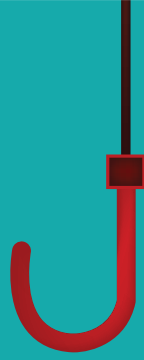
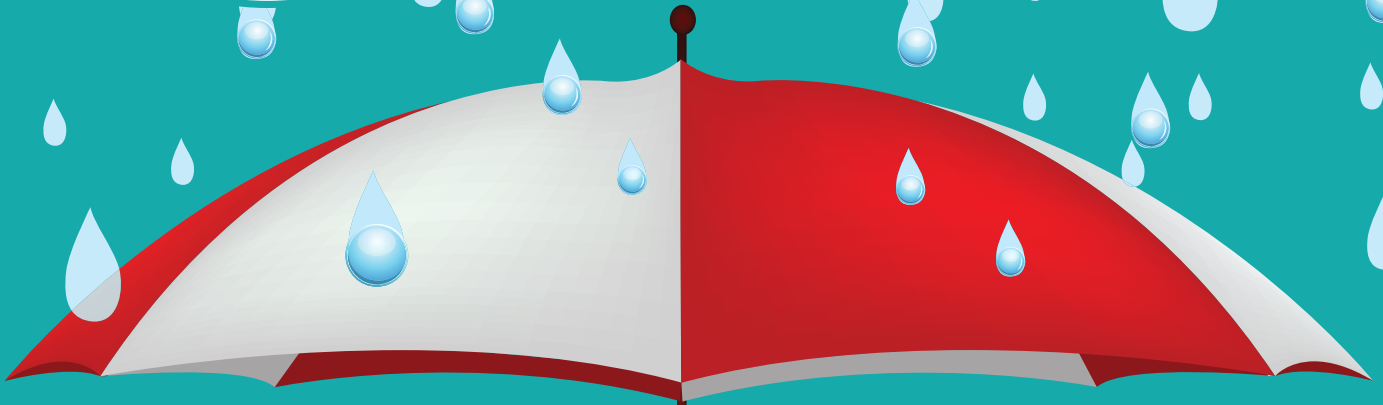
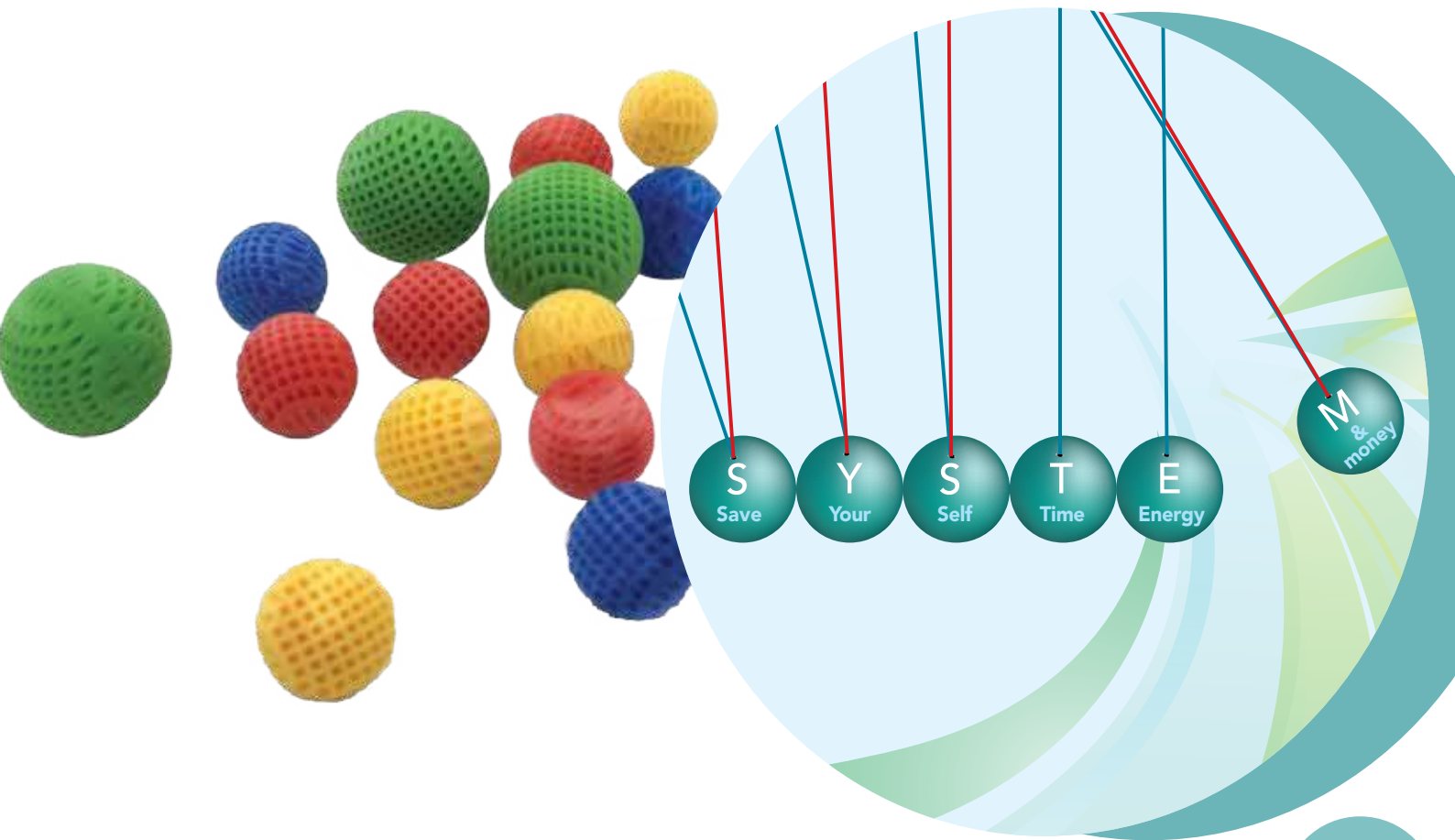


