ENGINEERING
YOUR SPRAY SOLUTION

TANK AND EQUIPMENT CLEANING

Cleaning diversity of the highest quality

A CLEAN SOLUTION
140 YEARS OF HYGIENE COMPETENCE

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

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

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

1879
Company founded by Paul Lechler

1893
Patent for liquid atomization

1967
Relocation of production to Metzingen

1978
Expansion to the USA and then to other countries

1995
Production, sales and administration are concentrated in Metzingen

CONTENTS

140 1879 - 2019

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

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

2019
Lechler celebrates 140th anniversary

2021
New factory in China

2022
New logistics center in Metzingen

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.

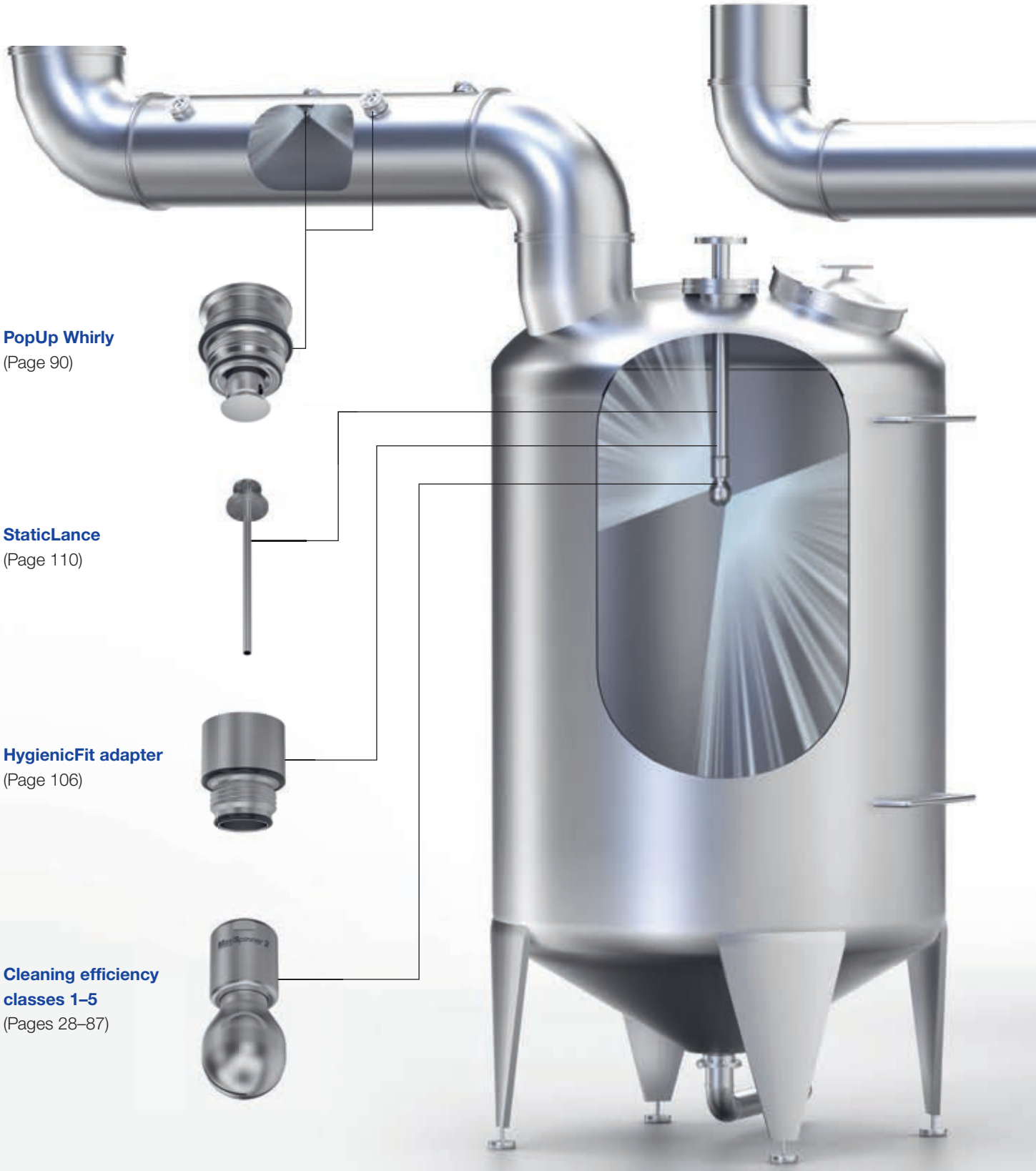
With our proprietary Tank*Clean* software, we are also able to simulate complex tank geometries and spray processes with different nozzles. Together with our extensive range of cleaning nozzles, we can develop tailor-made solutions for your tank and equipment cleaning requirements – particularly if complex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

Why Lechler?

- **Unique product variety of the market leader**
- **Cleaning efficiency classes – for easy nozzle selection**
- **Planning security thanks to Tank*Clean* 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
(Page 110)

HygienicFit adapter
(Page 106)

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

FlexLance
(Page 111)

Rotation monitoring sensor
(Page 108)

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

PopUp Clean
(Page 102)

GIVE DIRT NO CHANCE
TIME TO GET CLEANING

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

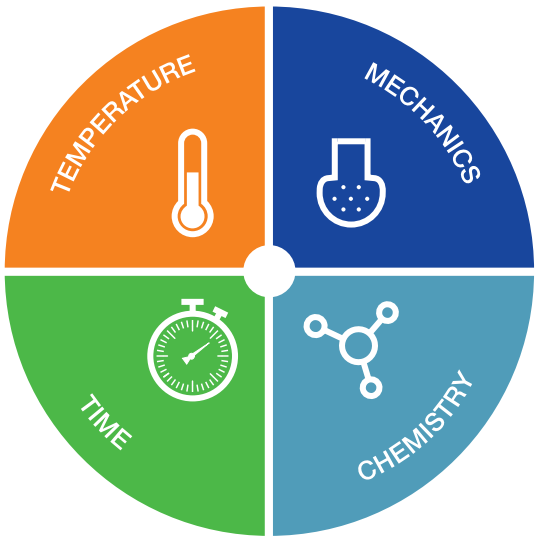
As your partner, we help to minimize these costs as much as possible.

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.



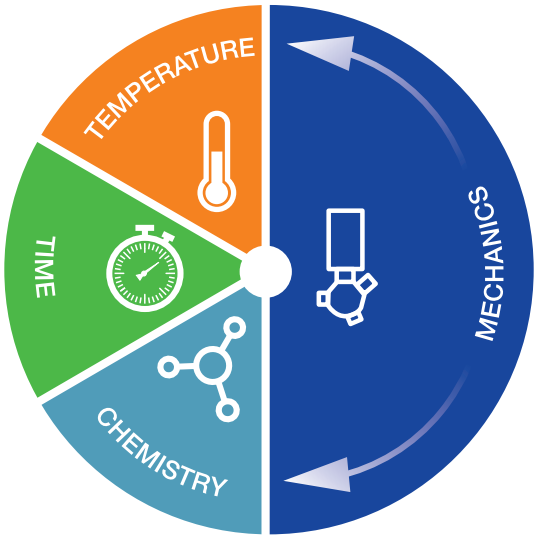


Fig. 1

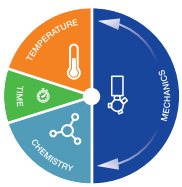


Fig. 2

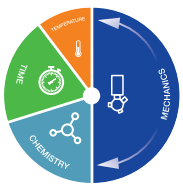
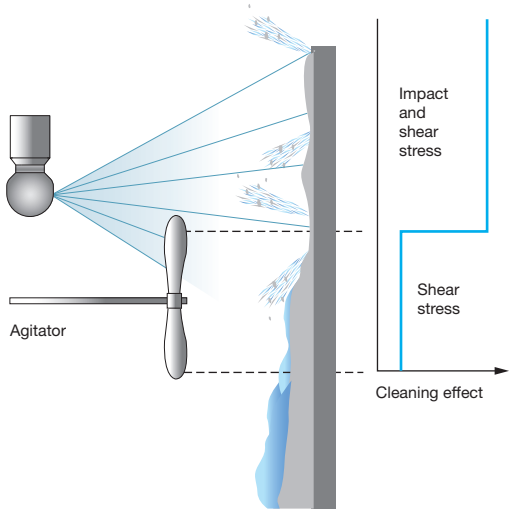


Fig. 3

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.

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

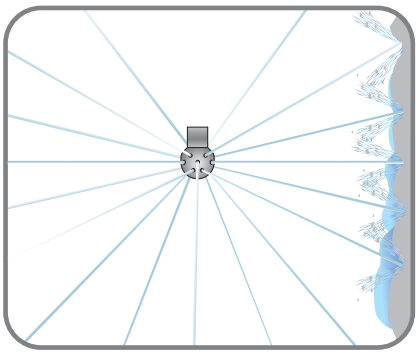
5 HIGH PRESSURE

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

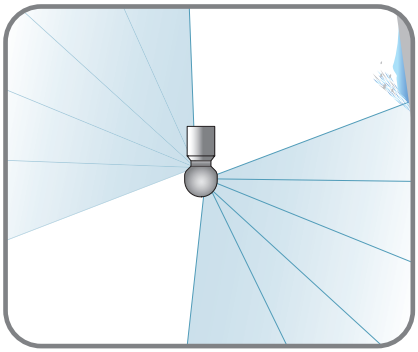
Different operating principles influence the impact and the cleaning effect. The cleaning efficiency can also be influenced by choosing the appropriate nozzle.



Spray ball, static

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

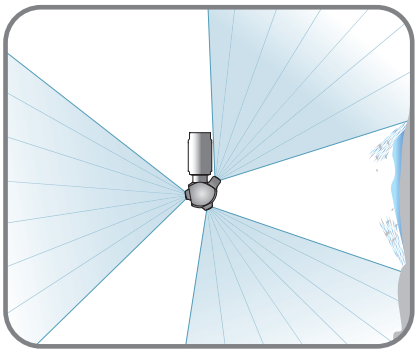
- The impact of the spray jets is punctiform and the surfaces are cleaned by the shear stress of the liquid running down the surface.
- The water consumption is comparatively high
- Increasing soiling results in a significantly longer cleaning time, and cleaning may not be complete
- Simple, inexpensive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

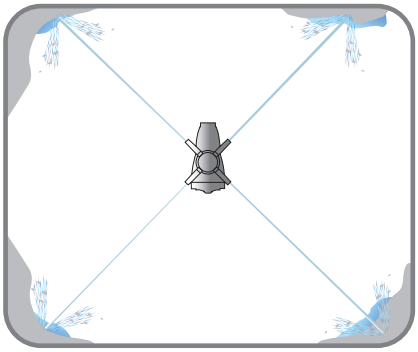
- Drive by cleaning fluid
- Fast impact repetition
- Optimum cleaning performance in the low pressure range



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

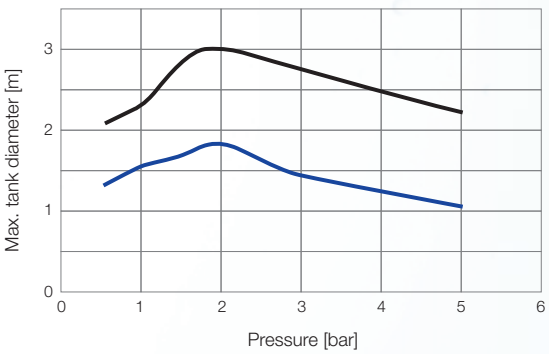
Flow rate and impact

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.

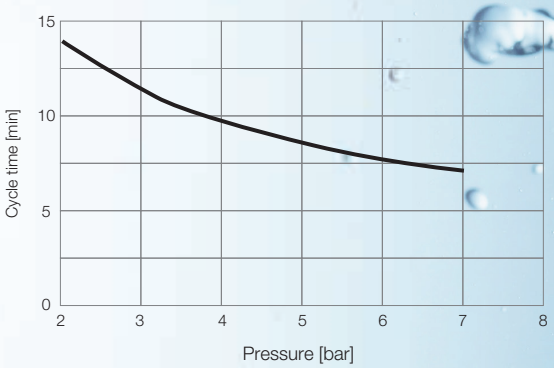
If there is more than one flow rate size within a series, the types with the largest and smallest spraying range are shown. If other flow rate sizes are available, their comparable curves run between the shown upper and lower limits. Information on the maximum tank diameter is provided in the table on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

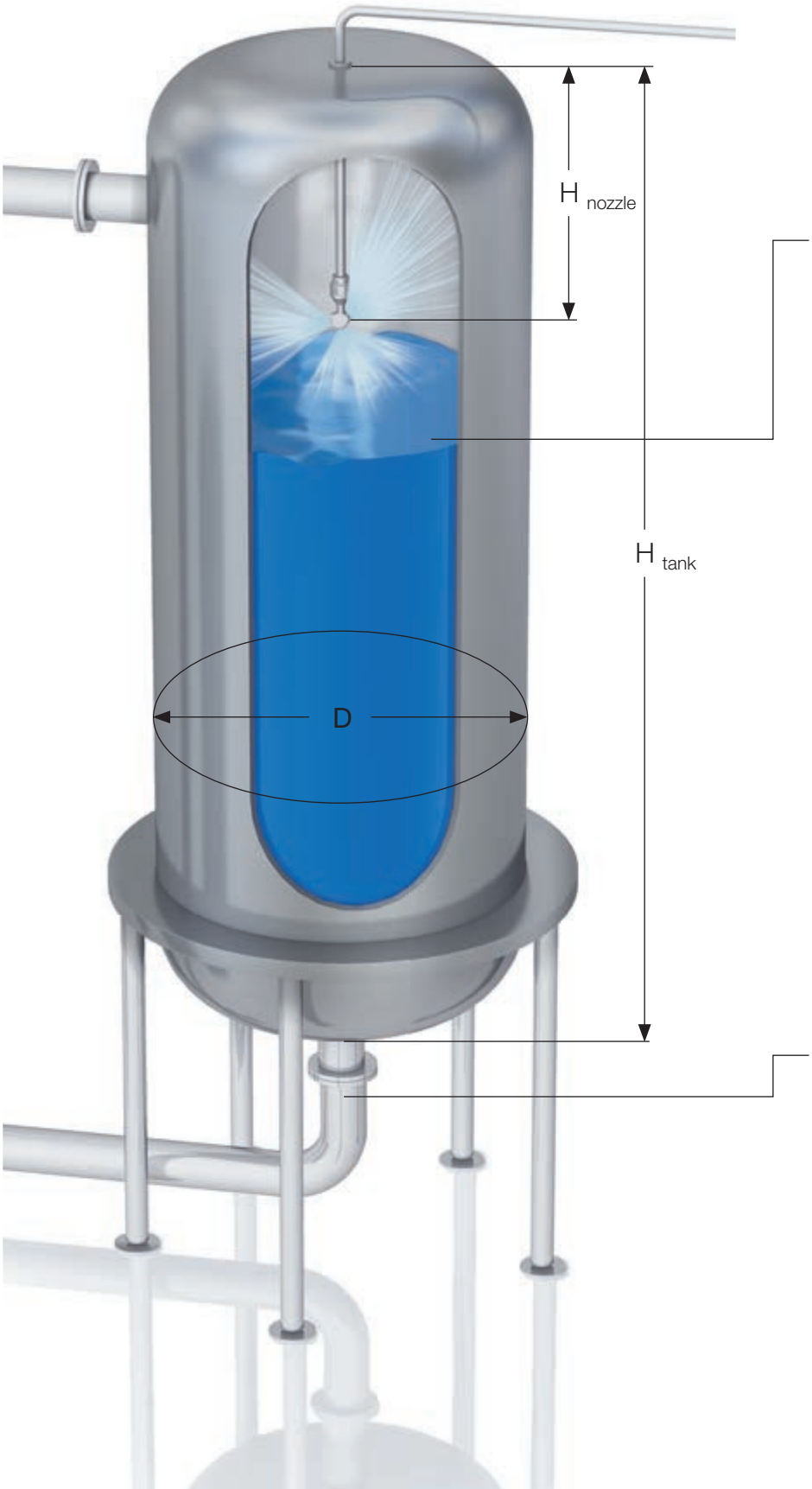


Good to know

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.

FOR YOUR PLANNING
CRITERIA FOR NOZZLE SELECTION

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



Tank size

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

Fill level

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

Arrangement

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

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

Make sure that sufficient cleaning fluid strikes the tank ceiling.

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

Conversion

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

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

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

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

Differential pressure according to volume flow:

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

Tank drainage rate

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

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.

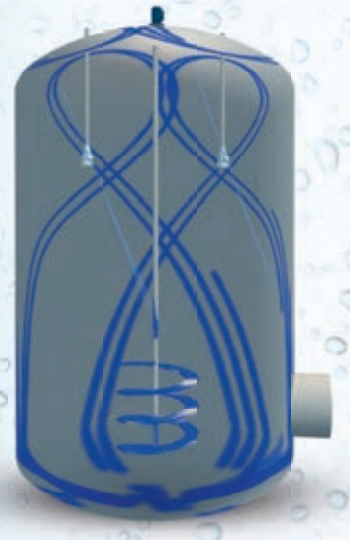
Avoidance of spray shadows

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 Tank*Clean* simulation software.

With Tank*Clean* 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 Tank*Clean*

Discover the possibilities of Tank*Clean:* Visit **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-XX.

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**.

- 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

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

iOS (Apple)

Android (Google)

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**.

Maintenance instructions

To ensure you are always well informed, we keep our maintenance manuals continuously up to date. The latest version is available directly at www.lechler.com/de/service/wartungsanleitungen.

Good to know

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

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

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

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

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

MAXIMUM AMBIENT TEMPERATURE
Maximum permitted ambient temperature within the tank.

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

BEARING
The primary bearing used is described here.

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

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

SURFACE QUALITY
INSIDE AND OUTSIDE

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

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

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 is was no longer capable of operation within a very short time)

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

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

INTERFERENCE CIRCLE DIAMETER
For the series in cleaning efficiency classes 4 & 5, the interference circle diameter is also specified. The interference circle diameter defines the diameter that the non-rotationally symmetrical spray head covers during rotation.

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.


