Alfa Laval PlusClean®

Wall mounted cleaning nozzles

Introduction

Alfa Laval PlusClean® is a wall mounted cleaning nozzle designed for cleaning of shadow areas in tanks; e.g. below agitator blades and other tank internals. PlusClean is smoothly integrated into the tank wall. When activated during Cleaning-in-Place (CIP), PlusClean covers cleaning shadow areas with a high impact fan of cleaning media, giving the market's first guarantee of 100% impact cleaning coverage.

Application

There is a broad range of applications within hygiene-critical industries such as food, beverage, dairy and pharmaceutical industries, but likewise applications such as personal care, home care and less hygiene critical applications. PlusClean is the key to ensure high product yield by eliminating any risk of contamination. This is done by targeting cleaning media to the shadow zones for reinforced hygienic tank cleaning. PlusClean is optimal for installation in all tank types and tank sizes with highest hygienic tank cleaning requirements to ensure high product quality.

Benefits

- High product yield with 100% cleaning coverage guarantee
- Low cleaning media consumption
- Installed flush with the tank wall, allowing the unit to be used in tanks with frame type agitators
- Easy to install using the patented adjustable flange connection
- Hygienic design
- Option for actuator & ThinkTop control unit

Available versions:

- PlusClean media driven
- PlusClean air driven by a pneumatic actuator

Standard design

The PlusClean is available as standard with all wetted stainless-steel components manufactured from AISI 316L. O-rings are made from FEP/SIL and EPDM. The choice of slot (spray pattern) can optimize spray impact length and flow rate at the desired pressure.



Certificates

2.2 material certificate, Q-doc applicable to product contact parts only.





Working Principle

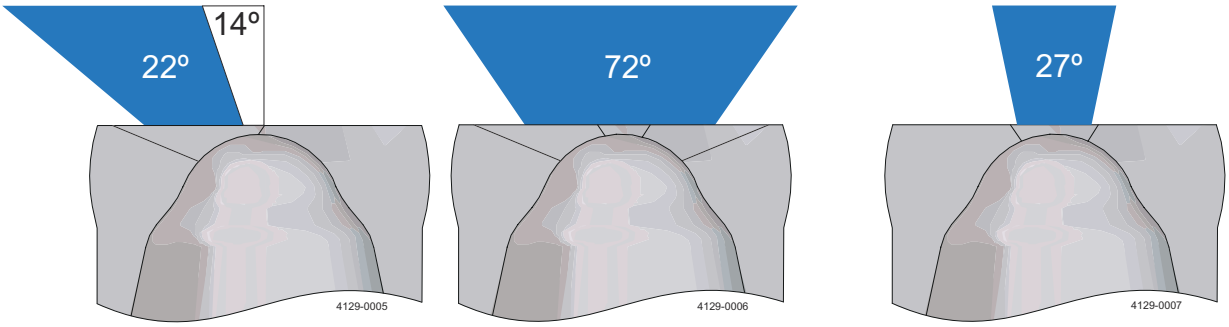
PlusClean operates based on a spring activated piston and is available in media or pneumatic driven versions and can thus be activated from either the cleaning media or controlled air pressure. When activated, PlusClean sprays a high impact fan of cleaning media directly to the soiled area. Cleaning coverage is ensured through controlled and repeated rotation of the device, e.g. agitator blades, through the spray fan. When cleaning is completed the piston position is restored by the integrated spring mechanism and the cleaning device is securely closed and sealed off. If purging is needed, always operate with actuator. PlusClean operates perfectly together with the primary top mounted cleaning device, whether it is a static spray ball, rotary spray head or a rotary jet head type cleaning device.

TECHNICAL DATA

Product wetted surface finish:	Ra 0.8 µm
Wetting distance:	Maximum 7.4 m
Impact cleaning distance:	Maximum effective 5.4 m

Pressure	
CIP working pressure:	1.9 - 7 bar
Recommended CIP pressure:	2 - 5 bar
Tank pressure range:	Media driven: –1 to 4 barg
	Air driven: –1 to 6 barg

Spray Pattern



Offset Slot | Wide Center Slot | Narrow Center Slot

PHYSICAL DATA

Materials (media contact parts)	
Components:	AISI 316L
O-rings:	FEP/VMQ, EPDM
Guide ring:	PTFE

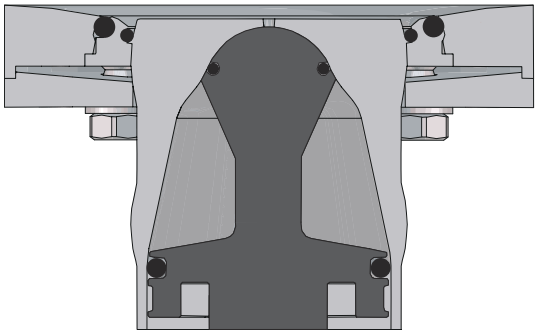
Temperature	
Maximum cleaning fluid temperature:	95 °C
Maximum tank temperature:	150 °C

