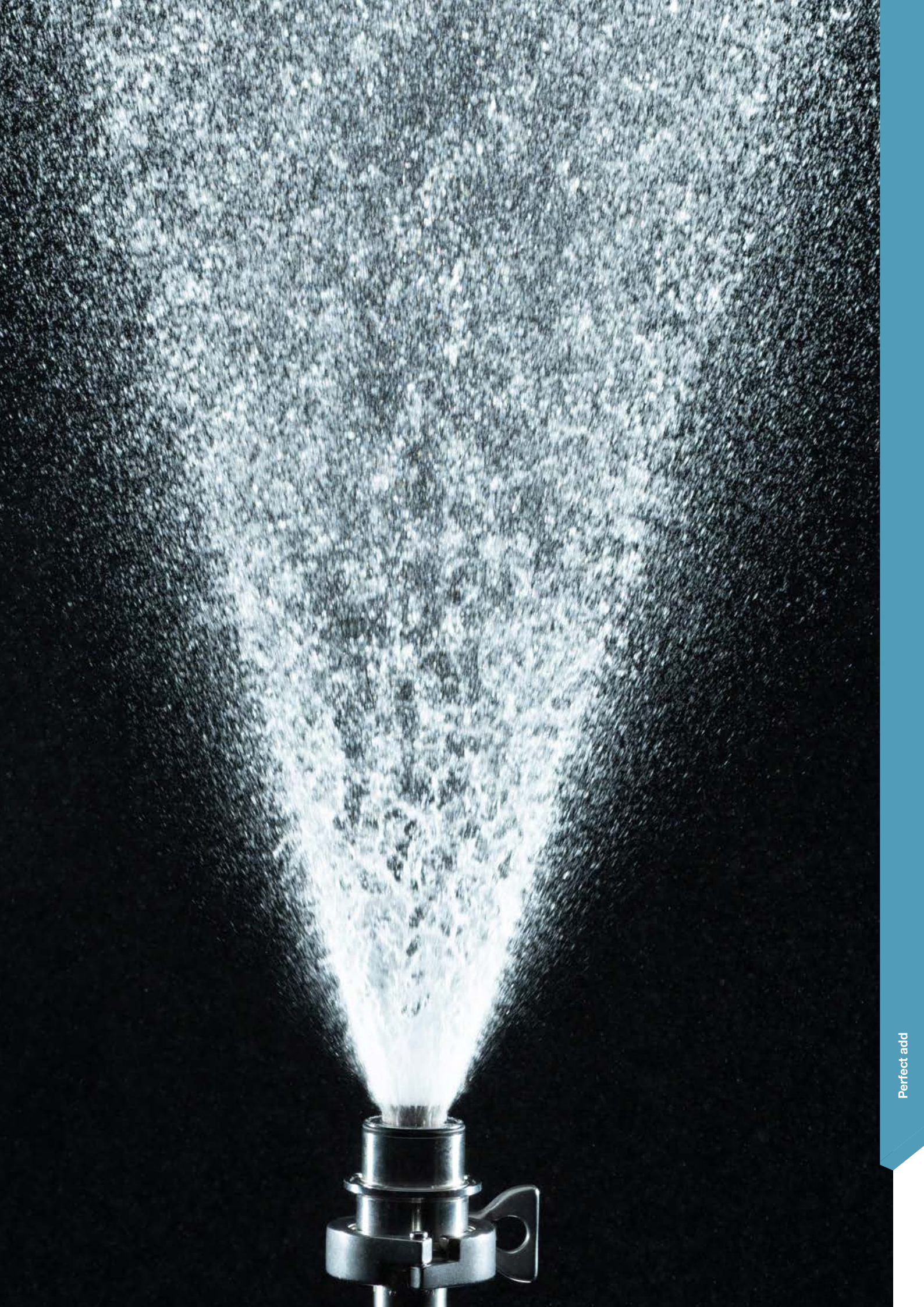
Ordering    Type        +    Lance length    =    Ordering no.  
 example: 5TP.469.1Y + 01        =    5TP.469.1Y.01



