

# Alfa Laval TJ40G

## Rotary jet heads

### Introduction

The Alfa Laval TJ40G range of rotary jet head tank cleaning machine for hygienic environments. Built to clean tanks with capacities from 39626-594387 US gallons it combines pressure and flow to create high-impact cleaning jets that rotate in a repeatable and reliable 360-degree cleaning pattern.

The TJ40G range 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

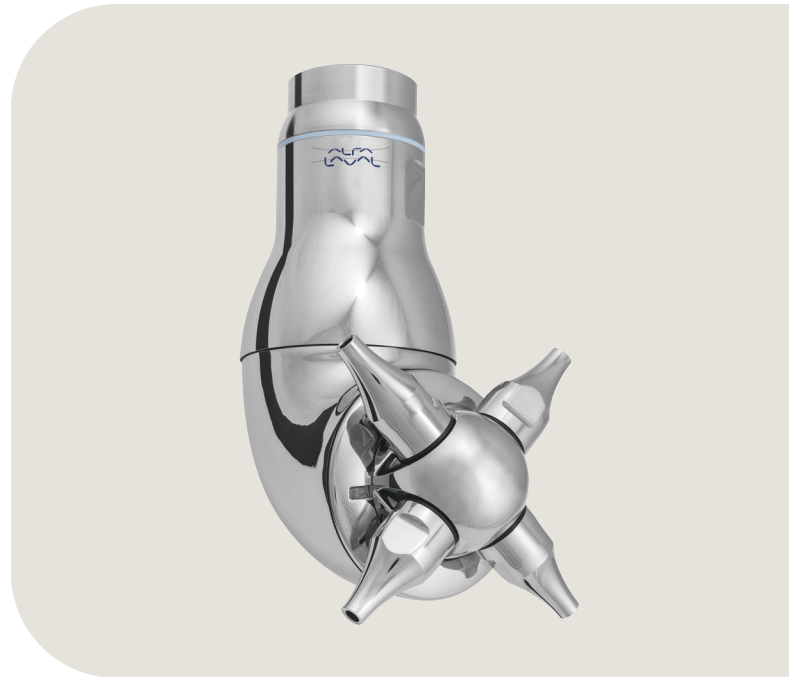
The Alfa Laval TJ40G range is designed for the removal of the toughest residues from hygienic tanks across a broad range of industries, such as the dairy, food, beverage, brewery, distillery<sup>1</sup>, pharmaceutical and personal care industries.

### 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
- Heavy-duty (HD) version can handle re-circulation of larger particles in the cleaning liquid<sup>2</sup>
- Burst version with fast chemical wetting reduces cleaning time and costs

### Standard design

The choice of nozzle diameters can optimize jet impact length and flow rate at the desired pressure. These special versions are available:



- **Alfa Laval TJ40G-HD** for applications where larger amounts of particles in the cleaning liquid are re-circulated over the machine. Its special design ensures that particles do not get trapped inside the machine or damage / block the machine during operation.
- **Alfa Laval TJ40G Burst** with a special burst nozzle design for fast chemical wetting of the tank. Burst cleaning reduces cleaning cycle time and the use of water and chemicals. For more information, see the separate datasheet about the burst technique.

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 TJ40G range is the Alfa Laval GJ 8 or Alfa Laval GJ 4 for applications that require a small tank inlet opening.

<sup>1</sup> Heavy-duty distillery version can handle re-circulation of larger particles in the cleaning liquid.

## Working principle

The high-impact jet stream from the Alfa Laval TJ40G rotary jet head range is designed to cover 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.

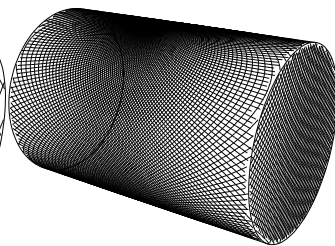
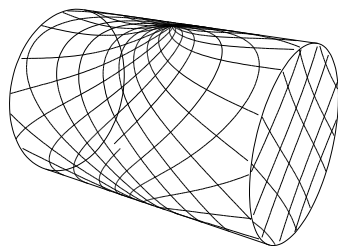
The above drawings show the cleaning pattern achieved on a cylindrical horizontal vessel. The difference between the first cycle and the full pattern represents the number of additional cycles available to increase the density of the cleaning.

