

Alfa Laval TJ20G

Rotary jet heads

Introduction

The Alfa Laval TJ20G is a rotary jet head tank cleaning machine for hygienic environments. Built to clean tanks with capacities from 3963-39626 USG it combines pressure and flow to create high-impact cleaning jets that rotate in a repeatable and reliable 360-degree cleaning pattern.

The TJ20G minimizes the consumption of water and cleaning media. Easy to customize to meet customer requirements, it allows companies to spend less time cleaning and more time producing.

Application

The Alfa Laval TJ20G is designed for the removal of the toughest residues from hygienic tanks across a broad range of industries, such as the dairy, food, brewery, beverage, distillery¹, pharmaceutical, and personal care 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

Standard design

The choice of nozzle diameters can optimize jet impact length and flow rate at the desired pressure. A special version of the Alfa Laval TJ20G is available for distillery applications where larger particles in the cleaning fluid can pass through without damaging the machine.

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 TJ20G is the Alfa Laval GJ PF FT for hygienic applications that require a small tank inlet opening.

Working principle

The high-impact jet stream from the Alfa Laval TJ20G rotary jet head is designed to cover the entire surface of the tank if IBC



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 coarse 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.

¹Distillery version can handle re-circulation of larger particles in the cleaning liquid.

Certificates

2.2 material certificate, Q-doc, ATEX



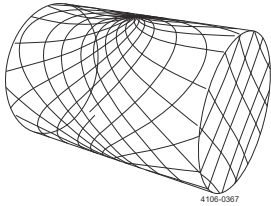
TECHNICAL DATA

Lubricant:	Self-lubricating with the cleaning fluid
Standard Surface finish:	Exterior surface finish Ra 32 µin
Max. throw length:	29 - 46 ft
Impact throw length:	13 - 26 ft
Standard thread:	1" Rp (BSP) or NPT, female Top cone. 1" Rp (BSP) with hygienic seal

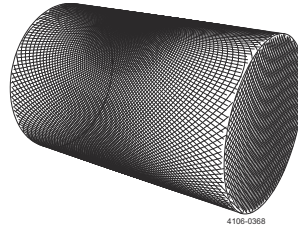
Pressure

Working pressure:	45 - 115 PSI
Recommended pressure:	72 - 94 PSI

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.

PHYSICAL DATA

Materials

316L (UNS S31603), Duplex steel (UNS N31803), EPDM¹, PEEK¹, PVDF¹, PFA¹

¹ FDA compliance 21CFR§177

Temperature

Max. working temperature:	203 °F
Max. ambient temperature:	284 °F
Special high temperature version available to handle max. 392 °F ambient temperature	

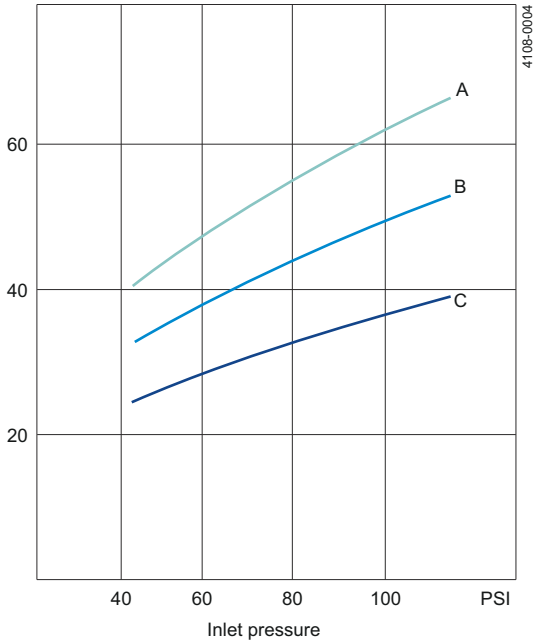
Weight:	11 lbs
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Caution

Avoid hydraulic shock, hard and abrasive particles in the cleaning liquid, as this can cause increased wear and/or damage internal mechanisms. For low amount of particles in the cleaning media a 0.12 inch strainer is recommend for both the TJ20G and TJ20G distillery. For high amount of particles in the cleaning media a 0.004 inch strainer (TJ20G) and 0.04 inch (TJ20G distillery) is recommended. Do not use for gas evacuation and air dispersion. For steaming we refer to the manual.

Flow Rate

Volumetric flow rate
GPM



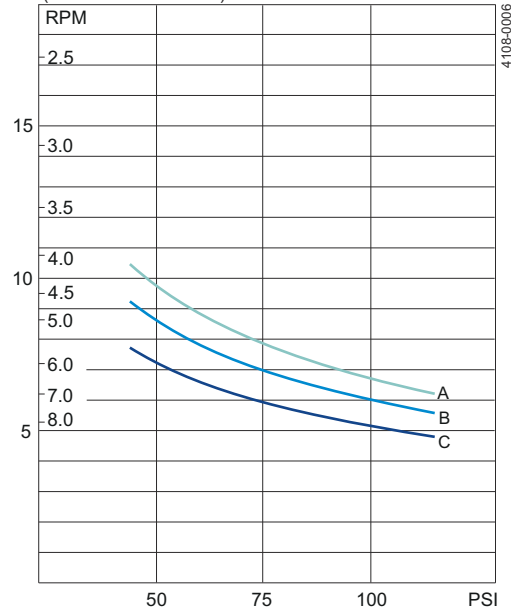
Nozzles inch
 A = 4 x Ø0.22
 B = 4 x Ø0.18
 C = 4 x Ø0.15

