



# Low Flow Impact Cleaning

## Toftejorg TZ-89 Rotary Jet Head

ESE00327EN 0901

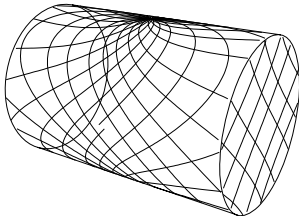
### Application

The Toftejorg TZ-89 rotary jet head provides 3D indexed impact cleaning over a defined time period. It is automatic and represents a guaranteed means of achieving quality assurance in tank cleaning. Suitable for processing, storage and transportation tanks and vessels between 0.5 and 50 m<sup>3</sup> (130 to 13,000 US gallons), the device is used in breweries, food, dairy and pharmaceutical processes and many other industries. The Toftejorg TZ-89 is particularly suitable for industries using solvent cleaning in applications where very low flows are preferred but 3D impact cleaning is still needed.

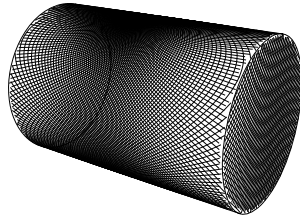
### Working principle

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 more dense, until a full pattern is reached after 8 cycles. The drive mechanism is located outside the tank or process equipment, leaving a minimum of parts to be submerged into the product. All product contact surfaces are 1.4404 (316L) stainless steel.

### Cleaning Pattern



First cycle



Full pattern

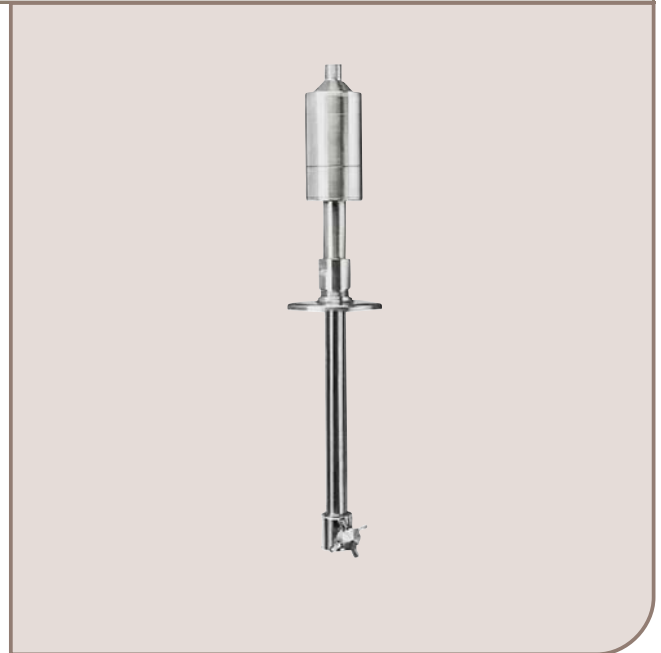
The above drawings show the cleaning pattern achieved on a cylindrical horizontal vessel. The difference between the first cycle and the full pattern represents the number of additional cycles available to increase the density of the cleaning.

### Standard Design

Special versions include Tri-Clamp connections and ultra-low flow with fast rotation. As standard documentation, the Toftejorg TZ-89 can be supplied with a "Declaration of Conformity" for material specifications.

