



Alfa Laval TJ SaniMagnum Rotary Spray Head

Hygienic, Low-Flow Cleaning

Application

The Toftejorg SaniMagnum is an efficient replacement for traditional static spray balls as it uses low volumes of liquid at low pressure. The device, particularly well-suited to hygienic applications, can be used in tanks ranging from 5 m³ to 50 m³.

Working principle

The flow of the cleaning media causes the head of the Toftejorg SaniMagnum to rotate, with fan jets laying out a swirling pattern throughout the vessel. This generates a vibrating impact and cascading flow that covers all internal surfaces of the tank or reactor. The device's self-cleaning feature is achieved by directing the cleaning media through the rotating bearing track and onto the neck of the elongated head.



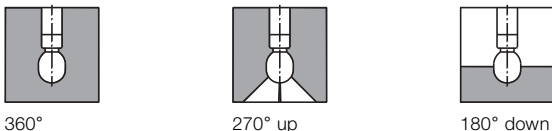
TECHNICAL DATA

Lubricant: Self-lubricating with the cleaning fluid
 Wetting radius: Max. 3 m
 Impact cleaning radius: Max. effective 2 m

Pressure

Working pressure: 1-3 bar
 Recommended pressure: 2 bar

Spray Pattern



Standard Design

As standard documentation, the Toftejorg SaniMagnum can be supplied with a "Declaration of Conformity" for material specifications or 3.1 certification for metallic parts. Conformity of Declaration ATEX available on request. The device is available in hastelloy C22 (balls in hastelloy C276) with 3.1 certification for metallic parts. ATEX approved, Category 1 for installation in zone 0/20.

Certificates

2.2 material certificate, Q-doc, Q-doc incl. FAT & SAT and ATEX.

PHYSICAL DATA

Materials

Inlet connections/Head: 316L (UNS S31603)
 Bearing race parts: Duplex steel (UNS S31803)
 Balls: 316L (UNS S31603) /PTFE*
 Clip parts 316
 * FDA compliance 21CFR§177

Standard Surface finish:

exterior: Ra 0.8µm
 internal: Ra 0.8µm

Improved Surface finish:

exterior + Electro polished: Ra 0.5µm
 internal + Electro polished: Ra 0.5µm

Temperature

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

Weight

Thread and clip-on: 0.76 kg
 On pipe: 0.97/1.52 kg

Connections

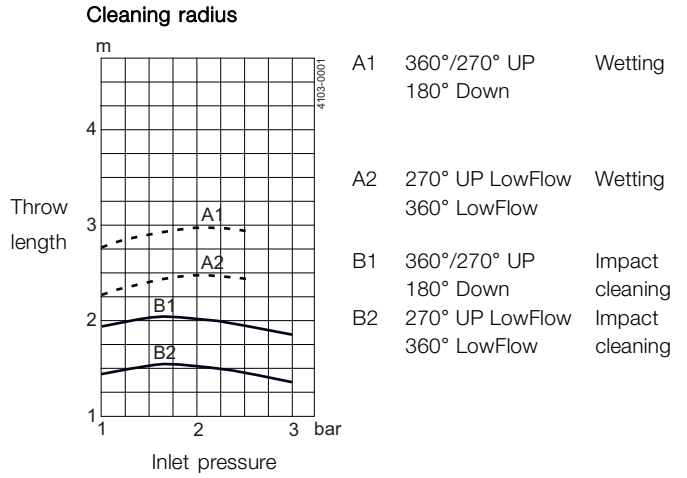
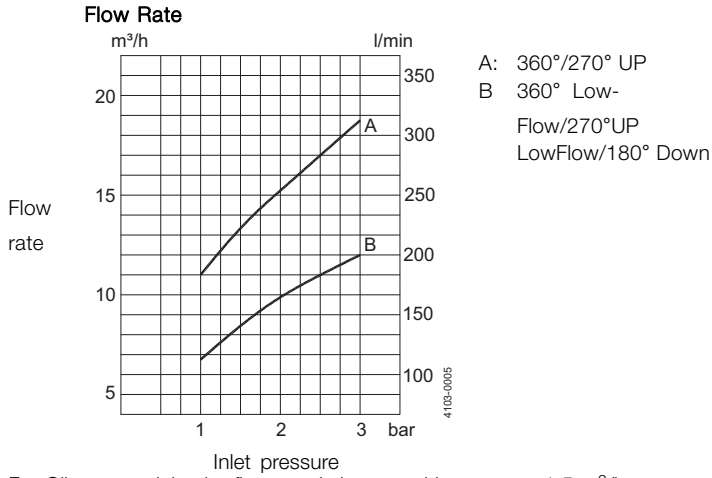
- Thread: 1 1/4" or 1 1/2" Rp (BSP) or NPT
- Weld-on: 1 1/2" or 2" ISO 2037, or DN40 DIN11850-R2, or 1 1/2" or 2" BPE US
- Clip-on: 1 1/2" or 2" ISO 2037, or DN40 DIN11850-R1 or R2, or 1 1/2" or 2" BPE US