➤➤ 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



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5P2

#### Technical data:



**Maximum operating temperature**  
 140 °C  
 140 °C (ATEX)



**Maximum ambient temperature**  
 150 °C  
 140 °C (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**  
 500 g



**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

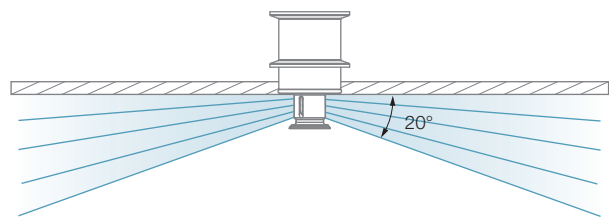


**Recommended operating pressure**  
 2 bar  
 Opening pressure approx. 1.0 bar, closing pressure approx. 0.5 bar

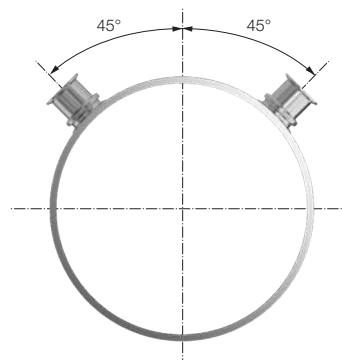
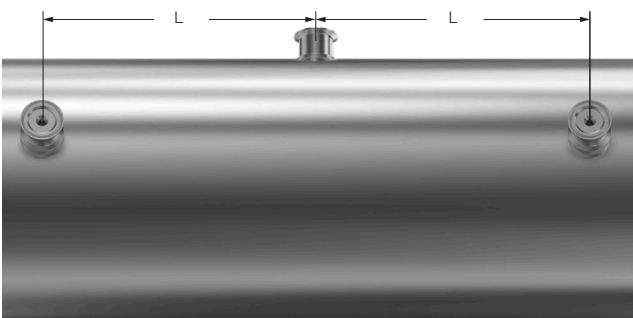
#### Installation example



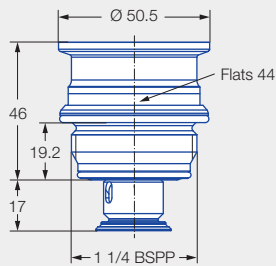
#### Spray distribution



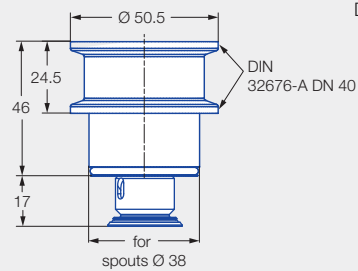
#### Recommendation for nozzle positioning



Type	Nozzle spacing L [m]
5P2.873	0.8
5P2.923	1.0



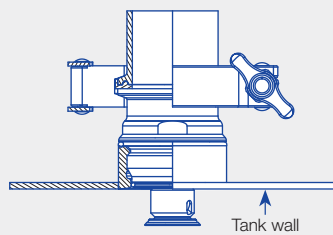
Male thread



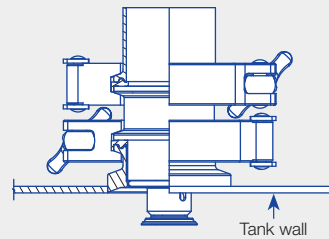
Tri-Clamp connection

Dimensions in mm.

### Installation situation



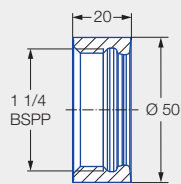
Male thread



Tri-Clamp connection

### Weld-in socket for threaded connection

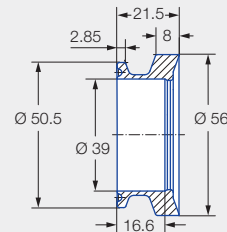
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Whirly).



Ordering 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 DN40 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.



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

Spray angle	Ordering no.			Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]
	Type	Connection on tank wall			p [bar] (p <sub>max</sub> = 6 bar)			
		1 1/4 BSPP male	Tri-Clamp		1.0	2.0	3.0	
20° 	5P2.873.1Y	AP	00	2.5	11	15	18	0.9
	5P2.923.1Y	AP	00	3.5	14	20	25	1.2

