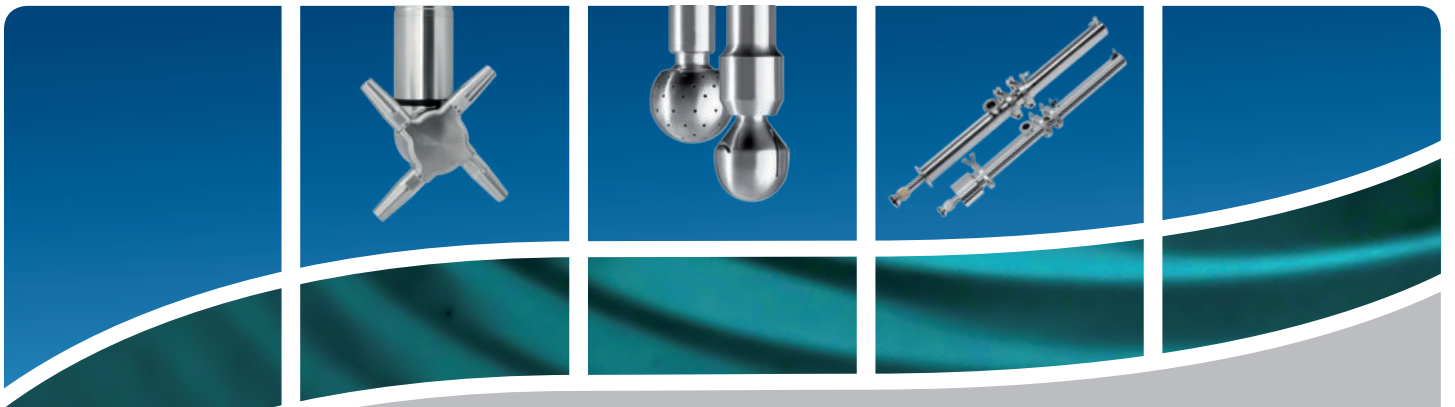


Cleaning Technology

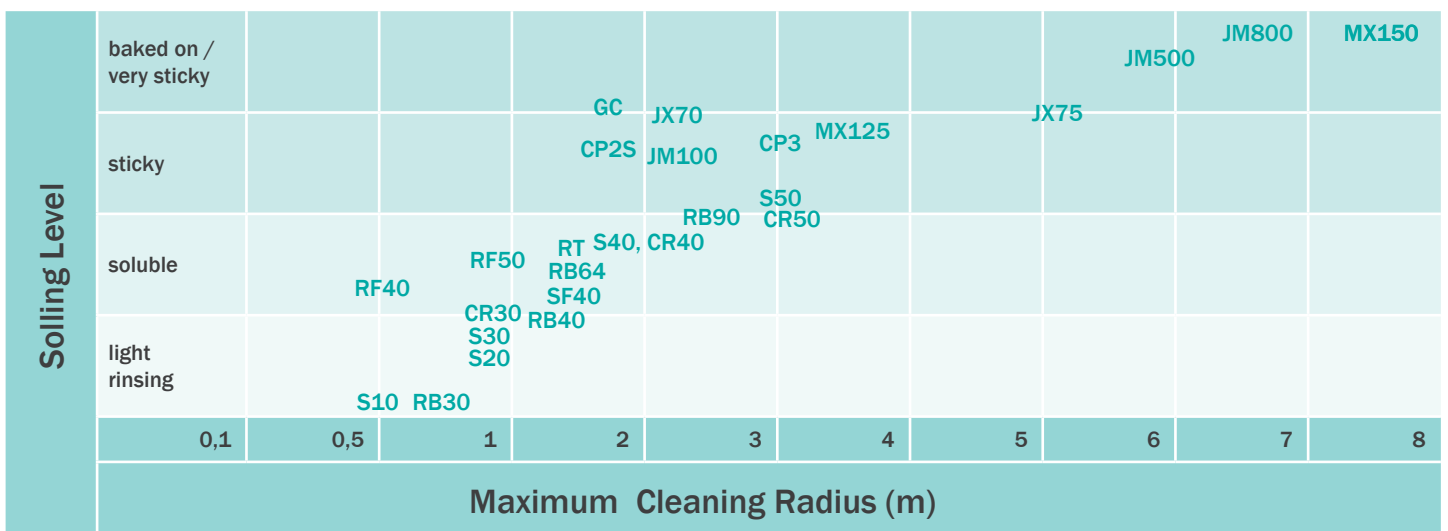


Certificates and Approvals

	TANKO®													
	MX	JM	JX	CP	S	CR	SF	RB	SB	RT	RTP	RF	GC	CIP Guard
3.1	X	X	X	X	X		X	X	X	X	X	X	X	X
FDA	X	X	X	X		X	X			X	X	X	X	X
USP Class VI	X			X		X				X	X	X	X	
ATEX	X		X		X			X		X	X			
3-A Sanitary Standard							X							

Information Requirements for Choosing a Cleaning Device

Vessel characteristics (height, length, diameter)
Vessel internals (mixers, hoppers, etc.)
Properties of the product in the vessel to be cleaned
CIP fluid and CIP cycle
Flow rate and pressure at point of use
Pressurised or vacuumed vessel



Overview AWH Cleaning Technology



CLEANLINESS redefined.

Cleaning for the highest demands.