Qualification Documentation (Q-doc)

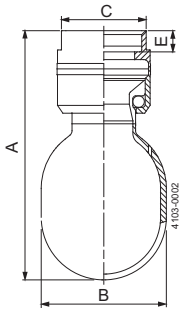
Designed for the BioPharm and Personal Care industry for qualification of hygienic Tank Cleaning Machines. Developed in according to the ISPE V-model and GDP, Good Documentation Practice, and includes:

RS (Requirement Specification); DS (Design Specification incl. Traceability Matrix); FAT (Factory Acceptance Test incl. IQ & OQ); 3.1 and USP Class VI Certificates; FDA Declaration of Conformity; TSE Declaration; QC Declaration of Conformity; SAT (Site Acceptance Test Protocol incl. IQ & OQ) for End-User Execution.

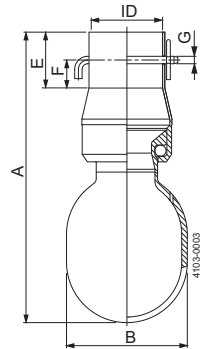


Dimensions (mm)

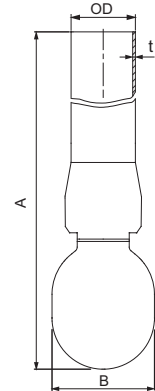
Thread



Clip-on



Weld-on



- TH**
- 1 1/4" (BSP)
 - 1 1/4" NPT
 - 1 1/2" (BSP)
 - 1 1/2" NPT

- ID**
- ID 1: 1 1/2" $\varnothing 38.4$ mm
 - ID 2: 2" $\varnothing 51.3$ mm
 - DIN Range 1 $\varnothing 40.4$ mm
 - DIN Range 2 $\varnothing 41.4$ mm

- OD x t**
- ISO $\varnothing 38 \times 1.2$ mm
 - BPE US $\varnothing 38.1 \times 1.65$ mm
 - BPE US $\varnothing 50.8 \times 1.65$ mm
 - DIN Range 1 $\varnothing 40 \times 1$ mm
 - DIN Range 2 $\varnothing 41 \times 1.5$ mm

| Type | A | B | C | E | F | G |
|---------|----------------|------------------|----|----|----|-------------------|
| Thread | 130 | $\varnothing 65$ | 44 | 10 | | |
| Clip-on | 157 | $\varnothing 65$ | | 30 | 15 | $\varnothing 4.2$ |
| Weld-on | 157, 500, 1000 | $\varnothing 65$ | | | | |

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Fast, Hygienic Cleaning

Alfa Laval TJ SaniMega Rotary Spray Head

Application

The Toftejorg SaniMega rotary spray head provides a controlled rotating fan impact cleaning action. It is an automatic device with an optimised design for effective distribution of cleaning media. The Toftejorg SaniMega is suitable in processing and storage tanks ranging from 50 to 350 m³. It is particularly suited to vertical storage tanks in the food, brewing and other beverage industries where a scrubbing effect is needed to clean at the fill level.

Working principle

The flow of the cleaning media causes the gear unit to rotate the body of the cleaning head. The resulting fan impact jet provides a swirling action down the tank wall.



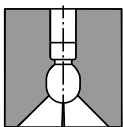
TECHNICAL DATA

Lubricant: Self-lubricating with the cleaning fluid
 Effective cleaning radius: 3 m

Pressure

Working pressure: 2-4 bar
 Recommended pressure: 3 bar

Spray Pattern



270° up

Standard Design

Downpipe length 1,200 mm. CIP inlet connection 2" clamp. Tank connection 3" clamp. As standard documentation, the Toftejorg SaniMega can be supplied with a "Declaration of Conformity" for material specifications.

Certificates

2.1 material certificate.