Prüfstand 305

TANK CLEANING NOZZLES
SERIES OVERVIEW

		Cleaning efficiency class 1					
Series		**Spray ball 527**	**Spray ball 540/541**	**RinseClean 5B2/5B3**	**PicoWhirly 500.234**	**MicroWhirly 566**	**MiniWhirly 500.186**
Information on page		30	32	34	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
31.0–213.0	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
●	●	●	●	●	●

* Version with thread connection Ra ≤ 1,6 µm

CLEANING EFFICIENCY CLASS 1
RINSE EFFICIENTLY AND RELIABLY

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

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

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Series 527

Technical data:

Maximum operating temperature
200 °C

Maximum ambient temperature
250 °C

Installation
Operation in every installation position

Bearing
Static – no bearing

Material
Stainless steel 1.4404 (316L)

Weight
50–660 g

Surface quality
≤ 0.8 µm
OUTSIDE

Surface quality
≤ 0.8 µm
INSIDE

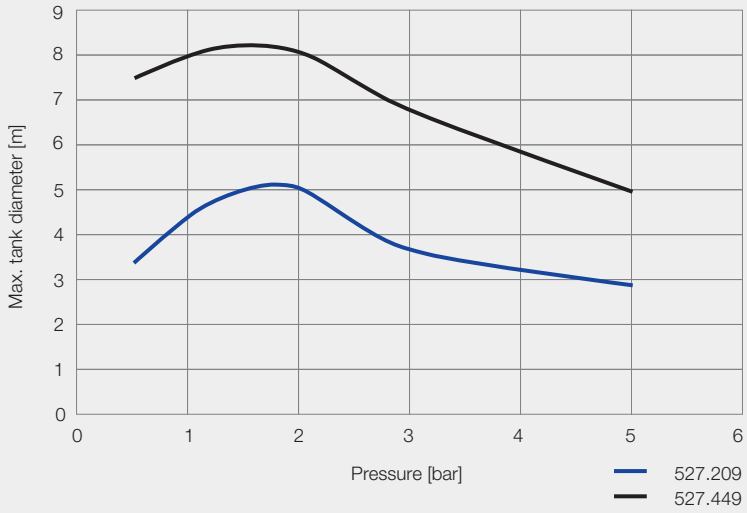
Steam suitability
Suitable

Insertion diameter
35–102 mm

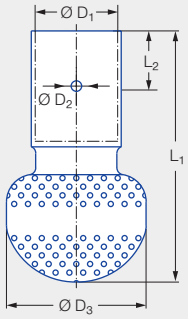
Recommended filter
Smaller than the narrowest cross-section

Recommended operating pressure
1.5 bar

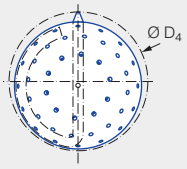
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



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. / Type	Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 5 bar)				V̇ water		Dimensions [mm]						Max. tank diameter [m]
			1.0	**1.5**	2.0	3.0	at 1.5 bar [m^3/h]	at 2 bar [m^3/h]	L_1	L_2	Ø D_1	Ø D_2	Ø D_3	Ø D_4	
360°	**527.209.1Y.00.75**	0.8	42	**52**	60	73	3.1	3.6	68.0	12.7	19.0	3.3	32.0	35.0	5.2
	527.289.1Y.01.50	1.1	120	**147**	170	208	8.8	10.2	116.0	25.4	38.3	4.9	65.0	71.0	6.0
	527.449.1Y.02.00	1.7	297	**364**	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

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Series 540/541

Technical data:

Maximum operating temperature
200 °C

Maximum ambient temperature
250 °C

Installation
Operation in every installation position

Bearing
Static – no bearing

Material
Stainless steel 1.4305 (303)

Weight
90–100 g

Surface quality
≤ 6.3 µm
OUTSIDE

Surface quality
≤ 6.3 µm
INSIDE

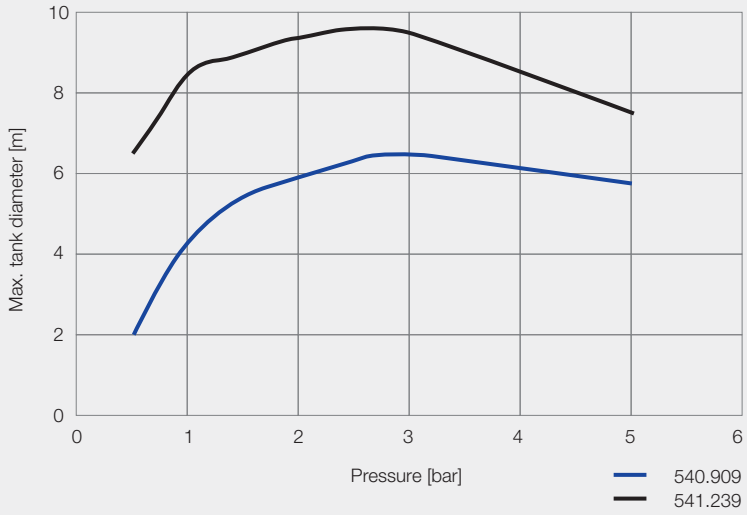
Steam suitability
Suitable

Insertion diameter
31 mm

Recommended filter
Smaller than the narrowest cross-section

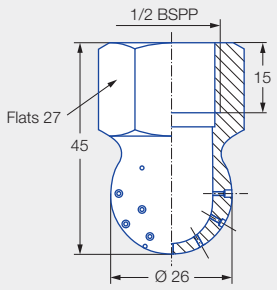
Recommended operating pressure
3 bar

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.

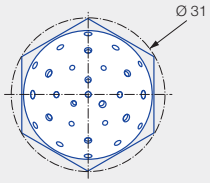


Overview of maximum tank diameter depending on pressure

Dimensions in mm.



Female thread



Insertion diameter

Spray angle	Ordering no. / Type	Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 10 bar) 0.5	1.0	2.0	**3.0**	5.0	V̇ water at 3 bar [m³/h]	Max. tank diameter [m]
240°	**540.909.16**	0.8	9	13	18	**22**	28	1.3	6.5
	540.989.16	1.0	14	20	28	**34**	44	2.0	7.0
	541.109.16	1.5	29	40	57	**70**	90	4.2	7.5
	541.189.16	2.0	45	64	90	**110**	142	6.6	8.3
	541.239.16	2.3	59	83	118	**145**	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)

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Series 5B2/5B3

Technical data:

Maximum operating temperature
200 °C

Maximum ambient temperature
250 °C

Installation
Operation in every installation position

Bearing
Static – no bearing

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

Weight
10–300 g

Surface quality
Ra ≤ 0.8 µm
polished Ra ≤ 0.5 µm

Surface quality
Ra ≤ 0.8 µm

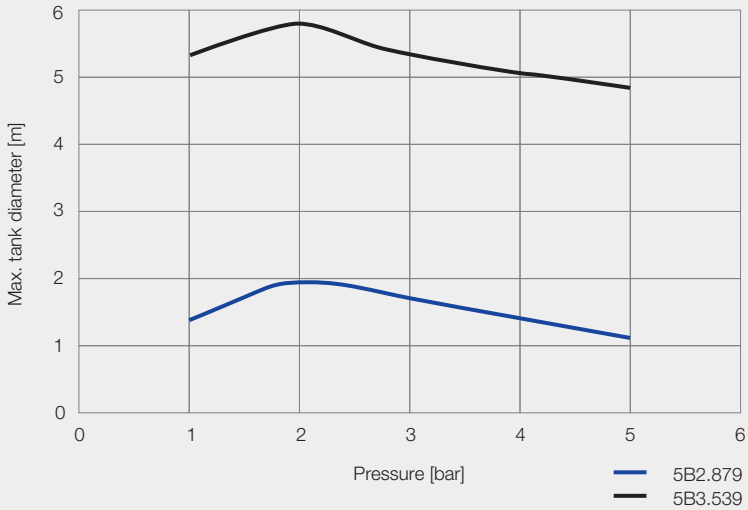
Steam suitability
Suitable

Insertion diameter
20–90 mm

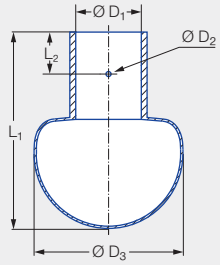
Recommended filter
Smaller than the narrowest cross-section

Recommended operating pressure
2 bar

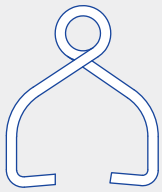
Max. tank diameter
The specified maximum tank diameter applies to the recommended operating pressure and is indicative only. The type of soiling is also decisive for the cleaning result.



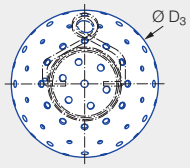
Overview of maximum tank diameter depending on pressure



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 Ø [mm]	V̇ water [l/min]				V̇ water	Dimensions [mm]					Pin	Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p_{max} = 5 bar)											
		1Y	21														
		1.4404 (316L)	2.4602 (Alloy 22)			0.5	1.0	**2.0**	3.0	at 2 bar [m³/h]	L_1	L_2	Ø D_1	Ø D_2	Ø D_3		
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**	

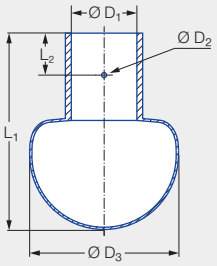
Ordering example:	Type	+	Material no.	+	Connection	=	Ordering no.
	5B3.083	+	**1Y**	+	**D1.80**	=	**5B3.083.1Y.D1.80**

Note
Available in polished version on request.

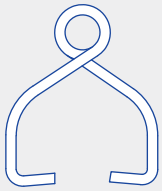
Information on slip-on connection
- Cotter pin made of stainless steel 1.4404 (316L) or 2.4602 (Alloy 22) included.
- Depending on the adapter diameter, the flow rate may increase due to the leakage between the adapter and spray ball.

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

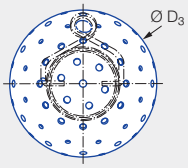
Slip-on connection



Pin 1



Pin 2–5



Insertion diameter D_3 of slip-on connection

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	Dimensions [mm]					Pin	Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p_{max} = 5 bar)											
		1Y	21														
		1.4404 (316L)	2.4602 (Alloy 22)			0.5	1.0	**2.0**	3.0	at 2 bar [m³/h]	L_1	L_2	Ø D_1	Ø D_2	Ø D_3		
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

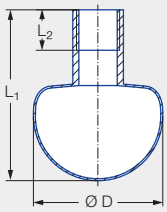
Slip-on connection according to DIN EN 10357 series D (ASME BPE 1997, OD-tube compatible)

Spray angle	Ordering no.				Narrowest cross-section Ø [mm]	V̇ water [l/min]				V̇ water	Dimensions [mm]					Pin	Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p_{max} = 5 bar)											
		1Y	21														
		1.4404 (316L)	2.4602 (Alloy 22)			0.5	1.0	**2.0**	3.0	at 2 bar [m³/h]	L_1	L_2	Ø D_1	Ø D_2	Ø D_3		
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.

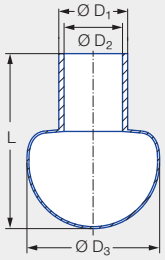
Threaded connection



Threaded connection

Spray angle	Ordering no.							Narrowest cross-section Ø [mm]	V̇ water [l/min]				V̇ water	Dimensions [mm]			Max. tank diameter [m]
	Type	Mat. no.		Connection					p [bar] (p_{max} = 5 bar)								
		1Y	21	1/8 BSPP male	1/2 BSPP	1 BSPP	2 BSPP		0.5	1.0	**2.0**	3.0	at 2 bar [m³/h]	L_1	L_2	Ø D	
		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	Dimensions [mm]				Max. tank diameter [m]
	Type	Mat. no.		Connection		p [bar] (p_{max} = 5 bar)						Adapter			
		1Y	21			0.5	1.0	**2.0**	3.0	at 2 bar [m³/h]	L	Ø D_1	Ø D_2	Ø D_3	
		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

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


MiniSpinner 2

Rotating cleaning nozzle PicoWhirly
Series 500.234

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

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Series 500.234

Technical data:

Maximum operating temperature
200 °C

Maximum ambient temperature
200 °C

Installation
Operation in every installation position

Bearing
Kolsterised slide bearing

Material
Stainless steel 1.4404 (316L)

Weight
10 g

Surface quality
Ra ≤ 1.6 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

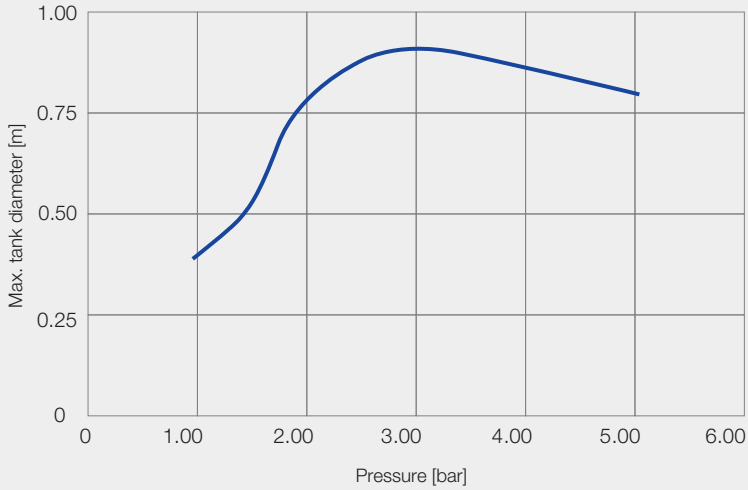
Steam suitability
Suitable

Insertion diameter
9 mm

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

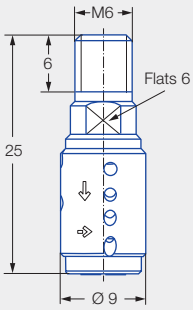
Recommended operating pressure
3 bar

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.



Male thread

Spray angle	Ordering no. / Type	Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 5 bar)				V̇ water	Max. tank diameter [m]
			1.0	2.0	**3.0**	5.0	at 3 bar [m^3/h]	
300°	**500.234.G9.00**	1.8	5.7	8.0	**9.8**	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

FDA

Series 566

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Technical data:

Maximum operating temperature
150 °C
90 °C (ATEX)

Maximum ambient temperature
200 °C
120 °C (ATEX)

Installation
Operation in every installation position

Bearing
Slide bearing made of PEEK

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

Weight
50–200 g

Surface quality
Ra ≤ 1.6 µm

Surface quality
Ra ≤ 1.6 µm

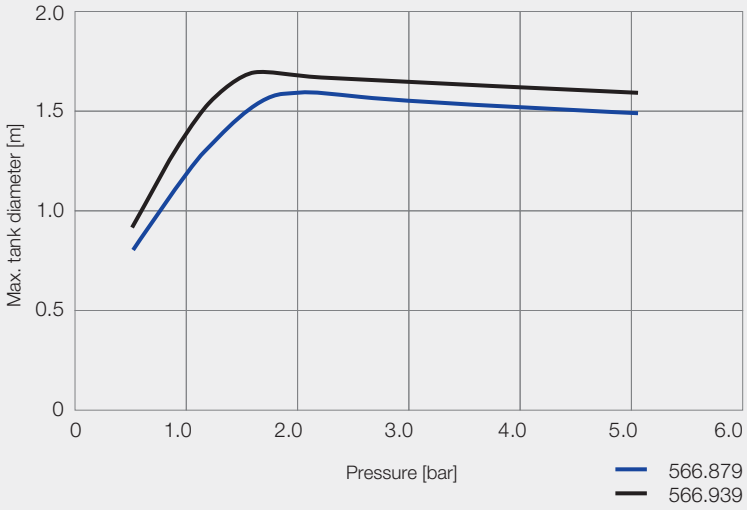
Steam suitability
Suitable

Insertion diameter
20–48 mm

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

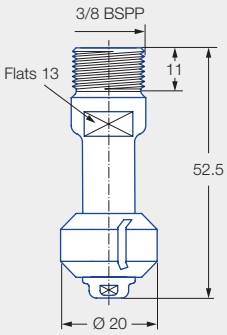
Recommended operating pressure
2 bar

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.

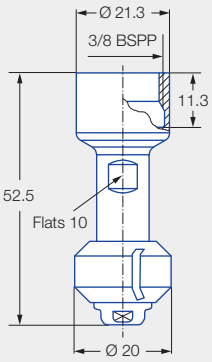


Overview of maximum tank diameter depending on pressure

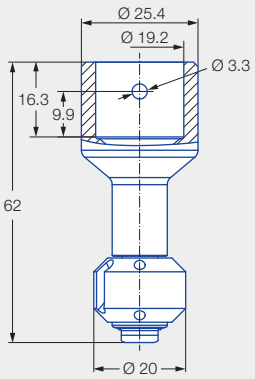
Dimensions in mm.



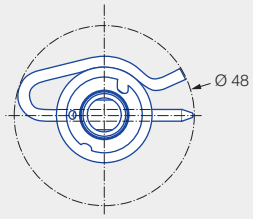
Male thread



Female thread



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



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

Spray angle	Ordering no.				Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water	Max. tank diameter [m]
	Type	Connection				p [bar] (p_{max} = 6 bar)				
		3/8 BSPP male	3/8 BSPP female	3/4" slip-on connection		1.0	**2.0**	3.0	at 2 bar [m³/h]	
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:

Ⓔx II 1G Ex h IIB T6…T3 Ga

Ⓔx II 1D Ex h IIIC T85 °C...T150 °C Da

Important

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

Type	+	Connection	+	ATEX	=	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

Series 500.186

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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

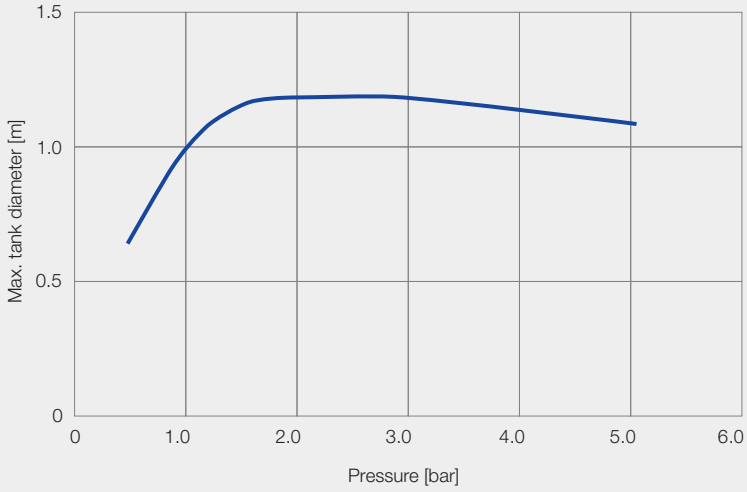
Steam suitability
Not suitable

Insertion diameter
29 mm

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

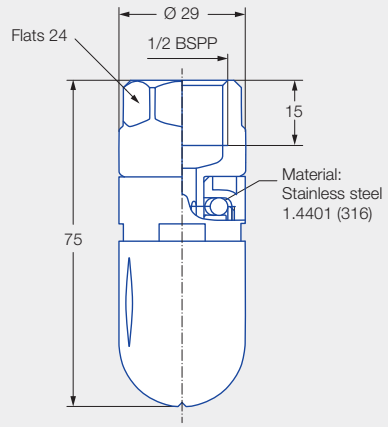
Recommended operating pressure
2 bar

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.



Female thread

Spray angle	Ordering no. / Type	Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 5 bar)			V̇ water	Max. tank diameter [m]
			1.0	**2.0**	3.0	at 2 bar [m^3/h]	
300°	**500.186.56.AH**	1.9	13	**18**	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

Series 500.191

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Technical data:

Maximum operating temperature
95 °C

Maximum ambient temperature
150 °C

Installation
Operation in every installation position

Bearing
Slide bearing made of PVDF

Material
PVDF

Weight
12–30 g

Surface quality
Ra ≤ 1.6 µm

Surface quality
Ra ≤ 1.6 µm

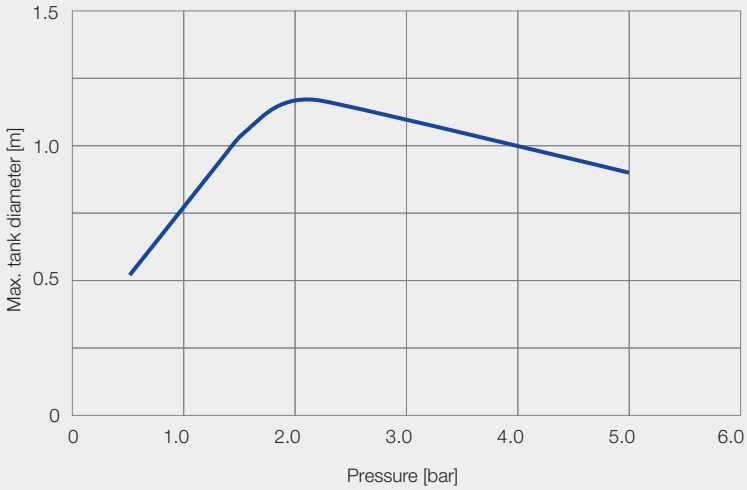
Steam suitability
Not suitable

Insertion diameter
30 mm

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

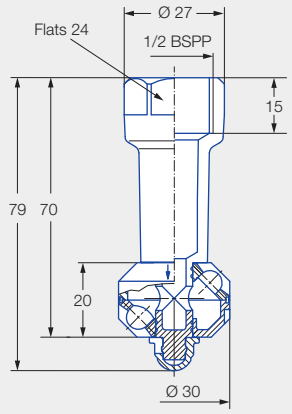
Recommended operating pressure
2 bar

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.

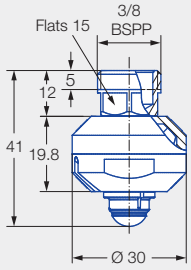


Overview of maximum tank diameter depending on pressure

Dimensions in mm.



