

# EFFECTIVE REMOVAL OF HEAVY SOILING



## Cleaning efficiency class 4

The Lechler products in this class have controlled rotating cleaning nozzles. They are suitable for contact with food and the cleaning of large tanks. The cleaning nozzles of cleaning efficiency class 4 are available in many different sizes and flow rates.


The efficient flat spray nozzle geometry of the rotating cleaners in cleaning efficiency class 4 ensures the removal of heavy soiling at temperatures of up to 140 °C. Process reliability is increased through combination with the Lechler rotation monitoring sensor.



 **Operating principles**  
Controlled rotation

 **Flow rates at 2 bar**  
25 to 300 l/min

 **Recommended operating pressures**  
3 to 5 bar

 **Max. temperatures**  
95 to 140 °C



# Rotating cleaning nozzle »XactClean HP« Series 5S2/5S3

## Series 5S2/5S3

Specially developed flat fan nozzles provide high impact and uniform cleaning for the XactClean HP. The controlled rotation ensures that the XactClean HP works extremely efficient. Thanks to the robust drive unit the XactClean HP is very reliable and ensures increased operation liability. It is available in various spray angles and flow rates and is also compatible with the Lechler rotating monitoring sensor.



	<b>Max. tank diameter [m]</b>	0	1	2	3	4	5	6	7	8
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**Materials**  
316L SS, 316 SS, 632 SS, PEEK, PEEK ESD (ATEX version only), PTFE, Zirconium oxide, EPDM

**Max. temperature**  
95 °C

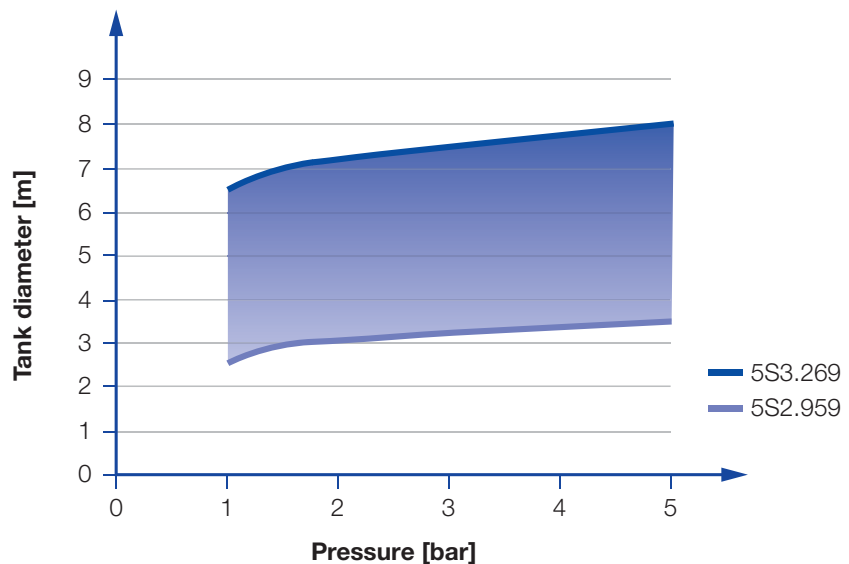
**Recommended operating pressure**  
5 bar

**Installation**  
Operation in every direction is possible

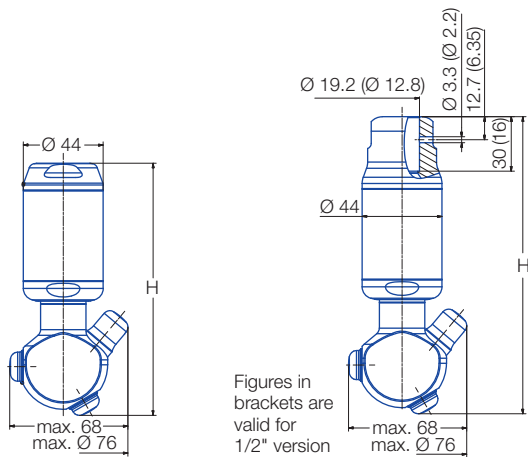
**Filtration**  
Line strainer with a mesh size of 0.3 mm/50 mesh

**Bearing**  
Double ball bearing

**Rotation monitoring sensor**  
Sensor compatible  
Info: see page 65



Overview of the tank diameter, depending upon the pressure of series 5S2/5S3



Female thread

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

Nozzle dimensions [mm]

Connection	Max. Height [H]
<b>AF</b>	146
<b>AH</b>	149
<b>AL</b>	139
<b>AN</b>	139
<b>TF05</b>	148
<b>TF07</b>	164