PHYSICAL DATA

Materials

316L (UNS S31603), PEEK, EPDM

Standard connection: Inlet: 2" ISO clamp
 Tank: 3" ISO clamp

Standard downpipe length: 1,200 mm
 Min. tank opening: ø72.5 mm

Standard Surface finish:

Product contact parts: Ra 0.8µ
 Non product contact parts: Ra 1.6µm

Temperature

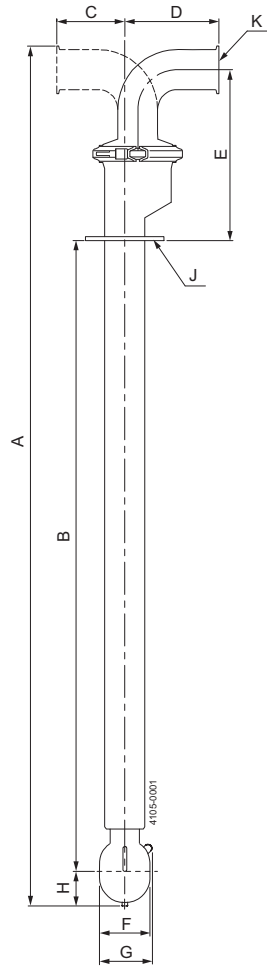
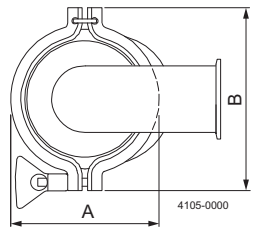
Max. working temperature: 95°C
 Max. sterilisation temperature: 140°C
 Max. ambient temperature: 140°C

Weight: 6 kg

Options

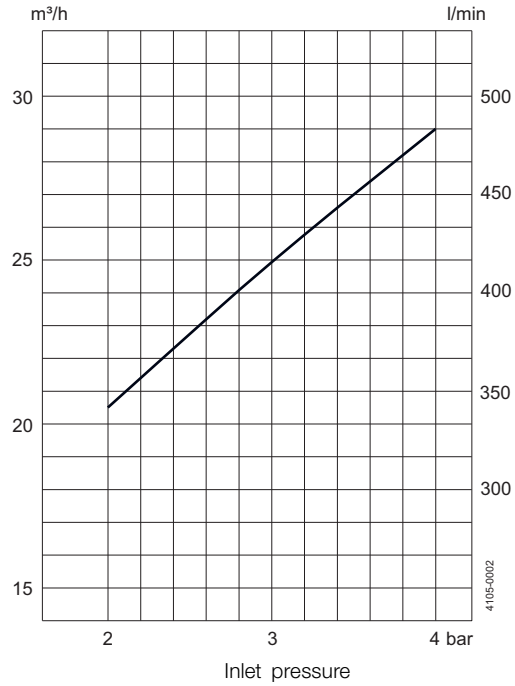
- A. Rotation sensor
- B. Counter parts to the standard clamp connections, including gaskets and clamp rings

Dimensions (mm)



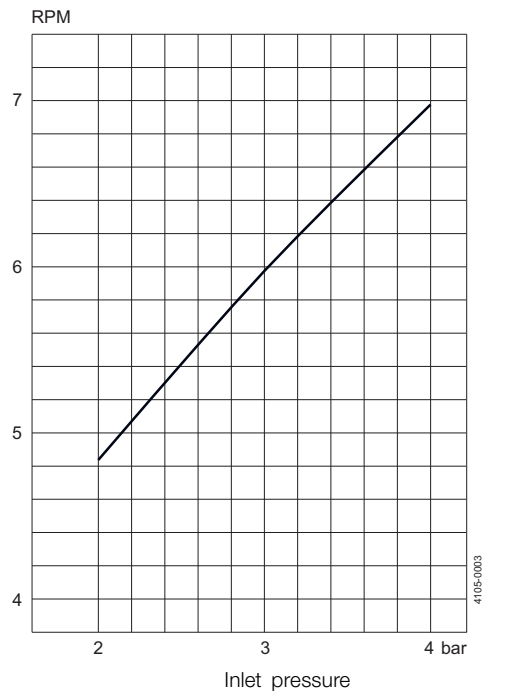
Flow Rate

Flow rate



270° UP

Rotating speed



270° UP

| A | B | C | D | E | F | G | H | J | K |
|------|------|-------|--------|-------|-----|-----|----|------|------|
| 116 | 144 | | | | | | | | |
| 1505 | 1200 | 86.5* | 120.5* | 220** | ø65 | ø72 | 53 | 76.2 | 50.8 |

* For welding end: 65/99 mm

** For DIN DN100: 234 mm

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Low Flow Saves on Water and Chemicals

Alfa Laval TJ SaniMicro Rotary Spray Head

Application

The Toftejorg SaniMicro is a rotary spray head that uses cleaning media to provide coverage and impact. The device represents an effective alternative to traditional static spray balls because it uses low volumes of cleaning fluid at low pressure. The double ball bearing in the Toftejorg SaniMicro's rotating head makes the device suitable for all industrial cleaning applications, including tanks, reactors, vessels and other containers ranging from 0.05 to 1 m³, depending on dimensions and cleaning task.