Standard version
Female thread



Compact version
Male thread

Standard version with female thread

Spray angle	Ordering no. / Type	Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 5 bar)			V̇ water at 2 bar [m³/h]	Max. tank diameter [m]
			1.0	**2.0**	3.0		
180°	**500.191.5E.02**	2.2	9	**13**	16	0.8	0.8
180°	**500.191.5E.01**	2.2	9	**13**	16	0.8	0.8
270°	**500.191.5E.31**	2.2	14	**20**	25	1.2	1.1
360°	**500.191.5E.00**	2.2	14	**20**	25	1.2	1.1

Compact version with male thread

Spray angle	Ordering no. / Type	Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 5 bar)			V̇ water at 2 bar [m³/h]	Max. tank diameter [m]
			1.0	**2.0**	3.0		
180°	**500.191.5E.21**	2.2	9	**13**	16	0.8	0.8
360°	**500.191.5E.22**	2.2	14	**20**	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)

FDA

Series 5M1

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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 ≤ 0.4 µm

Surface quality
Ra ≤ 0.8 µm

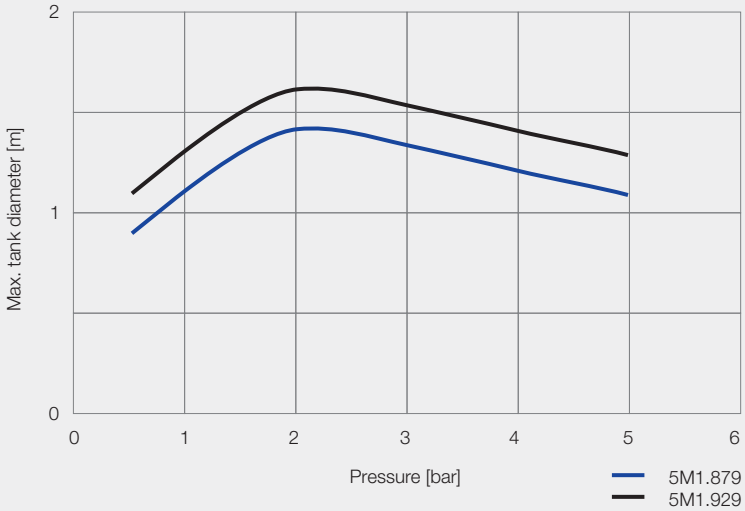
Steam suitability
Not suitable

Insertion diameter
17–34 mm

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

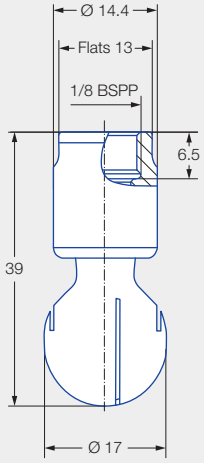
Recommended operating pressure
2 bar

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.

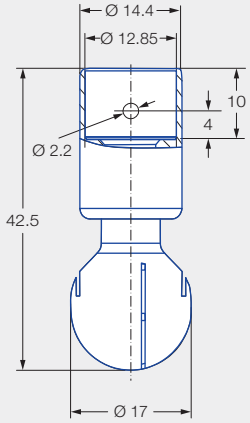


Overview of maximum tank diameter depending on pressure

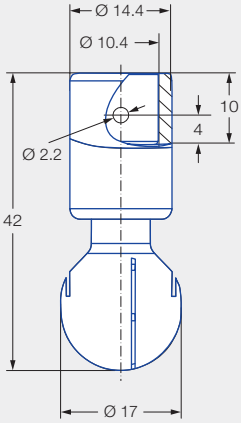
Dimensions in mm.



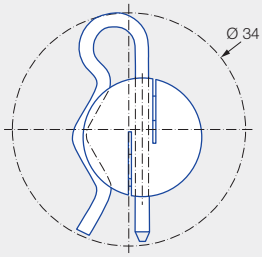
Female thread



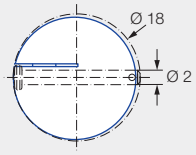
Dimensions of slip-on connection according to ASME-BPE (OD tube)



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



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



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

Spray angle	Ordering no.						Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 7 bar)			V̇ water	Max. tank diameter [m]
	Type	Mat. no. 1Y 1.4404 (316L)	Mat. no. 21 2.4602 (Alloy 22)	Connection 1/8 BSPP	Connection Ø 10.2 mm in accordance with DIN 11866 Series B	Connection 1/2" slip-on connection		1.0	**2.0**	3.0	at 2 bar [m³/h]	
360°	**5M1.879**	●	●	**AB**	**TF04**	**TF05**[1]	0.4	11	**15**	18	0.9	1.4
	5M1.929	●	●	**AB**	**TF04**	**TF05**[1]	0.5	14	**20**	25	1.2	1.6

[1] 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:

Ex II 1G Ex h IIB T6…T2 Ga

Ex II 1D Ex h IIIC T85 °C...T250 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for slip-on connection: 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)

FDA

Function video
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 ≤ 0.4 µm

Surface quality
Ra ≤ 0.8 µm

Steam suitability
Conditionally suitable

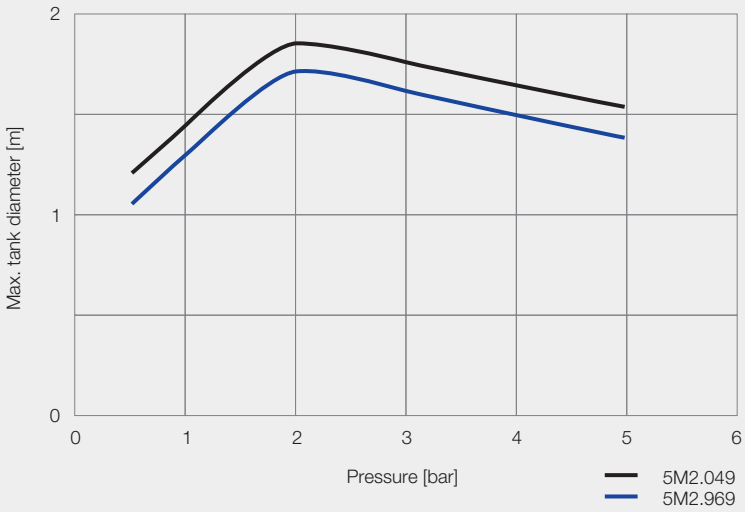
Insertion diameter
28–48 mm

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

Recommended operating pressure
2 bar

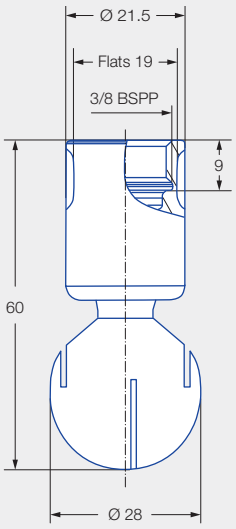
Adapter
3/8 BSPP is compatible with HygienicFit

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.

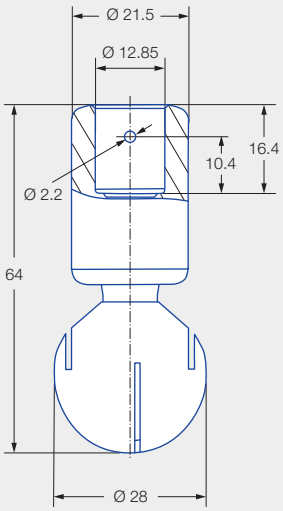


Overview of maximum tank diameter depending on pressure

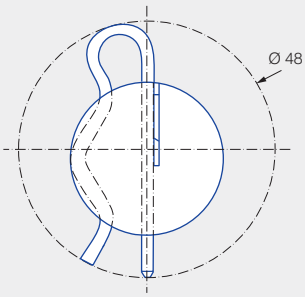
Dimensions in mm.



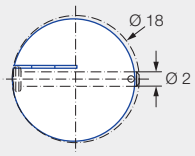
Female thread



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	Max. tank diameter [m]
	Type	Mat. no.		Connection			p [bar] (p_{max} = 7 bar)				
		1Y	21								
		1.4404 (316L)	2.4602 (Alloy 22)	3/8 BSPP	1/2" slip-on connection		1.0	**2.0**	3.0	at 2 bar [m³/h]	
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:

Ⓔx II 1G Ex h IIB T6…T2 Ga

Ⓔx II 1D Ex h IIIC T85 °C...T250 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for slip-on connection: 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)

FDA

Series 5M3

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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 ≤ 0.4 µm

Surface quality
Ra ≤ 0.8 µm

Steam suitability
Conditionally suitable

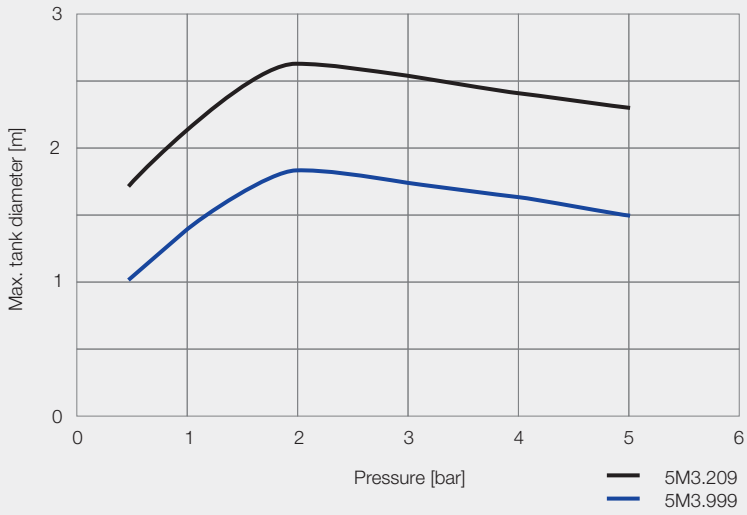
Insertion diameter
39–58 mm

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

Recommended operating pressure
2 bar

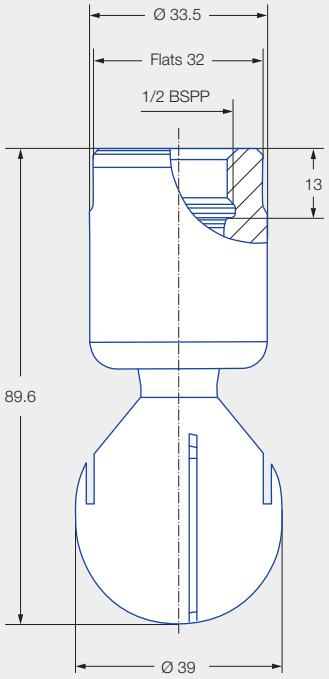
Adapter
1/2 BSPP and 3/4 BSPP are compatible with HygienicFit

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.

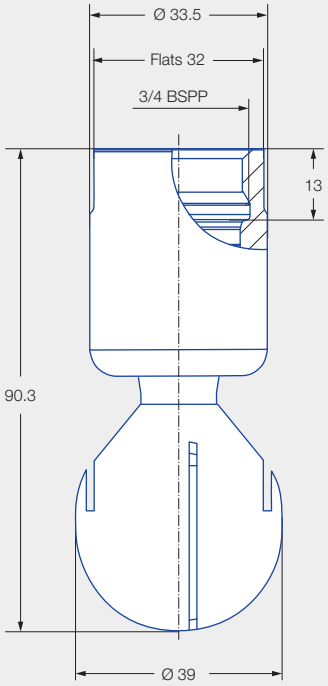


Overview of maximum tank diameter depending on pressure

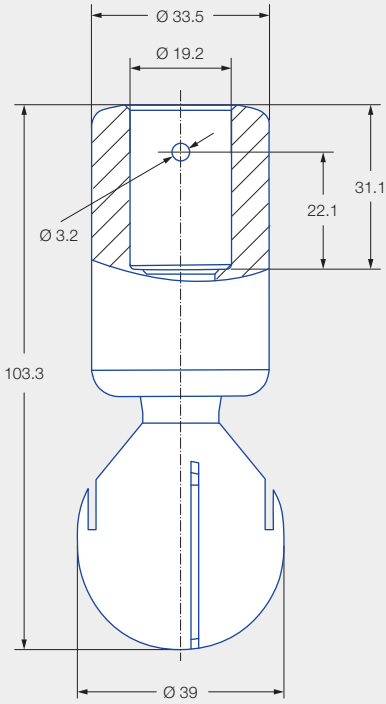
Dimensions in mm.



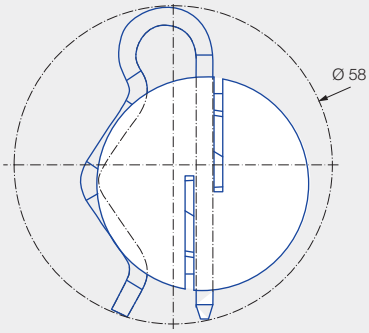
Female thread



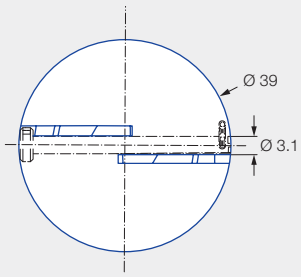
Female thread



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	Max. tank diameter [m]
	Type	Mat. no.		Connection				p [bar] (p_{max} = 7 bar)				
		1Y	21									
		1.4404 (316L)	2.4602 (Alloy 22)	1/2 BSPP	3/4 BSPP	3/4" slip-on connection		1.0	**2.0**	3.0	at 2 bar [m³/h]	
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.

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:

Ex II 1G Ex h IIB T6…T2 Ga

Ex II 1D Ex h IIIC T85 °C...T250 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.
Ordering example for slip-on connection: 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)

FDA

Function video
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 ≤ 0.4 µm

Surface quality
Ra ≤ 0.8 µm

Steam suitability
Conditionally suitable

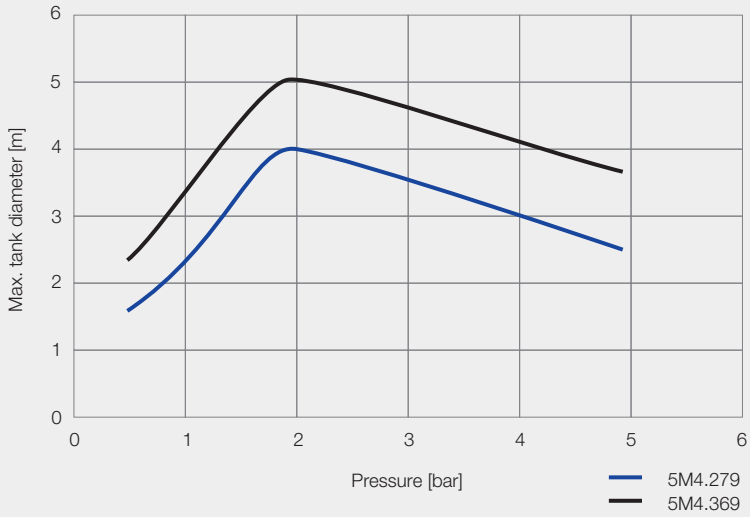
Insertion diameter
69 mm

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

Recommended operating pressure
2 bar

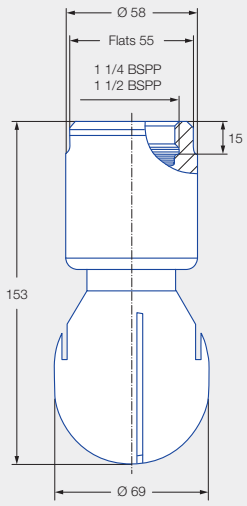
Adapter
1 1/4 BSPP and
1 1/2 BSPP are compatible with HygienicFit

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.

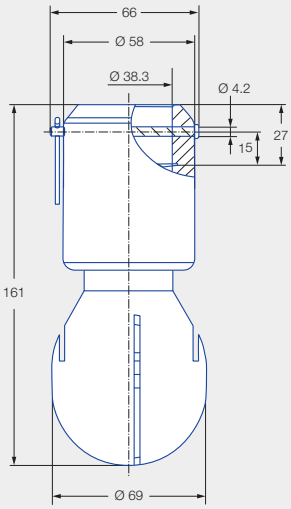


Overview of maximum tank diameter depending on pressure

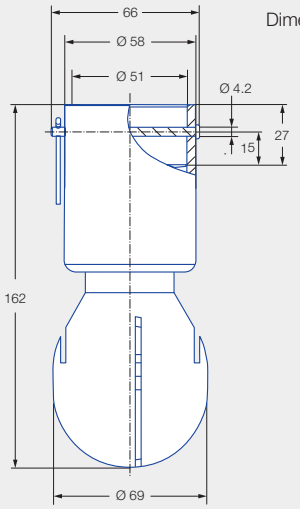
Dimensions in mm.



Female thread



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



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

Spray angle	Ordering no.							Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 7 bar)[1]			V̇ water	Max. tank diameter [m]
	Type	Mat. no. 1Y 1.4404 (316L)	Mat. no. 21 2.4602 (Alloy 22)	Connection 1 1/4 BSPP	Connection 1 1/2 BSPP	Connection 1 1/2" slip-on connection	Connection 2" slip-on connection		1.0	**2.0**	3.0	at 2 bar [m³/h]	
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

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

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

Type	+	Material no.	+	Connection	+	ATEX	=	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)

FDA

Function video
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

Surface quality
Ra ≤ 0.8 µm

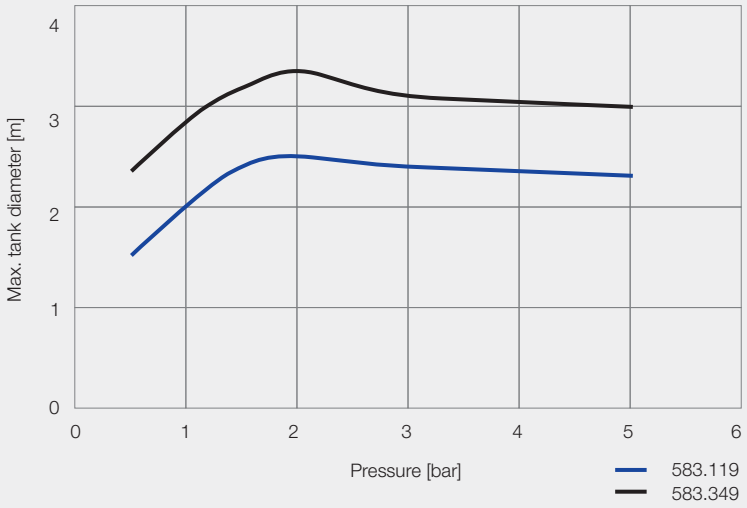
Steam suitability
Not suitable

Insertion diameter
49.0–78.4 mm

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

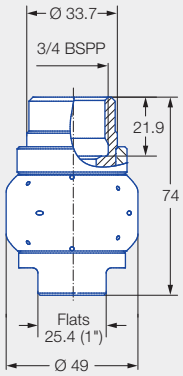
Recommended operating pressure
2 bar

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.

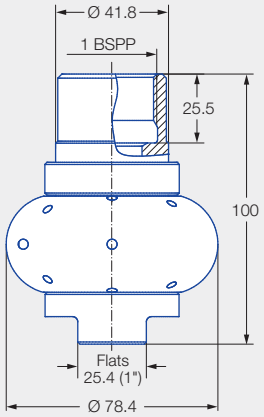


Overview of maximum tank diameter depending on pressure

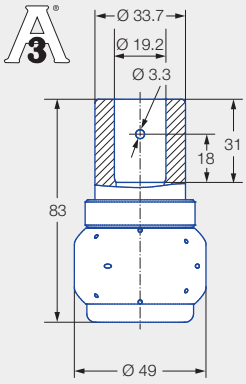
Dimensions in mm
(unless stated otherwise).



