

VARIPURE Rotating Cleaner

for tank and vessel cleaning

Made by GEA Tuchenhagen



VARIPURE rotating Cleaner

GEA Tuchenhausen offers a comprehensive product range for nearly all cleaning tasks. All VARIPURE cleaners are the latest in state-of-the-art design and manufacturing. The devices meet high hygiene requirements due to the geometric shape and best possible surface finish. These parameters ensure that our cleaners meet the requirement of the brewery and beverage industries, in cosmetics and pharmaceuticals, chemical, paint and coatings as well as the biotechnology industry.

The new GEA Tuchenhausen VARIPURE cleaners – where environmental protection begins!

During the last few years hygienic process and tank cleaning priorities have changed. In the past, the most important task was to have a clean tank following cleaning. Today, a higher awareness of environmental and economical issues plays an important role in choosing the best cleaning solution for your company.

By choosing VARIPURE cleaners for tank and container cleaning and special applications, you can make an important contribution to protecting the environment and save on investment costs at the same time.

Due to a strong, mechanical spray pattern, carefully designed cleaners by GEA Tuchenhausen need a minimum of cleaning media to achieve optimal cleaning results. The savings, as well as the benefits for the environment, are obvious:

- Smaller quantities of chemicals are required due to the considerably reduced volume of cleaning media used.
- There is less need of heating energy during the cleaning process.
- Supply and return pumps, as well as the necessary piping, can be smaller. Together, this reduces energy consumption and minimizes investment costs.
- The amount of expensive waste water is considerably reduced.

GEA Tuchenhausen offers a comprehensive VARIPURE cleaner program:

- static cleaners
- rotating cleaners
- orbital cleaners

Each is tailored to the specific cleaning task.

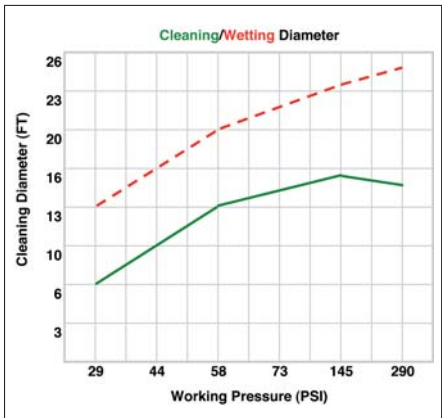
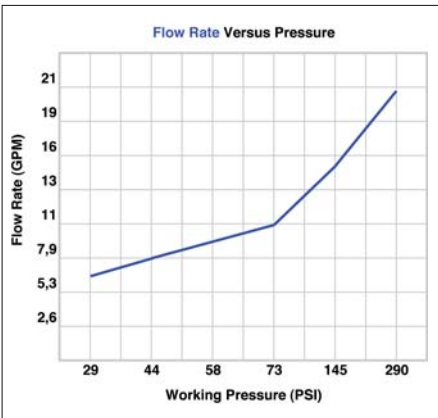
ATEX and FDA certification are available for almost all cleaners. Therefore, the application possibilities extend to using our cleaners in hygienic and potentially highly combustible areas in all industries. The cleaners are driven entirely by the cleaning fluid without external energy.

A special sensor system, developed by GEA Tuchenhausen, is integrated into the tank when orbital cleaning heads are used in order to verify the cleaning process. In this system the medium jet hits the sensor at regular intervals. The signal issued by the sensor can then be used to monitor the function of the cleaner electronically and to validate the successful cleaning process.

VARIPURE rotating Cleaner

Sanitor ... compact, ultra-hygienic

- Slow, constant rotation
 - Ball bearing free-increased service life
 - Large operating pressure range
 - Hydrodynamic bearing
-
- Conforms to 3-A standard
 - Useable in ex areas
 - Maintenance-free and durable
 - Working pressure 29 - 290 PSI
 - Cleaning diameter up to 16 FT
 - Flow rate 6.6 – 21 GPM
 - Spray pattern 360°
 - Operation temperature 203 °F max.
 - Ambient temperature 284 °F max.
 - SIP through the nozzle possible
 - Tank insertion diameter 1.1/64" min.
 - Materials: Stainless Steel 316L (1.4404)
 - Pipe connection: G 3/8" Female
 - Preferred mounting position: vertical down



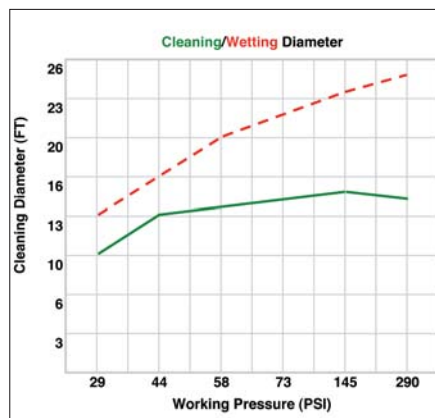
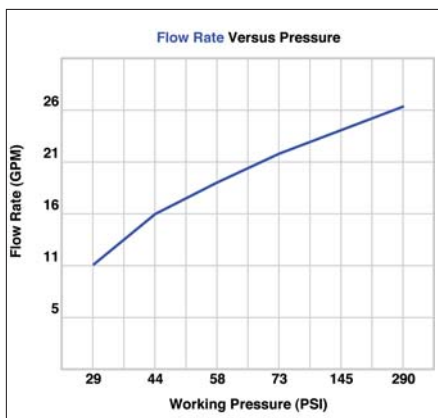
VARIPURE rotating Cleaner



