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Alfa Laval GJ 4

Rotary jet heads

Introduction

The Alfa Laval GJ 4 is a rotary jet head tank cleaning machine for industrial environments. Designed to clean tanks from 150-2250 m^3 it combines pressure and flow to create high-impact cleaning jets that rotate in a repeatable and reliable 360-degree cleaning pattern.

The GJ 4 minimizes the consumption of water and cleaning media. The gear train, which uses food-grade lubricants, reduces the risk of particle damage to the machine during operation. Easy to customize to meet customer requirements, it allows companies to spend less time cleaning and more time producing.

Application

The Alfa Laval GJ 4 is designed for the removal of the toughest residues from industrial tanks across a broad range of industries, such as the chemical, pulp and paper, ethanol, starch, transportation, and oil industries.

Benefits

- 60% faster cleaning = more time for production
- Saves up to 70% of your cleaning cost
- Eliminates the need for confined space entry for manual tank cleaning
- High-impact cleaning in a 360° repeatable cleaning pattern
- Cleaning process can be validated using Alfa Laval Rotacheck
- Slim design makes it possible to insert through small tank inlet openings

Standard design

The choice of nozzle diameters can optimize jet impact length and flow rate at the desired pressure. As standard documentation, the Alfa Laval GJ 4 can be supplied with a “Declaration of Conformity” for material specifications.

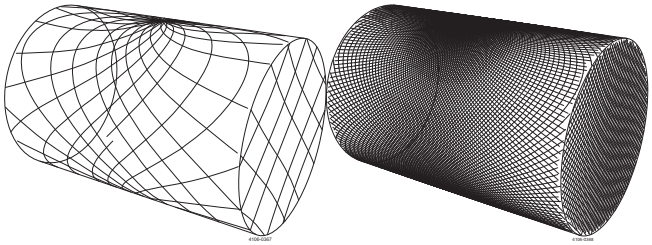
Alfa Laval offers a wide range of tank cleaning machines suitable for different duties and industries. An alternative that offers performance similar to the Alfa Laval GJ 4 is the Alfa Laval TJ40G-HD, which offers a more hygienic design. The TJ40G-HD is ideal for applications that require 3.1. material certification, ATEX certification, and smooth qualification and validation processes through the Alfa Laval Q-doc documentation package.

Working principle

The high-impact jet stream from the Alfa Laval GJ 4 rotary jet head covers the entire surface of the tank interior in a successively denser pattern. This achieves a powerful mechanical impact with a low volume of water and cleaning media.

The flow of the cleaning fluid makes the nozzles perform a geared rotation around the vertical and horizontal axes. In the first cycle, the nozzles lay out a course pattern on the tank surface. The subsequent cycles gradually make the pattern denser until at full cleaning pattern is reached. Once the full cleaning pattern is reached, the machine will start over again and continue to perform the next full cleaning pattern.

Cleaning Pattern



First Cycle Full Pattern

The above drawings show the cleaning pattern achieved on a cylindrical horizontal vessel. The difference between the first cycle and the full pattern represents the number of additional cycles available to increase the density of the cleaning.

TECHNICAL DATA

Lubricant:	Food grade
Max. throw length:	30.5 m

Pressure	
Working pressure:	3 - 21 bar
Recommended pressure:	3.5 - 14 bar

PHYSICAL DATA

Materials
1.4404 (316L), PPS, FKM (FFKM available)

Temperature	
Max. working temperature:	95 °C
Max. ambient temperature:	140 °C

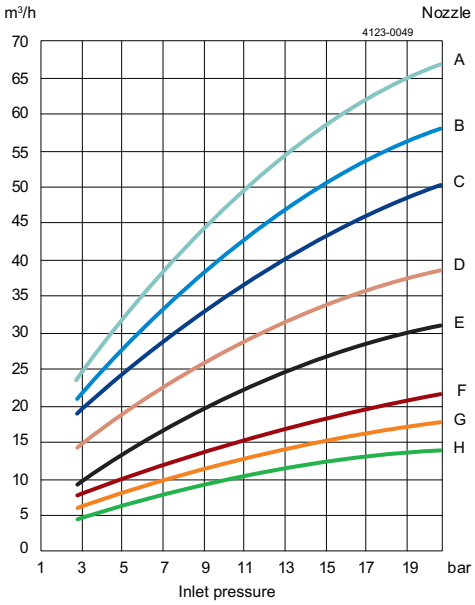
Weight:	12.7 - 13.2 kg

Connections	
Standard thread:	2" NPT, 2" BSP

Caution

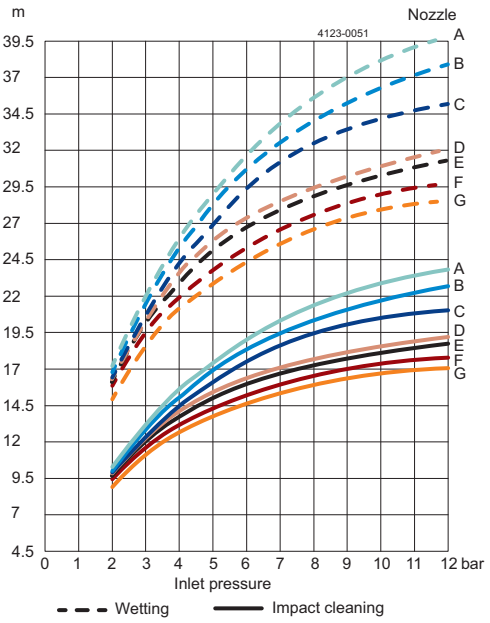
Avoid hydraulic shock, hard and abrasive particles in the cleaning liquid, as this can cause increased wear and/or damage of internal mechanisms. In general, a filter in the supply line is recommended. Do not use for gas evacuation or air dispersion. For steaming we refer to the manual.