In modern industry, efficient and thorough cleaning technology is essential to ensure the highest **standards of hygiene** and **product quality**. AWH Cleaning Technology sets standards in tank cleaning and contributes significantly to the **safety, longevity** and **availability** of your systems. The use of our advanced technologies not only shortens cleaning times, but also ensures optimum product quality.

AWH offers **customised cleaning solutions** for a wide range of applications and requirements, from the **food and beverage industry** to the **chemical and pharmaceutical industries**. Our systems are designed to reliably master even the most demanding cleaning tasks and increase your **process efficiency**.

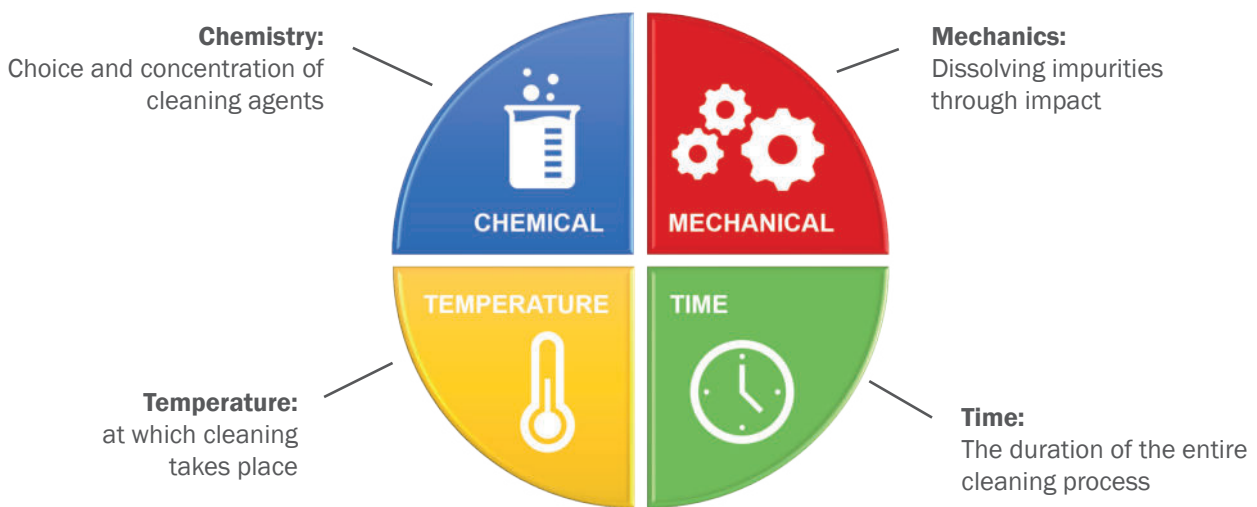


Overview AWH Cleaning Technology

EFFICIENCY in the cycle.