Weight	
Weight:	Media driven: 2.1 kg
	Pneumatic driven: 2.7 kg

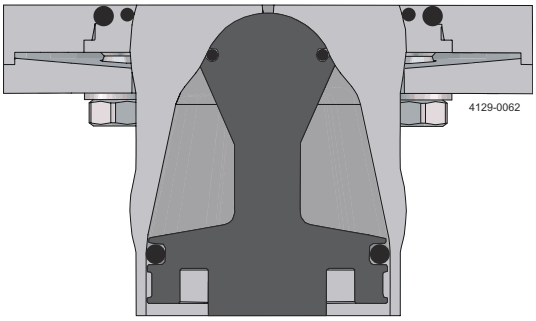
Connections	
Cleaning media connection:	Clamp connection: ASME BPE – L14AM-0.75 / DIN32676 Reihe A DN15
Air connections for actuator:	ISO 288/ G ⅛" internal thread fitted as standard

Mounting options

PlusClean has 2 types of weld plates: Adjustable weld plate and fixed weld plate.



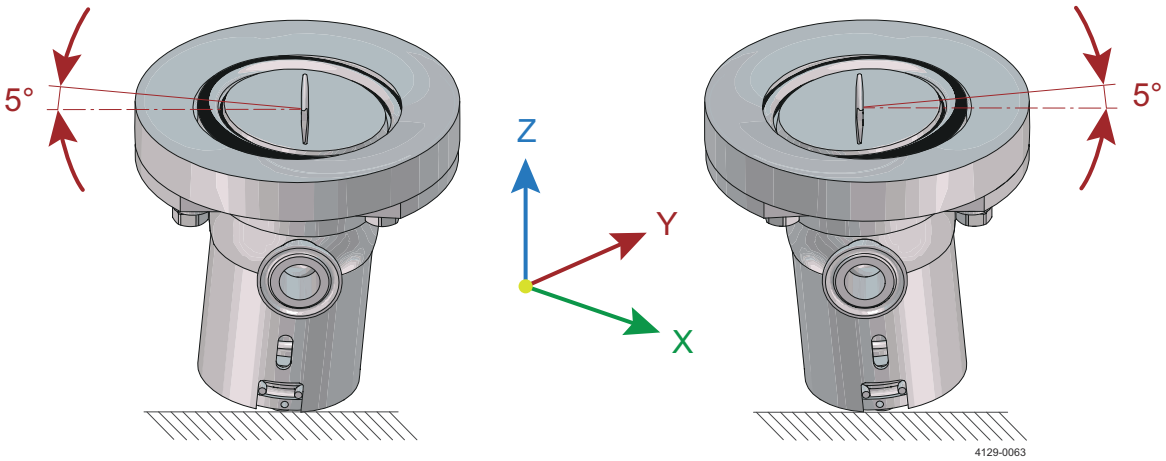
Adjustable weld plate



Fixed weld plate

The adjustable weld plate has a curved surface on the tank side of the weld plate and allows adjusting the angle of the cleaning nozzle ±5° from the center along all 3 axes. It is drainable only when installed at an angle more than 30°. The adjustable weld plate should be used in applications where the PlusClean is installed on tank walls and tank bottoms with more than 30° inclination to horizontal.

The fixed weld plate only allows the device to rotate around Z-axis. It is drainable at all angles due to the flat top surface.



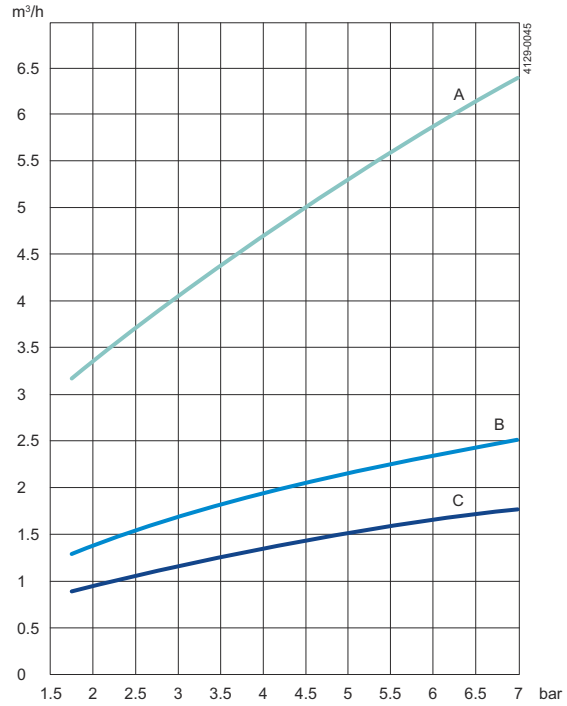
Qualification Documentation

Documentation specification

Q-doc	Equipment Documentation includes: • EN 10204 type 3.1 Material Inspection Certificate Note! Product contacted parts only! • FDA Declaration of Conformity • ADI Declaration (TSE) • QC Declaration of Conformity