Working principle

The flow of the cleaning media causes the head of the Toftejorg SaniMicro to rotate, and the fan-shaped jets lay out a swirling pattern throughout the tank or reactor. This generates the impact needed for the efficient removal of residual product; the cascading flow covers all internal surfaces of the vessel.



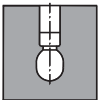
TECHNICAL DATA

Lubricant: Self-lubricating with the cleaning fluid
 Wetting radius Max. 2.5 m
 Impact cleaning radius: Max. effective 0.6 m

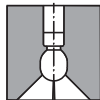
Pressure

Working pressure: 1-3 bar
 Recommended pressure: 2 bar

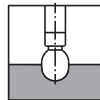
Spray Pattern



360°



270° up



180° down

Standard Design

As standard documentation, the Toftejorg SaniMicro can be supplied with a "Declaration of Conformity" for material specifications or 3.1 certification for metallic parts. The device is available in an electropolished version as well as in hastelloy C22 (balls in hastelloy C276) with 3.1 certification for metallic parts.

Certificates

2.2 material certificate, Q-doc, Q-doc incl. FAT & SAT and ATEX.

PHYSICAL DATA

Materials

AISI 316L (UNS S31603). PTFE*

* FDA compliance 21CFR§177.

Clip parts 316

Min. tank opening: 25 mm diameter (DN25)

Standard Surface finish:

exterior: Ra 0.5µm

internal: Ra 0.8µm

Improved Surface finish:

exterior + Electro polished: Ra 0.5µm

internal + Electro polished: Ra 0.5µm

Temperature

Max. working temperature: 95°C

Max. ambient temperature: 140°C

Weight: 75 g

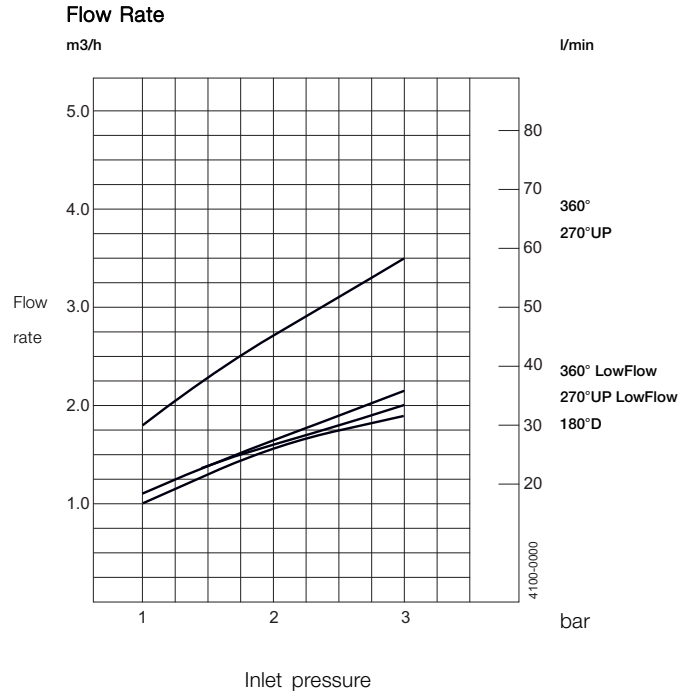
Connections

- Thread: 3/8" Rp (BSP), or 3/8" NPT
- Weld-on: 3/4" ISO 2037, or DN15 DIN11850-R1 or R2, or 3/4" BPE US
- Clip-on: 3/4" ISO 2037, or DN15 DIN11850-R1 or R2, or 3/4" BPE US

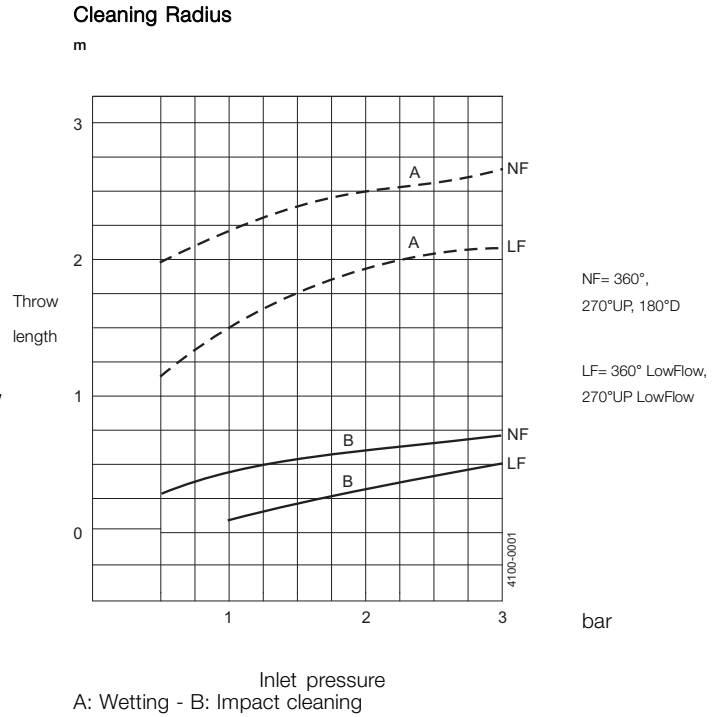


Qualification Documentation (Q-doc)