Turbo SSB ... constant rotation speed at different pressure



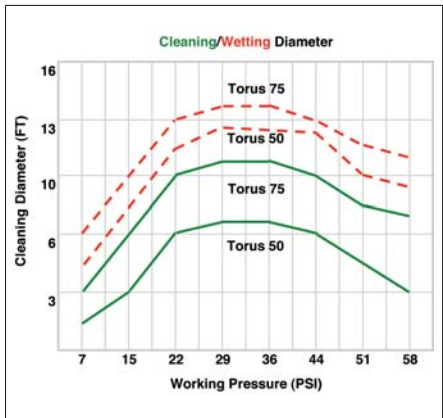
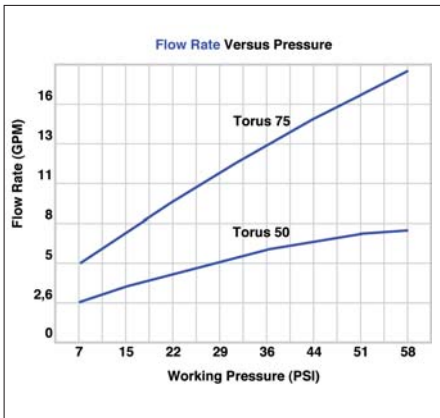
- **Slow, constant rotation**
 - **Ball bearing free-increased service life**
 - **Low flow rates**
 - **High efficiency fan jets**
- Conforms to 3-A standard
 - Useable in ex areas
 - Working pressure 29 - 290 PSI
 - Cleaning diameter up to 15 FT
 - Flow rate 11 – 26 GPM
 - Spray pattern 360°, optional 180°
 - Operation temperature 203 °F max.
 - Ambient temperature 284 °F max.
 - SIP through the nozzle possible
 - Tank insertion diameter 2" min.
 - Materials:
Stainless Steel 316L (1.4404), P-PTFE or C-PTFE
 - Pipe connection:
G 3/4" Female, optional Pin Fix
 - Preferred mounting position: vertical down



VARIPURE rotating Cleaner

Torus 50 / 75 ... ideal for low pressure applications with small amounts of cleaning agents

- Hygienic design
 - Low flow rates
 - Ball bearing free-increased service life
 - Low operating pressure
- Conforms to 3-A standard
 - Useable in ex areas
 - Versatile range of applications
 - Pressure 7 – 58 PSI
 - Cleaning diameter up to 10 FT
 - Flow rate 2 – 17 GPM
 - Spray pattern 360°, optional 180°
 - Operation temperature 203 °F max.
 - Ambient temperature 284 °F max.
 - Tank insertion diameter 1.21/32" or 2.3/64" min.
 - Materials:
Stainless Steel 316L (1.4404), PTFE or C-PTFE, optional Hastelloy
 - Option: CHEMITORUS complete PTFE or C-PTFE
 - Pipe connection: G 3/8" resp. 1/2" Female, optional Pin Fix
 - Numerous mounting options



VARIPURE rotating Cleaner

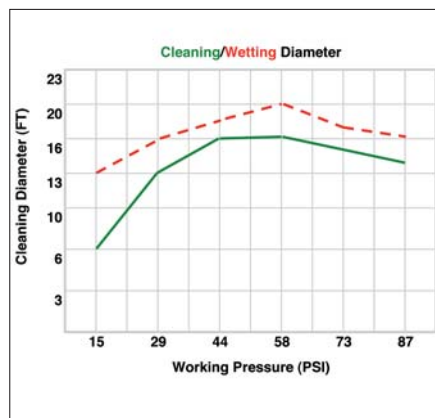
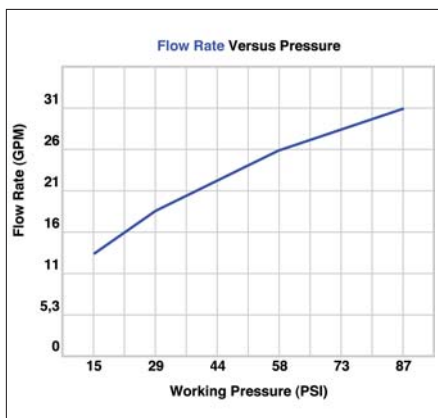


Torus 100 ... ideal for low pressure applications with small amounts of cleaning agents