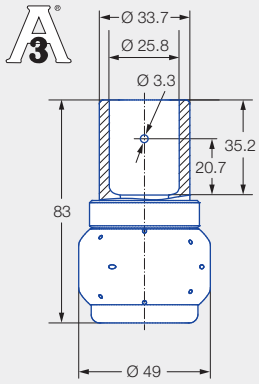
Female thread



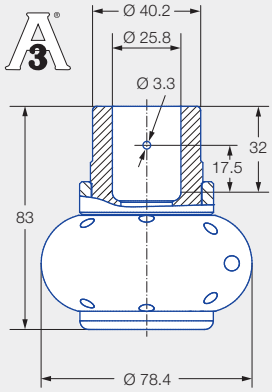
Female thread



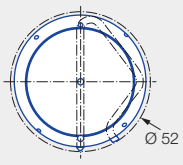
3/4" slip-on connection (3-A-compliant) Dimensions of slip-on connection according to ASME-BPE (OD tube)



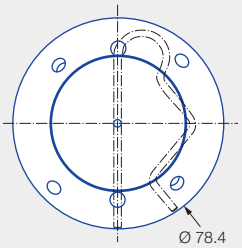
1" slip-on connection pin 1 (3-A-compliant) Dimensions of slip-on connection according to ASME-BPE (OD tube)



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 Ø [mm]	V̇ water [l/min]			V̇ water	Pin	Max. tank diameter [m]
	Type	Connection					p [bar] (p_{max} = 6 bar)					
		3/4 BSPP	1 BSPP	3/4" slip-on connection	1" slip-on connection		1.0	**2.0**	3.0	at 2 bar [m³/h]		
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

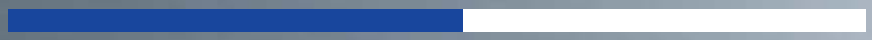
Compressed air can be used only for a short time for blowing dry. Use above the recommended pressure will have a negative effect on the cleaning result and wear.

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

CLEANING EFFICIENCY CLASS 3
LIGHT TO MEDIUM SOILING

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


Whirly2

Rotating cleaning nozzle HygienicWhirly
Series 594/595

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

FDA

Function video
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*
OUTSIDE

Surface quality
Ra ≤ 0.8 µm*
INSIDE

Steam suitability
Suitable

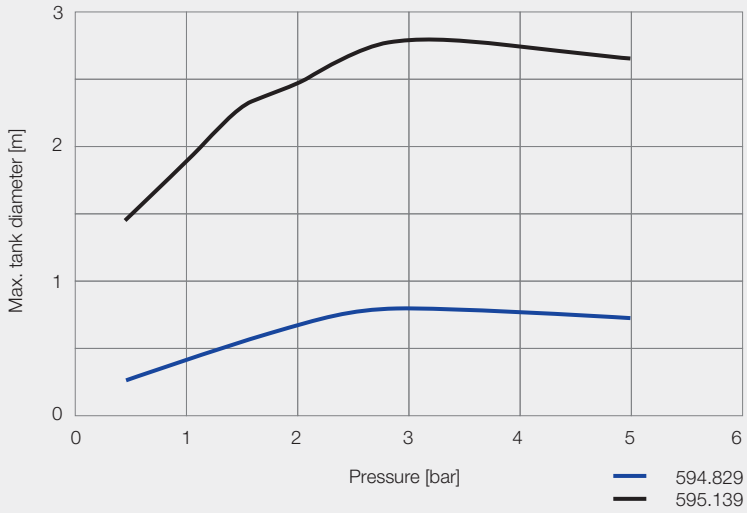
Insertion diameter
31.5–48.0 mm

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

Recommended operating pressure
3 bar

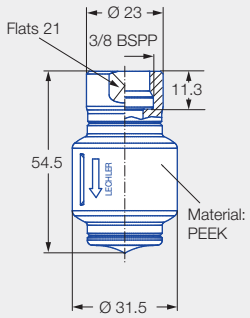
* Version with thread connection Ra ≤ 1,6 µm

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.

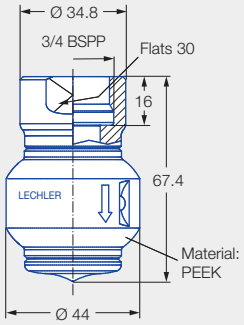


Overview of maximum tank diameter depending on pressure

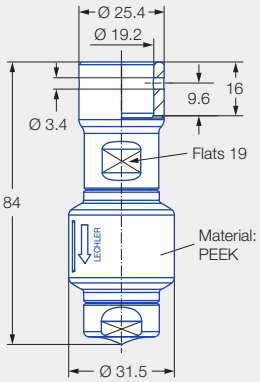
Dimensions in mm.



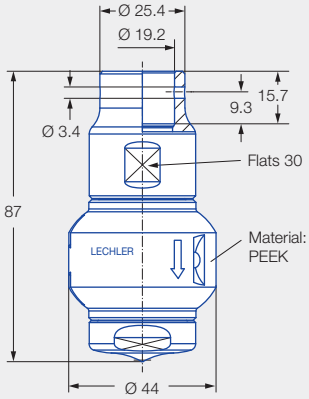
Female thread
59x.xx9.1Y.AF



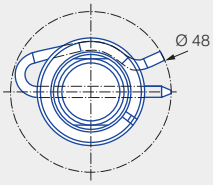
Female thread
595.139.1Y.AL



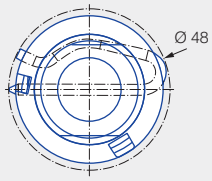
Dimensions of slip-on connection according to ASME-BPE (OD tube)
59x.xx9.1Y.67



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	Max. tank diameter [m]
	Type	Connection				p [bar] (p_{max} = 5 bar)						
		3/8 BSPP	3/4 BSPP	3/4" slip-on connection		0.5	1.0	2.0	**3.0**	5.0	at 3 bar [m³/h]	
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 example:	Type	+	Connection	=	Ordering no.
	594.829.1Y	+	AF	=	594.829.1Y.AF

Rotating cleaning nozzle Whirly 2
Series 5W9

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

FDA

Series 5W9

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Technical data:

Maximum operating temperature
150 °C
95 °C (ATEX)

Maximum ambient temperature
200 °C
140 °C (ATEX)

Installation
Operation in every installation position

Bearing
Double ball bearing made of stainless steel

Material
Stainless steel 1.4404 (316L), PEEK

Weight
360–500 g

Surface quality
Ra ≤ 0.4 µm

Surface quality
Ra ≤ 0.8 µm

Steam suitability
Not suitable

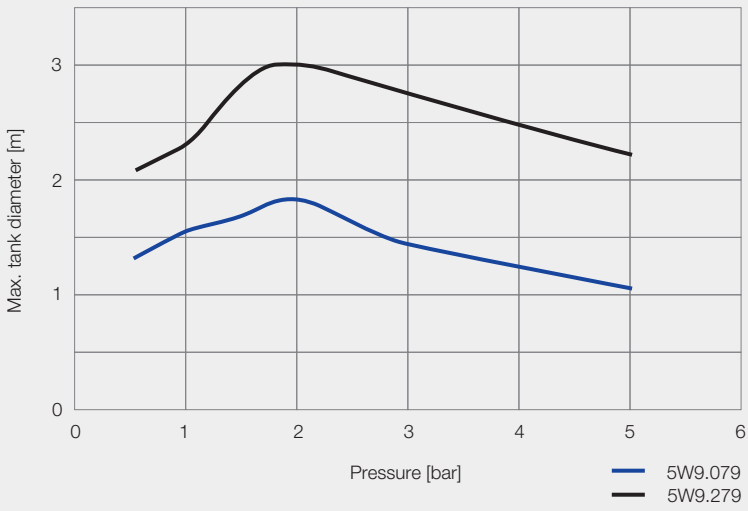
Insertion diameter
69.5 mm

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

Recommended operating pressure
2 bar

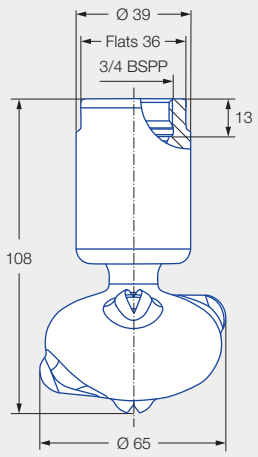
Adapter
3/4 BSPP is compatible with HygienicFit

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

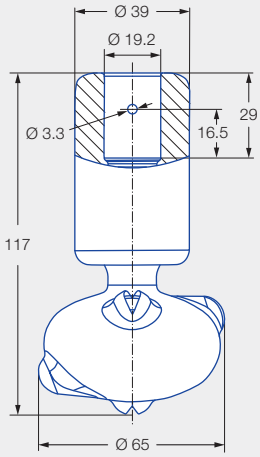


Overview of maximum tank diameter depending on pressure

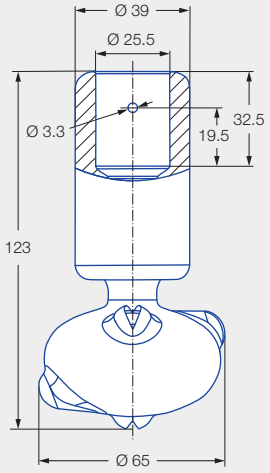
Dimensions in mm.



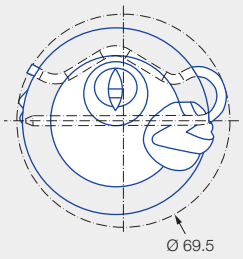
Female thread



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



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



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

Spray angle	Ordering no.				Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 6 bar)			V̇ water	Max. tank diameter [m]
	Type	Connection								
		3/4 BSPP	3/4" slip-on connection	1" slip-on connection		1.0	**2.0**	3.0	at 2 bar [m³/h]	
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:

Ex II 1G Ex h IIB T6…T3 Ga
Ex 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

Series 577

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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

Surface quality
Ra ≤ 4.0 µm

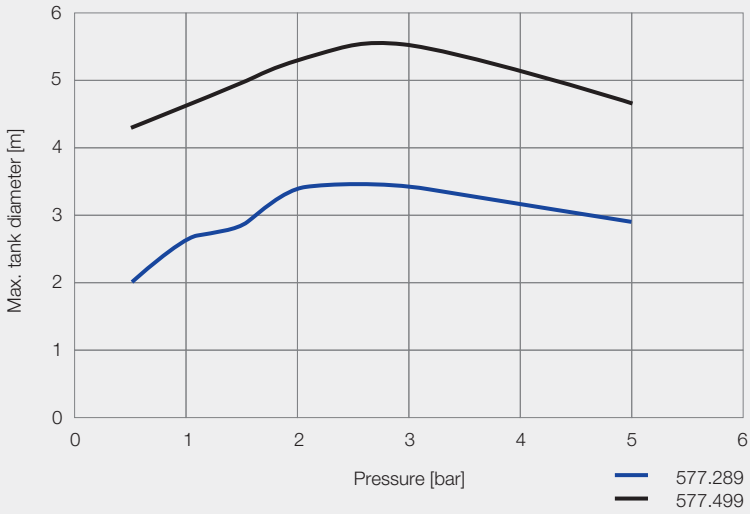
Steam suitability
Conditionally suitable

Insertion diameter
110–156 mm

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

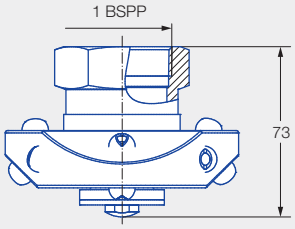
Recommended operating pressure
3 bar

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.

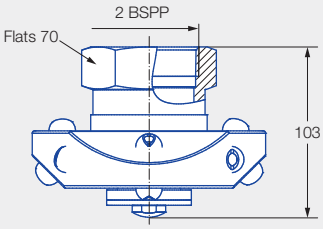


Overview of maximum tank diameter depending on pressure

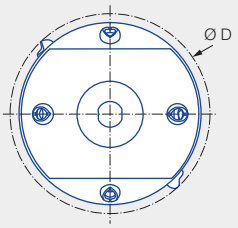
Dimensions in mm.



Female thread



Female thread



Insertion diameter

Spray angle	Ordering no.			V̇ water [l/min]				V̇ water	Dimensions [mm]	Max. tank diameter [m]
	Type	Connection		p [bar] (p_{max} = 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 example:	Type 577.283.1Y	+	Connection AN	=	Ordering no. 577.283.1Y.AN

CLEANING EFFICIENCY CLASS 4
MEDIUM TO HEAVY SOILING

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

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

FDA

Series 5S6/5S7

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Technical data:

Maximum operating temperature
150 °C
150 °C (ATEX)

Maximum ambient temperature
150 °C
150 °C (ATEX)

Installation
Operation in every installation position

Bearing
Double ball bearing

Material
Stainless steel 1.4404 (316L) or 2.4602 (Alloy 22), PEEK, EPDM or FKM

Weight
650–900 g

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

Steam suitability
Suitable

Insertion diameter
50–79 mm

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

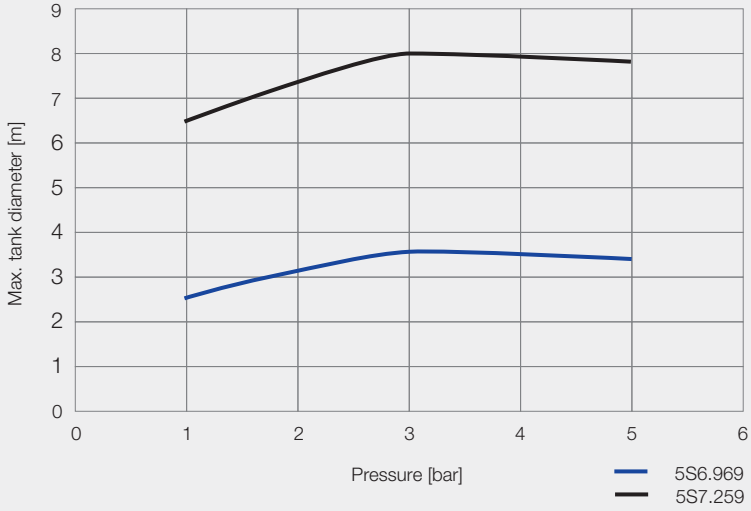
Recommended operating pressure
3 bar

Rotation monitoring
Sensor-compatible, information:
see pages 108-109

Maintainable

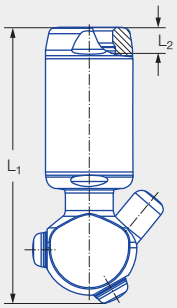
Adapter
3/8 BSPP, 1/2 BSPP, 3/4 BSPP and 1 BSPP are compatible with HygienicFit

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

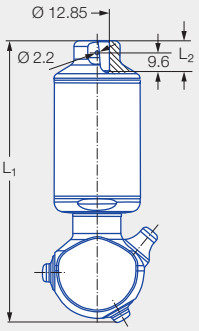


Overview of maximum tank diameter depending on pressure

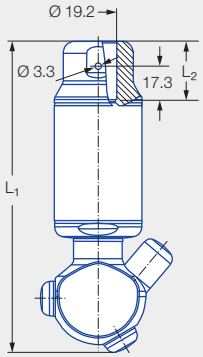
Dimensions in mm.



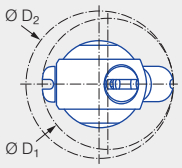
Female thread



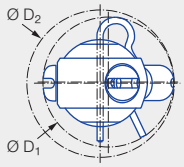
Dimensions of 1/2" slip-on connection according to ASME-BPE (OD tube)



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

O-rings			Connection	Dimensions [mm]			
EPDM	FKM	FFKM		L_1	L_2	Insertion diameter D_1	Interference circle diameter D_2
AF	**20**	**50**	3/8 BSPP	141.0	9.0	50.0–66.0	50.0–67.0
AH	**21**	**51**	1/2 BSPP	143.0	13.0	50.0–74.0	50.0–76.0
AL	**22**	**52**	3/4 BSPP	143.0	13.2	50.0–79.0	50.0–81.0
AN	**23**	**53**	1 BSPP	140.0	16.5	51.0–79.0	53.0–80.0
TF05	**30**	**60**	1/2" slip-on connection	150.0	16.0	52.0–66.0	50.0–67.0
TF07	**31**	**61**	3/4" slip-on connection	160.0	30.0	66.0–79.0	50.0–81.0

Spray angle	Ordering no.																					Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 15 bar)				V̇ water	Max. tank diameter [m]
	Type	Mat.-no.		Connection																								
		1Y	21	3/8 BSPP			1/2 BSPP			3/4 BSPP			1 BSPP			1/2"-slip-on connection			3/4"-slip-on connection									
		1.4404 (316L)	2.4602 (Alloy 22)	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM		2.0	**3.0**	5.0	10.0	at 3 bar [m³/h]	
180°	**5S6.963**	●	●	**AF**	**20**		**AH**	**21**								**TF05**	**30**					1.7	25	**31**	40	57	1.9	3.5
	5S7.043	●	●				**AH**	**21**											**TF07**	**31**		2.0	41	**50**	65	92	3.0	4.0
	5S7.113	●	●				**AH**	**21**		**AL**	**22**								**TF07**	**31**		2.0	60	**73**	94	133	4.4	6.0
	5S7.183	●	●							**AL**	**22**								**TF07**	**31**		2.0	89	**109**	141	199	6.5	7.0
	5S7.223	●	●							**AL**	**22**								**TF07**	**31**		2,0	111	**136**	175	248	8.2	7.5
	5S7.253	●	●							**AL**	**22**		**AN**	**23**					**TF07**	**31**		2,0	135	**165**	213	301	9.9	8.0
180°	**5S6.964**	●	●	**AF**	**20**		**AH**	**21**								**TF05**	**30**					1.7	25	**31**	40	57	1.9	3.5
	5S7.044	●	●				**AH**	**21**											**TF07**	**31**		2.0	41	**50**	65	92	3.0	4.0
	5S7.114	●	●				**AH**	**21**		**AL**	**22**								**TF07**	**31**		2.0	60	**73**	94	133	4.4	6.0
	5S7.184	●	●							**AL**	**22**								**TF07**	**31**		2.0	89	**109**	141	199	6.5	7.0
	5S7.224	●	●							**AL**	**22**								**TF07**	**31**		2.0	111	**136**	175	248	8.2	7.5
	5S7.254	●	●							**AL**	**22**		**AN**	**23**					**TF07**	**31**		2.0	135	**165**	213	301	9.9	8.0

Spray angle	Ordering no.																					Narrowest cross-section Ø [mm]	V̇ water [l/min]				V̇ water	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									
		1.4404 (316L)	2.4602 (Alloy 22)	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM	EPDM	FKM	FFKM		2.0	**3.0**	5.0	10.0	at 3 bar [m³/h]	
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.

FDA

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

Ex FDA

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

FDA

Series 5S5

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Technical data:

Maximum operating temperature
150 °C

Maximum ambient temperature
150 °C

Installation
Operation in every installation position

Bearing
Double ball bearing

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

Weight
1.12–1.93 kg

Surface quality Outside
Ra ≤ 0.8 µm

Surface quality Inside
Ra ≤ 1.6 µm

Steam suitability
Suitable

Insertion diameter
81–140 mm

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

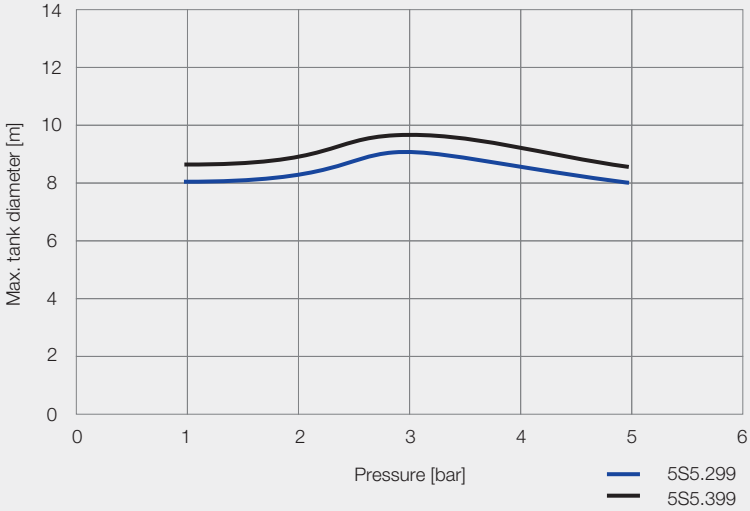
Recommended operating pressure
3 bar

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

Rotation monitoring
Sensor-compatible, information:
see pages 108–109

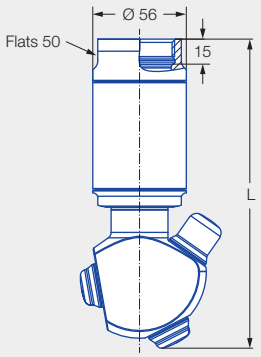
Maintainable

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

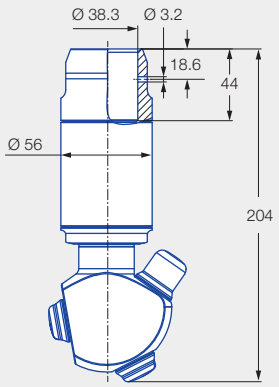


Overview of maximum tank diameter depending on pressure

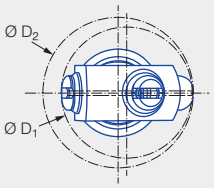
Dimensions in mm.