Designed for the BioPharm and Personal Care industry for qualification of hygienic Tank Cleaning Machines. Developed in according to the ISPE V-model and GDP, Good Documentation Practice, and includes: RS (Requirement Specification); DS (Design Specification incl. Traceability Matrix); FAT (Factory Acceptance Test incl. IQ & OQ); 3.1 and USP Class VI Certificates; FDA Declaration of Conformity; TSE Declaration; QC Declaration of Conformity; SAT (Site Acceptance Test Protocol incl. IQ & OQ) for End-User Execution.

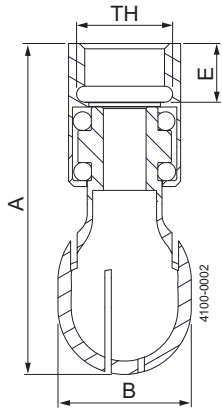


For Clip-on models, the flow rate is increased by approx. 0.2 m³/h



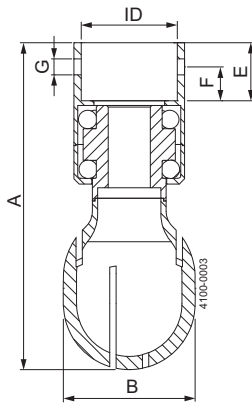
Dimensions (mm)

Thread



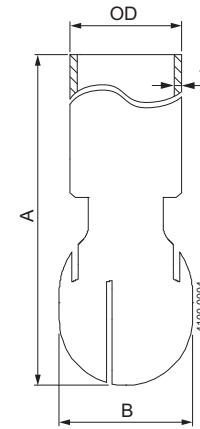
TH
3/8" Rp (BSP)
3/8" NPT

Clip-on



ID
ISO: ø17.4 mm
DIN Range 1: ø18.2 mm
BPE US / DIN Range 2 : ø19.2 mm

Weld-on



OD x t
ISO: ø17.2 x 1 mm
DIN Range 1: ø18 x 1 mm
DIN Range 2: ø19 x 1.5 mm
BPE US: ø19.05 x ø1.65 mm

| Type | A | B | E | F | G |
|---------|--------|-----|----|-----|------|
| Tread | 62 | ø25 | 11 | | |
| Clip-on | 62 | ø25 | 11 | 5.9 | ø3.6 |
| Weld-on | 77.500 | ø25 | | | |

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Does not interfere with production

Alfa Laval TJ SaniMidget Retractor, A Retractable Rotary Spray Head

Application

The Toftejorg SaniMidget Retractor is installed where fully automated and validated cleaning can assure higher productivity due to less cleaning time in e.g. spray drying applications within the food, ingredients and pharmaceutical industry. Larger ducts, channels, cyclones, chambers, complexed reactors, vent lines etc. can therefore be cleaned to the highest standards with no manual or semi automated interference, and avoiding any product carry over or hazardous incidents.

Working principle

The Toftejorg SaniMidget Retractor is available with two styles of retracting mechanisms: Pneumatic Driven, which uses air pressure to extend and retract the cleaning head, and Media Driven, which uses the pressure of the cleaning media to extend the cleaning head and an integrated spring to retract it. The Rotary Spray Head creates a fan of fluid in a swirling pattern. The distribution pattern of the cleaner head generates a vibrating impact as well as cascading flow coverage of all internal surfaces of the tank.



TECHNICAL DATA

Flow rate: 7.3 m³/h at 3 bar
Standard strokes: 100, 150 or 250 mm

Lubricant: Self lubricating with cleaning media
Wetting radius: Max. 3.5 m
Impact cleaning radius: Max. Effective 1.7 m

Air quality:

Clean, filtered: max. 40 µm
Dry, dew point: max. 10° C
Installation: Please contact Alfa Laval for installation of tank cleaning machine

Certificates

2.2 or 3.1 material certificate or ATEX.