Optimum cleaning process.

No one likes carryover or contamination, as they affect product quality and cause additional costs. As your partner, we support you in keeping these costs as low as possible. Every cleaning process is based on four main factors, which are clearly illustrated in **Sinner's circle**:



Together, these four factors always account for 100% of the cleaning effort and influence each other. A targeted adjustment of one factor can reduce the need for the other factors. The selection of the right cleaning nozzle in particular has a direct influence on the mechanical effect.

Example: A tank is successfully cleaned with equal proportions of time, temperature, chemicals and mechanics. By using a nozzle with a stronger mechanical cleaning force, the cleaning time can be reduced and energy savings can be achieved at the same time by using less cleaning medium.

The optimisation of mechanical action is the central focus of AWH cleaning technology. Productivity can be considerably increased and operating costs significantly reduced by minimising the effort required to adapt the equipment. This saves you time, energy and costs while maximising cleaning efficiency.

Overview AWH Cleaning Technology

Focus on DIVERSITY.

Solutions for every requirement.



TANKO® RF
Page 13

CIP Guard
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TANKO® AN
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TANKO® MX125
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TANKO® GC
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TANKO® RF
Page 13

Jet Cleaners



TANKO® MX Serie
with internal Gear



TANKO® JM Serie
with external Gear



TANKO® JX Serie
with external Drive



TANKO® CP Serie
with 360° Nozzle Rotation

Spate Cleaners



TANKO® S Serie
with rotating Spray Head



TANKO® SF40



TANKO® CR
made of modified PTFE



TANKO® RPB35

Spray Cleaner



TANKO® RB Serie
rotating



TANKO® SB
static



TANKO® GC
compact

Retractors



TANKO® RT/RTS



TANKO® RTP/RTPS



TANKO® RF

Accessories



TANKO® AN
Weldon Nipple



CIPGuard
Sensor for
Monitoring



JM-C1
Tank Cleaning
Trolley

TANKO® R64T
Tank Cleaning Device



Overview AWH Cleaning Technology



Jet Cleaner with internal Gear, Multi Axis

TANKO® MX Series

The design-protected TANKO® MX Series are medium driven jet cleaners with a controlled constant rotation. TANKO® MX are used in a wide range of industrial and hygienic application where vessels and tanks need to be cleaned with high impact. The TANKO® MX range have plain bearings and epicyclic gearing. They have been designed to produce high impact, repeatable and efficient cleaning with impressively low consumption figures.

Volume flow rate: 5.2 - 18.4 m³/h / 87 - 307 l/min / 23 - 81 gpm (US)*
Operating pressure: Cleaning medium: 3 - 8 bar / 43.5 - 116 psi
Range: Cleaning radius: max. 4 - 7.8 m / 13.12 - 25.59 ft
 Wetting radius: max. 5 - 10.5 m / 16.40 - 34.45 ft

* depending on model and cleaning medium



360°

Jet Cleaner with external Gear, Multi Axis

TANKO® JM Series

The devices are used in a wide range of industrial applications where vessels and tanks need to be power-cleaned. The TANKO® JM series has sturdy, externally mounted bevel gear unit. This makes it easy for the user to check the condition of the bevel gears and clean them if necessary. It has been designed to produce the best cleaning results. It is self-cleaning, works with high impact.