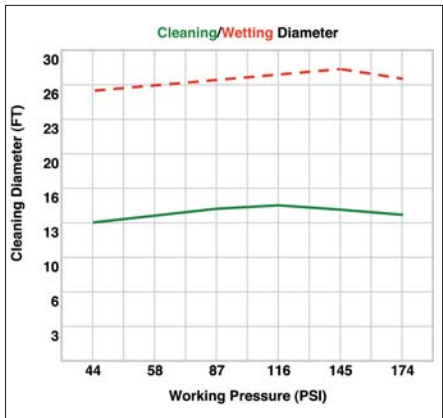
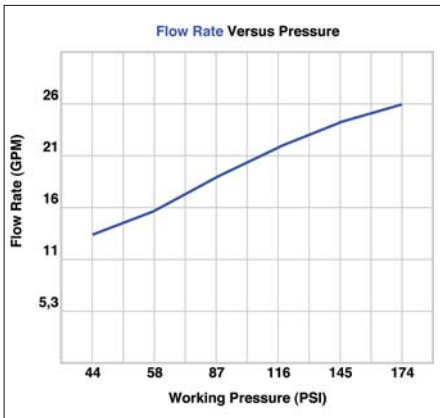
- Hygienic design
- Low flow rates
- Ball bearing free-increased service life
- Powerful fan jets

- Conforms to 3-A standard
- Useable in ex areas
- Versatile range of applications
- Working Pressure 14 – 87 PSI
- Cleaning diameter up to 16 FT
- Flow rate 13 – 32 GPM
- Spray pattern 360°, optional 180°
- Operation temperature 203 °F max.
- Ambient temperature 284 °F max.
- Tank insertion diameter 2.19/64"
- Materials:
Stainless Steel 316L (1.4404),
PTFE or C-PTFE, optional Hastelloy
- Option: CHEMITORUS complete PTFE or C-PTFE
- Pipe connection: Pin Fix to suit 1" tube
- Numerous mounting options



Troll Ball 2 Zoll ... the economic alternative to the spray ball

- Low flow rates
 - Ball bearing free-increased service life
 - Slow, constant rotation
 - Powerful round spray
-
- Conforms to 3-A standard
 - Useable in ex areas
 - Hygienic and self-cleaning
 - Working pressure 43 – 174 PSI
 - Cleaning diameter up to 14 FT
 - Flow rate 13 – 26 GPM
 - Spray pattern 360°, optional 180°
 - Operation temperature 248 °F max.
 - Ambient temperature 284 °F max.
 - Tank Insertion diameter 2.9/64" min.
 - Weight 2.2 lbs
 - Materials: Stainless Steel 316L (1.4404), PTFE or C-PTFE
 - Pipe connection: G 3/4" Female
 - Preferred mounting position: vertical down



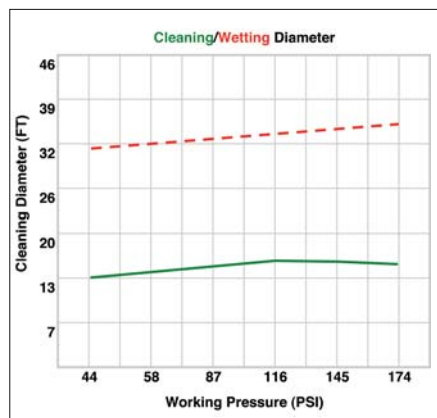
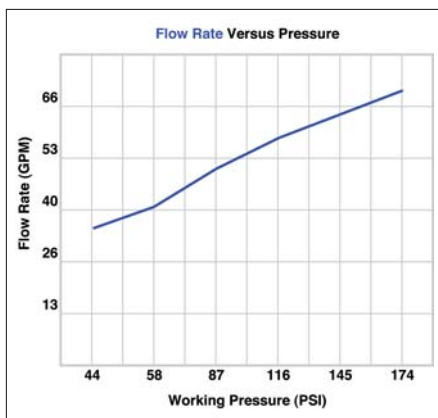
VARIPURE rotating Cleaner



Troll Ball 3 Zoll ... ideal for cleaning at high temperatures



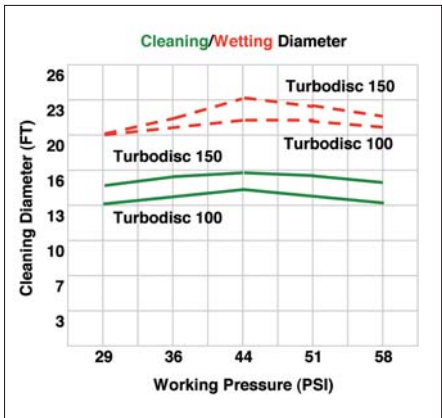
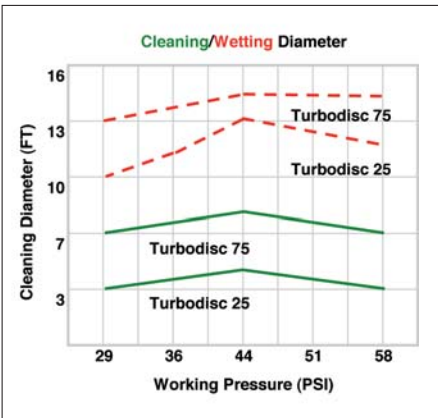
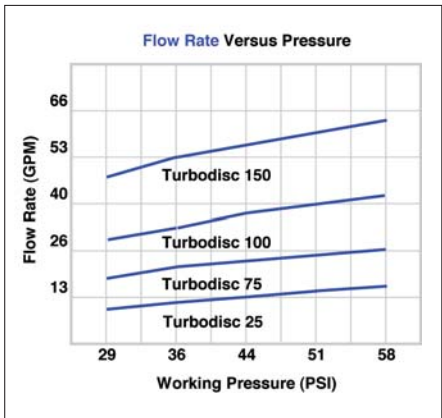
- **Low flow rates**
 - **Ball bearing free-increased service life**
 - **Slow, constant rotation**
 - **Powerful round spray**
- Conforms to 3-A standard
 - Useable in ex areas
 - Hygienic and self-cleaning
 - Working pressure 43 – 174 PSI
 - Cleaning diameter up to 21 FT
 - Flow rate 36 – 71 GPM
 - Spray pattern 360°, optional 180°
 - Operation temperature 248 °F max.
 - Ambient temperature 284 °F, max.
 - Tank insertion diameter 3.7/32" min.
 - Weight 5 lbs
 - Materials: Stainless Steel 316L (1.4404), PTFE or C-PTFE
 - Pipe connection: G 1 1/2" Female
 - Preferred mounting position: vertical down