## Certificates

2.2 material certificate, Q-doc and ATEX



## Cleaning Pattern



First cycle

Full pattern

## TECHNICAL DATA

|            |                 |
|------------|-----------------|
| Lubricant: | Cleaning liquid |
|------------|-----------------|

### Surface finish

|                          |                                   |
|--------------------------|-----------------------------------|
| Standard surface finish: | Exterior surface finish Ra 20 µin |
| Interior surface finish: | Ra 32 µin                         |

### Throw length

|                              |         |
|------------------------------|---------|
| Max throw length (5 bar):    | 70.5 ft |
| Impact throw length (5 bar): | 34.4 ft |

### Pressure

|                       |                |
|-----------------------|----------------|
| Working pressure:     | 43.5-174 PSI   |
| Recommended pressure: | 72.5-101.5 PSI |

## PHYSICAL DATA

### Materials

AISI 316, SAF 2205, PFA<sup>1</sup>, PEEK<sup>1</sup>, EPDM<sup>1</sup>

<sup>1</sup> FDA compliance 21CFR§177

### Temperature

|                           |        |
|---------------------------|--------|
| Max. working temperature: | 203 °F |
| Max. ambient temperature: | 284 °F |

### Weight

|         |          |
|---------|----------|
| Weight: | 13.9 lbs |
|---------|----------|

## Caution

Avoid hydraulic shock, hard and abrasive particles in the cleaning liquid, as this can cause increased wear and/or damage of internal mechanisms. For low amount of particles in the cleaning media a 0.12 in strainer is recommend for both the TJ40G and TJ40G-HD. For high amount of particles in the cleaning media a 0.0039 in strainer (TJ40G) and 0.039 in (TJ40G-HD) is recommended. Do not use for gas evacuation and air dispersion.

|           | TJ40G | TJ40G Burst | TJ40G-HD | TJ40G-HD Burst |
|-----------|-------|-------------|----------|----------------|
| 4xØ6 fast | 0.62  | 0.82        | 0.69     | 0.89           |
| 4xØ0.24   | 0.62  | 0.82        | 0.69     | 0.89           |
| 4xØ0.26   | 0.72  | 0.91        | 0.79     | 0.98           |
| 4xØ2.87   | 0.82  | 1.02        | 0.89     | 1.08           |
| 4xØ0.32   | 0.98  | 1.02        | 1.04     | 1.24           |
| 4xØ0.35   | 1.15  | 1.34        | 1.22     | 1.42           |
| 4xØ0.39   | 1.33  | 1.53        | 1.40     | 1.59           |
| 4xØ0.43   | 1.54  | 1.73        | 1.61     | 1.81           |
| 2xØ0.39   | 0.76  | 1.09        | 0.80     | 0.90           |
| 2xØ0.43   | 0.88  | 0.98        | 0.92     | 1.02           |

## Qualification Documentation

### Documentation specification

Equipment Documentation includes:

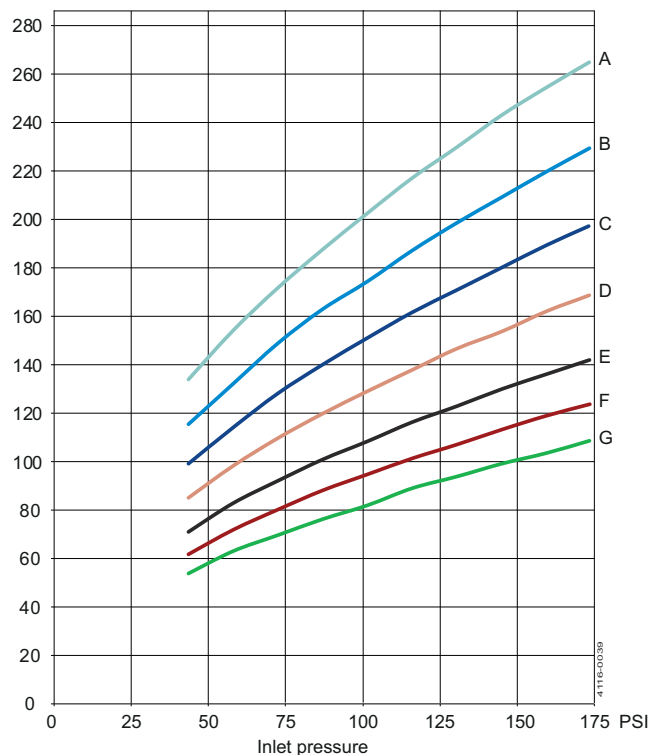
- EN 1935/2004 DoC
- EN 10204 type 3.1 inspection Certificate and DoC
- FDA DoC
- GMP EC 2023/2006 DoC
- EU 10/2011 DoC
- ADI DoC
- QC DoC

ATEX

ATEX approved machine for use in explosive atmospheres  
Category 1 for installation in zone 0/20 in accordance with directive 2014/34/EU  
II 1G Ex h IIC 185 °F ... 347 °F Ga  
II 1D Ex h IIC T185 °F ... T284 °F Da

