

# Alfa Laval Free Rotating Retractor

Wall-mounted cleaning device for ducts, tanks and other hard-to-clean vessels

## Introduction

Safeguard product quality, prevent contamination, and meet hygienic processing standards with the Alfa Laval Free Rotating Retractor. This high-efficiency, retractable cleaning device prepares vessels for production quickly and economically. It removes residues from the interior surfaces of ducts, tanks, and other hard-to-clean confined spaces. Boost process uptime with this dynamic, resource-efficient retractable cleaning device.

## Applications

The Free Rotating Retractor is a retractable spray device designed for dairy, food, beverage, home and personal care, and other industries where hygiene is critical. It provides 100% cleaning coverage of ducts, tanks, and processing vessels with hard-to-reach shadow areas. The device, combined with other Free Rotating Retractors, can be used as a stand-alone wall-mounted cleaning device, or paired with an Alfa Laval ThinkTop sensing and control unit to monitor or regulate the opening and closing of the device. The interior surfaces of processing vessels are spotless after every CIP cycle.

## Benefits

- Secure product quality with 100% cleaning coverage of ducts, tanks and other hygienic processing vessels
- Up to 35% savings in time, water and cleaning media compared to static spray ball systems
- Reduce total cost of ownership due to minimal cost and effort to install, operate and maintain the retractor
- Boost uptime and increase productivity with faster and resource-efficient CIP cycles
- Get fully automated operation when paired with Alfa Laval ThinkTop sensing and control units

## Standard design

Based on the proven solutions of the Alfa Laval SSV valve and the SaniMidget SB series, versatile and modular, the Free Rotating Retractor consists of all AISI 316 stainless steel for wetted metal parts. All wetted parts have a surface finish of Ra 0.8. Wetted elastomers and polymers are food-compliant (FDA and EU regulations). Upon request, the Free Rotating Retractor can be supplied with the Alfa Laval Q-doc documentation package, ensuring full traceability of the entire supply chain. The Q-doc includes 3.1 certificates for metal parts.



## Certificates

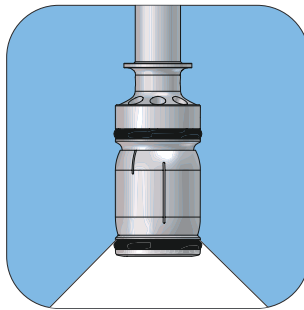
- Q-Doc

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



## Working principles

The Alfa Laval Free Rotating Retractor functions as a pneumatically open and spring-close seat valve to clean the interior surfaces of vessels that manufacture hygienic products. In the closed position, the installation forms a flush design with the vessel wall, and the spray head is not exposed to the product zone. Prior to cleaning, the spray head extends into the product area. It rotates between the two hydro bearings due to the reaction forces of the cleaning media expelled from the orifices in a swirling 310°-up spray pattern. In doing so, the device provides complete coverage of the vessel surfaces through vibrating impact and cascading flow of the cleaning media.



The actuator can remain extended during a draining or purging phase.

The device is completely self-cleaning except for the product-facing part of the plug. This surface is typically cleaned by pairing it with another tank cleaning device. When properly installed, the device is self-draining.

## TECHNICAL DATA

### Temperature/pressure – process contact

Temperature range – liquid service	-10° C to 95° C (14° F to 284° F)
Temperature max. – steam/gas service	Max. 121° C (250° F)
Temperature max. – ambient	Max. 150° C (304° F)
Pressure range – liquid service	1-3 bar (14.5 psi to 43.5 psi)
Pressure max. – liquid service	5 bar (72.5 psi)
Pressure max. – steam/gas	Contact Alfa Laval for information
Pressure min. – vessel	Full Vacuum

### Temperature/pressure – actuator

Temperature range	-10° C to 60° C (14° F to 140° F)
Pressure range - supply	5-7 bar (72.5 psi to 101.5 psi)

### Misc.

Wetting radius (see performance data)	900 mm (35.5 inch)
Cleaning radius (see performance data)	800 mm (31.5 inch)
Lubrication – product contact	Cleaning media
Air supply connection	6 mm (0.24 inch)