VARIPURE rotating Cleaner

Turbodisc TD25 / TD75 / TD100 / TD150 ... one of the strongest in its class

- Low flow rates
 - Ball bearing free-increased service life
 - Maintenance free
 - Hydrodynamic bearing
 - Insensitive to blockage
- Conforms to 3-A standard
 - Useable in ex areas
 - Working pressure 2 - 4 bar
 - Cleaning diameter up to 4.8 m
 - Flow rate 2.7 - 14.7 m³/h
 - Spray pattern 360°, optional 180°
 - Operation temperature 95 °C max.
 - Ambient temperature 140 °C max.
 - SIP through the nozzle possible
 - Insertion Ø 31 mm, 41 mm, 55 mm, 75 mm
 - Materials:
Stainless Steel 316L (1.4404), PTFE or C-PTFE, optional Hastelloy
 - Pipe connection:
G 1/4" Male, G 3/4", G 1", G 1 1/2" Female, optional Pin Fix
 - Numerous mounting options



VARIPURE rotating Cleaner

Rotating Jet Cleaner Type 2E for hanging in tanks ... in levels circulating fan jets



- Interval flushing by slowly rotating fan jets
 - Multiple increased swell compared with a spray ball
 - Various spray pattern by different nozzle arrangements
 - Driven by liquid flow gear
- Rotation Monitoring By Proximity Switch (optional)
 - Working pressure 33 – 62 PSI
 - Flow rate 31 – 128 GPM
 - Cleaning diameter 7 – 33 FT
 - Operating temperature 176 °F max, optional 212 °F
 - Ambient temperature 266 °F max. (with PTFE design)
 - Tank insertion diameter 3.15/16" min.
 - Materials: Stainless steel 1.4571/ PP at 176 °F
Stainless steel 1.4571/ PTFE at 212 °F
 - Pipe connection: Numerous opportunities for pressure tank connection
 - Numerous mounting options

Type	No. of nozzles	Flow rate GPM	Pressure PSI	rpm	Cleaning diam. FT
A	1	57 - 62	39.2	8 - 12	13
B	2	101 - 106	53.7	4 - 6	23
B1	2	79 - 84	43.5	3 - 4	20
C1	2	101 - 106	53.7	4 - 6	33
C2	3	123 - 128	62.4	5 - 8	33
C4	3	106 - 110	56.6	5 - 7	20
D1	2	106 - 110	55.1	4 - 6	4
D2	2	62 - 66	40.6	3 - 4	13
D3	2	84 - 88	49.3	4 - 5	13
E	2	97 - 101	52.2	4 - 6	26
E1	2	101 - 106	53.7	4 - 6	28
F2	3	75 - 79	40.6	3 - 5	11
F3	3	88 - 93	46.4	3 - 5	13
F4	3	88 - 93	46.4	4 - 6	13
F5	3	48 - 53	37.7	6 - 10	10
F6	3	31 - 35	33.4	4 - 6	7
F8	3	48 - 53	37.7	6 - 10	10

Rotating Jet Cleaner, Type 2B ... to be placed into the tank

- Interval flushing by slowly rotating fan jets
 - Multiple increased swell compared with a spray ball
 - Various spray pattern by different nozzle arrangements
 - Driven by liquid flow gear
- Rotation Monitoring By Proximity Switch (optional)
 - Working pressure 33 – 46 PSI
 - Flow rate 44 – 97 GPM
 - Cleaning diameter 7 – 33 FT
 - Operating temperature 176 °F max, optional 212 °F
 - Ambient temperature 266 °F max. (with PTFE design)
 - Tank insertion diameter 17.21/64" min. , suitable for oval manholes 13"/17.21/64"
 - Materials: Stainless steel 1.4571/ PP at 176 °F
Stainless steel 1.4571/ PTFE at 212 °F
 - Pipe connection: Numerous opportunities for pressure tank connection
 - Preferred mounting position: vertical up



Type	No. of nozzles	Flow rate GPM	Pressure PSI	rpm	Cleaning diam. FT
A	1	57 - 62	39.2	8 - 12	13
G	1	44 - 48	33.4	7 - 10	10
H	2	93 - 97	46.4	4 - 6	10
M	1	48 - 53	34.8	7 - 10	10 - 13
N1	2	93 - 97	46.4	4 - 6	20
N2	2	93 - 97	46.4	4 - 6	20