### 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 = Ordering no.  
5P2.873.1Y + AP = 5P2.873.1Y.AP

### 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...T170 °C Da



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

# 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



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5P3

#### Technical data:



**Maximum operating temperature**  
 140 °C  
 140 °C (ATEX)



**Maximum ambient temperature**  
 150 °C  
 140 °C (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**  
 660 g



**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

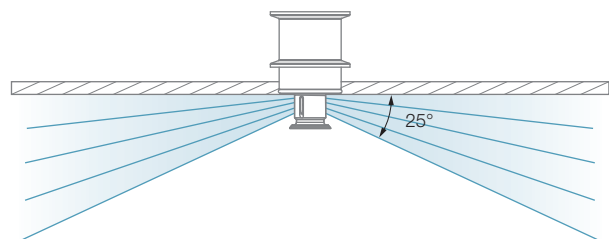


**Recommended operating pressure**  
 2 bar  
 Opening pressure approx. 0.9 bar, closing pressure approx. 0.5 bar

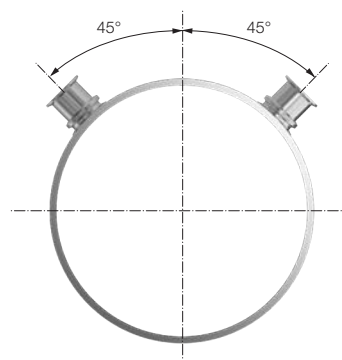
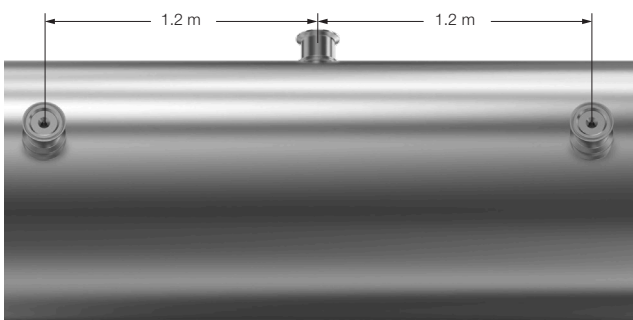
#### Installation example

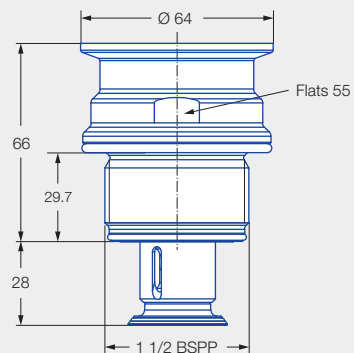


#### Spray distribution

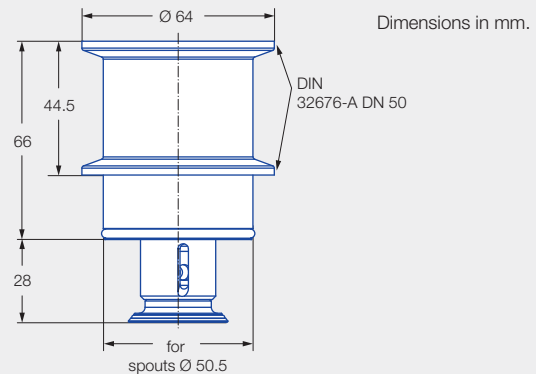


#### Recommendation for nozzle positioning





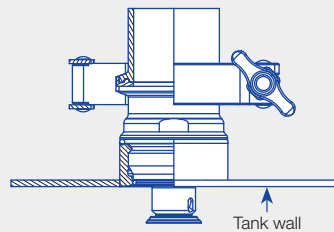
Male thread



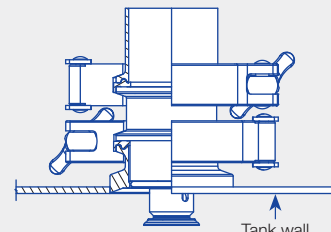
Tri-Clamp connection

Dimensions in mm.

### Installation situation



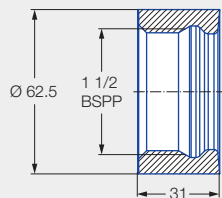
Male thread



Tri-Clamp connection

### Weld-in socket for threaded connection

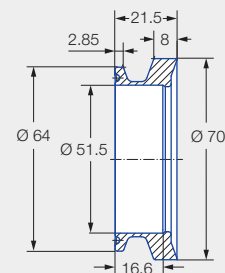
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Whirly).



**Ordering 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.



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

Spray angle	Ordering no.			Narrowest cross-section $\varnothing$ [mm]	$\dot{V}$ water [l/min]			$\dot{V}$ water at 2 bar [m <sup>3</sup> /h]
	Type	Connection on tank wall			p [bar] ( $p_{\max} = 6$ bar)			
		1 1/2 BSPP male	Tri-Clamp		1.0	2.0	3.0	
25° 	5P3.043.1Y	AR	00	3.3	28	40	49	2.4

### 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 = Ordering 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 = Ordering 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



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

#### Series 5P5

#### Technical data:



**Maximum operating temperature**  
 95 °C  
 95 °C (ATEX)



**Maximum ambient temperature**  
 150 °C  
 140 °C (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**  
 340 g



**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



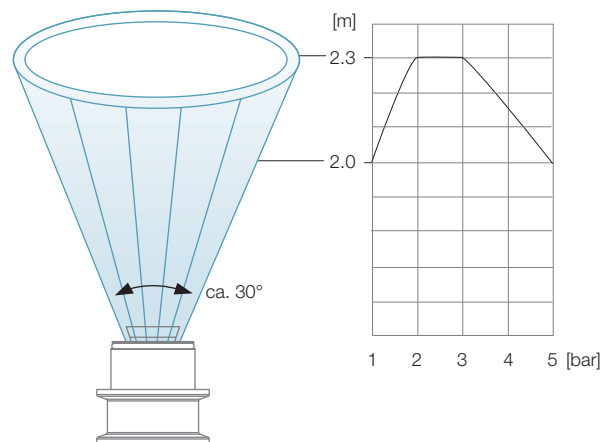
**Recommended operating pressure**  
 2 bar  
 Opening pressure: approx. 0.3 bar, closing pressure: approx. 0.3 bar