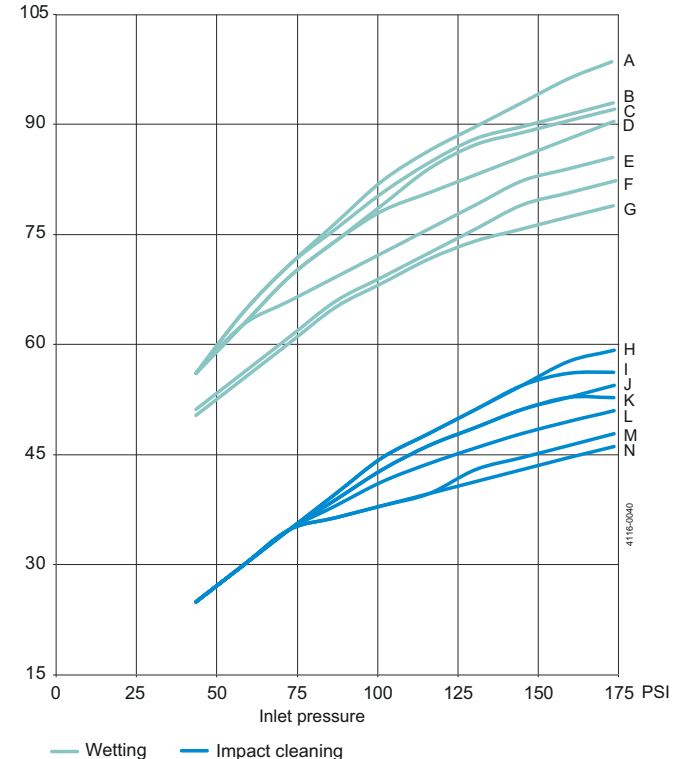
## Flow rate

USgpm



## Cleaning time for complete pattern (= 8 cycles)

USgpm



## Nozzles (in)

A = 4x Ø0.44    C = 4x Ø0.35    E = 4x Ø0.29    G = 4x Ø0.24 + fast  
B = 4x Ø0.39    D = 4x Ø0.32    F = 4x Ø0.26

## Nozzles (in)

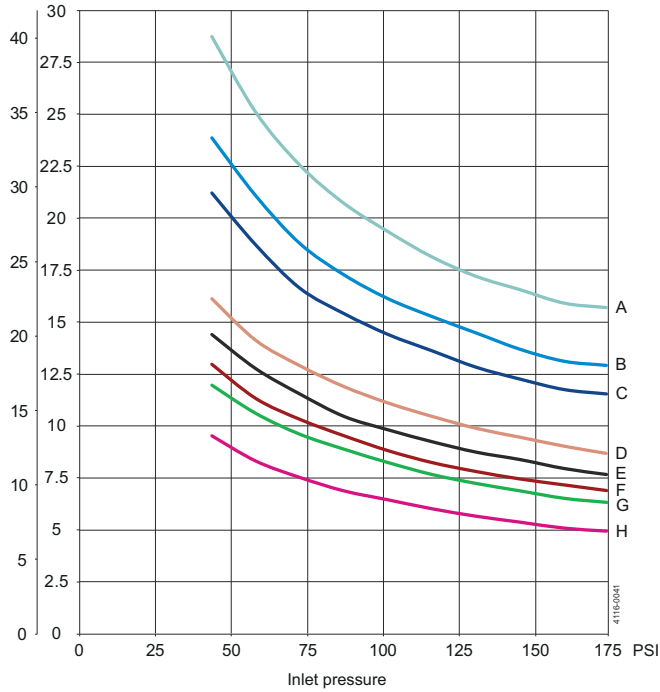
|              |              |              |                     |
|--------------|--------------|--------------|---------------------|
| A = 4x Ø0.44 | C = 4x Ø0.35 | E = 4x Ø0.29 | G = 4x Ø0.24 + fast |
| B = 4x Ø0.39 | D = 4x Ø0.32 | F = 4x Ø0.26 |                     |

Burst cleaning version has a 20-25% faster complete pattern

## Impact throw length

Sec. pr. rev. PTM (Pattern Time Minutes)

[sec] [min]