3 things you can expect to save on





Stop
fouling
Start saving

- The NanoSpheres silicon system is known for its durability and performance.
- Durable nano silicon spheres (NanoSpheres).
- A heavy duty pump that outperforms the competition.

The most durable and efficient heat exchanger tube cleaning system

Built with technology that saves you time, energy and money.

The natural fouling in heat exchanger tubes reduces thermal efficiency and incurs additional costs to your business. Manual tube cleaning methods typically used are unsustainable, costly and waste valuable time and resources.



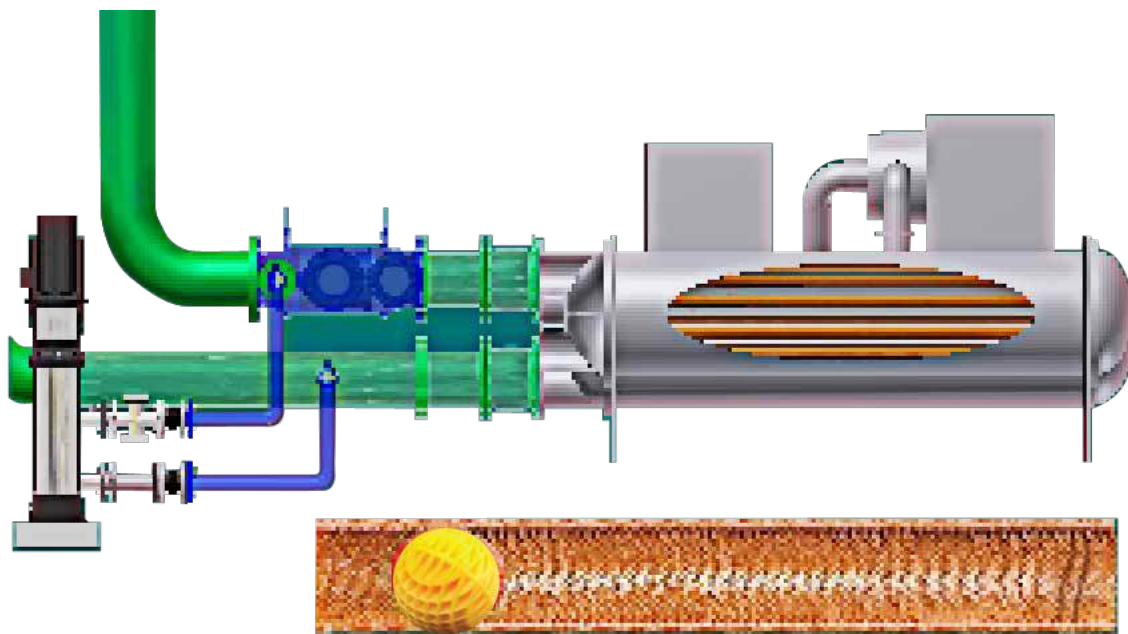
How does it work?