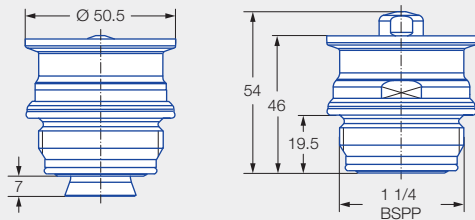
#### Installation example



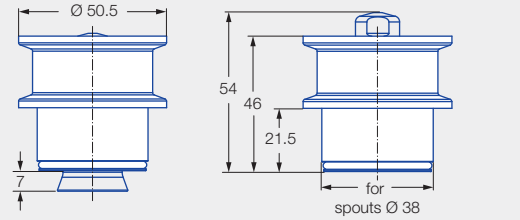
#### Spray height

Sprays upwards in vertical installation position.



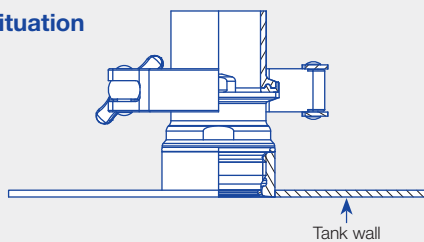


Male threaded connection

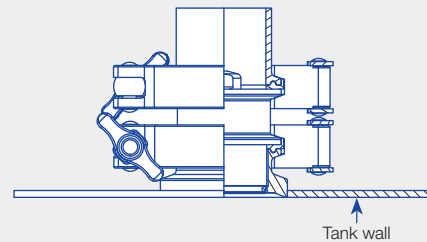


Tri-Clamp connection

Installation situation



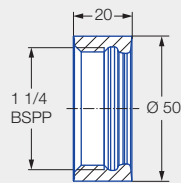
Threaded connection



Tri-Clamp connection

Weld-in socket for threaded connection

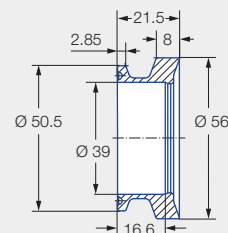
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Clean).




Ordering 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.



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

Spray angle	Ordering no.					V̇ water [l/min]				V̇ water	
	Type	Material no.		Connection on tank wall		p [bar] (p <sub>max</sub> = 5 bar)					
		1Y	21	1 1/4 BSPP male	Tri-Clamp	1.0	2.0	3.0	5.0	at 2 bar [m³/h]	at 5 bar [m³/h]
30° 	5P5.081	●	●	AP	00	35	50	61	79	3.0	4.7

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 = Ordering no.  
5P5.081 + 1Y + AP = 5P5.081.1Y.AP

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...T170 °C Da



Type + Material + Connection + ATEX = Ordering 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 any orientation
- Pneumatically extendable, independent of liquid pressure
- Flushable with air
- Installation flush with wall
- No additional installations in the process area