Distillery version - flow at 5 bar / 72.5 PSI

4 x Ø0.15 = 13.08 (yard³/h), 4 x Ø0.18 = 16.22 (yard³/h), 4 x Ø0.22 = 18.18 (yard³/h)

Cleaning Time, Complete Pattern

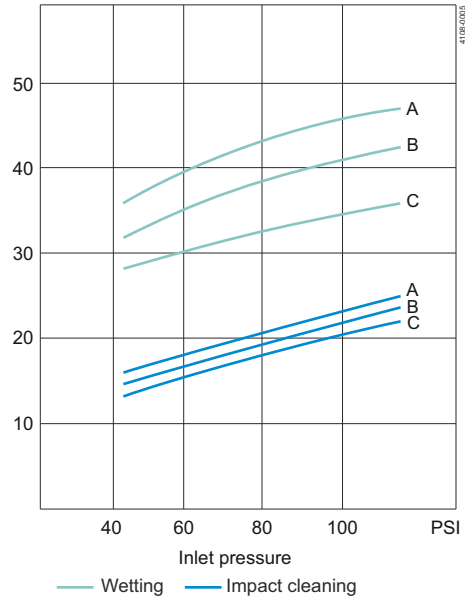
Min. RPM of machine body
 PTM (Pattern time minutes)



Inlet pressure
 Nozzles inch
 A = 4 x Ø0.22
 B = 4 x Ø0.18
 C = 4 x Ø0.15

Impact Throw Length

Reach of jet
Ft.



Nozzles inch
 A = 4 x Ø0.22
 B = 4 x Ø0.18
 C = 4 x Ø0.15

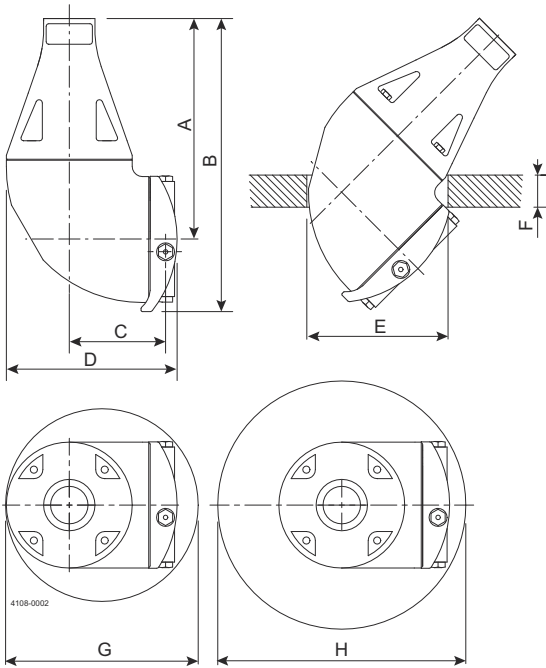
Qualification Documentation

Documentation specification

- Equipment Documentation includes:
- EN 1935/2004 DoC
 - EN 10204 type 3.1 inspection Certificate and DoC
 - FDA DoC
- Q-doc
- GMP EC 2023/2006 DoC
 - EU 10/2011 DoC
 - ADI DoC
 - QC DoC

- ATEX approved machine for use in explosive atmospheres
 Category 1 for installation in zone 0/20 in accordance with Directive 2014/34/EU
- For TE20X000_054 except TE20G016_018:**
- II 1G Ex h IIC 185 °F ...347 °F Ga
 - II 1D Ex h IIC T185 °F ...T284 °F Da
- For TE20G016_018:**
- II 1G Ex h IIC 185 °F ...482 °F Ga
 - II 1D Ex h IIC T185 °F ...T392 °F Da

Dimensions (inch)



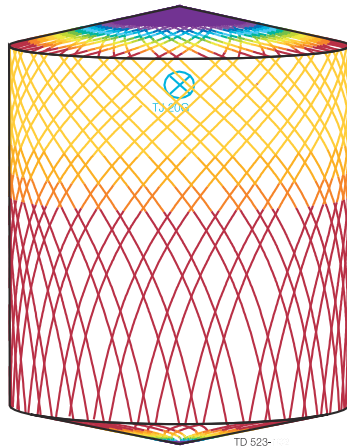
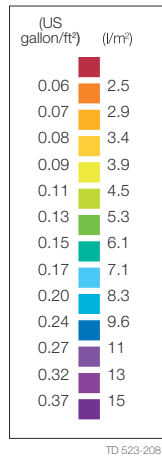
A	B	C	D	E	F	G	H
6.81	9.06	2.95	5.24	Ø4.33	max. 0.98	Ø5.91	Ø7.87

TRAX simulation tool

TRAX is a unique software that simulates how the Toftejorg TJ20G 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 machine 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 reference and documentation for tank cleaning applications. A TRAX simulation is free and available upon request.

Wetting Intensity



D15 ft H18 ft, Toftejorg TJ 20G, 4 x Ø0.22 inch, Time = 2.08 min, Water consumption = 106 gallon



D15 ft H18 ft, Toftejorg TJ 20G, 4 x Ø0.22 inch, Time = 8.3 min, Water consumption = 428 gallon

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