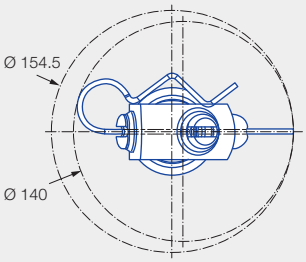
Female thread



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



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



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

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

Spray angle	Ordering no.					Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water	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	at 3 bar [m³/h]	
180°	**5S5.293.1Y**	**AN**			**TF15**	3.0	165	**202**	261	12.1	9.0
	5S5.323.1Y	**AN**	**AQ**		**TF15**	3.0	200	**245**	316	14.7	9.2
	5S5.363.1Y		**AQ**	**AS**	**TF15**	3.0	250	**306**	395	18.4	9.4
180°	**5S5.294.1Y**	**AN**			**TF15**	3.0	165	**202**	261	12.1	9.0
	5S5.324.1Y	**AN**	**AQ**		**TF15**	3.0	200	**245**	316	14.7	9.2
	5S5.364.1Y		**AQ**	**AS**	**TF15**	3.0	250	**306**	395	18.4	9.4
270°	**5S5.295.1Y**	**AN**			**TF15**	3.0	165	**202**	261	12.1	9.0
	5S5.325.1Y	**AN**	**AQ**		**TF15**	3.0	200	**245**	316	14.7	9.2
	5S5.365.1Y		**AQ**	**AS**	**TF15**	3.0	250	**306**	395	18.4	9.4
270°	**5S5.296.1Y**	**AN**			**TF15**	3.0	165	**202**	261	12.1	9.0
	5S5.326.1Y	**AN**	**AQ**		**TF15**	3.0	200	**245**	316	14.7	9.2
	5S5.366.1Y		**AQ**	**AS**	**TF15**	3.0	250	**306**	395	18.4	9.4
360°	**5S5.299.1Y**	**AN**			**TF15**	3.0	165	**202**	261	12.1	9.0
	5S5.329.1Y	**AN**	**AQ**		**TF15**	3.0	200	**245**	316	14.7	9.2
	5S5.369.1Y		**AQ**	**AS**	**TF15**	3.0	250	**306**	395	18.4	9.4
	5S5.399.1Y		**AQ**	**AS**	**TF15**	3.0	300	**367**	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 example:	Type	+	Connection	=	Ordering no.
	5S5.293.1Y	+	**AN**	=	**5S5.293.1Y.AN**

CLEANING EFFICIENCY CLASS 5
PERSISTENT SOILING

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

CLEANING EFFICIENCY CLASS 5
HIGH PRESSURE
MOST PERSISTENT SOILING

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


To prevent
product damage
do not rotate by hand!

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

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Series 5T2/5T3

Technical data:

Maximum operating temperature
150 °C
150 °C (ATEX)

Maximum ambient temperature
150 °C
150 °C (ATEX)

Installation
Operation in every installation position

Bearing
Ball bearing

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

Weight
1.0 kg

Surface quality
Ra ≤ 0.8 µm

Surface quality
Ra ≤ 1.6 µm

Steam suitability
Suitable

Insertion diameter
68–82 mm

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

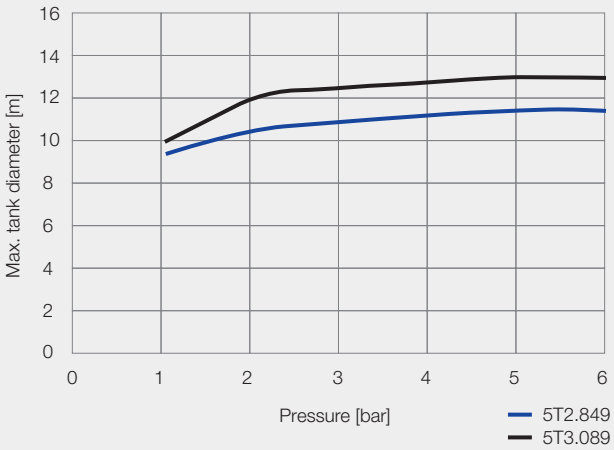
Recommended operating pressure
5 bar

Adapter
3/4 BSPP is compatible with HygienicFit

Rotation monitoring
Sensor-compatible, information:
see pages 108–109

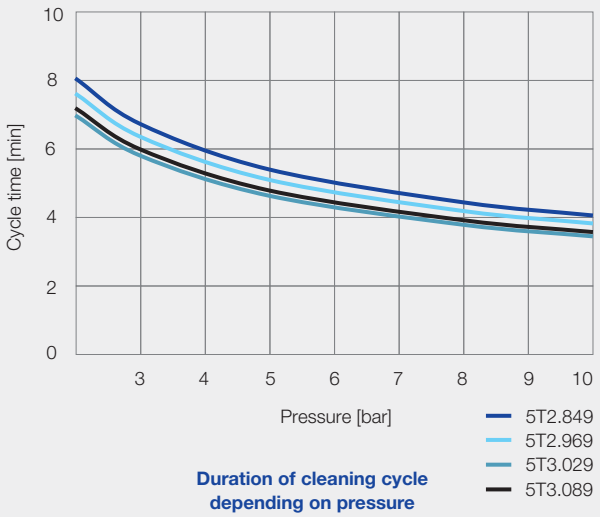
Maintainable

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



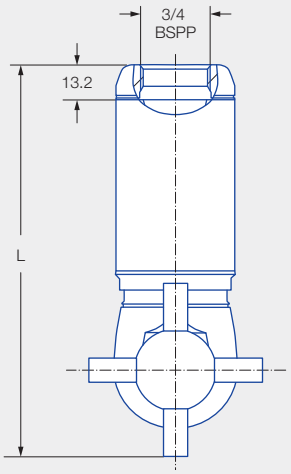
Overview of maximum tank diameter depending on pressure

Duration of cleaning cycle

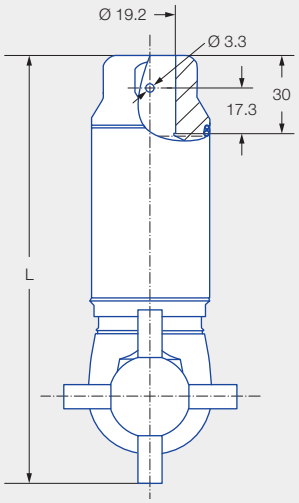


Duration of cleaning cycle depending on pressure

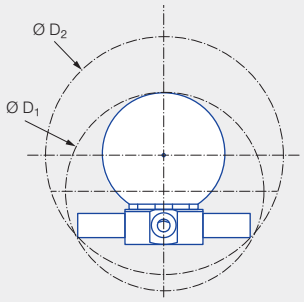
Dimensions in mm.



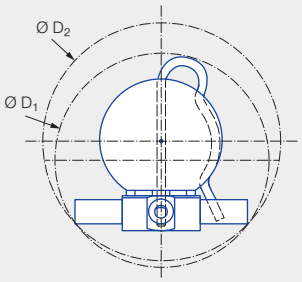
Female thread



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



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



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

Spray angle	Ordering 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_{max} = 15 bar)					Female thread			Slip-on connection			
		3/4 BSPP		3/4" slip-on connection																
		EPDM	FKM	EPDM	FKM				2.0	3.0	**5.0**	10.0	at 5 bar [m³/h]]	L	Ø D_1	Ø D_2	L	Ø D_1	Ø D_2	
360°	**5T2.849.1Y**	**AL**	**22**	**TF07**	**31**	1.75	4 × 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 × 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 × 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 × 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

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Series 5T5

Technical data:

Maximum operating temperature
150 °C
150 °C (ATEX)

Maximum ambient temperature
150 °C
150 °C (ATEX)

Installation
Operation in every installation position

Bearing
Ball bearing

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

Weight
4.0 kg

Surface quality
Ra ≤ 0.8 µm

Surface quality
Ra ≤ 1.6 µm

Steam suitability
Suitable

Insertion diameter
120 mm

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

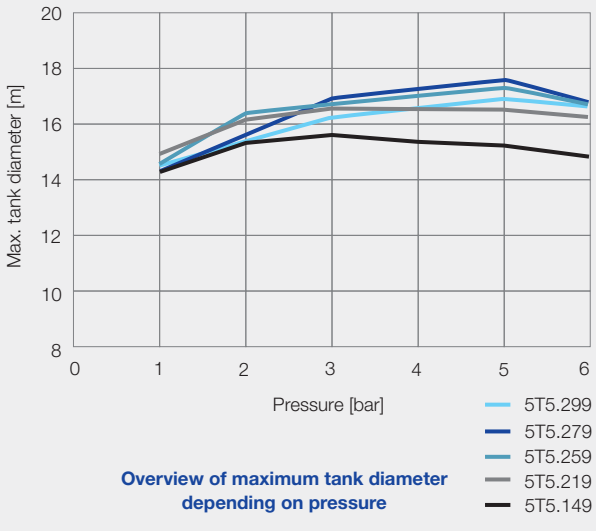
Recommended operating pressure
5 bar

Adapter
1 1/2 BSPP is compatible with HygienicFit

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

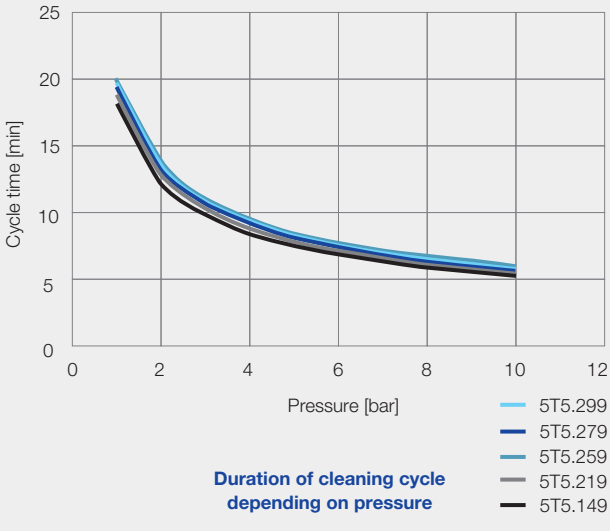
Maintainable

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



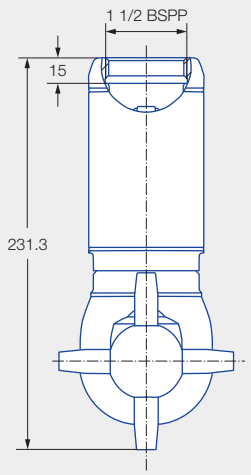
Overview of maximum tank diameter depending on pressure

Duration of cleaning cycle

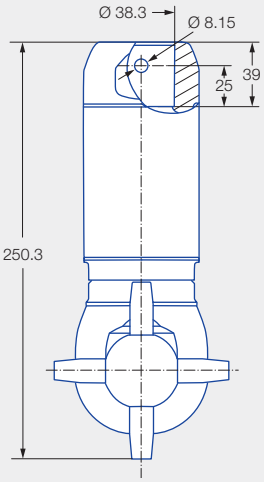


Duration of cleaning cycle depending on pressure

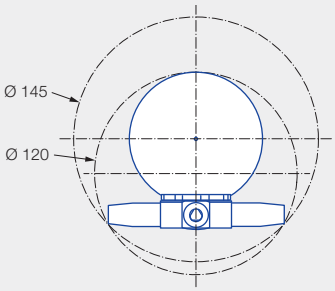
Dimensions in mm.



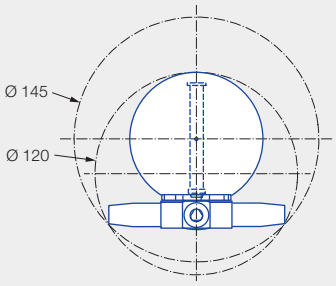
Female thread



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] p [bar] (p_{max} = 15 bar)				V̇ water at 5 bar [m³/h]]	Max. tank diameter [m]
	Type	Connection											
		1 1/2 BSPP		1 1/2" slip-on connection									
		EPDM	FKM	EPDM	FKM			2.0	3.0	**5.0**	10.0		
360°	**5T5.149.1Y**	**AS**	**25**	**TF15**	**34**	4.40	4 × 4.40	70	86	**111**	157	6.6	15.2
	5T5.219.1Y	**AS**	**25**	**TF15**	**34**	5.55	4 × 5.55	107	131	**169**	239	10.1	16.5
	5T5.259.1Y	**AS**	**25**	**TF15**	**34**	6.45	4 × 6.45	132	162	**209**	296	12.5	17.3
	5T5.279.1Y	**AS**	**25**	**TF15**	**34**	7.10	4 × 7.10	150	184	**238**	336	14.2	17.6
	5T5.299.1Y	**AS**	**25**	**TF15**	**34**	7.75	4 × 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:

Ⓔx II 1G Ex h IIB T6...T3 Ga

Ⓔx II 1D Ex h IIIC T85 °C...T190 °C Da

Important

The code for the connection changes for the ATEX version with slip-on connection.

Ordering example for 1 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

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Series 5TM

Technical data:

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

Maximum ambient temperature
140 °C
120 °C (ATEX)

Installation
Operation in every installation position

Bearing
Ball bearing

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

Weight
7.40–7.88 kg

Surface quality
Ra ≤ 0.8 µm

Surface quality
Ra ≤ 4.5 µm

Steam suitability
Not suitable

Insertion diameter
160–230 mm

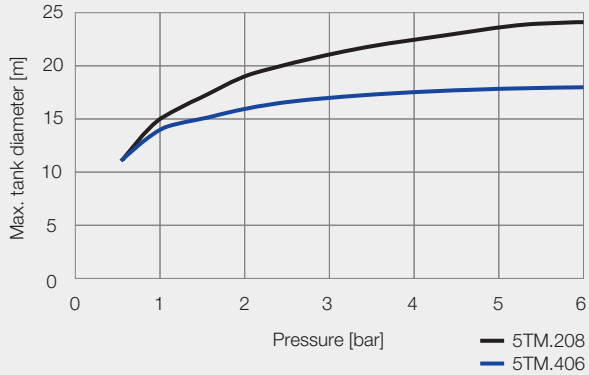
Recommended filter
Line strainer with a mesh size of 0.2 mm/80 mesh

Recommended operating pressure
5 bar

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

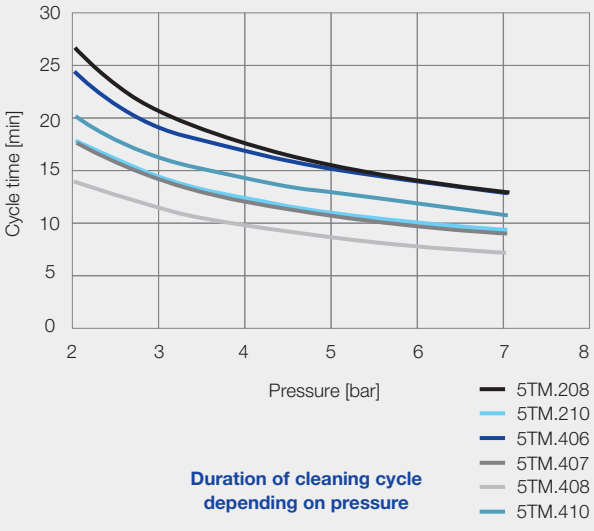
Maintainable

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



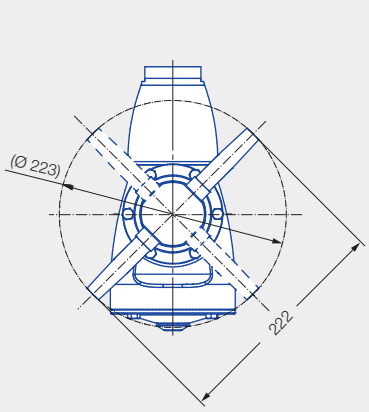
Overview of maximum tank diameter depending on pressure

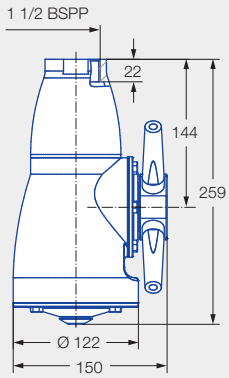
Duration of cleaning cycle



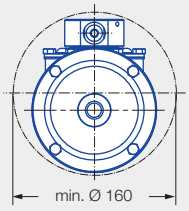
Duration of cleaning cycle depending on pressure

Dimensions in mm.

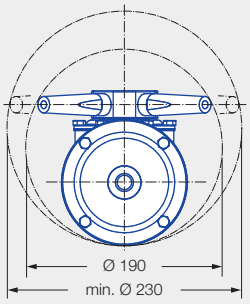




Female thread



Insertion diameter 5TM.2xx



Insertion diameter 5TM.4xx

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

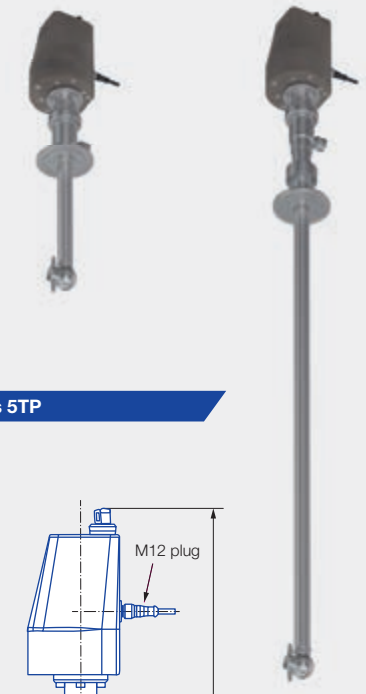
Unit group/Category/Zones:
Ex II 1G Ex h IIB T6…T3 Ga
Ex II 1D Ex h IIIC T85 °C…T150 °C Da

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

High pressure tank cleaning machine PressureClean
Series 5TP

Features:

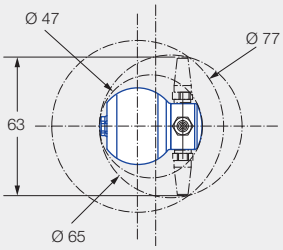
- Intensive cleaning with little water and high pressure
- Ideal for small tanks with the most persistent soiling
- Driven by an efficient 24 V motor
- “IP 65” certified motor housing
- Scope of delivery:
  – PressureClean
  – 5 m cable with matching plug and open cable end
  – Not included: power supply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



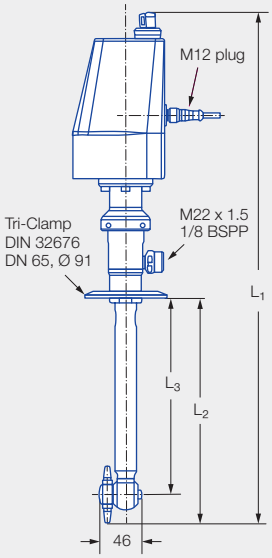
Series 5TP

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

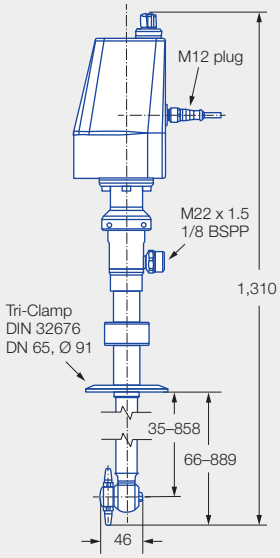
Type	Dimensions [mm]		
	L_1	L_2	L_3
5TP.xx9.1Y.01	566	250	219
5TP.xx9.1Y.02	816	500	469



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_3N_4, EPDM

Weight
2.9–5.3 kg

Surface quality
Ra ≤ 1.6 µm

Surface quality
Ra ≤ 6.3 µm

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 108–109

Maintainable

Duration of cleaning cycle
Constant cycle time:
2 min 43 sec

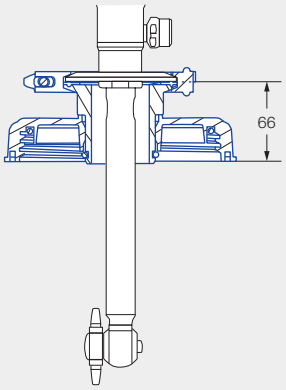
Dimensions in mm.