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 5P7

#### Technical data:



**Maximum operating temperature**  
95 °C



**Maximum ambient temperature**  
65 °C



**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:**  
4.5 kg



**Surface quality**  
Ra ≤ 1.6 on process side



**Surface quality**  
Ra ≤ 1.6 µm



**Steam suitability**  
Not suitable



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



**Recommended operating pressure**  
2.5 bar

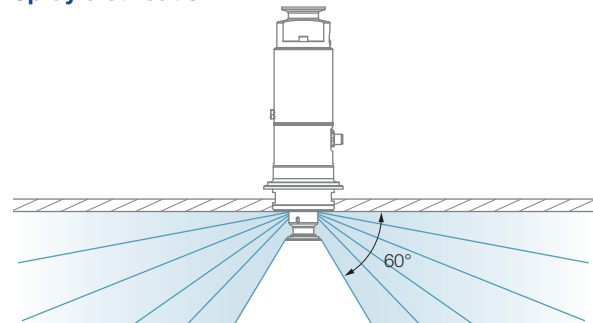


**Maintainable**

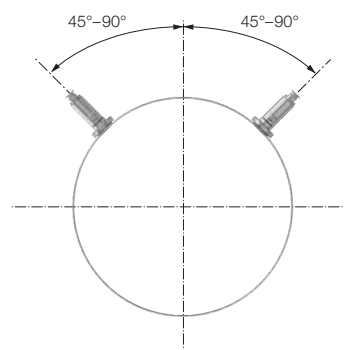
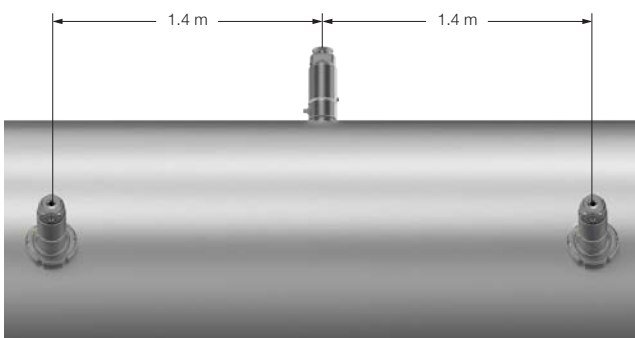
#### Installation example



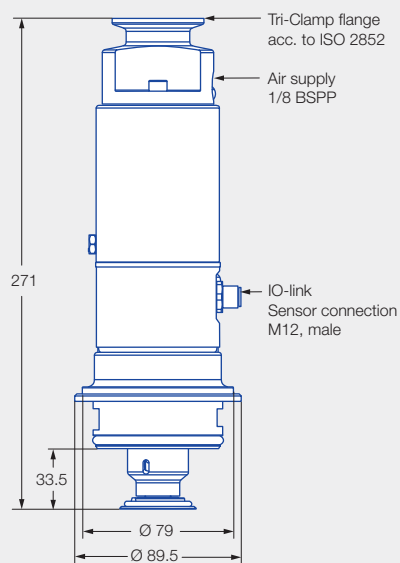
#### Spray distribution



#### Recommendation for nozzle positioning



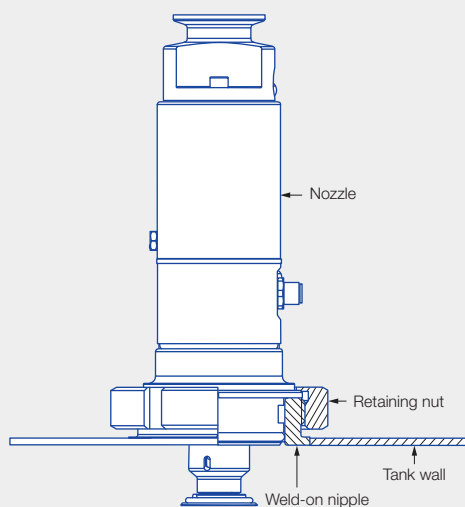




Dimensions in mm  
(unless stated otherwise).

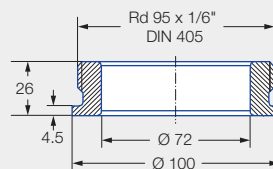
Tri-Clamp flange

### 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 flange ensures a reliable and hygienic seal.



#### Weld-on nipple


Ordering no.: 500.605.1Y.00.08

Material: Stainless steel 1.4404 (316L)

#### Retaining nut

Ordering no.: 095.011.1Y.00.89

Material: Stainless steel 1.4404 (316L)

Spray angle	Ordering no.	V̇ water [l/min]					V̇ water at 2.5 bar [m³/h]
	Type	p [bar] (p <sub>max</sub> = 6 bar)					
		1.0	2.0	2.5	3.0	5.0	
60° 	5P7.074.1Y.00	34.2	48.3	54.0	59.2	76.4	3.2

### Information on operation

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

# 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



**Function video**  
[www.lechler.com/de-en/medialibrary/videos-general-industry](http://www.lechler.com/de-en/medialibrary/videos-general-industry)  
 Or scan the QR code.

Series 05C

## Technical data:



**Maximum operating temperature**  
150 °C



**Maximum ambient temperature**  
150 °C



**Installation**  
Operation in every installation position



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



**Weight**  
70–300 g



**Surface quality**  
Ra ≤ 0.8 µm  
OUTSIDE



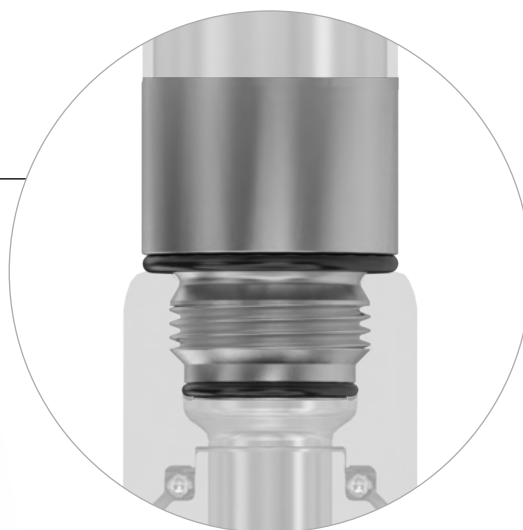
**Surface quality**  
Ra ≤ 0.8 µm  
INSIDE