Process Equipment

Tuchenhagen Flow Components, LLC

90 Evergreen Drive, Portland, ME 04103

Tel: 1-207-797-9500, Fax: 1-207-878-7914

info@tuchenhagen.com, www.tuchenhagen.com



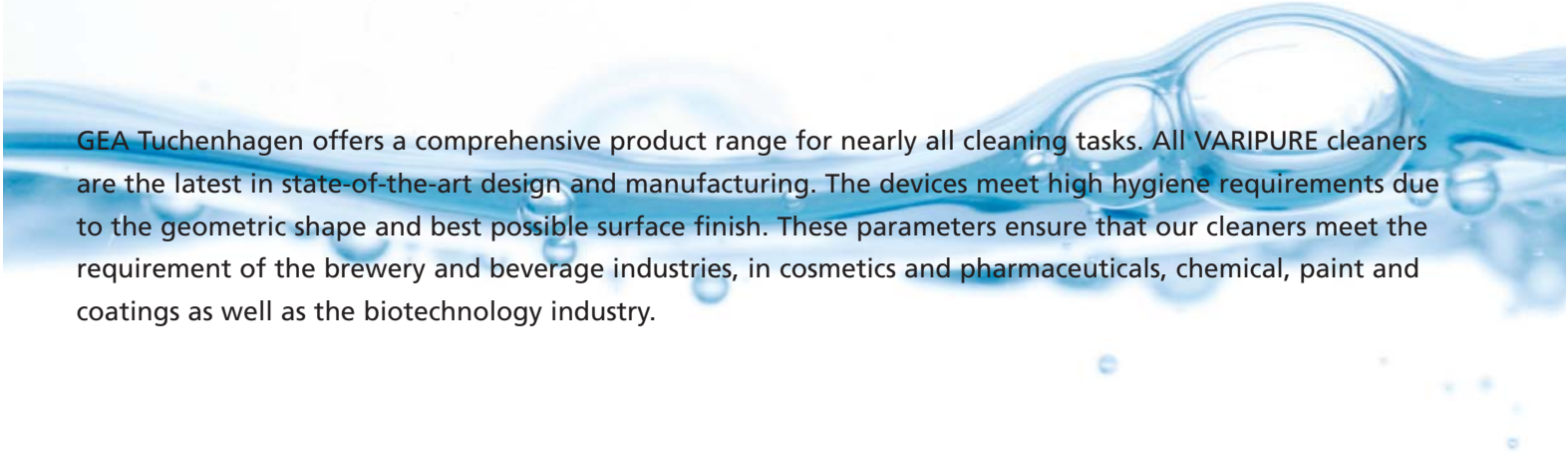
VARIPURE Orbital Cleaner

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VARIPURE Orbital Cleaner



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- rotating cleaners
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VARIPURE Orbital Cleaner

Capacity Range

Working pressure 30 to 1,305 psi

Cleaning diameter up to 88 feet

Flow rate 4.4 to 150 gpm

Operating temperature 248° F max.

Ambient temperature 284° F max.

Conforms to 3-A standard

Useable in ex areas



Typhoon



Tempest



Tornado



Monarc



Jumbo 6



Fury TWB



Monitoring Sensor SWM 100

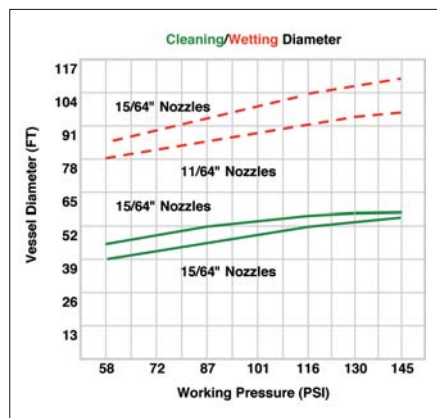
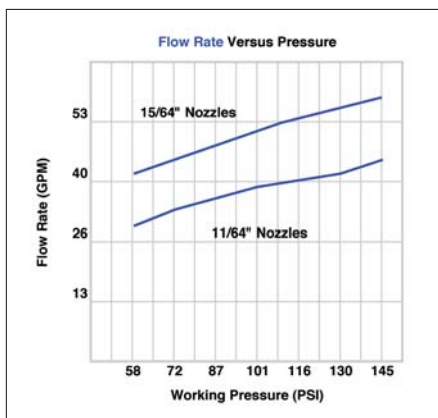
VARIPURE Orbital Cleaner



Typhoon ... one of the most powerful cleaners in its class with the advantage of being hygienically designed

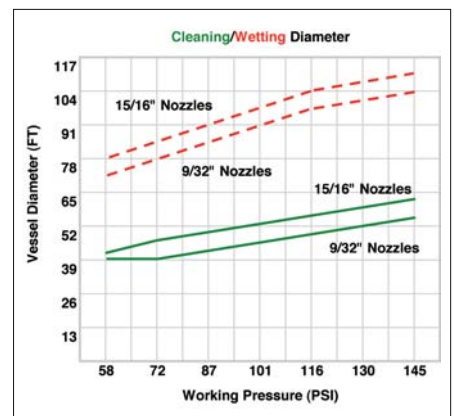
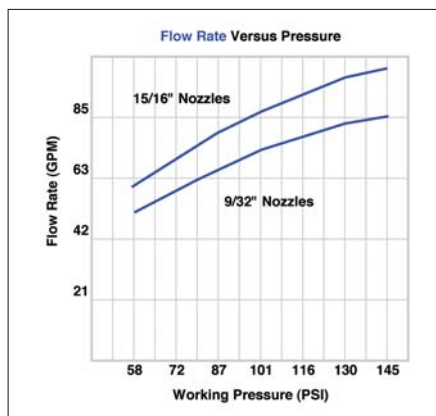