Spray angle	Ordering no.							E Ø [mm]	V̇ [l/min]				Max. tank diameter [m]
	Type	Connection							p [bar] (p <sub>max</sub> = 15 bar)				
		3/8 BSPP female	1/2 BSPP female	3/4 BSPP female	1 BSPP female	1/2" Slip-on	3/4" Slip-on		2	5	10	at 40 psi [US gal/min]	
180° 	<b>5S2.953.1Y</b>	<b>AF</b>	<b>AH</b>	-	-	<b>TF05</b>	-	1.7	25	40	57	7.8	3.5
	<b>5S3.053.1Y</b>	-	<b>AH</b>	-	-	-	<b>TF07</b>	2.0	41	65	92	12.8	4.0
	<b>5S3.113.1Y</b>	-	<b>AH</b>	<b>AL</b>	-	-	<b>TF07</b>	2.0	60	94	133	18.4	6.0
	<b>5S3.183.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	89	141	199	27.7	7.0
	<b>5S3.233.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	111	175	248	34.3	7.5
	<b>5S3.263.1Y</b>	-	-	<b>AL</b>	<b>AN</b>	-	<b>TF07</b>	2.0	135	213	301	41.8	8.0
180° 	<b>5S2.954.1Y</b>	<b>AF</b>	<b>AH</b>	-	-	<b>TF05</b>	-	1.7	25	40	57	7.8	3.5
	<b>5S3.054.1Y</b>	-	<b>AH</b>	-	-	-	<b>TF07</b>	2.0	41	65	92	12.8	4.0
	<b>5S3.114.1Y</b>	-	<b>AH</b>	<b>AL</b>	-	-	<b>TF07</b>	2.0	60	94	133	18.4	6.0
	<b>5S3.184.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	89	141	199	27.7	7.0
	<b>5S3.234.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	111	175	248	34.3	7.5
	<b>5S3.264.1Y</b>	-	-	<b>AL</b>	<b>AN</b>	-	<b>TF07</b>	2.0	135	213	301	41.8	8.0
270° 	<b>5S2.955.1Y</b>	<b>AF</b>	<b>AH</b>	-	-	<b>TF05</b>	-	1.7	25	40	57	7.8	3.5
	<b>5S3.055.1Y</b>	-	<b>AH</b>	-	-	-	<b>TF07</b>	2.0	41	65	92	12.8	4.0
	<b>5S3.115.1Y</b>	-	<b>AH</b>	<b>AL</b>	-	-	<b>TF07</b>	2.0	60	94	133	18.4	6.0
	<b>5S3.185.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	89	141	199	27.7	7.0
	<b>5S3.235.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	111	175	248	34.3	7.5
	<b>5S3.265.1Y</b>	-	-	<b>AL</b>	<b>AN</b>	-	<b>TF07</b>	2.0	135	213	301	41.8	8.0
270° 	<b>5S2.956.1Y</b>	<b>AF</b>	<b>AH</b>	-	-	<b>TF05</b>	-	1.7	25	40	57	7.8	3.5
	<b>5S3.056.1Y</b>	-	<b>AH</b>	-	-	-	<b>TF07</b>	2.0	41	65	92	12.8	4.0
	<b>5S3.116.1Y</b>	-	<b>AH</b>	<b>AL</b>	-	-	<b>TF07</b>	2.0	60	94	133	18.4	6.0
	<b>5S3.186.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	89	141	199	27.7	7.0
	<b>5S3.236.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	111	175	248	34.3	7.5
	<b>5S3.266.1Y</b>	-	-	<b>AL</b>	<b>AN</b>	-	<b>TF07</b>	2.0	135	213	301	41.8	8.0
360° 	<b>5S2.959.1Y</b>	<b>AF</b>	<b>AH</b>	-	-	<b>TF05</b>	-	1.5	25	40	57	7.8	3.5
	<b>5S3.059.1Y</b>	-	<b>AH</b>	-	-	-	<b>TF07</b>	2.0	41	65	92	12.8	4.0
	<b>5S3.119.1Y</b>	-	<b>AH</b>	<b>AL</b>	-	-	<b>TF07</b>	2.0	60	94	133	18.4	6.0
	<b>5S3.189.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	89	141	199	27.7	7.0
	<b>5S3.239.1Y</b>	-	-	<b>AL</b>	-	-	<b>TF07</b>	2.0	111	175	248	34.3	7.5
	<b>5S3.269.1Y</b>	-	-	<b>AL</b>	<b>AN</b>	-	<b>TF07</b>	2.0	135	213	301	41.8	8.0

E = narrowest free cross-section · NPT on request

The maximum tank diameter shown above applies for the recommended operating pressure and is indicative only. The cleaning result is also affected by the type of soiling.



