

## Low Flow Impact Cleaning

### Toftejorg TZ-89 Rotary Jet Head

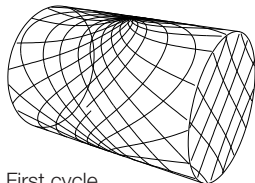
#### Application

The Toftejorg TZ-89 rotary jet head provides 360° 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 360° impact cleaning is still needed, e.g. in the pharmaceutical industry.

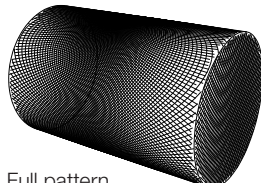
#### Working Principle

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

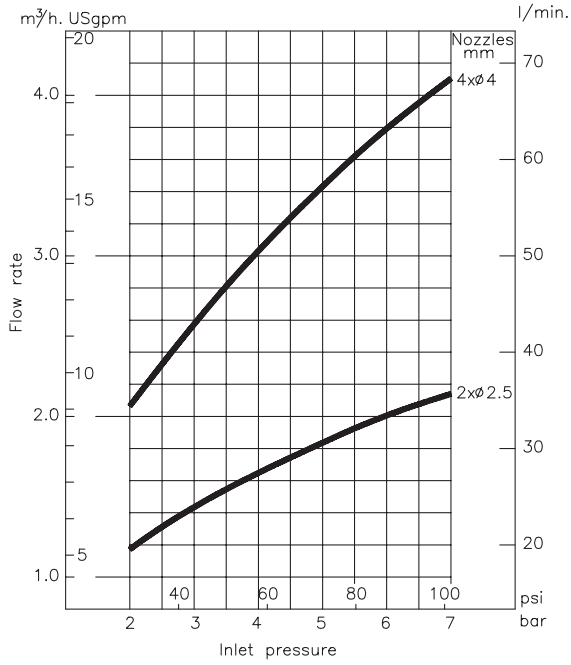
1.4404 (316L), 1.4401 (316), SAF 2205 (UNS 31803), PTFE, PVDF, PEEK, FEP/Silicone



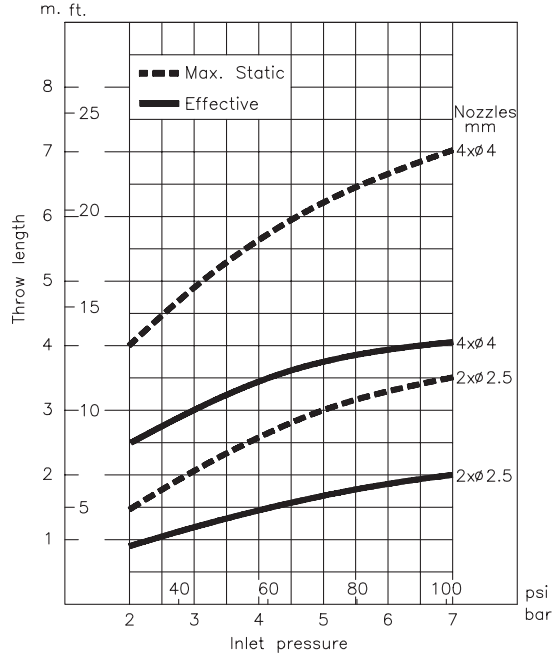
#### Technical Data

Weight:	7 kg (15 lbs)
Lubricant:	Self-lubricating with the cleaning fluid
Working pressure:	2 - 7 bar (30 - 100 psi)
Recommended pressure:	3 - 6 bar (44 - 87 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" BSP or NPT, male Clamp: 1" ISO 2852
Tank connection:	Flange: 50 ND6 DIN 2501, or 3" ANSI B 16.5 Clamp: 3" ISO 2852

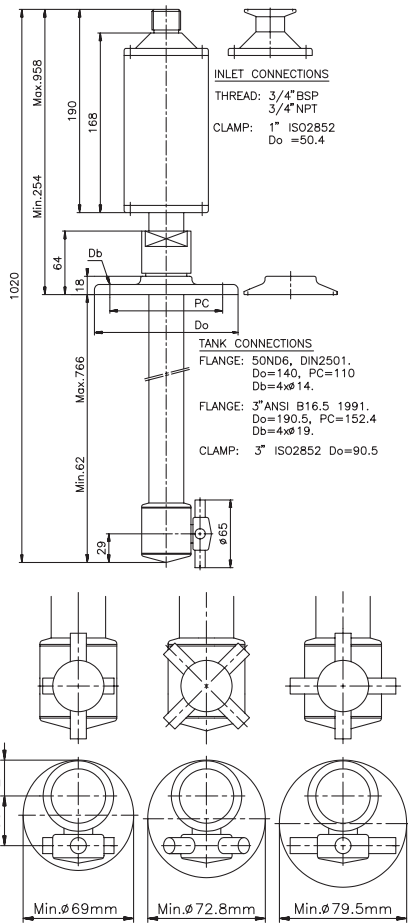
Flow Rate



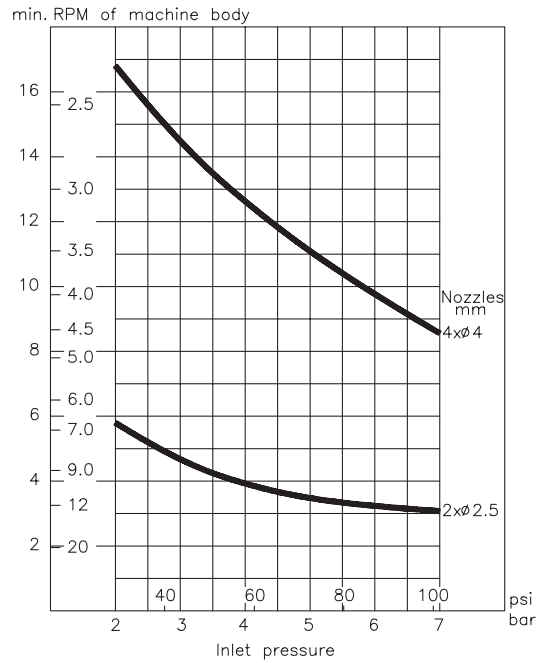
Impact Throw Length



Dimensions (mm)



Cleaning Time, Complete Pattern



**Ordering**

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

**Options**

- Electronic rotation sensor to verify 360° 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.