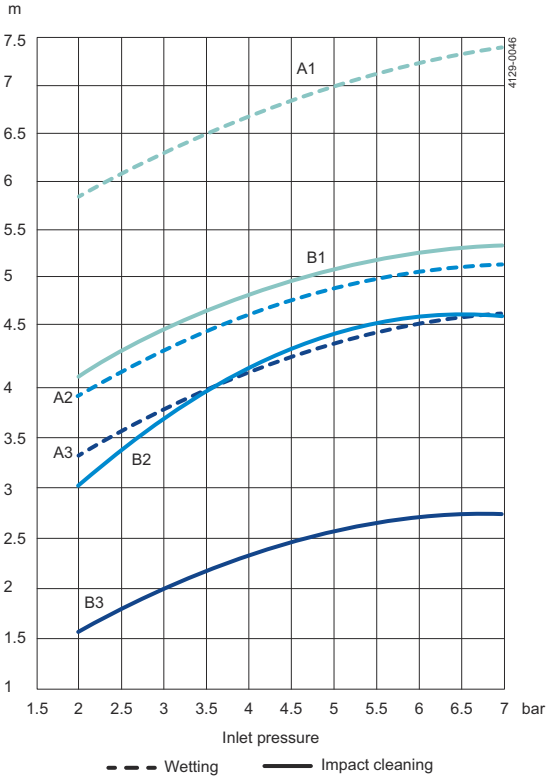
Performance data

Flow rate



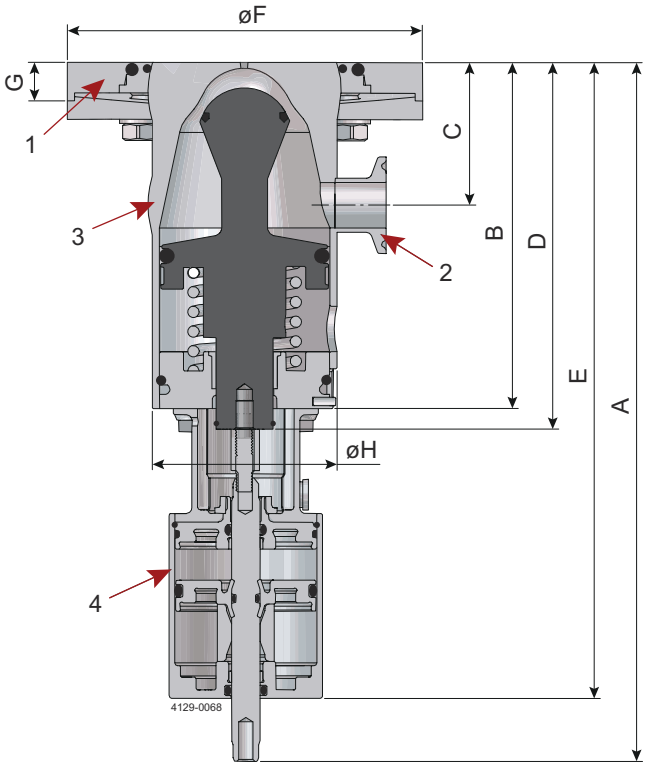
A. Wide center slot
B. Offset slot
C. Narrow center slot

Throw length



A1, B1. Offset slot
A2, B2. Wide center slot
A3, B3. Narrow center slot

Dimensions (mm)



1. Tank connection
2. Inlet connection for cleaning media: 3/4" Clamp
3. Alfa Laval PlusClean
4. Pneumatic Actuator

A-H see tables below

Media driven

Stroke	A	B	C	D	E	F	G		H	Weight
							Adjustable weld plate	Fixed weld plate		
10.9	NA	122	50.5	132	NA	120	18	15	65	2.1 kg

Pneumatic driven

Stroke	A	B	C	D	E	F	G		H	Weight
							Adjustable weld plate	Fixed weld plate		
10.9	246.5	122	50.5	132	224	120	18	15	65	2.7 kg

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