- Hygienic design
 - Low maintenance
 - Low flow rates
 - Long dwell time of the hydraulic jet
 - Energy-saving drive technology
 - Variety of nozzle diameters
 - Monitoring by rotation sensor (optional)
 - Numerous mounting options
- Working pressure 58-145 PSI
 - Cleaning diameter up to 55 FT
 - Flow rate 30-58 GPM
 - Spray pattern 360°
 - Operation temperature max. 203 °F
 - Ambient temperature max. 284 °F
 - Tank insertion diameter 4.1/2"
 - Weight 3 ¾ lbs
 - Materials: Stainless Steel 316L (1.4404), PTFE or C-PTFE, PEEK
 - Pipe connection: G 1" Female

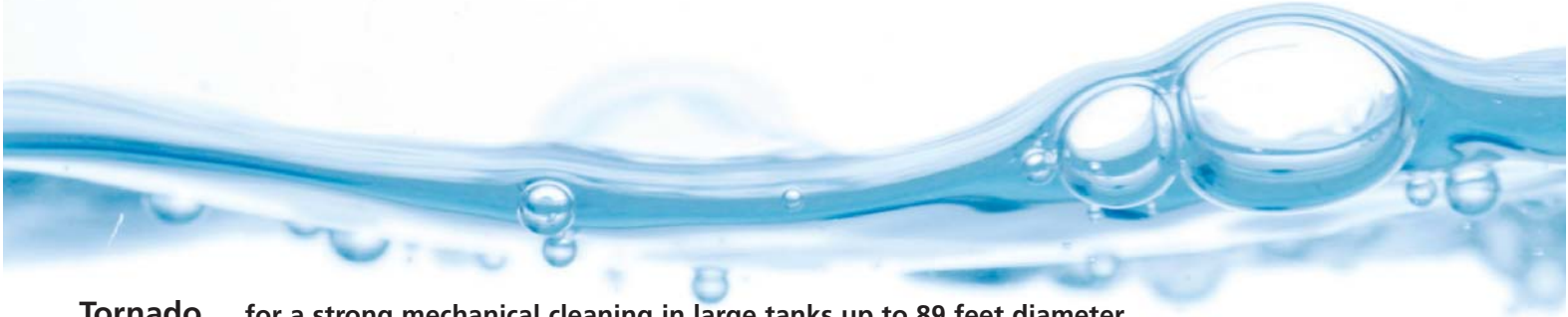


Tempest ... for a strong mechanical cleaning in large tanks up to 62 feet diameter

- Hygienic design
 - Low maintenance
 - Low flow rates
 - Long dwell time of the hydraulic jet
 - Energy-saving drive technology
 - Variety of nozzle diameters
 - Monitoring by rotation sensor (optional)
 - Numerous mounting options
- Working pressure 58-145 PSI
 - Cleaning diameter up to 62 FT
 - Flow rate 51-106 GPM
 - Spray pattern 360°
 - Operation temperature max. 203 °F
 - Ambient temperature max. 284 °F
 - Tank insertion diameter 8.1/3"
 - Weight 8 3/8 lbs
 - Materials: Stainless Steel 316L (1.4404), PTFE or C-PTFE, PEEK
 - Pipe connection: G 1 1/2" Female



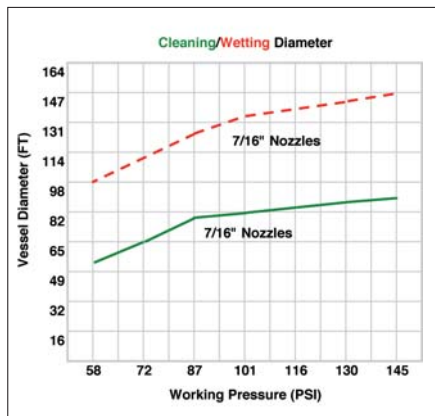
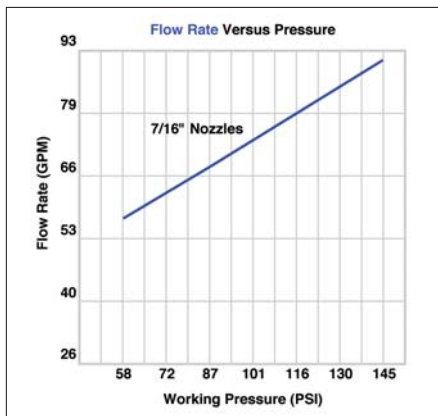
VARIPURE® Orbital Cleaner



Tornado ... for a strong mechanical cleaning in large tanks up to 89 feet diameter