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]
5TP.469.1Y	1.0	2.5
5TP.589.1Y	1.2	3.0
5TP.659.1Y	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.				Ṽ water [l/min]		
	Type	Lance length			p [bar] (p_{max} = 200 bar)		
		250 [mm]	500 [mm]	1,000 [mm] with adjustable flange	50	**100**	150
360°	**5TP.469.1Y**	**01**	**02**	**03**	7	**10**	12
	5TP.589.1Y	**01**	**02**	**03**	14	**20**	24
	5TP.659.1Y	**01**	**02**	**03**	21	**30**	37

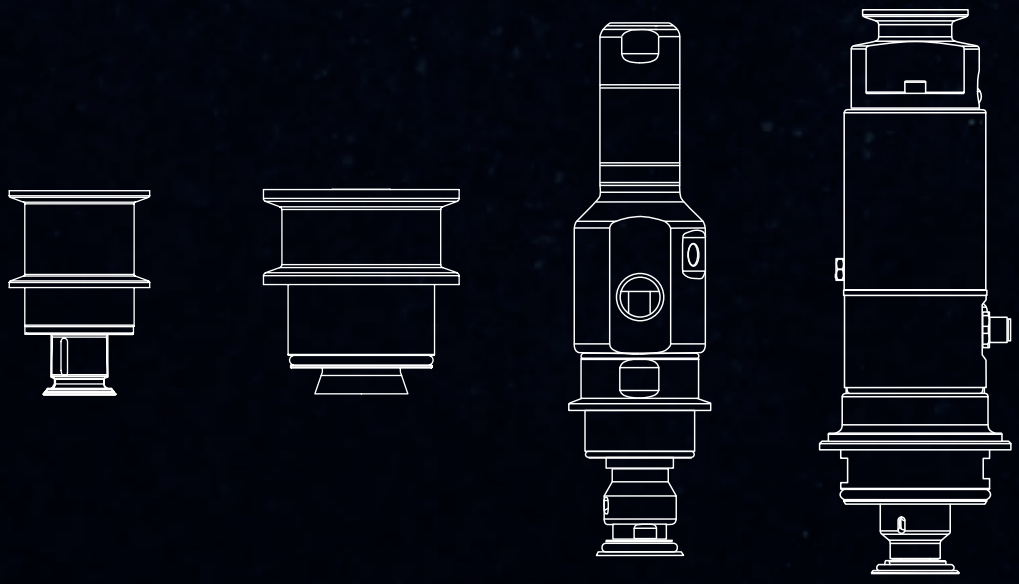
Information on operation
The electric motor may only be switched on when liquid is flowing through the nozzle.

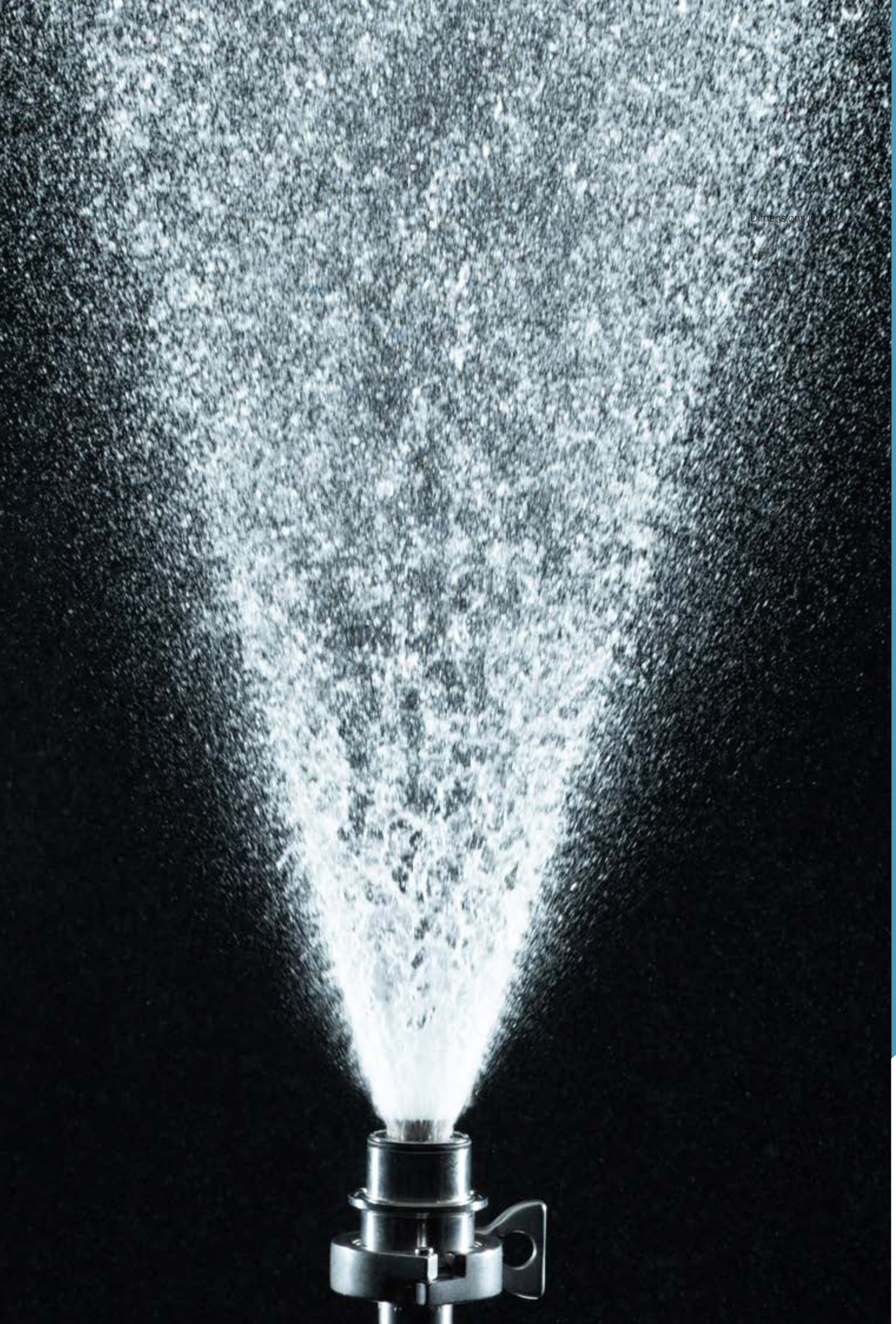
Ordering example:	Type	+	Lance length	=	Ordering no.
	5TP.469.1Y	+	**01**	=	**5TP.469.1Y.01**

EXTENDABLE CLEANING NOZZLES

POPUP WHIRLY

POPUP CLEAN





Dimensions in mm

Extendable rotating cleaning nozzle PopUp Whirly
Series 5P2

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

FDA

Series 5P2

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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*
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

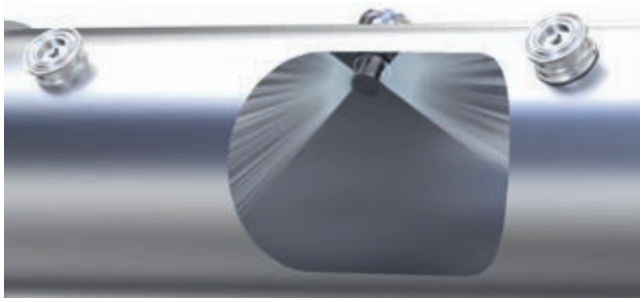
Steam suitability
Not suitable

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

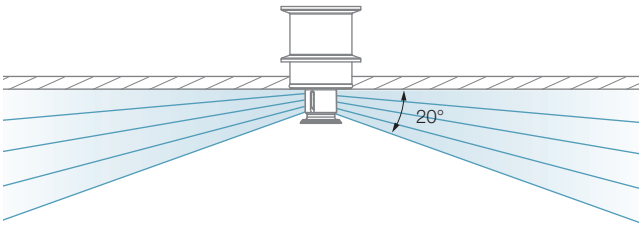
Recommended operating pressure
2 bar
Opening pressure approx. 1.0 bar, closing pressure approx. 0.5 bar

* Version with thread connection Ra ≤ 1,6 µm

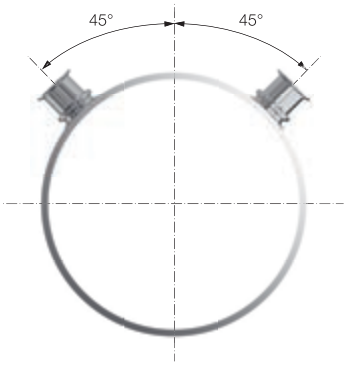
Installation example



Spray distribution

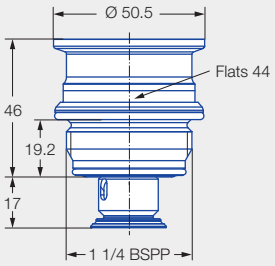


Recommendation for nozzle positioning

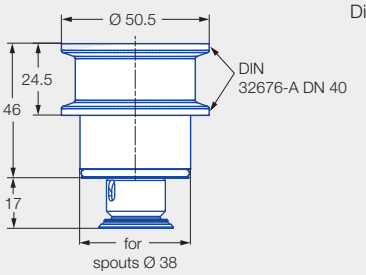


Type	Nozzle spacing L [m]
5P2.873	0.8
5P2.923	1.0

Dimensions in mm

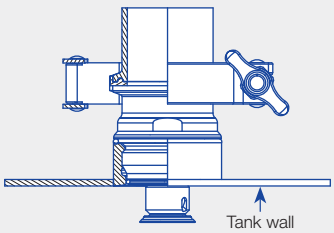


Male thread

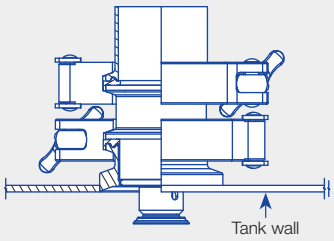


Tri-Clamp connection

Installation situation



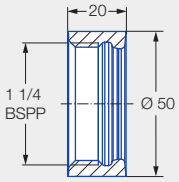
Male thread



Tri-Clamp connection

Weld-in socket for threaded connection

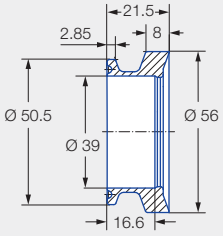
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Whirly).



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 DN 40 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 Ø [mm]	V̇ water [l/min]			V̇ water
	Type	Connection on tank wall			p [bar] (p_{max} = 6 bar)			
		1 1/4 BSPP male	Tri-Clamp		1.0	**2.0**	3.0	at 2 bar [m³/h]
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

Series 5P3

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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*

Surface quality
Ra ≤ 1.6 µm

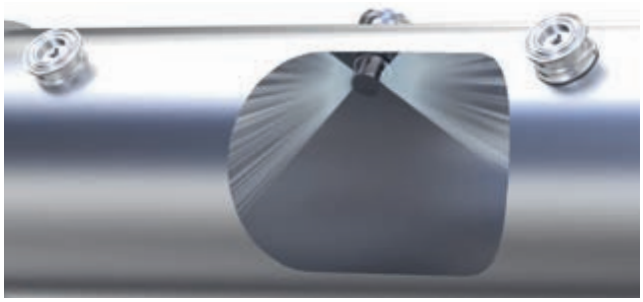
Steam suitability
Not suitable

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

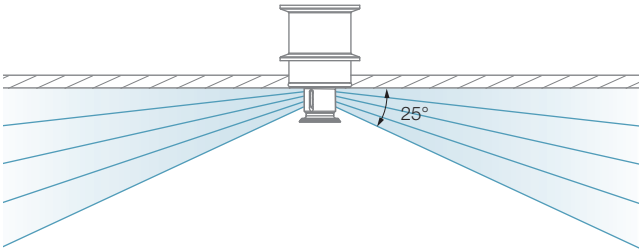
Recommended operating pressure
2 bar
Opening pressure approx. 0.9 bar, closing pressure approx. 0.5 bar

* Version with thread connection Ra ≤ 1,6 µm

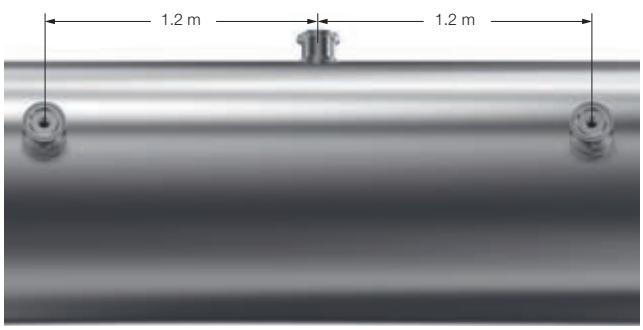
Installation example

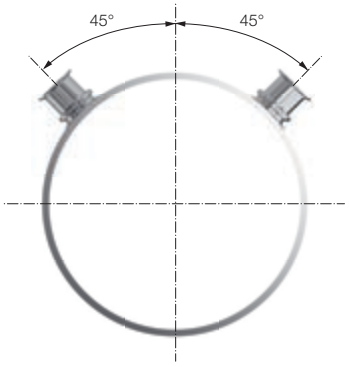


Spray distribution

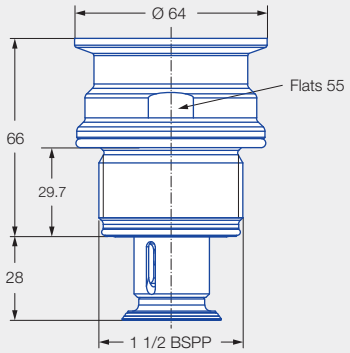


Recommendation for nozzle positioning

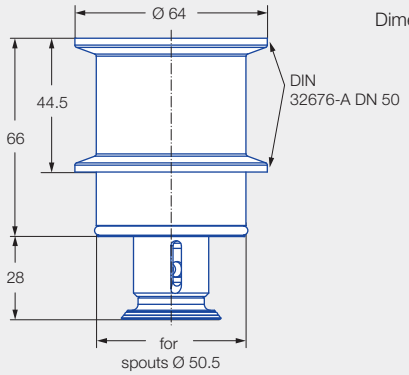




Dimensions in mm

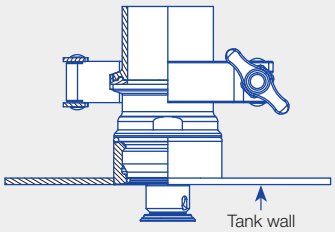


Male thread

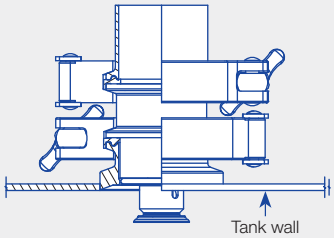


Tri-Clamp connection

Installation situation



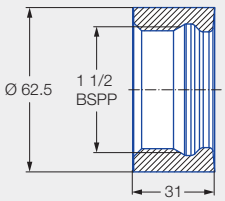
Male thread



Tri-Clamp connection

Weld-in socket for threaded connection

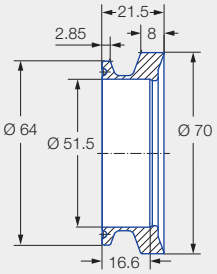
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Whirly).



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 DN 50 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 Ø [mm]]	V̇ water [l/min]			V̇ water
	Type	Connection on tank wall			p [bar] (p_{max} = 6 bar)			
		1 1/2 BSPP male	Tri-Clamp		1.0	**2.0**	3.0	at 2 bar [m³/h]
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:
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.
5P3.043.1Y	+	AR	+	EX	=	5P3.043.1Y.AR.EX

Extendable rotating cleaning nozzle PopUp Whirly Air
Series 5P8/5P9, Horizontal Duct

Features:
- Self-draining
- Dry blowing with compressed air possible
- Operation with steam possible (SIP)
- Vacuum in the container allowed, thanks to double-acting pneumatic cylinder
- Optional end position monitoring with sensors
- Particularly hygienic (all threads encapsulated by O-rings)

Series 5P8/5P9

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Recommended accessories: see page 98.
(Can be ordered separately)

Technical data:

Maximum operating temperature
150 °C

Maximum ambient temperature
150 °C

Installation
Operation in every installation position

Bearing
Slide bearing

Material
process and media contacting:
Stainless steel 1.4404 (316L), Stainless steel 1.4571 (316Ti), PTFE, FKM oder EPDM

Weight
2,2 kg

Surface quality
Ra ≤ 0,8 µm

Surface quality
Ra ≤ 1,6 µm

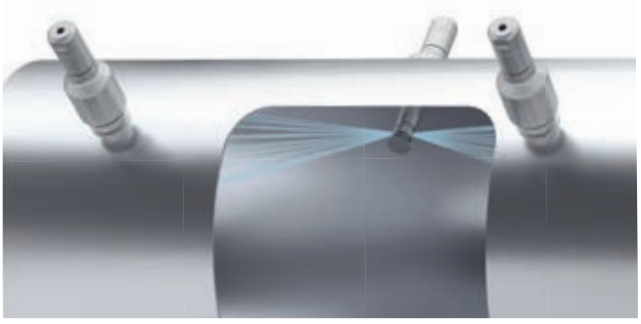
Steam suitability
Suitable

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

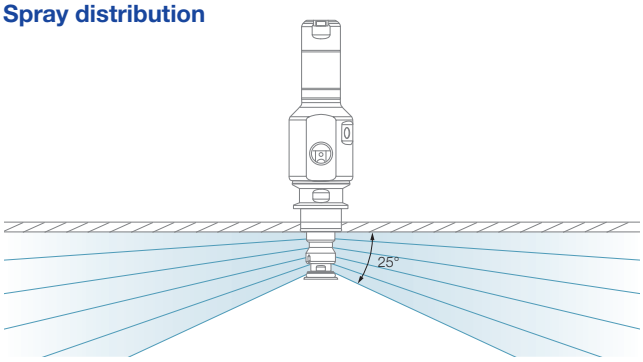
Recommended operating pressure
2 bar
Opening pressure approx. 1.6 bar, closing pressure approx. 0.3 bar

Maintainable

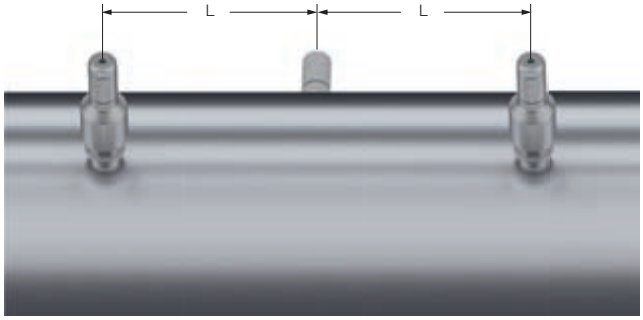
Installation example

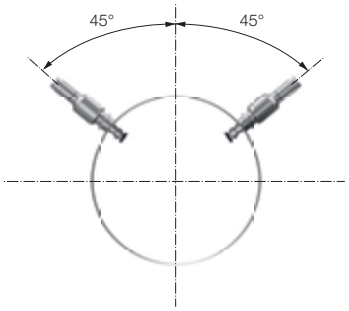


Spray distribution



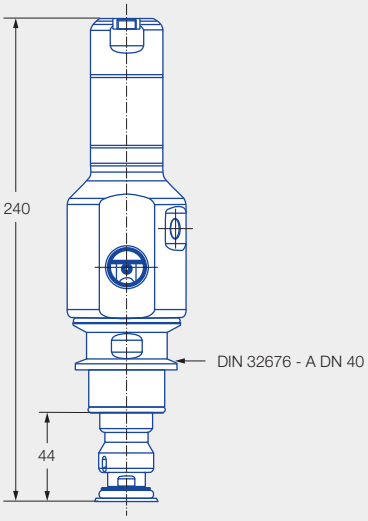
Recommendation for nozzle positioning



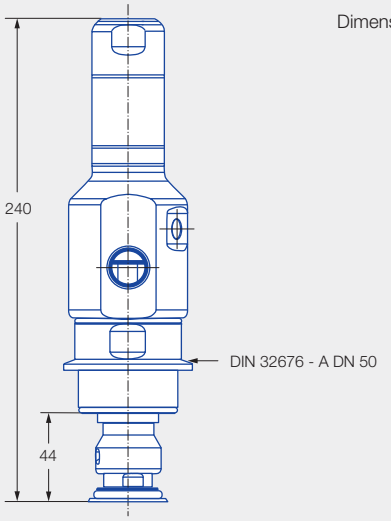


Type	Nozzle spacing L [m]
5P8.873	1.4
5P8.923	1.4
5P8.993	1.5
5P9.043	1.8
5P9.133	1.8

Dimensions in mm

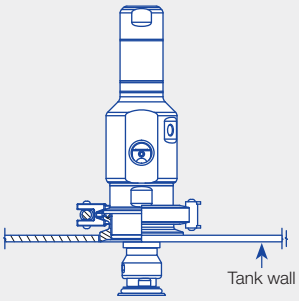


Tri-Clamp connection 5P8



Tri-Clamp connection 5P9

Installation situation



Tri-Clamp connection

Spray angle	Ordering no.			Narrowest cross-section Ø [mm]	V̇ water [l/min]			V̇ water
	Type	Material of the O-rings			p [bar] (p_{max} = 6 bar)			
		FKM	EPDM		1.0	**2.0**	3.0	at 2 bar [m³/h]
25° 	**5P8.873.1Y.**	**10**	**20**	2.3	11	**15**	18	0.9
	5P8.923.1Y.	**10**	**20**	2.5	14	**20**	25	1.2
	5P8.993.1Y.	**10**	**20**	2.7	21	**30**	37	1.8
	5P9.043.1Y.	**10**	**20**	3.7	28	**40**	49	2.4
	5P9.133.1Y.	**10**	**00**	4.0	42	**60**	73	3.6

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

All materials are suitable for contact with food.

