



References and Studies

Residential · Commercial · Industrial



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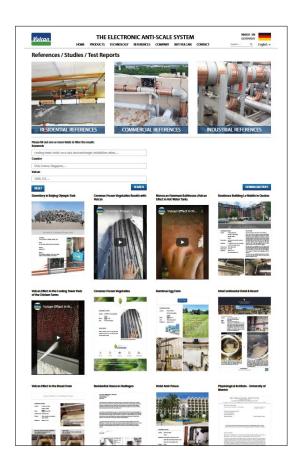
Vulcan Reference Database

This reference book shows only an excerpt of the available Vulcan references.

All Vulcan references from world-wide you can see and download at:

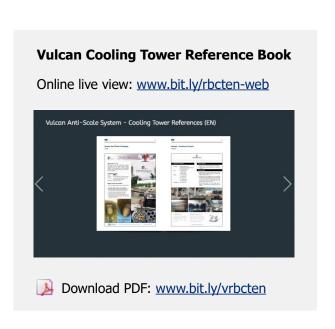
www.cwt-vulcan.com/reference

There you can also search references by **keyword**, **country** or **Vulcan model**.



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LEMERIDIEN

























DAIMLER BENZ













TORAY'































HONDA



























⚠ ALCOA



WBM

























































Mövenpick Restaurant

Germany

Mövenpick Restaurant

Potsdam



Christiani Wassertechnik GmbH

Reference Letter

Dear Sir,

Our Mövenpick Restaurant opened in January 2000. After a short period, we noticed a high level of limescale developing on the ice-cream makers. These calcifications could only be cleared bit by bit which is a time-consuming process. To avoid potential losses, a short-term limescale filter was installed. The operating time of this filter is limited however and thus resulted in high costs.

At a trade fair visit, we consulted the company Christiani Wassertechnik GmbH about other possibilities. We installed the limescale converter Vulcan 5000 and the ice-cream makers have been functioning smoothly for 10 months now.

The limescale, which accumulates especially in the crushed ice makers, can now be easily removed as it is converted into fine-grained structures.

We wish the company Christiani further success with their excellent products.

Yours Sincerely,

Marcel Charrier Director

Mövenpick Zur Historischen Mühle Sanssouci Zur Historischen Mühle

Tel.: 0331 / 28 14 93 Fax 0331 / 281 49 50



Vulcan 5000



Vulcan protects the icecream makers



Vulcan protects the ice machine



Soft limescale is now easily removed



McDonald's

Ukraine



McDonald's Ukraine Ltd.

Kiev

www.mcdonalds.ua

Dear Mr. Christiani,

Thank you very much for your service to "McDonald's Ukraine Ltd."

From our side, we're very grateful for your cooperation and support throughout the last 10 years.

Our company began to operate in Ukraine in 1987. Since then, we've already opened 57 McDonald's restaurants.

In all of these restaurants, we have installed the Vulcan Descaler by CWT International, which has delivered consistent results throughout each site.

The Vulcan range is easily installed and has been a very useful addition to our company.

I would like to add that the support of CWT International is very important to us here at McDonald's Ukraine.

Best regards,

Eugene Molodid

Equipment Coordinator
McDonald's Ukraine Ltd





O₂ Water Margin Restaurant

United Kingdom





The O₂

To whom it may concern,

We are a very busy 300-seat restaurant at the O₂ London Arena and have had major problems in the past with limescale in our glass and line washing machines, sinks, food warmers and toilets. We have installed various products in the past to remove this scale with little success, resulting in higher maintenance and replacement costs along with increased expenses on cleaning equipment.

Since CWT Partners Ltd installed the Vulcan S25 at our premises we have noticed a substantial and continual improvement over the past 3 months. Our food warmers, steam ovens, kitchen sinks and restrooms are clear of scale, along with cleaner crockery and cutlery. This has helped to reduce the detergent and cleaning equipment and products, which has saved us more than the cost of installing the Vulcan S25. The restaurant is now able to operate at a higher level, avoiding limescale and rewashing of dishes, with far fewer complaints from customers.