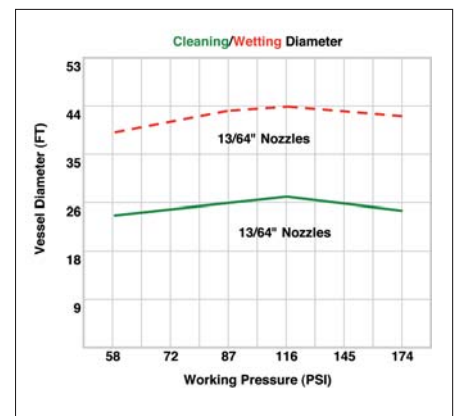
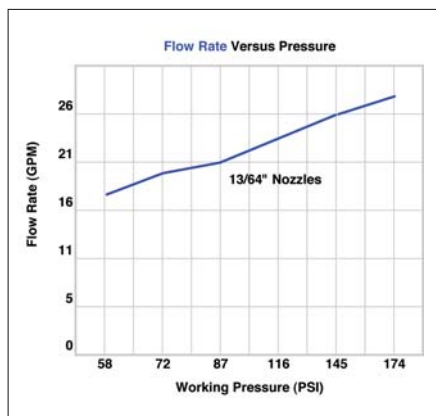


- Hygienic design
 - Low maintenance
 - Low flow rates
 - Long dwell time of the hydraulic jet
 - Energy-saving drive technology
 - Monitoring by rotation sensor (optional)
 - Numerous mounting options
-
- Working pressure 58-145 PSI
 - Cleaning diameter up to 88 FT
 - Flow rate 58-91 GPM
 - Spray pattern 360°
 - Operation temperature max. 203 °F
 - Ambient temperature max. 284 °F
 - Tank insertion diameter 8.2/3"
 - Weight 7 lbs
 - Materials: Stainless Steel 316L (1.4404), PTFE or C-PTFE, PEEK
 - Pipe connection: G 1 1/2" Female



Monarc ... minimum water consumption coupled with a robust drive mechanism

- Low flow rates
 - Powerful round spray
 - External gear
 - Insensitive to blockage
 - Energy-saving drive technology
 - Monitoring by rotation sensor (optional)
 - Numerous mounting options
-
- Working pressure 58-174 PSI
 - Cleaning diameter up to 19 FT
 - Flow rate 12-29 GPM
 - Spray pattern 360°
 - Operation temperature 185 °F max.
 - Ambient temperature 284 °F max.
 - Tank insertion diameter 4.1/3"
 - Weight 3 1/2 lbs
 - Materials: Stainless Steel 316L (1.4404), PTFE or C-PTFE
 - Pipe connection: G 3/4" Female



VARIPURE Orbital Cleaner

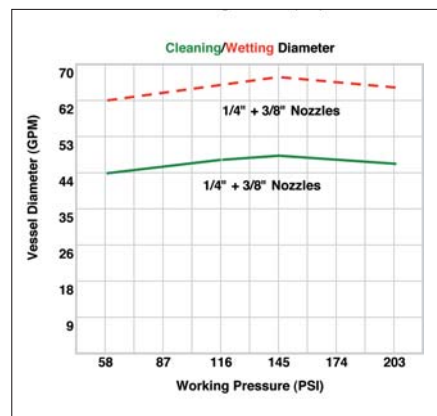
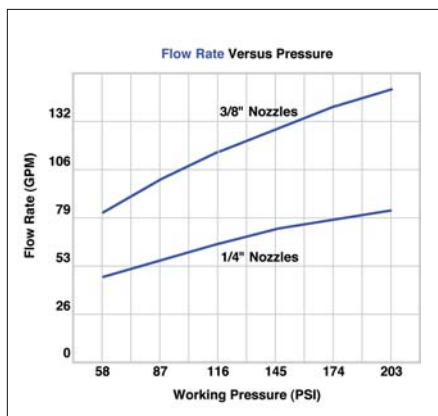


Jumbo 6 ... simple and durable drive mechanism



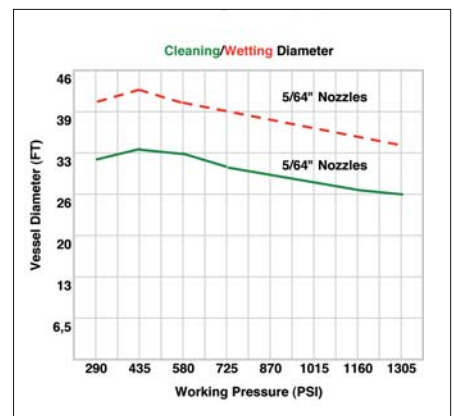
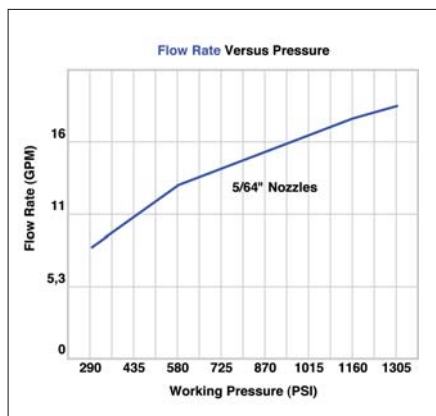
- Powerful round spray
- High flow rate
- External gear
- Insensitive to blockage
- Energy-saving drive technology
- Variety of nozzle diameters
- Monitoring by rotation sensor (optional)
- Preferred mounting position: vertical down, vertical up