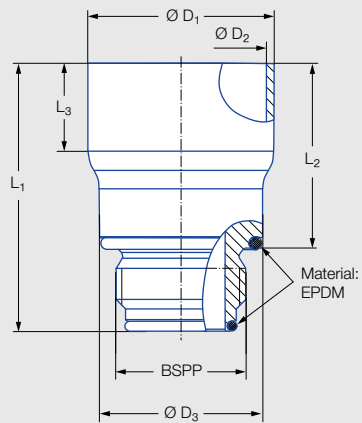


**Steam suitability**  
Suitable



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





Ordering no.		Dimensions [mm]						Pipe standard
Type	Connection thread BSPP male	$L_1$	$L_2$	$L_3$	$\varnothing D_1$	$\varnothing D_2$	$\varnothing D_3$	
<b>05C.190.1Y.AE.16</b>	3/8	48.00	35.70	18.00	19.05	15.80	21.50	DIN EN 10357 series D
<b>05C.230.1Y.AE.15</b>	3/8	48.00	35.70	18.00	23.00	20.00	21.50	DIN EN 10357 series A
<b>05C.250.1Y.AE.12</b>	3/8	48.00	35.70	17.00	25.00	22.60	21.50	DIN EN 10357 series D
<b>05C.250.1Y.AG.12</b>	1/2	56.00	39.00	18.00	25.00	22.60	31.00	DIN EN 10357 series D
<b>05C.350.1Y.AK.15</b>	3/4	55.00	37.80	21.00	35.00	32.00	33.50	DIN EN 10357 series A
<b>05C.380.1Y.AK.12</b>	3/4	55.00	37.80	18.00	38.00	35.60	33.50	ISO 2037
<b>05C.381.1Y.AK.15</b>	3/4	55.00	37.80	18.00	38.10	35.10	33.50	DIN EN 10357 series D
<b>05C.381.1Y.AM.16</b>	1	59.00	39.00	23.00	38.10	34.90	40.50	DIN EN 10357 series D
<b>05C.508.1Y.AP.15</b>	1 1/4	57.00	38.00	22.00	50.80	47.80	49.40	DIN EN 10357 series D
<b>05C.635.1Y.AR.16</b>	1 1/2	63.00	44.00	22.00	63.50	60.30	56.00	DIN EN 10357 series D

### Spare parts set of O-rings, EPDM

Thread type BSPP	Ordering no.
3/8	<b>05C.000.E9.AE.00</b>
1/2	<b>05C.000.E9.AG.00</b>
3/4	<b>05C.000.E9.AK.00</b>
1	<b>05C.000.E9.AM.00</b>
1 1/4	<b>05C.000.E9.AP.00</b>
1 1/2	<b>05C.000.E9.AR.00</b>

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



## Technical data:



**Maximum operating temperature**  
0–100 °C



**Maximum ambient temperature**  
–10 °C to +60 °C



**Installation**  
Operation in every installation position



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



**Weight**  
350 g



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



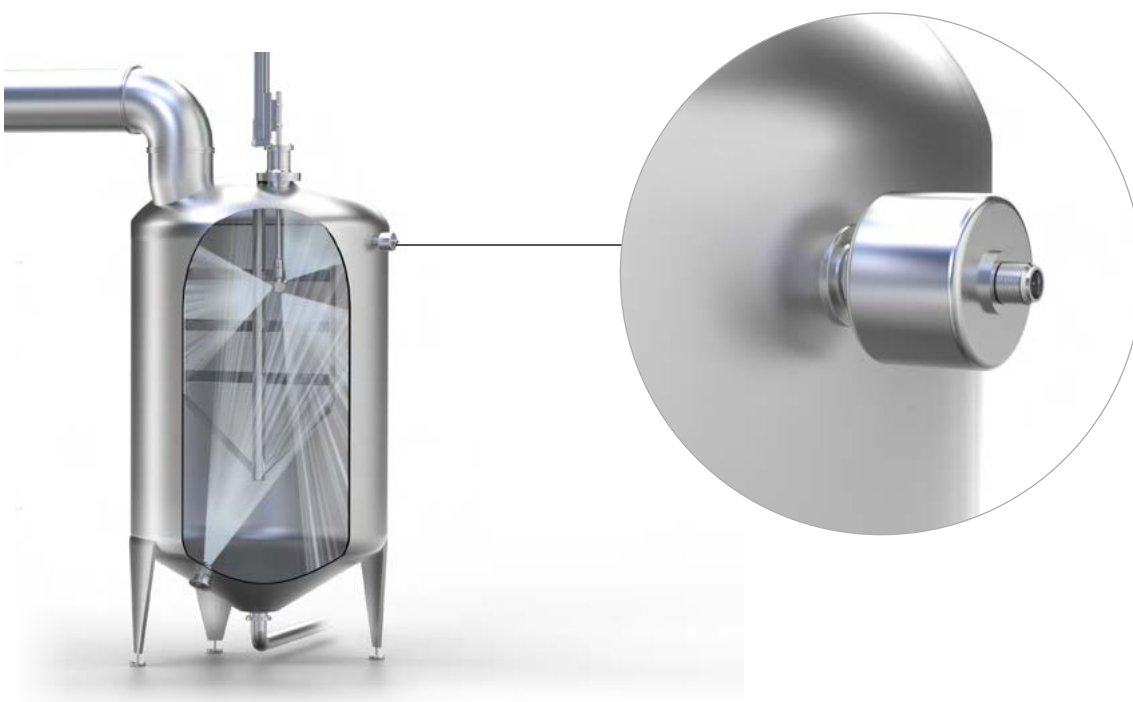
**Steam suitability**  
Max. 125 °C for max.  
30 min. at ambient  
temperature ≤ 35 °C