PHYSICAL DATA

Materials

Product area: 316L (UNS S31603), PEEK*
Non-product area: 304 (UNS S30400), POM
Sealing: EPDM*

* FDA compliance 21CFR§177

Surface finish:

Product contact surfaces: Ra 0.8µm
Non product contact parts Ra 1.6µm

Temperature

Max. working temperature: . . . 95°C
Max. ambient temperature: . . . 150°C

Weight: See reverse page

Options - Materials

- A. Hastelloy C22 product contact part only!
- B. Alternative sealing component material, FPM*, FFKM*
- C. Positioning sensors, which generate digital signals at the fully retracted or fully extended positions
- D. 3.1. certificate for metallic parts available upon request

* FDA compliance 21CFR§177

Pressure:

Recommended operating
 cleaning fluid pressure: 3 bar
 Cleaning fluid pressure when
 retracted: Pressureless
 Air supply pressure: 2-5 bar

Pressure: Air to Air (AA)

Cleaning fluid pressure: 1-5 bar
 Tank pressure: Vacuum to 10 bar
 Air supply pressure: 2-5 bar
 Purging possible: Not supported - contact Alfa Laval

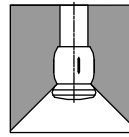
Pressure: Air to Spring (AS)

Cleaning fluid pressure: 1-5 bar
 Tank pressure: Atm. to 10 bar
 Air supply pressure: 2-5 bar
 Purging possible: Not supported - contact Alfa Laval

Pressure: Media to Spring (MS)

Cleaning fluid pressure: 2½-5 bar
 Tank pressure: Atm. to 10 bar
 Purging possible: Not supported - contact Alfa Laval

Spray Pattern

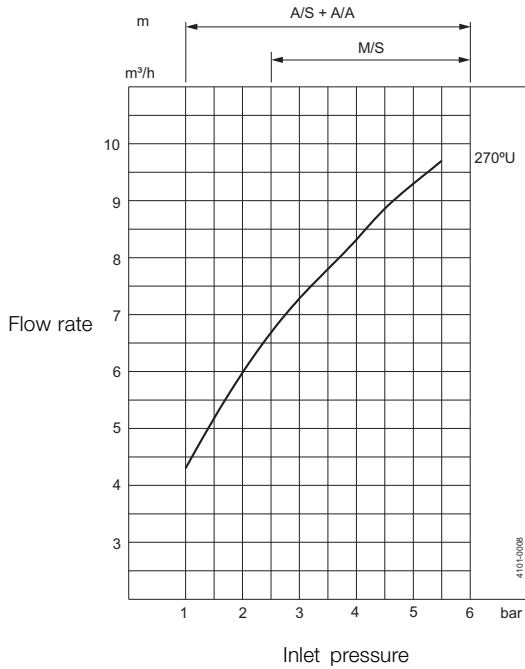


270° up

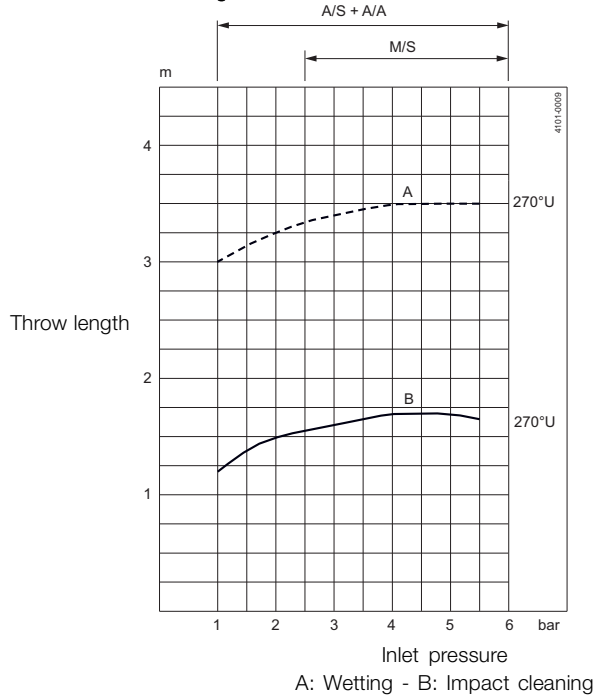
Standard Design

The Toftejorg SaniMidget Retractor is available in three stroke lengths: 100 mm, 150 mm and 250 mm, in either pneumatic- or media-driven versions.