Three main components make up the NanoSpheres silicon cleaning system. The sphere injector pump, a sphere collector and the durable Nano-Silicon Spheres.

- 1 The pump ensures delivery of the spheres into the heat exchanger tubes. While in the tubes, the spheres agitate and remove all particulate matter, dust, debris, scaling and fouling located on the inner tube surfaces.
- 2 Once the tubes are cleansed, the spheres are returned to the sphere collector where they are collected and stored until the next scheduled cleaning cycle.
- 3 Clean tube surfaces ensure that maximum thermal efficiency is achieved without ever having to shut down the plant and manually clean the system.

Benefits (savings)

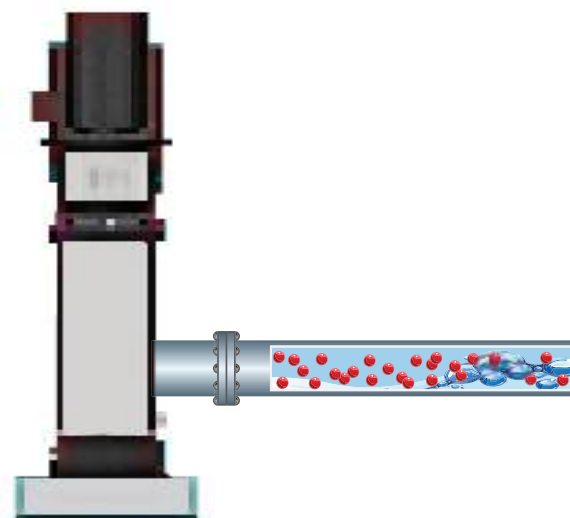
- Maximum uptime – No plant shut down
- Increased heat exchanger efficiency – Lower energy bill
- Sustainable application – No harmful cleaning chemicals or consumables

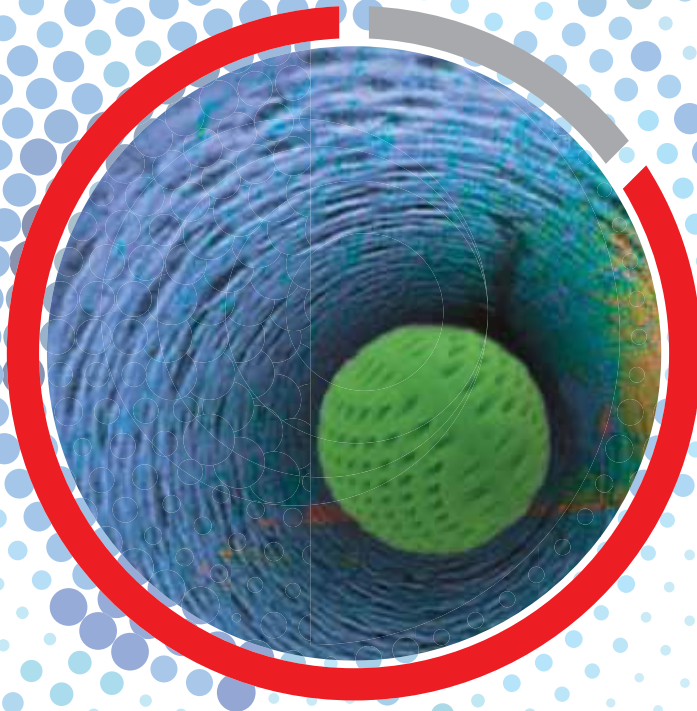


Sphere Injector Pump

The heart of the NanoSpheres silicon system is its dedicated heavy-duty pump. It circulates and drives the NanoSpheres through the heat exchanger tubes to maintain the ball serving and return rates. This ensures total removal of the fouling from the tubes inner walls and keeps them clean 24/7. The NanoSpheres silicon cleaning cycles occur every few hours to ensure the heat exchanger operates under excellent conditions and maintains the highest possible efficiency.