Flow Rate



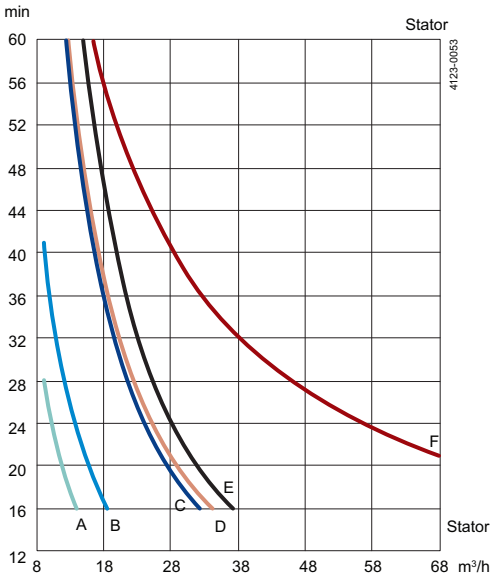
A = 15.9 mm
B = 14.3 mm
C = 12.7 mm
D = 11.1 mm
E = 9.5 mm
F = 7.9 mm
G = 7.1 mm
H = 6.4 mm

Impact Throw Length



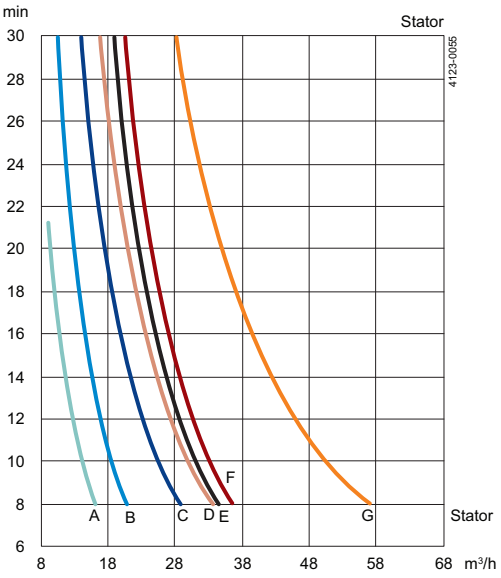
A = 2 x Ø14.3 mm
B = 2 x Ø11.1 mm
C = 2 x Ø12.7 mm
D = 2 x Ø9.5 mm
E = 2 x Ø7.9 mm
F = 2 x Ø7.1 mm
G = 2 x Ø6.4 mm

Cleaning Time (Gear Ratio 655:1)



A = LV
B = LP
C = HP
D = LM
E = HV1
F = HV2

Cleaning Time (Gear Ratio 273:1)



A = LV
B = LP
C = STD
D = LM
E = HP
F = HV1
G = HV2

Dimensions (mm)

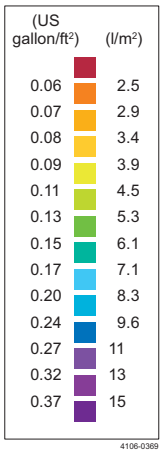
A	B	C	D	E	F	G	H	I
308	131	331	76	155	331	372	168	219

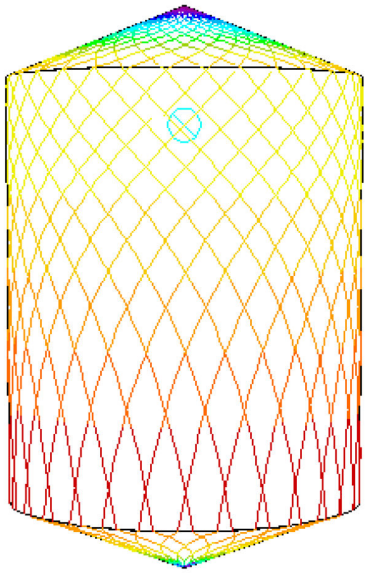
Note! 2" NPT FEMALE/ 2-1/2" CAMLOCK. 2" NPT FEMALE/ 2-1/2" NST

TRAX simulation tool

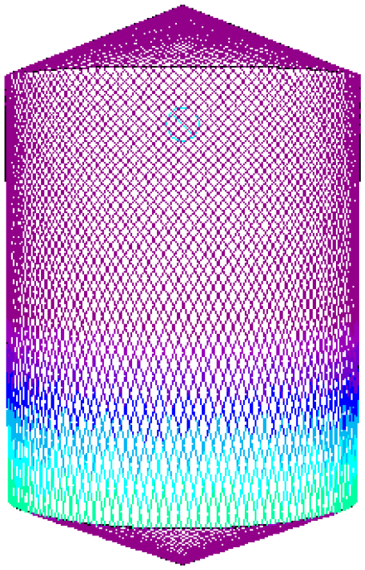
TRAX is a unique software that simulates how the Alfa Laval GJ 4 performs in a specific tank or vessel. The simulation gives information on wetting intensity, pattern mesh width and cleaning jet velocity. This information is used to determine the best location of the tank cleaning device and the correct combination of flow, time, and pressure to implement. A TRAX demo containing different cleaning simulations covering a variety of applications can be used as a reference and documentation for tank cleaning applications. The TRAX demo is free and available upon request.

Wetting Intensity





D21.3 m, H34 m, 2 x Ø11.11 mm, Time = 6 min



D21.3 m, H34 m, 2xØ11.11 mm, Time = 24 min