- Working pressure 58-203 PSI
- Cleaning diameter up to 32 FT
- Flow rate 48-151 GPM
- Spray pattern 360°
- Operation temperature 203 °F max.
- Ambient temperature 284 °F max.
- Tank insertion diameter 11"
- Weight 9 ¾ lbs
- Materials: Stainless Steel 316L (1.4404), PTFE
- Pipe connection: G 1 ½" Female



Fury TWB HP ... ideal for mobile applications in the high-pressure area

- High power jets
 - Low cleaning agent consumption
 - Cage protection
 - Minimizing waste water costs
 - Low wear
 - Monitoring by rotation sensor (optional)
 - Preferred mounting position: vertical down, vertical up
-
- Working pressure 73-1,305 PSI
 - Cleaning diameter up to 32 FT
 - Flow rate 4-119 GPM
 - Spray pattern 360°
 - Operation temperature 248 °F max.
 - Tank insertion diameter 8" min., optional 4.3/4" min.
 - Weight 9 5/8 lbs
 - Materials: Stainless Steel 316L (1.4404), PTFE, C- PEEK
 - O-rings: NBR, optional FKM or Kalrez
 - Pipe connection: G 3/4" Female



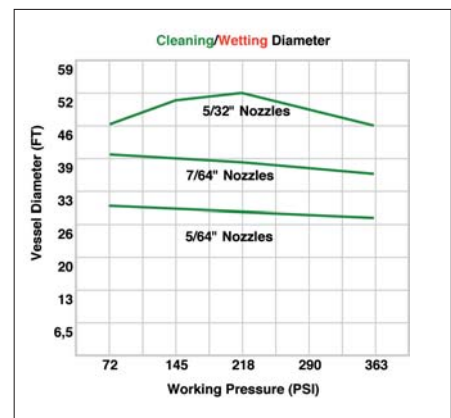
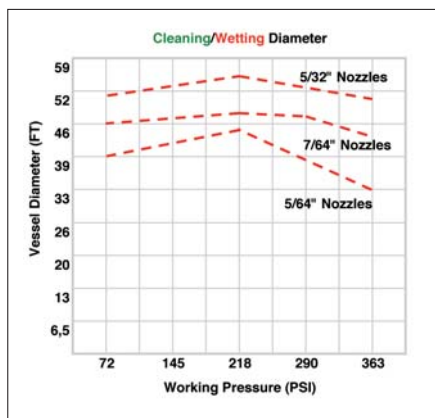
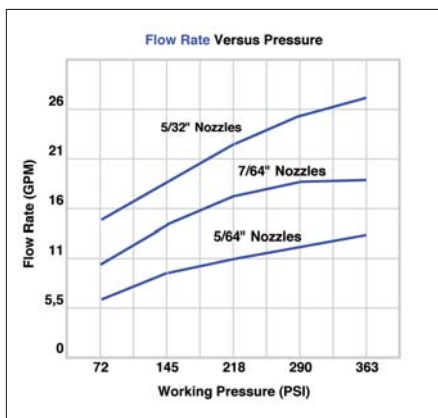
VARIPURE Orbital Cleaner



Fury TWB ... ideal for mobile use in the middle pressure range for large tank diameters



- Powerful round spray
 - Low flow rates
 - Cage protection
 - Minimizing waste water costs
 - Low wear
 - Monitoring by rotation sensor (optional)
 - Preferred mounting position: vertical down, vertical up
- Working pressure 73-363 PSI
 - Cleaning diameter up to 52 ft
 - Flow rate 7-28 GPM
 - Spray pattern 360°, optional 180°
 - Operation temperature 248 °F max.
 - Tank insertion diameter 8" min., optional 4.3/4" min.
 - Weight 9 ½ lbs
 - Materials: Stainless Steel 316L (1.4404), C-PTFE, C- PEEK
 - O-rings: NBR, optional FKM or Kalrez
 - Pipe connection: G 3/4" Female



Monitoring sensor SMW 100 ... unique in its function

Monitoring sensor for jet detection at rotary cleaning devices

- Aseptic instrumentation
 - Elastomer free sealing
 - Product wetted parts in Peek
 - Conforms to 3-A and EHEDG standard
-
- Welding sleeve system GEA Tuchenhagen
 - Housing in 1.4305
 - Supply voltage 18...32 VDC
 - Power requirement < 20 mA
 - Output signal active 50 mA max.
 - Switch on delay < 0,3 s
 - Response time < 75 ms
 - Rated temperature 77 °F
 - Head interior temperature 158 °F max.
 - Ambient temperature -14 °F +158 °F
 - Protection class IP 65/70
 - Working pressure 145 PSI max.
 - Medium temperature durable 32 °F + 212 °F
 - CIP-/SIP – cleaning 32 °F...302 °F (max. 30 min.)

Use in:

- Water and water-based cleaning media
- Kinematic viscosity $1.004 \times 10^{-6} \text{ m}^2/\text{s}$
- Conductivity 0.05 S/m





Process Equipment

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