# Rotating cleaning nozzle »XactClean HP« Series 5S2/5S3

## Information on operation

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

## Slip-on information

- R-clip made of 316L SS is included (Ordering no.: 095.022.1Y.50.60.E (TF07), 095.013.1E.05.59.0 (TF05)).
- Depending on diameter of the adapter the flow rate can increase due to leakage between connecting pipe and rotating cleaning nozzle.

### Example of ordering with ATEX approval. No FDA and (EC) 1935/2004 conformity.

#### Unit group/category/zones:

II 1G Ex h IIB T6...T3 Ga

II 1D Ex h IIIC T85 °C...T150 °C Da

Example	Type	+ Connection	= Ordering no.
of Ordering:	5S2.953.1Y.XX.EX	+ AL	= 5S2.953.1Y.AL.EX

### Example of ordering with FDA and (EC) 1935/2004 conformity.

All Materials are suitable for  
contact with food.



Example	Type	+ Connection	= Ordering no.
of Ordering:	5S2.953.1Y.XX	+ AL	= 5S2.953.1Y.AL

## ATTENTION:

For the **ATEX** version of the slip-on connection the code for the connection changes.  
For a 5S2.XXX.1Y.**TF.05** with ATEX the order number changes to 5S2.XXX.1Y.**T5.EX**  
For a 5S3.XXX.1Y.**TF.07** with ATEX the order number changes to 5S3.XXX.1Y.**T7.EX**



# Rotating cleaning nozzle »XactClean HP+« Series 5S5

## Series 5S5

The XactClean HP+ provides uniform cleaning and high impact, thanks to specially developed flat fan nozzles. Controlled rotation, along with higher flow rates, ensures effective results, especially in larger tanks. The robust drive unit makes the XactClean HP+ extremely dependable and increases operational reliability. This nozzle is compatible with the Lechler rotation monitoring sensor, making it easy to oversee the cleaning process.



**Function video**  
Scan the QR-code or go to:  
[www.lechler.com/xactcleanhpplus](http://www.lechler.com/xactcleanhpplus)



**Material**  
316L SS, 316 SS,  
PEEK, EPDM

**Max. temperature**  
95 °C

**Recommended operating pressure**  
3 bar

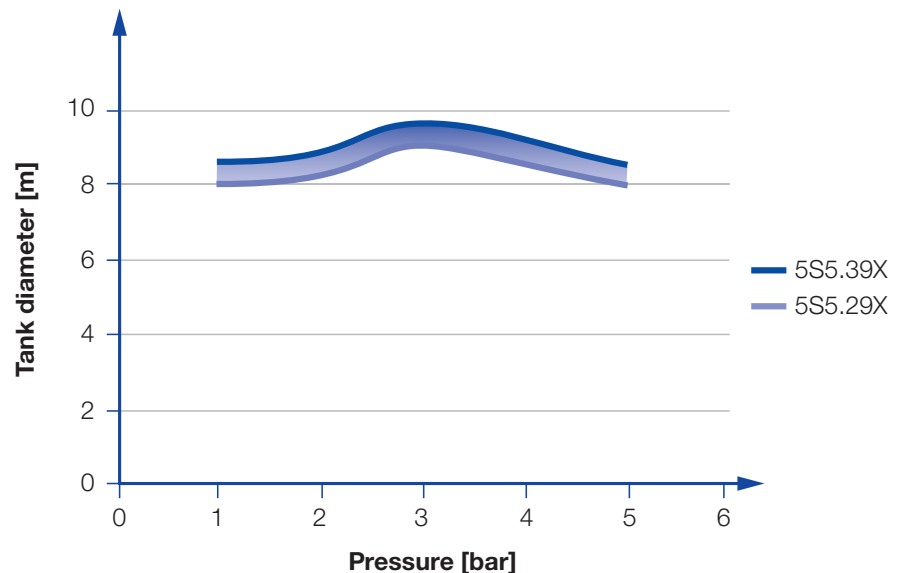
**Installation**  
Operation in every direction is possible