## PHYSICAL DATA

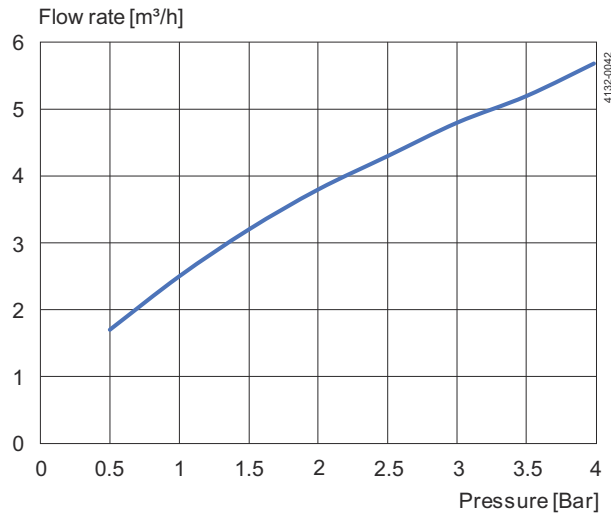
### Materials

Steel parts – product wetted	AISI 316
Steel parts – non-product wetted	AISI 304, AISI 304L, AISI 302, Brass
Seal parts – product wetted	EPDM
Seal parts – non-product wetted exposed	NBR, FPM
Polymer parts – product wetted	PEEK
Polymer parts – non-product wetted exposed	Igildur, PP

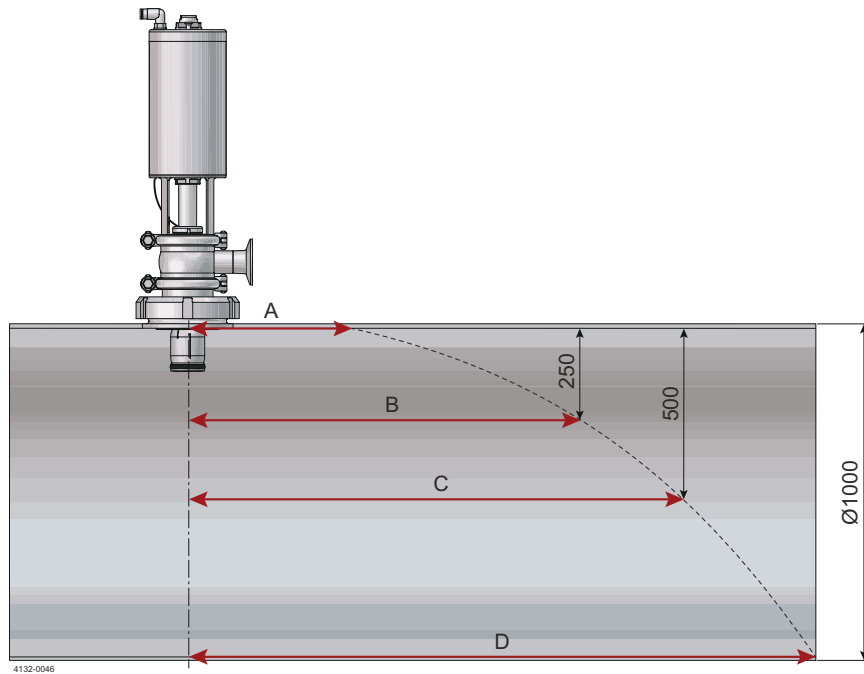
### Surface roughness

External surface finish	Bead blasted
Internal surface finish – cleaning media	Ra 0.8 µm / Ra 32 µi
Internal surface finish - product	Ra 0.8 µm / Ra 32 µi

### Flow rate



### Throw length



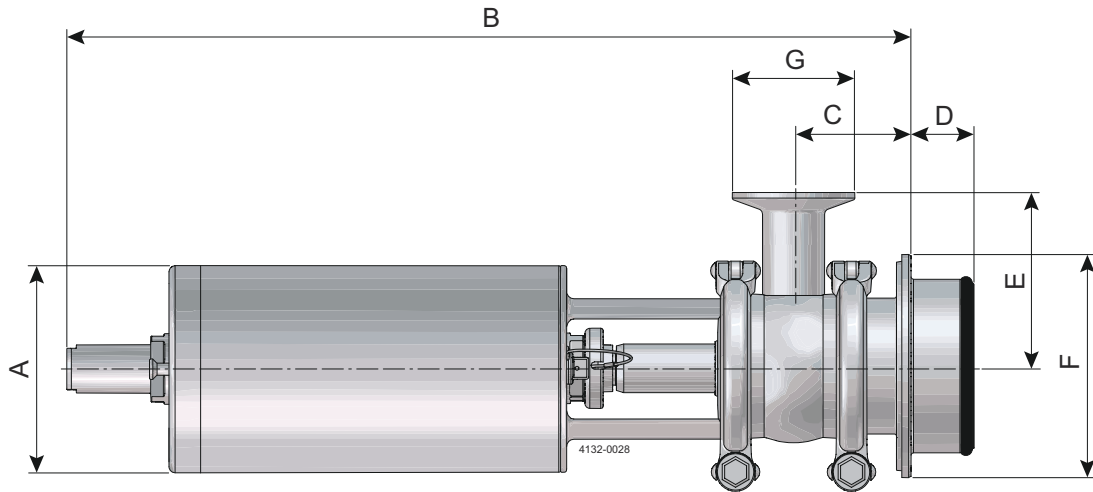
Wetting distance mm / inch				
Pressure	A	B	C	D
2 bar	900 / 35.5	3300 / 130	4000 / 158	4800 / 189