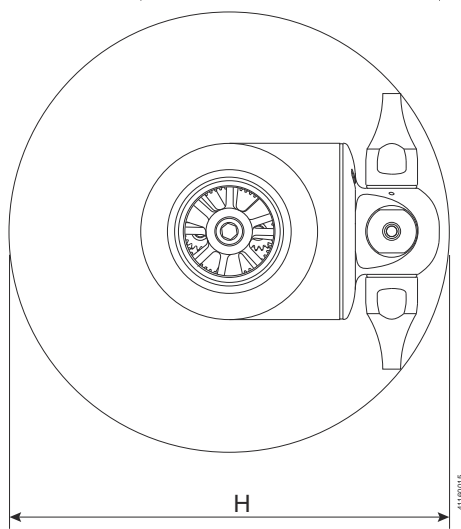
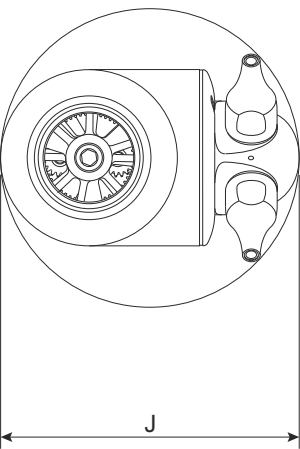
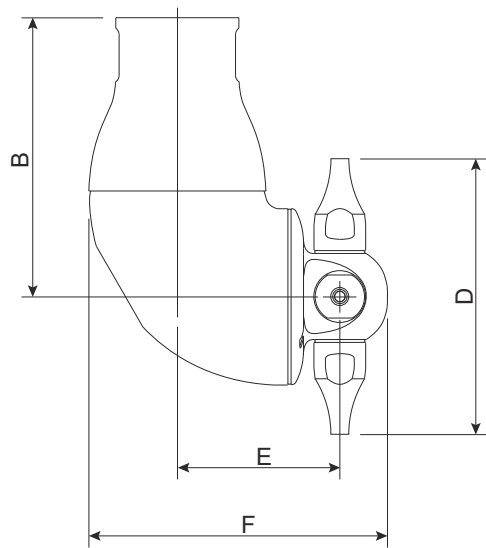
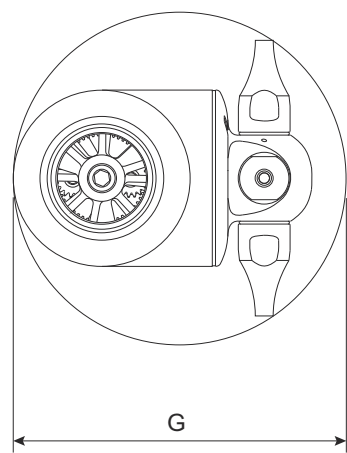
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|              |              |              |              |
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|              |              |              |              |
|--------------|--------------|--------------|--------------|
| H = 4x Ø0.44 | J = 4x Ø0.35 | L = 4x Ø0.29 | N = 4x Ø0.24 |
| I = 4x Ø0.39 | K = 4x Ø0.32 | M = 4x Ø0.26 |              |

Throw length measured according to tech. specification 93P003

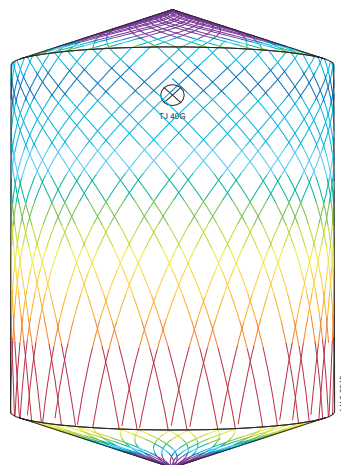
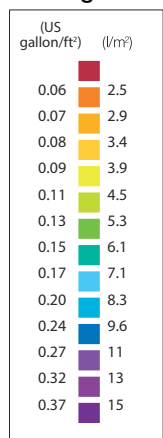
Dimensions (inch)



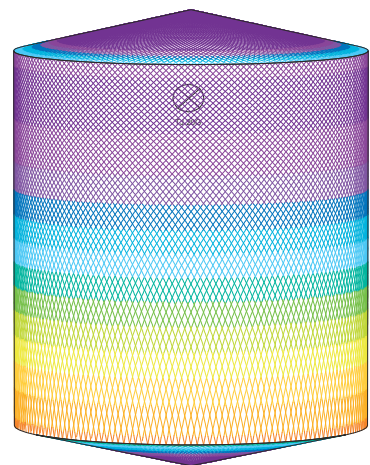
| B   | D   | E   | F   | G   | H   | J   |
|-----|-----|-----|-----|-----|-----|-----|
| 7.4 | 6.1 | 3.6 | 6.6 | 7.4 | 9.7 | 6.6 |

## TRAX simulation tool

### Wetting Intensity



D15 ft H18 ft, Toftejorg TJ40G, 4 x Ø0.29 inch, Time = 2 min, Water consumption = 185 gallon



D15 ft H18 ft, Toftejorg TJ40G, 4 x Ø0.29 inch, Time = 16 min, Water consumption = 1479 gallon

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200006234-1-EN-US

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