### Materials

1.4404 (316L), UNS S31803, PTFE, PEEK, FEP/Silicone



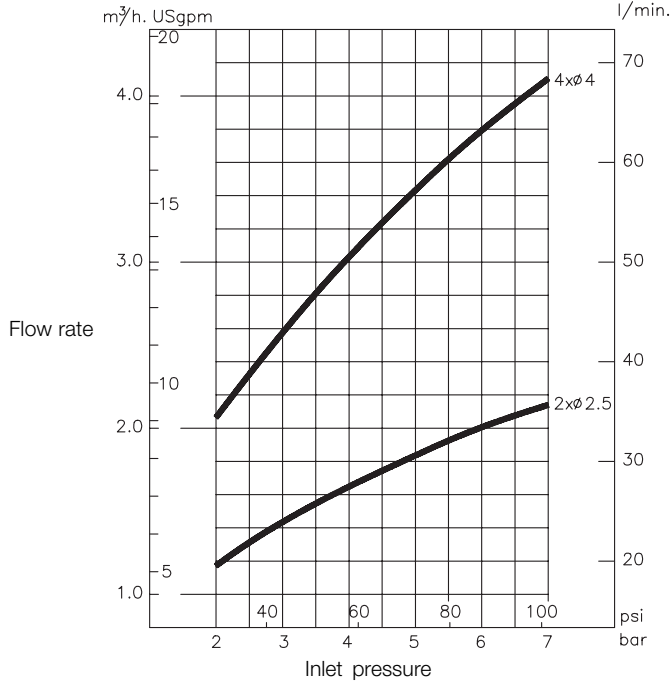
### Technical Data

Weight:	5.5 - 8.5 kg (12 - 18.7 lbs)
Lubricant:	Self-lubricating with the cleaning fluid
Working pressure:	.2 - 7 bar (30 - 100 psi)
Recommended pressure:	.5 - 6.5 bar (72 - 94 psi)
Max. working temperature:	.95 °C (203 °F)
Max. ambient temperature:	.140 °C (284 °F)
Max throw length:	.4 - 7 m (13 - 23 ft)
Impact throw length:	.2.5 - 4 m (8 - 13 ft)
Inlet connections:	.Thread: 3/4" Rp (BSP) or NPT, male Clamp: 1" ISO 2852
Tank connection:	.Flange: 50 ND6 DIN 2501, or 3" ANSI B 16.5' Clamp: 3"/4" ISO 2852
Standard Surface finish:	.Product contact parts Ra0.8µm (32µ inch)

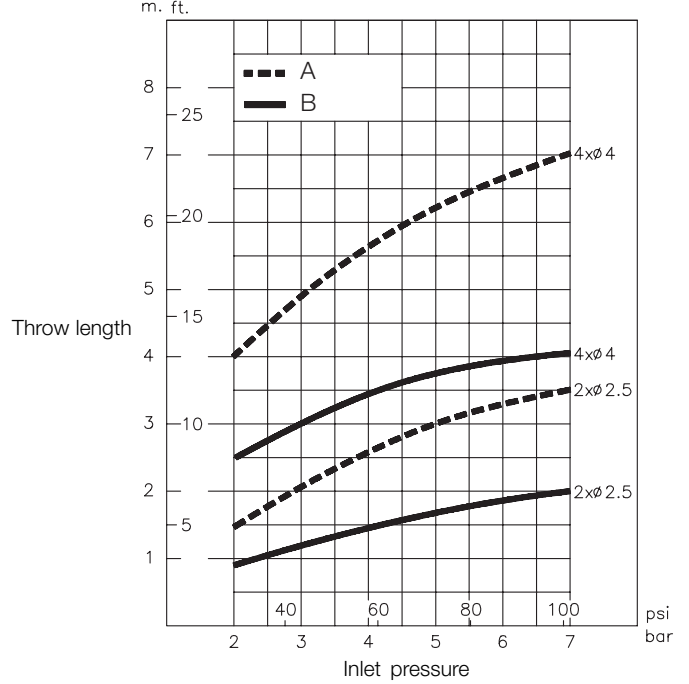
### Certificate:

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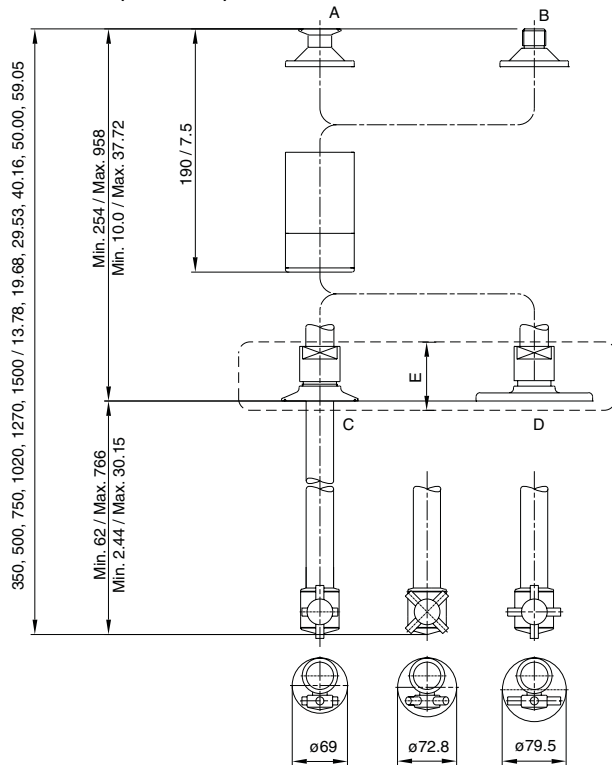
### Flow Rate