It is a pleasure to inform you that we are very satisfied with the Vulcan S25 descaling unit. Additionally, we would like to single out the professionalism of the CWT team that addressed our limescale problem and like to thank them for all their help. We highly recommend the Vulcan water treatment and urge other clients to install it.

Yours sincerely,

Chin Lam

CEO







Waffle House

USA





Installation Details

Model: Vulcan S25

Location: Waffle House

Tallahassee Florida

www.wafflehouse.com

Area: Water main

Installed by: Ackruitlabs, Inc.







TA Truck Stop (Moriarty, New Mexico)

USA



Moriarty Travel Center













Here in Moriarty N.M. we have extremely hard water.

In our truck stop we have to always clean up after it. The showers are a particular problem. From clogged shower heads, to constant cleaning and scrubbing to keep them clean.

It also wreaks havoc with the boilers and water heaters. After Andy and Vulcan Water Products installed the S100 unit on the main line, we noticed real soon, that the showers were becoming cleaner, and the discoloration in the water was gone too!

In our Country Pride restaurant, they noticed a dramatic change in the color and clarity of the iced tea and coffee, cleaner, spotless glassware and dishes, and the ice machine makes clean ice! We are very pleased with the results. Thank you Vulcan!

Signed,

John Hathaway GM Jack Reneker AGM

TA Operating LLC Moriarty, NM 87035



Vulcan S100 installed on the main water line









White Castle Burger Restaurant (New York)

USA





Installation Details

Location: White Castle #32

New York, USA

www.whitecastle.com

Model/Area: Vulcan 3000 was installed on

the ice machine after the carbon

filters.

Vulcan 5000 was installed on the

main inlet line.

Result: The calcium was completely

removed in one area, and normal equipment cleaning schedules are

prolonged.

30 plus White Castle have units installed. The newer restaurants have a Vulcan S10 installed on the

inlet main.

Installed by: Salt-Free Water Systems LLC

www.vulcan-USA.com







Pan before Vulcan installation, hard calcium and etched line present.



After Vulcan installation — pan area is now completely scale-free. There is a slight indentation into the pan at the waterline.



Kitchen of Spokane School

USA



Vulcan in a School Kitchen

Dear CWT Team,

The steam convection oven has greatly improved since the installation of the Vulcan. The water is injected via the pipe in the centre of the heating coils and a fan inside the coils blows the water through the coils and comes out as steam. The operating temperature of this device is 350F (180°C). The white material you see on the coils is a powder coating that is easily removed with a wet cloth. No more chemicals are required to clean the convection oven.

However, we have noticed even greater results in the school kitchen, which was previously using a traditional water softening system. But all in all, we can confirm the effectiveness of the Vulcan treatment, which means less work for the maintenance staff.

The Vulcan unit installed on the entire building system has also been extremely effective. No more rusty water after weekends and Christmas break. The next Vulcan will be installed on the other school buildings, which are around 20-25 years old.

The last Vulcan unit is installed on the main cooling tower – we have had nothing but positive news in regards to this installation. We will be seeing more orders coming from this customer very soon.

Best Regards Arne Vestad

International Water Treatment NA LLC Washington, USA











Grease Trap in a Kitchen

Japan

Grease Trap in a Kitchen

3 Months Test

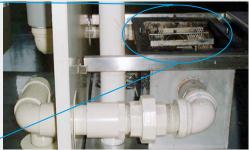
To alleviate the overflow of drainage out of the basket due to oil balls in the grease trap under the sink of the counter in the cookery on the fifth floor of the building. Also, to save the administrative and maintenance expenses by reducing the periodical cleanings used to be conducted several times a year.

Pipe Size: 50 mm | Vulcan Model: Vulcan 5000



June 13th | Before Vulcan installation





Usual level of standing water.

Grease trap under the countertop

June 17th | Installation of Vulcan

For treating water in the cookery on the fifth floor, Vulcan is installed on the vertical piping in the warehouse where the nearest main water pipe is exposed. The effectiveness of the Vulcan appears in all the service water on the fifth floor that is supplied through this piping.