Volume flow rate: 2.2 - 29.4 m³/h / 36.7 - 490 l/min / 10 - 129 gpm (US)*
Operating pressure: Cleaning medium: 3 - 20 bar / 43.5 - 290 psi
Range: Cleaning radius: max. 2.3 - 6.8 m / 7.6 - 22.3 ft
 Wetting radius: max. 4.5 - 11.5 m / 14.8 - 37.7 ft

* depending on model and cleaning medium



360°



TANKO® MX Serie and TANKO® JM Series



Jet Cleaner with external Drive, Multi Axis

TANKO® JX Series

The TANKO® JX series combines strong cleaning power with very economic use of the cleaning medium. The electric motor means that no cleaning medium is needed for driving the rotation. This allows the rotation and the speed of rotation to be easily adjusted to suit the cleaning requirements.

The nozzle geometry determines the cleaning medium throughput, the range of the system and thus the possible cleaning power. These system allow the optimum cleaning force to be applied to the surface to be cleaned.

Volume flow rate: 0.2 - 7.2 m³/h / 3.3 - 120 l/min / 1 - 32 gpm (US)
Operating pressure: Cleaning medium: 2 - 20 bar / 29 - 290 psi
Range: Cleaning radius: max. 2.1 - 5 m / 6.9 - 16.4 ft
 Wetting radius: max. 4.3 - 6 m / 14.1 - 19.7 ft



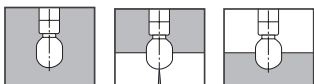
360°

Slow rotating Jet Cleaner, Single Axis

TANKO® CP Series

With its slow and even rotation and strong impact, the TANKO® CP2S and TANKO® CP3 are suitable for cleaning vessels with strongly adhesive contents. The devices are a plain bearing system with a simple structure containing few moving parts. With its low servicing requirements, the TANKO® CP series provides a compact and reliable solution for cleaning tasks with different cleaning medium and a large temperature range.

Volume flow rate: 2.5 - 12.7 m³/h / 41.7 - 211.7 l/min / 11 - 55.9 gpm (US)
Operating pressure: Cleaning medium: 3 - 12 bar / 43.5 - 174 psi
Range: Cleaning radius: max. 2 - 3 m / 6.6 - 9.8 ft
 Wetting radius: max. 2.9 - 4.7 m / 9.5 - 15.4ft



360°

180° ↑

180° ↓

Spate Cleaner with rotating Spray Head



TANKO® S Series

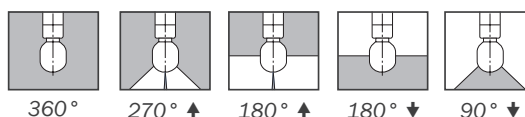
Strong impact, high cleaning force at low volumetric flows and low pressures make it easier to optimize the cleaning process and provide a more efficient alternative to static spray balls. The spate cleaners are available in 5 different sizes, with different materials and connections, and also with ATEX certification if required.

Volume flow rate: 0.25 - 18 m³/h / 4.2 - 300 l/min / 1 - 79 gpm (US) *

Operating pressure: cleansing medium: 1.5 - 3 bar / 22 - 43.5 psi *

Range: cleaning radius: 0.1 - 3.2 m / 0,3 - 10.5 ft *
wetting radius: 0.1 - 4.2 m / 0.3 - 13.8 ft *

* depending on model and cleaning medium
The technical data of the ATEX units can differ.



Spate Cleaner with rotating Spray Head



TANKO® SF40

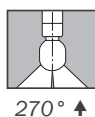
The TANKO® SF40 is a hygienic cleaning device of the 'Rotary spray head' type intended for permanent installation in a vessel. The device is designed in such a way that it is able to clean itself. The rotating spray head rotates on a hydrodynamic bearing during the cleaning process. The device is lubricated by the cleaning medium. No oils, greases or other lubricants are used.