Type	+	Material of the O-rings	=	Ordering no.
5P8.873.1Y	+	10	=	5P8.873.1Y.10

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

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

Type	+	Material of the O-rings	+	ATEX	=	Ordering no.
5P8.873.1Y	+	10	+	EX	=	5P8.873.1Y.10.EX

Extendable rotating cleaning nozzle PopUp Whirly Air
Series 5P8/5P9, Vertical Duct & Tower

Features:
- Self-draining
- For cleaning spray shadow areas
- Dry blowing with compressed air possible
- Operation with steam possible (SIP)
- Vacuum in the container allowed, thanks to double-acting pneumatic cylinder
- Optional end position monitoring with sensors
- Particularly hygienic (all threads encapsulated by O-rings)

Series 5P8/5P9

FDA

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

Recommended accessories: see page 98.
(Can be ordered separately)

Technical data:

Maximum operating temperature
150 °C

Maximum ambient temperature
150 °C

Installation
Operation in every installation position

Bearing
Slide bearing

Material
Process and media contacting
Stainless steel 1.4404 (316L), Stainless steel 1.4571 (316Ti)
PTFE, FKM oder EPDM

Weight
2,2 kg

Surface quality
Ra ≤ 0.8 µm
OUTSIDE

Surface quality
Ra ≤ 1,6 µm
INSIDE

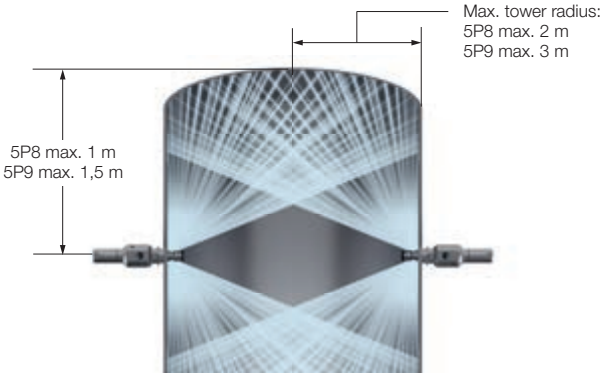
Steam suitability
Suitable

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

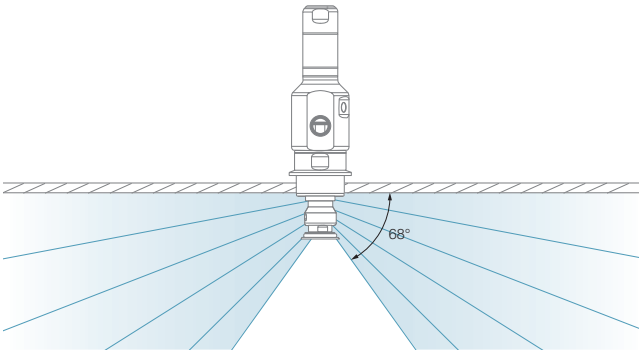
Recommended operating pressure
2 bar
Opening pressure approx. 1.6 bar, closing pressure approx. 0.3 bar

Maintainable

Installation example



Spray distribution

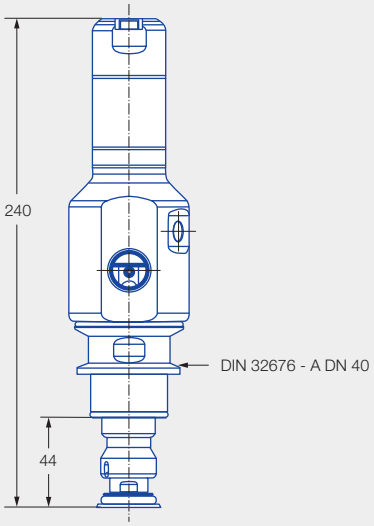


Arrangement of nozzles in a vertical duct or tower

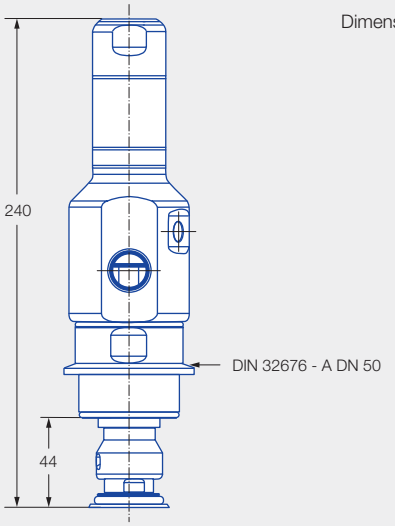
In towers or comparable installations with a diameter of up to 2 m, at least two PopUp Whirly Air nozzles should be installed. For diameters exceeding 2 m, one additional PopUp Whirly Air should be provided for each further meter.

Top-view

Dimensions in mm

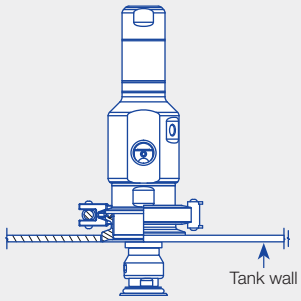


Tri-Clamp connection 5P8



Tri-Clamp connection 5P9

Installation situation



Tri-Clamp connection

Spray angle	Ordering no. Type	Material of the O-rings FKM	Material of the O-rings EPDM	Narrowest cross-section Ø [mm]	V̇ water [l/min] p [bar] (p_{max} = 6 bar) 1.0	2.0	3.0	V̇ water at 2 bar [m³/h]
68° 	5P8.876.1Y.	10	20	1.3	11	**15**	18	0.9
	5P8.926.1Y.	10	20	1.6	14	**20**	25	1.2
	5P8.996.1Y.	10	20	2.3	21	**30**	37	1.8
	5P9.046.1Y.	10	20	2.5	28	**40**	49	2.4
	5P9.136.1Y.	10	00	4.0	42	**60**	73	3.6

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

All materials are suitable for contact with food.

Type	+	Material of the O-rings	=	Ordering no.
5P8.876.1Y	+	10	=	5P8.876.1Y.10

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

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

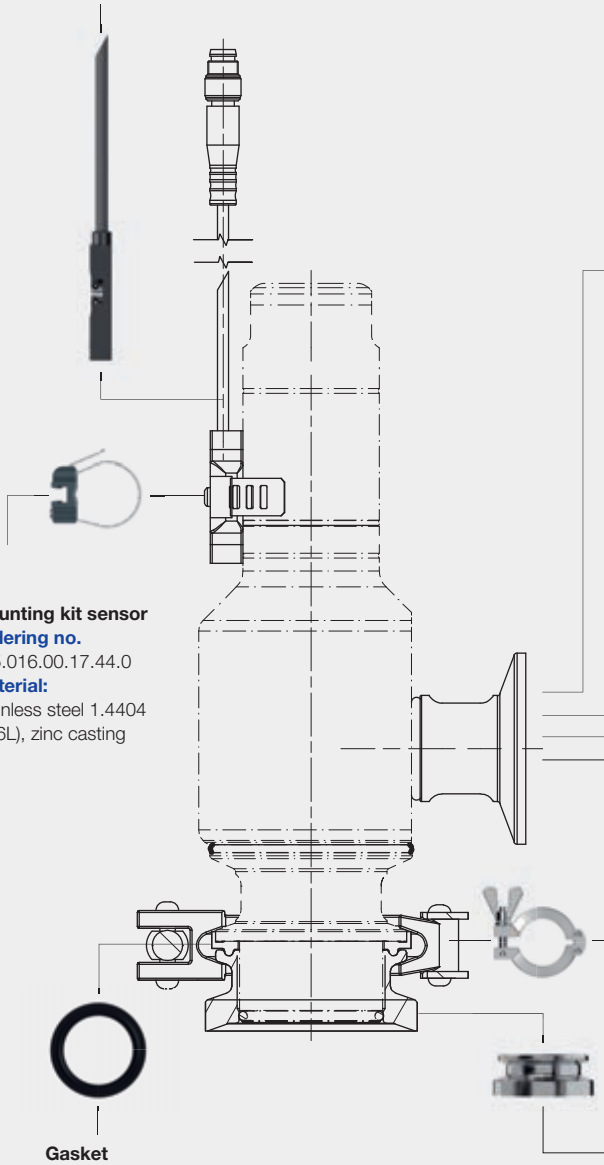
Type	+	Material of the O-rings	+	ATEX	=	Ordering no.
5P8.876.1Y	+	10	+	EX	=	5P8.876.1Y.10.EX

Accessories PopUp Whirly Air
Series 5P8/5P9

Recommended accessories can be ordered separately.

Sensor Options
Two sensors can be used to detect both end positions (one mounting kit is required per sensor)

Sensor	Specifications	max. temperature in °C	Ordering no.
1	PNP or NPN, nO or nC, M8	85	095.009.00.18.67.0
2	ATEX, PNP, nO, M8	85	095.009.00.19.14.0
3	REED, open cable end	120	095.009.00.19.15.0



Mounting kit sensor
Ordering no.
095.016.00.17.44.0
Material:
Stainless steel 1.4404 (316L), zinc casting

Medium connection
Available medium connections, one adapter is required per PopUp Whirly Air.
Other connections are available on request.

Adapter
Ordering no. 05P.830.1Y.00.01.0
Material: Stainless steel 1.4404 (316L)
Tri-Clamp DIN 32676
Outer-Ø 50,5 mm

Adapter
Ordering no. 05P.830.1Y.00.02.0
Material: Stainless steel 1.4404 (316L)
Tri-Clamp DIN 32676
Outer-Ø 64 mm

Adapter
Ordering no. 05P.830.1Y.00.03.0
Material: Stainless steel 1.4404 (316L)
Female thread
3/4 BSPP

Adapter
Ordering no. 05P.830.1Y.00.04.0
Material: Stainless steel 1.4404 (316L)
Hose connector for Inner-Ø 25 mm

Hinge Bolt Clamp

Type	Material	Ordering no.
5P8	Stainless steel 1.4408	095.016.1Y.16.52.0
5P9	Stainless steel 1.4408	095.016.1Y.16.53.0

Gasket

Type	Material	Ordering no.
5P8	FKM	095.015.79.12.24.0
	EPDM	095.015.E9.12.24.0
5P9	FKM	095.015.79.12.25.0
	EPDM	095.015.E9.12.25.0

Welding Flange

Type	Material	Ordering no.
5P8	Stainless steel 1.4404 (316L)	050.020.1Y.01.00.0
5P9	Stainless steel 1.4404 (316L)	050.020.1Y.01.01.0

Weld flanges adapted to pipe curve are available on request.

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

Series 5P7

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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, FKM, EPDM

Weight:
4.5 kg

Surface quality
Ra ≤ 1.6 on process side

Surface quality
Ra ≤ 1.6 µm

Steam suitability
Not suitable

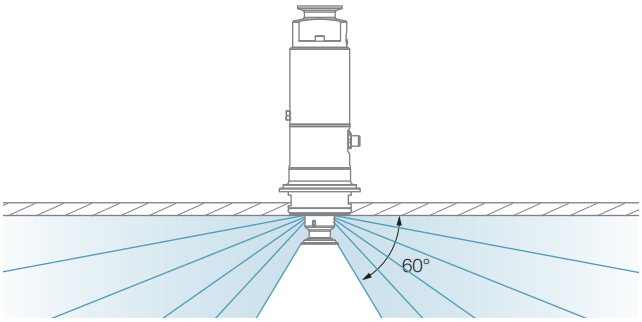
Recommended filter
Line strainer with a mesh size of 0.3 mm/50 mesh

Recommended operating pressure
2.5 bar

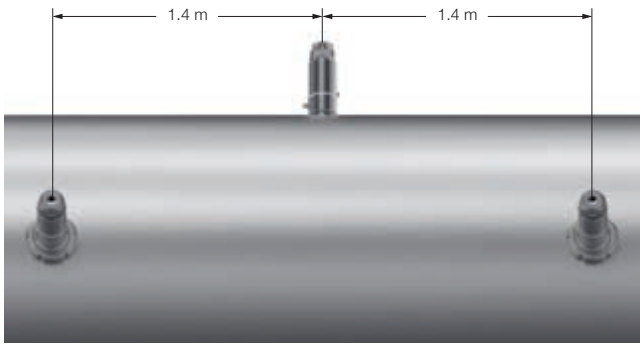
Maintainable

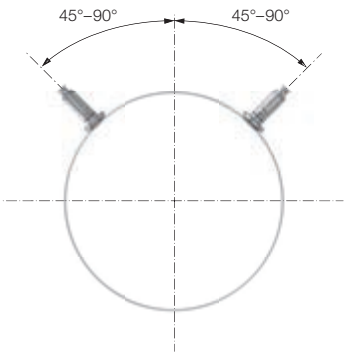
Installation example

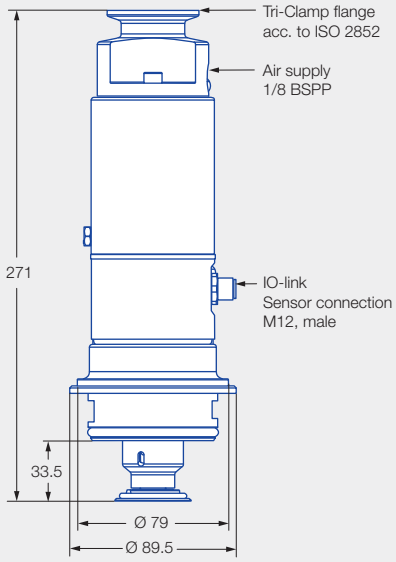
Spray distribution



Recommendation for nozzle positioning



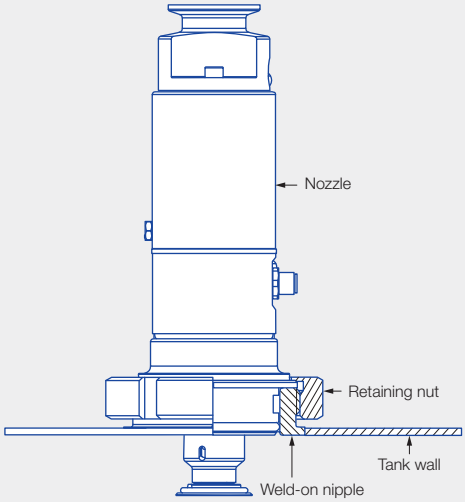




Tri-Clamp flange

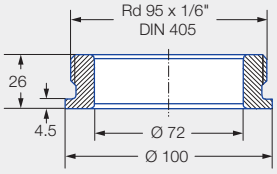
Dimensions in mm
(unless stated otherwise).

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. Type	V̇ water [l/min] p [bar] (p_{max} = 6 bar)					V̇ water
		1.0	2.0	**2.5**	3.0	5,0	at 2.5 bar [m³/h]
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.

Extendable cleaning nozzle PopUp Clean Series 5P5

Features:

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

FDA

Function video
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*
OUTSIDE

Surface quality
Ra ≤ 1.6 µm
INSIDE

Steam suitability
Not suitable

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

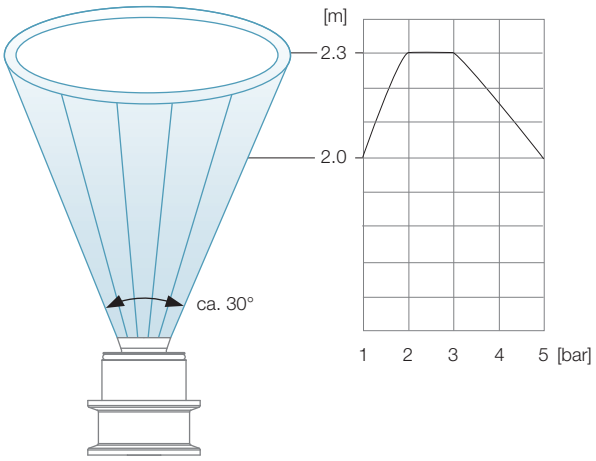
Recommended operating pressure
2 bar
Opening pressure: approx. 0.3 bar, closing pressure: approx. 0.3 bar

* Version with thread connection Ra ≤ 1,6 µm

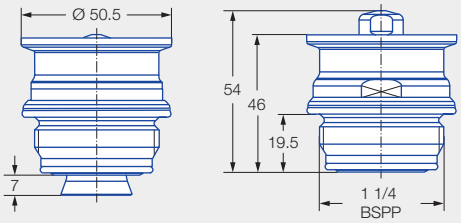
Installation example

Spray height

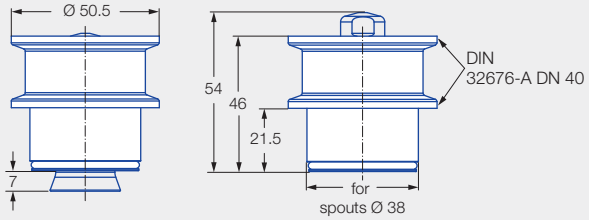
Sprays upwards in vertical installation position.



Dimensions in mm

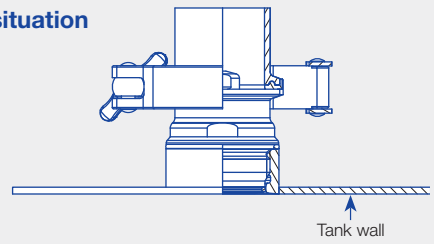


Male threaded connection

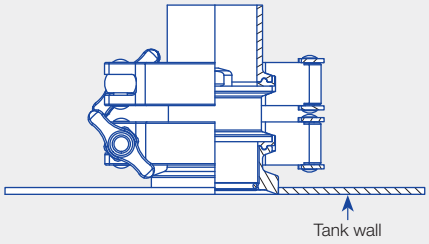


Tri-Clamp connection

Installation situation



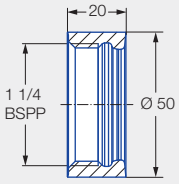
Threaded connection



Tri-Clamp connection

Weld-in socket for threaded connection

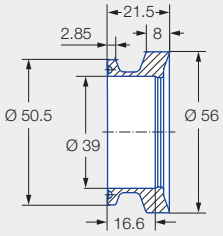
The thread is hygienically encapsulated with two O-rings (included in the scope of delivery of the PopUp Clean).