Flow Rate



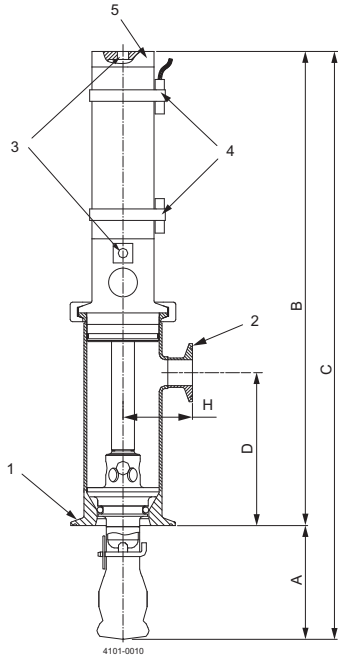
Cleaning Radius



A/S = Air/spring version
 A/A = Air/air version
 M/S = Media/spring version

A: Wetting - B: Impact cleaning

Dimensions (mm)



M/S & A/S

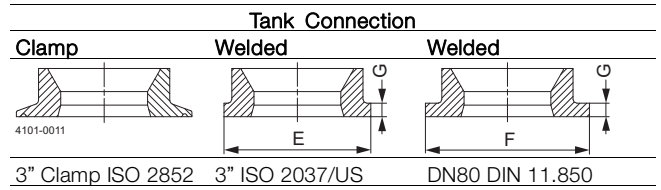
| Stroke | A | B | C | D | E | F | G | H | Weight |
|--------|-----|-----|------|-----|-------|-----|---|------|--------|
| 100 | 100 | 505 | 605 | 133 | ø76.1 | ø85 | 7 | 60.5 | 5.0 kg |
| 150 | 150 | 635 | 785 | 183 | ø76.1 | ø85 | 7 | 60.5 | 5.5 kg |
| 250 | 250 | 895 | 1145 | 283 | ø76.1 | ø85 | 7 | 60.5 | 6.4 kg |

A/A

| Stroke | A | B | C | D | E | F | G | H | Weight |
|--------|-----|-----|-----|-----|-------|-----|---|------|--------|
| 100 | 100 | 435 | 535 | 133 | ø76.1 | ø85 | 7 | 60.5 | 5.6 kg |
| 150 | 150 | 535 | 685 | 183 | ø76.1 | ø85 | 7 | 60.5 | 6.3 kg |
| 250 | 250 | 735 | 985 | 283 | ø76.1 | ø85 | 7 | 60.5 | 7.4 kg |

Connections

1. Tank connections
2. Cleaning media
1" Clamp ISO 2852
3. Air supply - pneumatic driven only
ISO 228-G 1/8
4. Option
Magnetic sensor
5. Adjustable valve - media driven only



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Alfa Laval TJ SaniMidget Rotary Spray Head

Hygienic, Low-Flow Cleaning

Application

The Toftejorg SaniMidget is an efficient replacement for traditional static spray balls as it uses low volumes of liquid at low pressure. The device, particularly well-suited to hygienic applications, can be used in tanks ranging from 0.1 to 10 m³.

Working principle

The flow of the cleaning media causes the head of the Toftejorg SaniMidget to rotate, with fan jets laying out a swirling pattern throughout the vessel. This generates a vibrating impact and cascading flow that covers all internal surfaces of the tank or reactor. The device's self-cleaning feature is achieved by directing the cleaning media through the rotating bearing track and onto the neck of the elongated head.



TECHNICAL DATA

Lubricant: Self-lubricating with the cleaning fluid
 Wetting radius: Max. 3 m
 Impact cleaning radius: Max. effective 1.4 m

Pressure

Working pressure: 1-3 bar
 Recommended pressure: 2 bar

Spray Pattern



360°



270° up



180° down

Standard Design

As standard documentation, the Toftejorg SaniMidget can be supplied with a "Declaration of Conformity" for material specifications or 3.1 certification for metallic parts. The device is available in an electro-polished version as well as in hastelloy C22 (balls in hastelloy C276) with 3.1 certification for metallic parts.

Certificates

2.2 material certificate, Q-doc, Q-doc incl. FAT & SAT and ATEX.

PHYSICAL DATA

Materials

AISI 316L (UNS S31603), PTFE*
 * FDA compliance 21CFR§177.
 Clip parts 316

Standard Surface finish:

exterior: Ra 0.5µm
 internal: Ra 0.8µm

Improved Surface finish:

exterior + Electro polished: . . . Ra 0.5µm
 internal + Electro polished: . . . Ra 0.5µm

Temperature

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

Weight

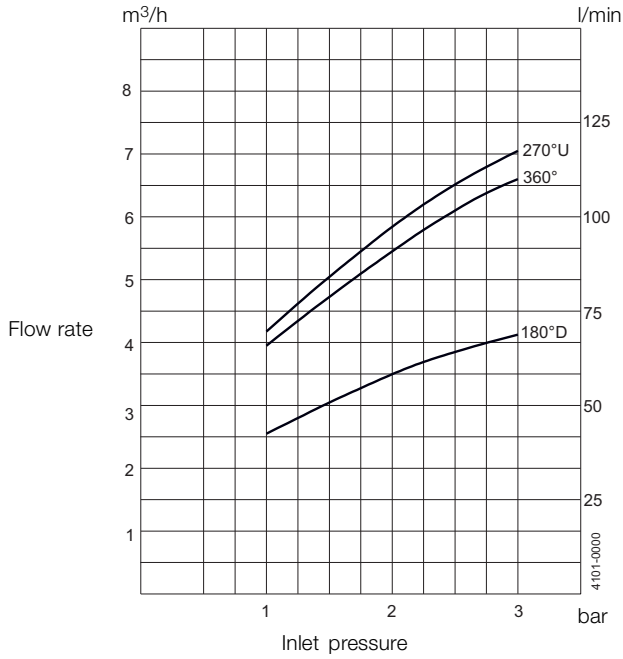
Thread and clip-on: 0.30 kg
 On pipe: 0.55/0.90 kg