Volume flow rate: 2.6 - 6.2 m³/h / 43.3 - 103.3 l/min / 11.4 - 27.3 gpm (US) *

Operating pressure: Cleansing medium: 1 - 3 bar / 14.5 - 43.5 psi *

Range: Cleaning radius: max. 1.5 m / 4.9 ft
Wetting radius: max. 2 m / 6.6 ft

*depending on model and cleaning medium



TANKO® S and TANKO® SF40

Spate Cleaner made of modified PTFE

TANKO® CR

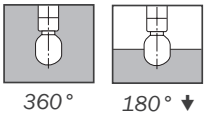
The TANKO® CR has been developed for maximum chemical resistance and highest hygienic requirements. The TANKO® CR series of spate cleaners rotate in a slow and defined manner on a maintenance-free hydrodynamic bearing. This constantly flushed bearing allows operation in the widest variety of installation angles, resulting in a sturdy device with a long service life. The TANKO® CR is also very well suited for SIP sterilization of the vessel with steam.

Volume flow rate: 1.5 - 12 m³/h / 25 - 200 l/min / 6.7 - 52.8 gpm (US)*

Operating pressure: Cleaning medium: 1.5 - 5 bar / 22 - 73 psi *

Range: Cleaning radius: max. 3.2 m / 12 ft *
Wetting radius: max. 4.3 m / 14 ft *

* depending on model and cleaning medium



Spray Ball

TANKO® RPB35

An effective system for reducing spray shadows! The TANKO® RPB35's unique design allows two cleaning devices (TANKO® RPB35 & TANKO® S) to be installed at different heights on a single downpipe, reducing potential spray shadows to a minimum.

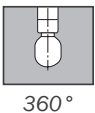
A "DP flushing" RPB variant with additional connection/downpipe cleaning is also available in addition to the 360° Standard version.

Further spray angles and product variants are available on request.

Volume flow rate: at recommended pressure:
1.2 - 2.5 m³/h / 20 - 41.7 l/min / 5.3 - 11 gpm (US) *

Operating pressure: max. 3 bar / 43.5 psi *

* depending on model and cleaning medium



TANKO® CR and TANKO® RPB35

Rotating Spray Ball



TANKO® RB Series

The TANKO® RB is a rotating spray head with drilled circular spray openings. Designed as a rotating unit to quickly wet the vessel walls. Short cleaning periods can be achieved depending on the application. The basic function of the device is retained even if the rotation fails. If individual spray perforations become blocked, the rotation of the device allows the remaining spray perforation to compensate for this. This ensures continued complete wetting of the tank walls.

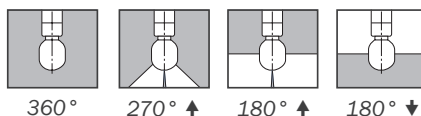
Volume flow rate: 2.4 - 28.9 m³/h / 40 - 481.7 l/min / 10.6 - 127.2 gpm (US)
*

Operating pressure: 1.5 - 3 bar / 22 - 43.5 psi *

Range: Cleaning radius: 0.75 - 2.5 m / 2.5 - 8.2 ft

* depending on model and cleaning medium

The technical data of the ATEX units can differ.



Static Spray Heads

TANKO® SB

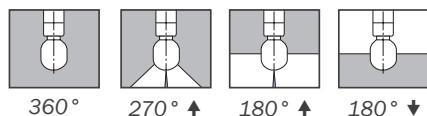
Static spray heads are a proven accessory for cleaning tanks and vessels. The typical area of application is for simple cleaning tasks in the low pressure range between 0.5 and 2.5 bar. It should be noted that the use of a static spray head is often based on the acquisition costs.