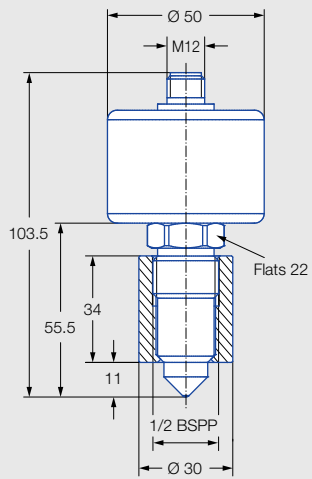
**Electrical data**  
Supply voltage:  
U<sub>b</sub> = 24 V +/-20 %  
(18 to 32 VDC)  
Power requirement: < 20 mA  
Output signal: PNP, 50 mA,  
short circuit protected, active



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



Dimensions in mm.



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

Software download (free): [www.lechler.com/de-en/software/rotatingcontrolsystem](http://www.lechler.com/de-en/software/rotatingcontrolsystem)

# ➤➤ Cleaning lance StaticLance

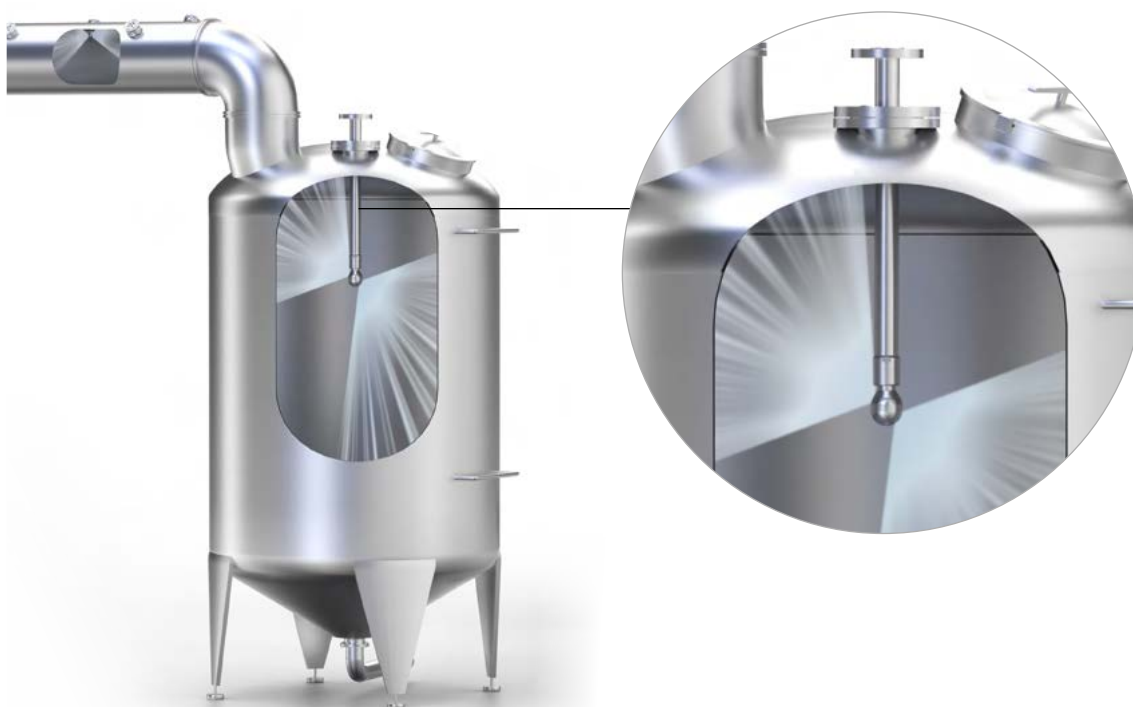


## Features:

- Optimum nozzle positioning and alignment in the tank
- Individual design possible depending on existing conditions
- Standard material 1.4404 (316L)
- Different material versions optionally available



Static lance



## Good to know

If you would like further information on our static lances, please contact us: by phone on +49 7123 962-0 or by email at [info@lechler.de](mailto:info@lechler.de).