The **Cleanosphere** system utilizes heavy-duty vertical inline pump manufactured either by *Grundfos* or *Ebara*; both market leaders in the pump manufacturing industry.





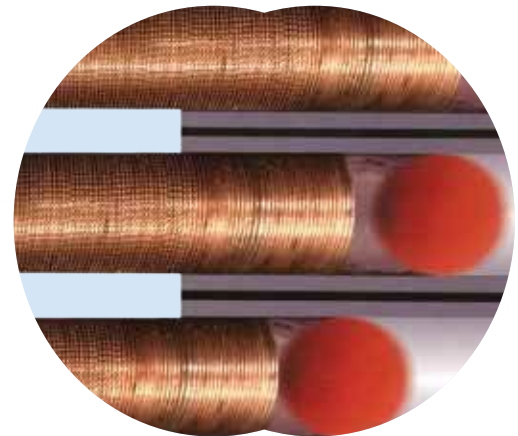
Sphere Collector

The **Cleanosphere** system utilizes a trap collector that employs an in built screen filter made from Stainless Steel SS304. The body shall be made from carbon steel with internal epoxy coating.

The Trap Collector is positioned at the outlet pipe of the cooling water. Its sole purpose is to collect the NanoSpheres and guide them back to the Sphere Injector.

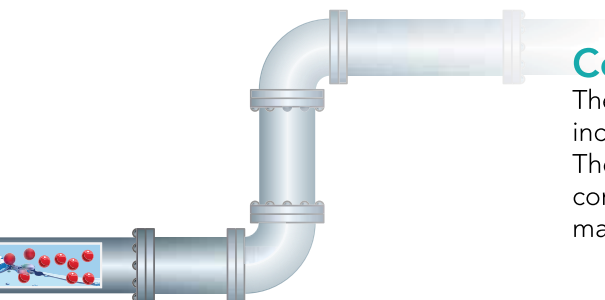
NanoSphere

The **Cleanosphere** system brings condenser tube cleaning technology to the next level using its unique NanoSpheres Silicon balls. These spheres prevent condenser tube fouling and stop organic sludge from adhering to the inner wall of the heat exchanger tubes. What truly separates **Cleanosphere** technology from the competition is the high durability of the NanoSpheres, that last over 5000 working hours with ease.



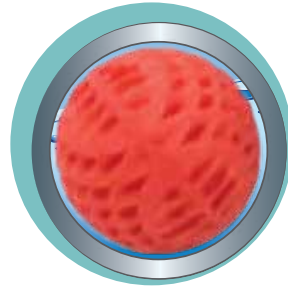
Sphere Injector

The **Cleanosphere** system utilizes a sphere injector made of Stainless Steel SS304. The inlet and outlet of the injector uses a flange connection for easy maintenance. It also has a viewing glass pane on the lower body for clear visibility of the NanoSphere flow.



Control Panel

The **Cleanosphere** system comes with an in-built control unit that includes all power control switches and related electronic components. The control panel displays the power and system status, fault indicator, comprehensive navigational, start and stop buttons along with an auto/manual selector for flexibility.



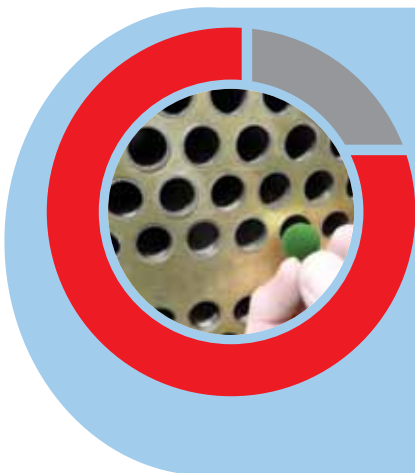
Remote Monitoring (Optional)

The running parameters of the entire system can be sent to the monitoring center providing users with important information such as working hours, fault alarm settings, cleaning schedule and even the replacement schedule for the NanoSpheres.