Cleaning distance mm / inch				
Pressure	A	B	C	D
2 bar	800 / 31.5			



Throw lengths are measured as horizontal throw length. Effective throw length varies depending on substance to be removed, cleaning procedure and agent. Throw length distance of the machine installed vertically at the top to the circular duct. Along the top wall, throw lengths are smallest. Further down the side of the circular duct, the throw length increases.

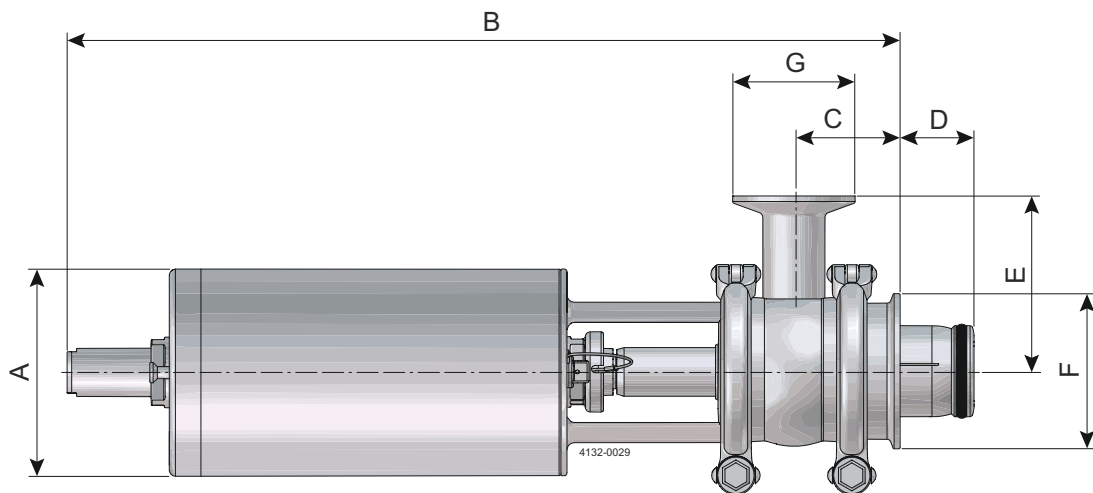
## Dimensions



Tank connection	Inlet connection	Dimension mm / inch					Weight
F	G	A	B	C	D	E	Kg / lb
3 inch RJT	1 inch Clamp	85 / 3.3	365.4 / 14.39	48.4 / 1.91	26.0 / 1.02	71.5 / 2.81	5.3 / 11.7
DN80 Clamp <sup>1</sup>			361.8 / 14.24	44.9 / 1.77	29.5 / 1.16		4.7 / 10.4
3 inch Clamp <sup>2</sup>			368.4 / 14.50	51.4 / 2.02	23.0 / 0.91		4.5 / 10.0

<sup>1</sup> DIN 11866

<sup>2</sup> ISO 2852



Tank connection	Inlet connection	Dimension mm / inch					Weight
F	G	A	B	C	D	E	Kg / lb
2 inch Clamp <sup>1</sup>	1 inch Clamp	85 / 3.3	361 / 14.21	44 / 1.73	30.5 / 1.20	71.5 / 2.81	4.0 / 8.8

<sup>1</sup> ISO 2852

## Qualification Documentation

### Documentation specification

Equipment Documentation includes:

- EN 1935/2004 DoC
- EN 10204 type 3.1 inspection Certificate and DoC
- FDA DoC
- GMP EC 2023/2006 DoC
- EU 10/2011 DoC
- ADI DoC
- QC DoC

Q-doc

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