# ➤ Cleaning lance FlexLance

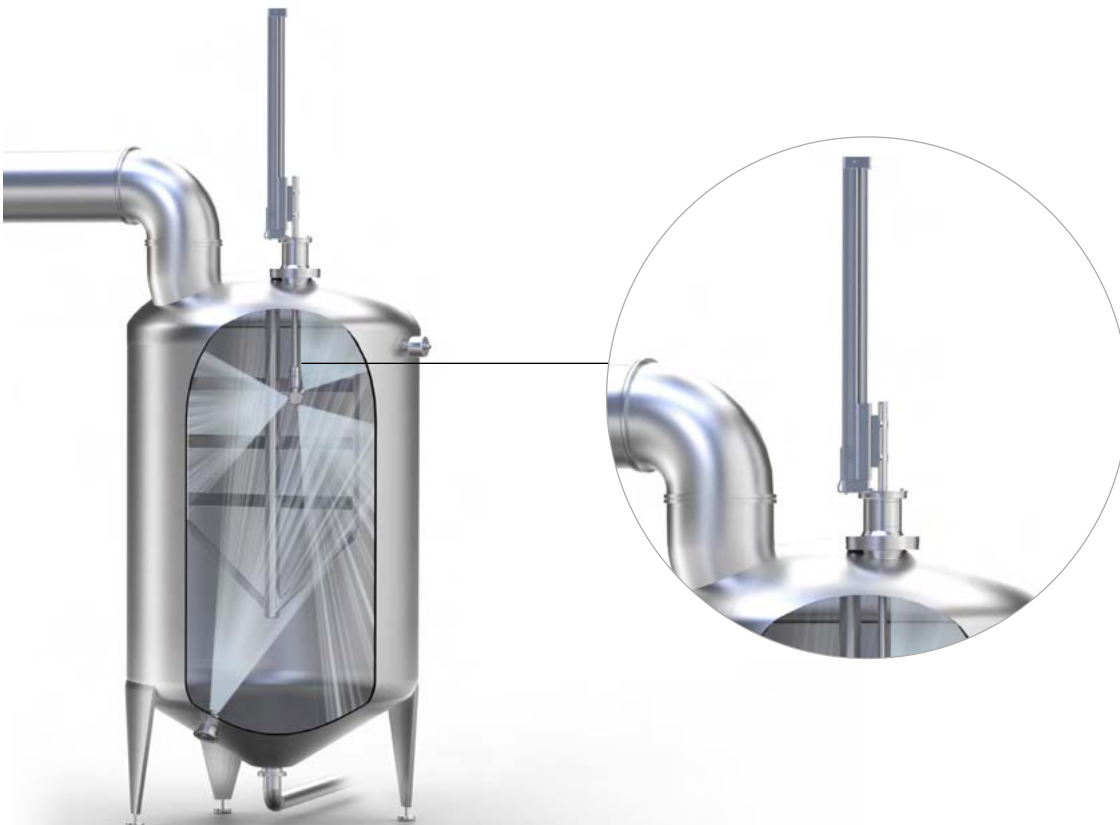


## Features:

- Stroke length: 1 mm to 2,700 mm
- Material: contact with process 1.4404 (316L), PTFE and EPDM
- 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

In some processes, the tank cleaning nozzle must not remain in the tank during the process. Lechler offers pneumatically extendable cleaning lances so that the tank cleaning nozzle is only in the tank when it is used for cleaning. We will be pleased to discuss your requirements. By phone on +49 7123 962-0 or by email at [info@lechler.de](mailto:info@lechler.de).



# 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.lechler.com/de-en/service/service-offers](http://www.lechler.com/de-en/service/service-offers) 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 +49 7123 962-0 or by email at [service@lechler.de](mailto:service@lechler.de).



# EVERYTHING COVERED CLEAN ALL OVER THE WORLD





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- Sales office/sales agent

- Headquarters**
- Production**
- Sales**
- Service Points**

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### 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.**

**ENGINEERING  
YOUR SPRAY SOLUTION**



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