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 DN 40 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_{max} = 5 bar)					
		1Y	21								
		1.4404 (316L)	2.4602 (Alloy 22)	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.

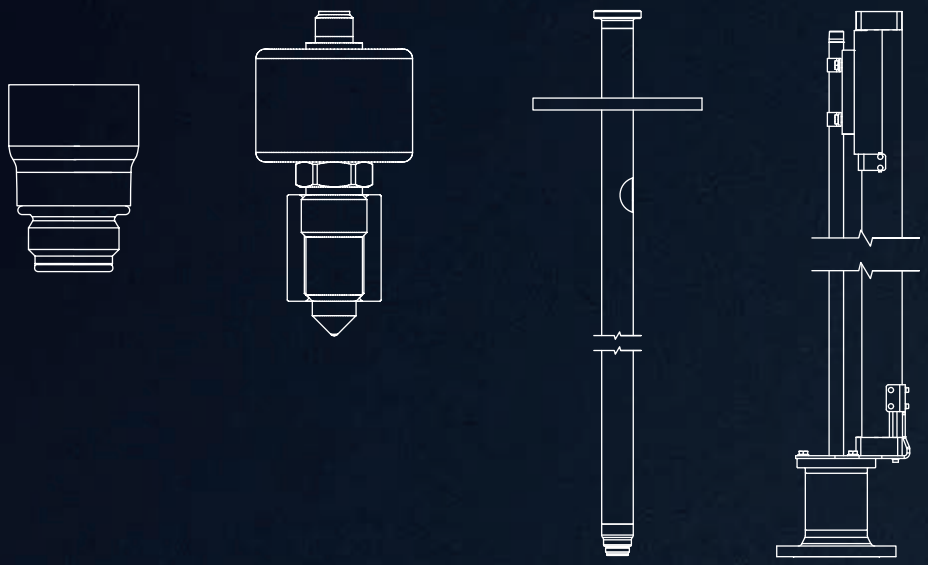
Type	+	Material	+	Connection	=	Ordering no.
5P5.081	+	1Y	+	AP	=	5P5.081.1Y.AP

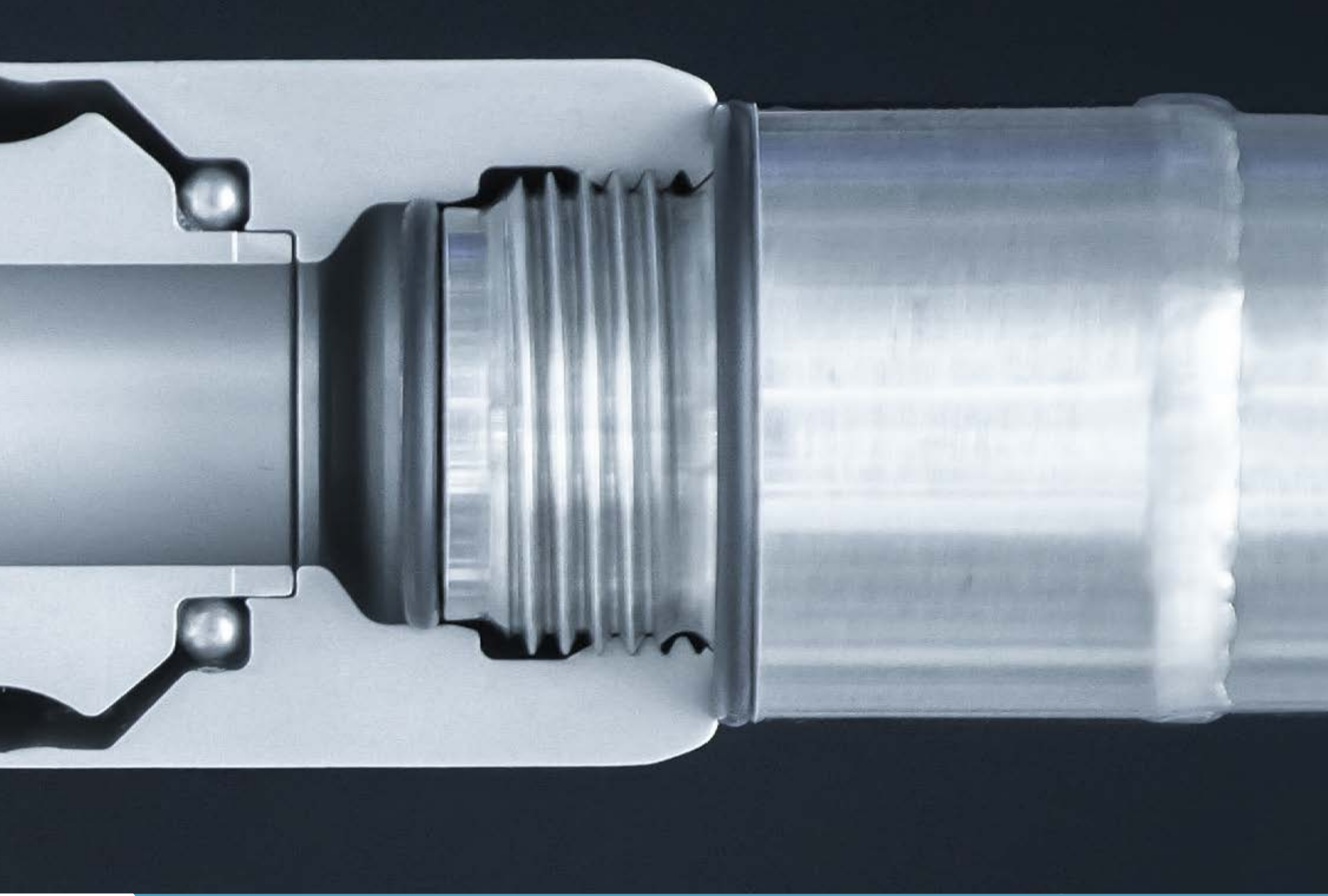
Ordering example with ATEX approval. FDA and (EC) 1935/2004 conformity.

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

TANK CLEANING
PERFECT ADD





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

The HygienicFit adapter must not be used in conjunction with an ATEX-approved rotary cleaner in the ATEX area.

FDA

Series 05C

Function video
www.lechler.com/de-en/medialibrary/videos-general-industry
Or scan the QR code.

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) or FKM

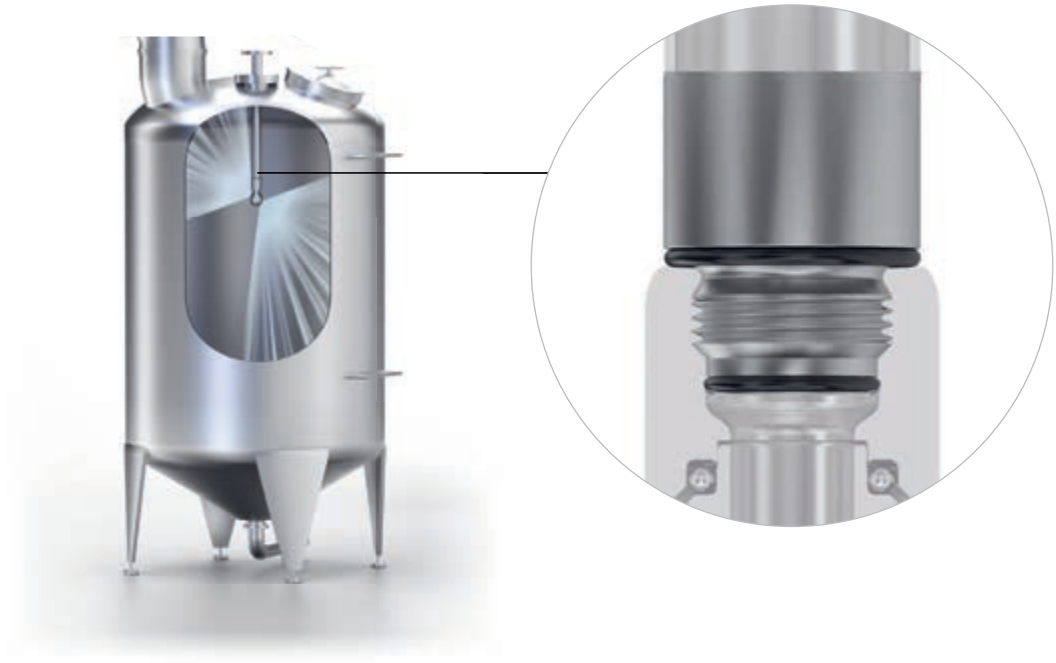
Weight
70–300 g

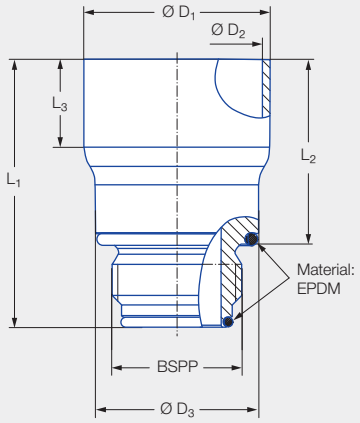
Surface quality
Ra ≤ 0.8 µm
OUTSIDE

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	Ø D_1	Ø D_2	Ø D_3	
05C.190.1Y.AE.16	3/8	48.00	35.70	18.00	19.05	15.80	21.50	DIN EN 10357 series D
05C.230.1Y.AE.15	3/8	48.00	35.70	18.00	23.00	20.00	21.50	DIN EN 10357 series A
05C.250.1Y.AE.12	3/8	48.00	35.70	17.00	25.00	22.60	21.50	DIN EN 10357 series D
05C.250.1Y.AG.12	1/2	56.00	39.00	18.00	25.00	22.60	31.00	DIN EN 10357 series D
05C.350.1Y.AK.15	3/4	55.00	37.80	21.00	35.00	32.00	33.50	DIN EN 10357 series A
05C.380.1Y.AK.12	3/4	55.00	37.80	18.00	38.00	35.60	33.50	ISO 2037
05C.381.1Y.AK.15	3/4	55.00	37.80	18.00	38.10	35.10	33.50	DIN EN 10357 series D
05C.381.1Y.AM.16	1	59.00	39.00	23.00	38.10	34.90	40.50	DIN EN 10357 series D
05C.508.1Y.AP.15	1 1/4	57.00	38.00	22.00	50.80	47.80	49.40	DIN EN 10357 series D
05C.635.1Y.AR.16	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	**05C.000.E9.AE.00**
1/2	**05C.000.E9.AG.00**
3/4	**05C.000.E9.AK.00**
1	**05C.000.E9.AM.00**
1 1/4	**05C.000.E9.AP.00**
1 1/2	**05C.000.E9.AR.00**

O-ring set also available in FKM on request.

Rotation monitoring sensor

Features:

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

FDA

Technical data:

Maximum operating temperature
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)

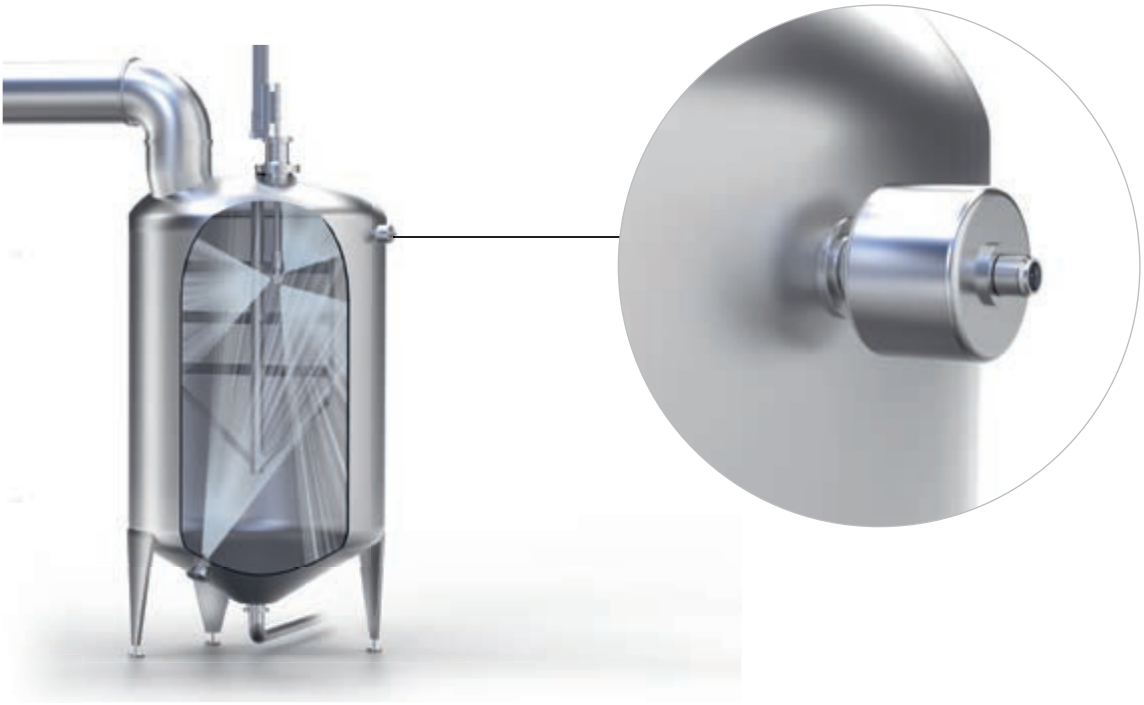
Weight
350 g

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

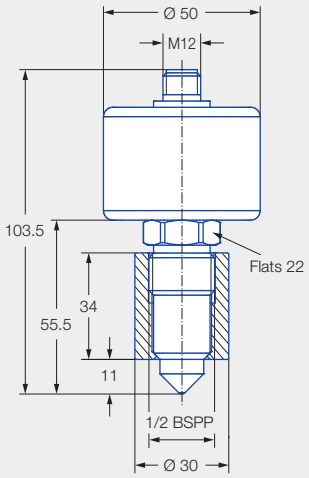
Steam suitability
Max. 125 °C for max. 30 min. at ambient temperature ≤ 35 °C

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

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



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**

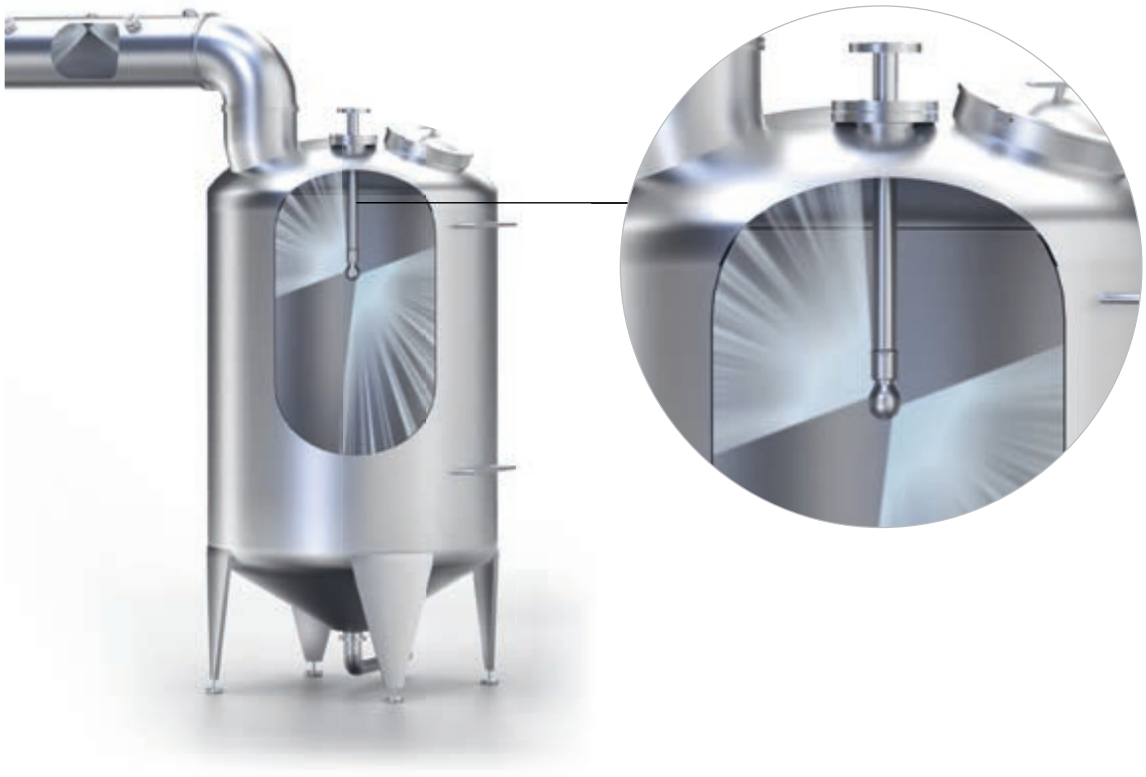
Cleaning lance StaticLance

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

FDA

Static lance



Good to know

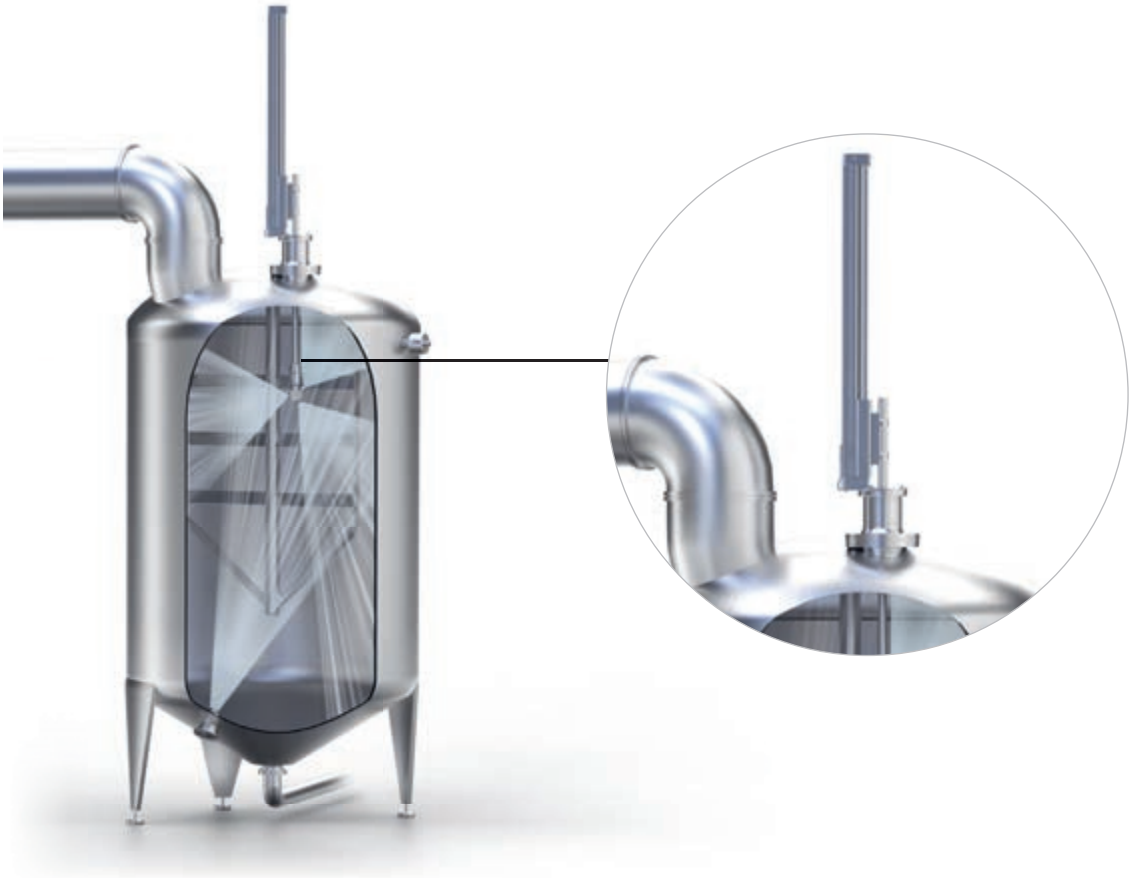
If you would like further information on our static lances, please contact us: by phone on +49 7123 962-0 or by email at info@lechler.de.

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.

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
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.

EVERYTHING COVERED
CLEAN ALL OVER THE WORLD

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Sales
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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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