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

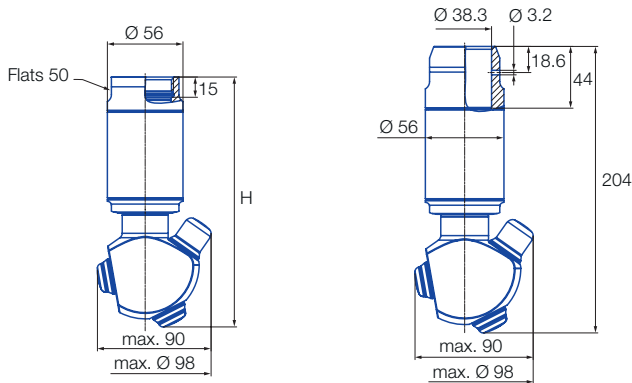
**Bearing**  
Double ball bearing

**Rotation monitoring sensor**  
Sensor compatible,  
Info: see page 65.

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



Overview of the tank diameter, depending upon the pressure of series 5S5









Female thread

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

### Nozzle dimensions [mm]

Connection	Max. Height [H]
<b>AN</b>	185
<b>AQ</b>	185
<b>AS</b>	187

Spray angle 	Ordering no.					E Ø [mm]	V [l/min]				Max. tank diameter [m]
	Type	Connection					p [bar] (p <sub>max</sub> = 10 bar)				
		1 BSPP	1 1/4 BSPP	1 1/2 BSPP	1 1/2" Slip-on		2	3	5	at 40 psi [US gal/min]	
180° 	5S5.293.1Y	AN	-	-	TF15	3.0	165	202	261	51.2	9.0
	5S5.323.1Y	AN	AQ	-	TF15	3.0	200	245	316	62.0	9.2
	5S5.363.1Y	-	AQ	AS	TF15	3.0	250	306	395	77.6	9.4
180° 	5S5.294.1Y	AN	-	-	TF15	3.0	165	202	261	51.2	9.0
	5S5.324.1Y	AN	AQ	-	TF15	3.0	200	245	316	62.0	9.2
	5S5.364.1Y	-	AQ	AS	TF15	3.0	250	306	395	77.6	9.4
270° 	5S5.295.1Y	AN	-	-	TF15	3.0	165	202	261	51.2	9.0
	5S5.325.1Y	AN	AQ	-	TF15	3.0	200	245	316	62.0	9.2
	5S5.365.1Y	-	AQ	AS	TF15	3.0	250	306	395	77.6	9.4
270° 	5S5.296.1Y	AN	-	-	TF15	3.0	165	202	261	51.2	9.0
	5S5.326.1Y	AN	AQ	-	TF15	3.0	200	245	316	62.0	9.2
	5S5.366.1Y	-	AQ	AS	TF15	3.0	250	306	395	77.6	9.4
360° 	5S5.299.1Y	AN	-	-	TF15	3.0	165	202	261	51.2	9.0
	5S5.329.1Y	AN	AQ	-	TF15	3.0	200	245	316	62.0	9.2
	5S5.369.1Y	-	AQ	AS	TF15	3.0	250	306	395	77.6	9.4
	5S5.399.1Y	-	AQ	AS	TF15	3.0	300	367	474	93.1	9.6

E = narrowest free cross-section · NPT on request

The maximum tank diameter shown above applies for the recommended operating pressure and is indicative only. The cleaning result is also affected by the type of soiling.

### Information on operation

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

### Slip-on information

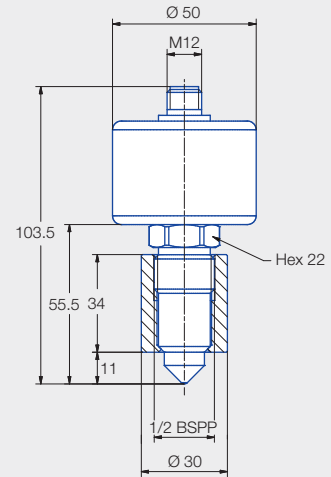
- R-clip made of 316L SS is included (Ordering no.: 095.013.1Y.06.45.0).
- Depending on diameter of the adapter the flow rate can increase due to leakage between connecting pipe and rotating cleaning nozzle.

Example of ordering: Type 5S5.293.1Y + Connection AN = Ordering no. 5S5.293.1Y.AN



# Rotation Monitoring Sensor

Cleaning processes can be easily and reliably monitored with the Lechler rotation monitoring sensor. The sensor records the quantity of liquid flowing over the sensor tip. With the aid of the software\*, the sensor function can be specifically adjusted to the tank size, pressure and nozzle.



### Electrical data

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

### Operating conditions

- Ambient temperature:  
-10° up to +60 °C
- Process temperature:  
0° up to +100 °C

### Materials

- Socket (G 1/2"): 316L SS
- Probe tip: PEEK
- Body: 303 SS

### Operating principle

- Capacitive

### Advantages

- Reliable recognition of any faults during the cleaning cycle
- The process connection of the sensor is in compliance with the hygiene guidelines of the EHEDG
- Simple operation
- Can be connected to PLC
- Only needs to be set up once using the software provided
- Can be specifically adapted to each cleaning task



Ordering data	Ordering no.
Rotation monitoring sensor with weld-in sleeve	050.040.00.00.00.0
Cable set for first-time operation	050.040.00.00.01.0

### Rotation monitoring sensor with weld-in sleeve



### Cable set for first-time operation/installation



Main adapter with cable



USB adapter with cable



Programming adapter Y-piece



Weld-in mandrel

\* Software download (free of charge): [www.lechler.com/software/rotationcontrolsystem](http://www.lechler.com/software/rotationcontrolsystem)