Volume flow rate: 0.6 - 78.7 m³/h / 10 - 1311.7 l/min / 2.6 - 346.5 gpm (US)*

Operating pressure: Cleaning medium: 0.5 - 2.5 bar / 7.3 - 36.3 psi *

Range: Cleaning radius: max. 0.25 - 3 m / 0.8 - 9.8 ft *

* depending on model and cleaning medium



TANKO® RB and TANKO® SB

Compact Spray Cleaner

TANKO® GC

The compact TANKO® GC spray cleaner is designed for the targeted cleaning of the insides of tanks and their internal components. The key design feature of the TANKO® GC is its flush mounting to the inside of the vessel, making it completely unobtrusive during the production process with no risk of collision with agitators, mixers or scraper blades. It also allows for a variety of mounting positions which would not be possible with conventional cleaning devices. The TANKO® GC spray cleaners are suitable for use as a stand-alone device but are more commonly used in conjunction with more conventional existing cleaning devices targeting difficult to reach shadow areas such as the underside of agitator blades etc.

Volume flow rate: 0.6-1.1m³/h / 10.3-18.3l/min / 2.7-4.8gpm (US)
Operating pressure: Cleaning medium: 2 - 5 bar / 29 - 72.5 psi
Range: 0.5 -2.2m bei 0.5-4.0bar / 1.64-7.2ft



10-40° ↑



Dynamic Retractor

TANKO® RT /-RTS

The TANKO® RT and TANKO® RTS have been conceived for use in highly sterile processes. Extension into the cleaning position and retraction of the cleaning head into the retractor housing are both performed pneumatically. The rotating spray head of the TANKO® RT runs on ball bearings lubricated by the cleaning medium. The TANKO® RTS is a retractor equipped with a static spray head. A special ATEX version of the retractor is available for ATEX applications.

Volume flow rate: 2 - 6.5 m³/h / 33.3 - 108.3 l/min / 8.8 - 28.6 gpm (US) *
Operating pressure: Cleaning medium: 1 - 8 bar / 14.5 - 116 psi *
Pneumatic: min. 5 bar / 72.5 psi, max. 8 bar / 116 psi
Range: Cleaning radius: max. 1.6 m / 5.3 ft
Wetting radius: max. 2.5 m / 8.2 ft

* depending on model and cleaning medium
The technical data of the ATEX units can differ.



270° ↑

TANKO® GC and TANKO® RT/-RTS

Dynamic Retractor

TANKO® RTP/-RTPS

The TANKO® RTP and TANKO® RTPS have been conceived for use in highly sterile processes. The basic principle of the retractor is the distinction between the rest position (closed construction, the spray head is located in the housing and therefore outside the vessel) and cleaning mode (the spray head is extended into the vessel for cleaning). The TANKO® RTP and TANKO® RTPS are suitable for vessels that have an internal pressure of up to 6 bar during the process (not cleaning).

Volume flow rate:	2 - 6.5 m ³ /h / 33.3 - 108.3 l/min / 8.8 - 28.6 gmp US) *
Operating pressure:	Cleaning medium: 1 - 8 bar / 14.5 - 116 psi *
	Pneumatic system: mind. 5 bar / 72.5 psi , max. 8 bar / 116 psi
Range:	Cleaning radius: max. 1.6 m / 5,3 ft;
	Wetting radius: max. 2.5 m / 8,2 ft

* depending on model and cleaning medium



270° ↗



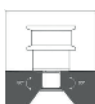
Mini-Retractorsystem

TANKO® RF

The TANKO® RF is a mini retractor system with a rotating spray head that is extended for the cleaning process with the help of the cleaning medium pressure and driven with the help of the spray head. After switching off the cleaning medium supply, the spray head retracts into its housing by spring force and closes tightly with the help of the O-ring. The device is used to clean the insides of pipelines, spray dryers or small containers where built-in components are not permitted. The TANKO® RF is available in two sizes TANKO® RF40 and TANKO® RF50.

Volume flow rate:	0.5 - 1.3 m ³ /h / 8.3 - 21.7 l/min / 2.2 - 5.7 gpm (US) *
Operating pressure:	Reinigungsmedium: 1 - 6 bar / 14.5 - 87 psi *
Range:	0.3 - 0.7 m / 1 - 2.3 ft

*depending on model and cleaning medium



TANKO® RTP and TANKO® RF

Weldon Nipple and Downpipes



TANKO® AN

Orbital welds are surely the best solution from a hygiene perspective. Attention must be paid to problems in cleaning the downpipe and especially longer downpipes require special solutions.