Connections

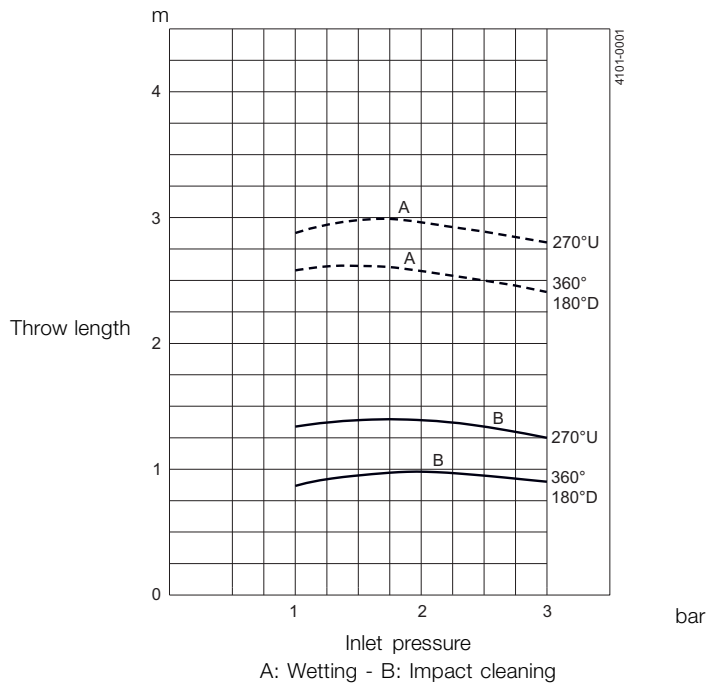
- Thread: 3/4" Rp (BSP), or 3/4" or 1/2" NPT
- Weld-on: 1" ISO 2037, or DN25 DIN11850-R2, or 1" BPE US
- Clip-on: 1" ISO 2037, or DN25 DIN11850-R1 or R2, or 1" BPE US



Flow Rate



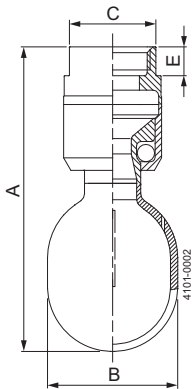
Cleaning Radius



For clip-on models, the flow rate is increased by approx. 0.5 m³/h.

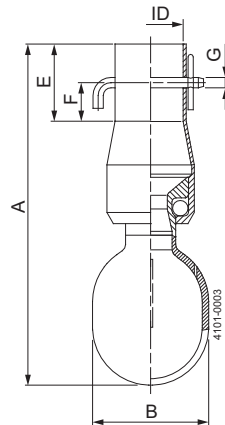
Dimensions (mm)

Thread



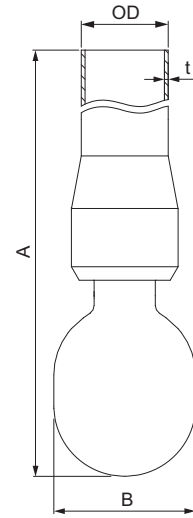
TH
3/4"Rp (BSP)
3/4" NPT

Clip-on



ID
ISO: $\varnothing 25.3$ mm
BPE US: $\varnothing 25.7$ mm
DIN Range 1: $\varnothing 28.3$ mm
DIN Range 2: $\varnothing 29.3$ mm

Weld-on



OD x t
ISO: $\varnothing 25 \times 1.2$ mm
BPE US: $\varnothing 25.4 \times 1.65$ mm
DIN Range 1: $\varnothing 28 \times 1$ mm
DIN Range 2: $\varnothing 29 \times 1.5$ mm

| Type | A | B | C | E | F | G |
|---------|------------------|------------------|----|----|----|-----------------|
| Thread | 102 | $\varnothing 45$ | 30 | 10 | | |
| Clip-on | 133.5 | $\varnothing 45$ | | 30 | 15 | $\varnothing 4$ |
| Weld-on | 120.5, 500, 1000 | $\varnothing 45$ | | | | |

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