With remote monitoring, our customers have access to critical information at their fingertips empowering them to ensure efficient and stable system operation conditions.

External Filters (optional)

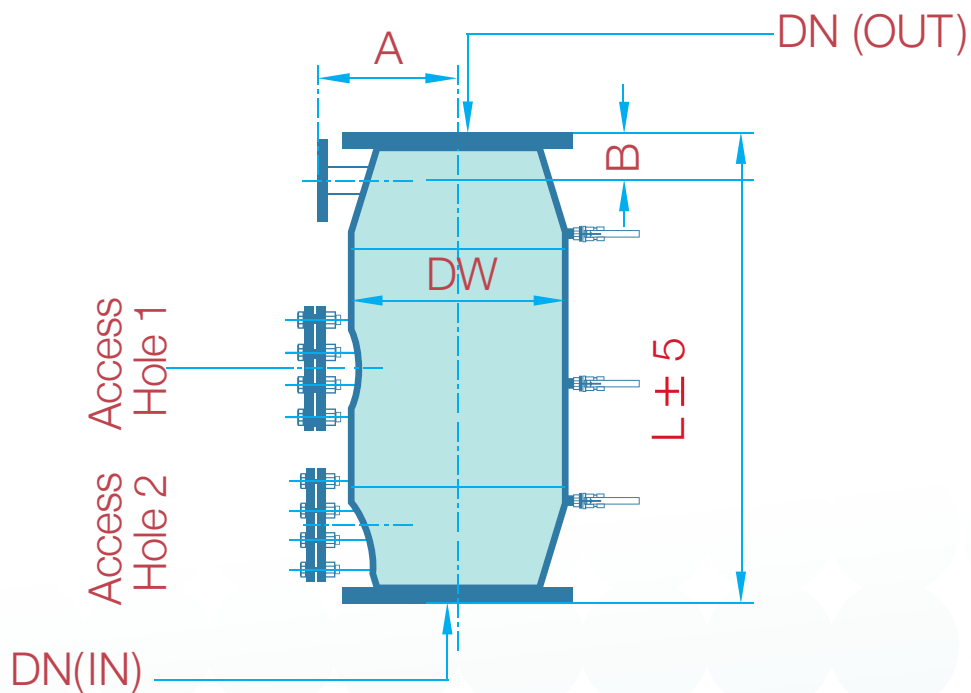
External pre-filters made of stainless steel as an option to ensure that particles greater than 1.5mm do not enter the heat exchanger tubes.



- Heavy-duty parts can withstand high pressure and ensure safe working conditions and leak free operations
- Failure of system does not affect normal chiller operation
- In the event of failure, the system allows for quick isolation from the heat exchanger system while allowing chiller to continue operation
- The control panel box is equipped with RCCB protection
- The residual current circuit breaker is an included workplace safety feature to prevent injury to workers arising from electrical faults

NanoSpheres silicon model selection

Model Range Connection	Trap Collector Length	Trap Collector	Injector Pump	TRAP Model	DN	DW	dn	L (cm)	A (cm)	B (cm)
eN CS-150	150	550	1.1 kW/415 V	TRAP-150	150	219	40	550	165	70
eN CS-200	200	760	1.1 kW/415 V	TRAP-200	200	325	50	760	215	90
eN CS-250	250	860	1.1 kW/415 V	TRAP-250	250	377	50	860	245	90
eN CS-300	300	970	2.2 kW/415 V	TRAP-300	300	426	50	970	270	100
eN CS-350	350	1070	2.2 kW/415 V	TRAP-350	350	478	65	1070	295	115
eN CS-400	400	1140	2.2 kW/415 V	TRAP-400	400	530	65	1140	330	115
eN CS-450	450	1340	2.2 kW/415 V	TRAP-450	450	630	65	1340	370	120



EG Chemicals & Engineering Sdn Bhd 525482-T

E-1-39, Block E, Jalan PJU 1A/3A, Taipan Damansara 2, Ara Damansara, 47301 Petaling Jaya, Selangor Darul Ehsan, Malaysia.

T +60 3 7842 8588 F +60 3 7842 9588 W www.engreen.com.my