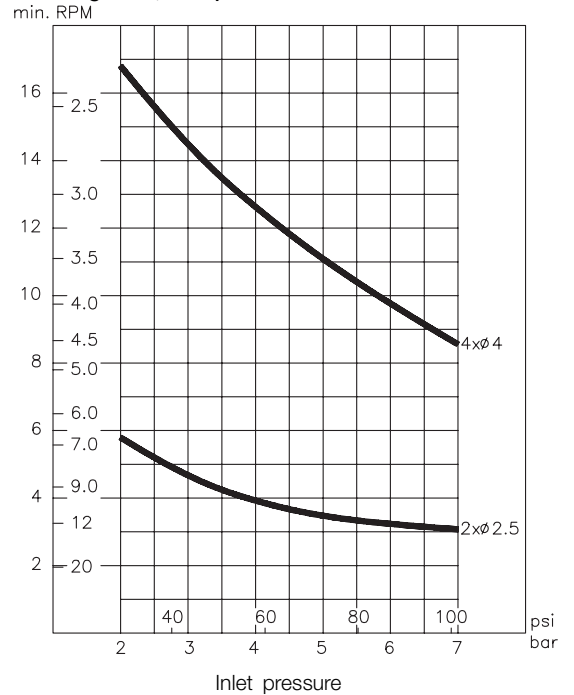
### Impact Throw Length



### Dimensions (mm / inch)



### Cleaning Time, Complete Pattern



- A: Clamp 1" ISO
- B: Thread 3/4" Rp (BSP)/NPT
- C: Clamp 3" ISO
- D: Flange 50ND6, DIN2501 Do=140/PC=110/Db=4xø14  
Flange 3" ANSI 16.5 1991 Do=190.5/PC=152.4/Db=4xø19
- E: Adjustable

## Ordering

Please specify nozzle size and required connections and confirm application suitability.

Sizing/selection and installation drawings are available in Alfa Laval's Selection Tools for Tank Cleaning Equipment.

## Options

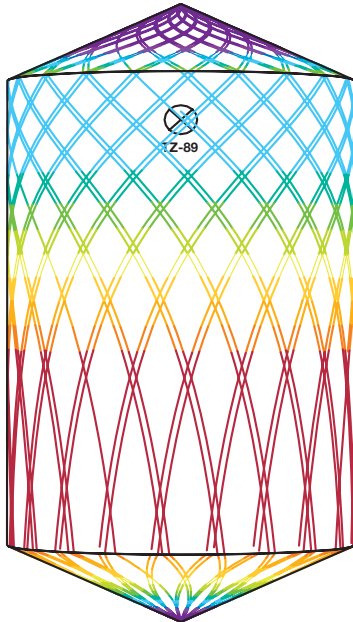
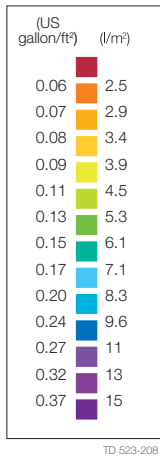
Electronic rotation sensor to verify 3D coverage

## TRAX simulation tool

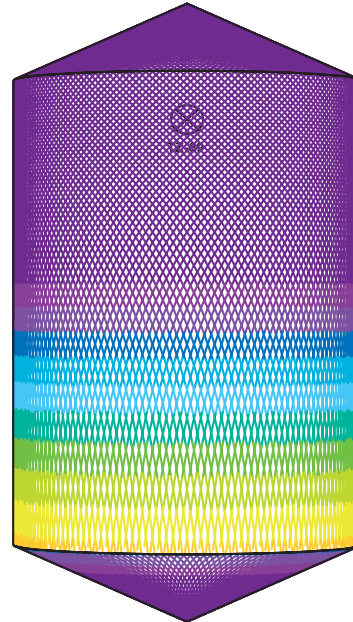
TRAX is a unique software that simulates how the Toftejorg TZ-89 performs in a specific tank or vessel. The simulation gives information on wetting intensity, pattern mesh width and cleaning jet velocity. This information is used to determine the best location of the tank cleaning machine and the correct 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. The TRAX demo is free and available upon request.

## Wetting Intensity



D2m H3m, Toftejorg TZ-89, 4 x ø4 mm Time = 2.8 min.,  
Water consumption =159 l (42 gallon)



D2m H3m, Toftejorg TZ-89, 4 x ø4 mm Time = 11.1 min.,  
Water consumption = 637 l (168 gallon)

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The information contained herein is correct at the time of issue,  
but may be subject to change without prior notice.

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are continually updated on our website.  
Please visit [www.alfalaval.com](http://www.alfalaval.com) to  
access the information direct.