The weldon adapter shown in the illustration, in conjunction with a clean weld, is a good solution to this problem. The gap between the thread and the cleaning device is arranged horizontally. Outflowing cleaning medium cannot accumulate as droplets at this position but rather flow cleanly away over this edge. Various different versions for the combinations of pipe diameter and cleaning device are available. A selection can be made between the materials 1.4404 (316L), 1.4571 (316Ti), 1.4435 (316) and various Hastelloy variants if necessary.

This makes it easy to reduce contamination at the connection points of the cleaning device. The cleaning process can also be easily optimized when changing the downpipe geometries (installation dimensions).

Tank Cleaning Device

TANKO® R64T

The TANKO® R64T rotates around the vertical axis. In conjunction with two TANKO® S30 or TANKO® RB30 devices, even hard-to-reach areas can be optimally cleaned.

Volume flow rate: 2 x TANKO® S30 360° BSP: 4.9 - 7.2 m³/h /
81.7 - 120 l/min / 21.6 - 31.7 gpm (US) *

Operating pressure: 1.5 - 7 bar / 21.8 - 101.5 psi
(depending on the built-in cleaning device)*

Range: Cleaning radius and wetting radius depend on the version.

* depending on model and cleaning medium
The technical data of the ATEX units can differ.



360°



TANKO® AN and TANKO® R64T

Tank Cleaning Trolley



JM-C1

The tank cleaning trolley allows mobile use of cleaning devices in a tank. The scope of delivery does not include the cleaning device.

Materials: 1.4404 (316L)
Reduction piece: 1.4436
Locking pin: 1.4430
Wheels: PP, FDA complaint

Supply connection: DN50, male fitting acc. DIN 11851
Jet cleaner connection: 1 1/2" BSP

Surface: metal-bright or hand polished
Weight: 12.5 kg
Can be used for: TANKO[®] JM500, TANKO[®] RB90, TANKO[®] S50

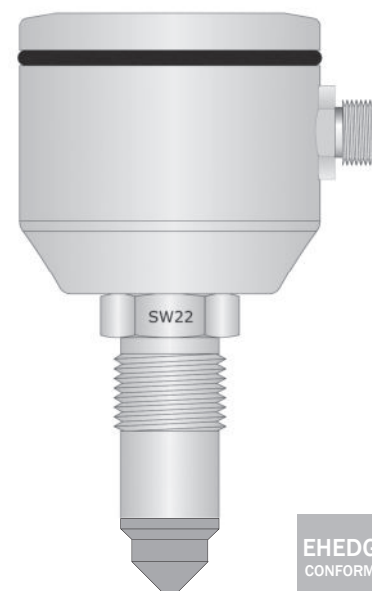
Sensor for Monitoring

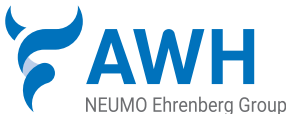
CIPGuard (TCG-ZR)

Sensor for monitoring slow-rotating 360° jet cleaners in vessels and tanks. The sensor is installed centrally, preferably on the roof of the tank, and is then integrated into the existing PLC system or queried in a mobile manner via a PC. The AWH CIPGuard is distinguished by a sturdy and compact design providing reliable real-time representation of the rotation of jet cleaners. The acquired measurements can be evaluated by a PLC via the digital PNP output signal (24 VDC).

The necessary software can be downloaded free of charge from <http://www.awh.eu>. The software displays the signal as three curves.

Operating pressure: in vessel: max. 10 bar / 145 psi
Ambient temperature: -10 to +60 °C / 14 to 140 °F
Storage temperature: -20 to +70 °C / -4 to 158 °F





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