Verification of the effectiveness

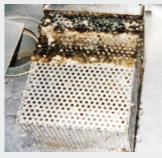
The status of the grease trap upon installation of the Vulcan was confirmed, and the changes of the statuses were observed for approximately five months from the start of the operation. In almost all cases, the effectiveness can be confirmed through the observation for about 3 months.

September 12th



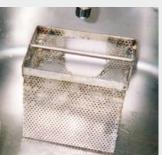
The basket after being washed by hosing. The portions usually being contacted with the treated water are cleaned easily with a water flow from the tap.

Sept. 20th - Before cleaning



The status after being used without cleaning since the installation in June (no adhered materials are seen on the portions usually contacting with water).

Sept. 20th - After cleaning



Grease trap was cleaned with water flow under the sink.

Similar effects have been reported at drainages in food factories, restaurants and kitchens. Many Vulcan installations showed that the treated water had substantial cleaning effect even with extremely reduction of conventionally used detergents. There were even some cases where the use of detergent (such as cationic detergent) causes a buildup of a thin film of dirt. Cationic detergents should not be used. With the portions that do not contact with the treatment water, this effect cannot be expected. Vulcan has no effect of breaking or resolving solids in drainage. Although the Vulcan has no disinfection effect, its prevention of dirt from adhering to the basket and the net contributes to the reduction of mold's food source.







Grease Traps in a Cake Factory

Japan



Vulcan for Grease Traps

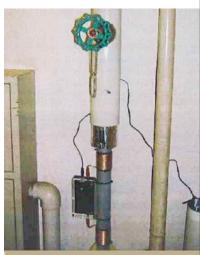
3 Months Test Report

in a cake factory in Kanagawa, Japan

Vulcan has a trouble free design and easy installation. The LED light always blinks dependably as it shows the processing conditions.

I have compared the state of the grease trap before and after installing the Vulcan. Before installation, I noticed strong odors when opening the hole. When I opened the hole one month after the installation, no such odors were present.

As for the cleaning intervals, monthly cleaning may now not be required. The effect and cleaning intervals of Vulcan will require an annual observation, however, I believe the amount of cleaning will be reduced remarkably.



Vulcan 5000 was installed in the factory kitchen

February 16th - Start situation before Vulcan was installed







March 22nd 1 month with Vulcan



May 18th - 3 months with Vulcan treatment











Metro Food Store

Canada

Vulcan Effect in the Bread Oven

Installation Details

Location: A metro food store

Québec, Canada

Model: Vulcan 5000

Treatment area: The bread oven

Problem: Often reparation and needed to

clean manually

Installed by: Gestion L.B. Inc



The bread oven before Vulcan installation.

The scale deposits were cleaned and Vulcan 5000 was installed.



Vulcan effect

After 6 months with Vulcan, very little scale has been formed.









InterContinental Kunming

China



Installation Details

Location: InterContinental Kunming *****

www.ihg.com/intercontinental

Model: Vulcan S10

Area: The water main of the kitchen

Purpose: Gently solve the scaling problems of the

entire kitchen water system: the reduced water volume, the increased water pressure, the clogging of the dishwasher outlet, the scaling of the steamer, the low heating efficiency, the increased maintenance and

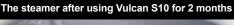
the reduced overall efficiency.



The untreated steamer



The scale was in flakes and could not be drained out of the steamer's drain hole. To test the effectiveness of the Vulcan system, no cleaning process was carried out before installing the Vulcan S10.





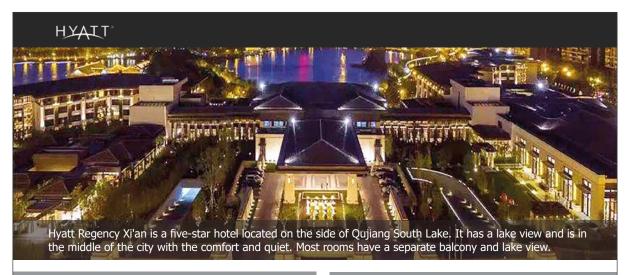
The scale has been completely turned into powder, so there is no need to open it for cleaning, just by operating the regular drainage function, it can keep the hot water tank clean and free of scale. Due to the good results, the cooperation will also be carried out in the hotel's hot water supply system and central air conditioning system.





Hyatt Regency Xi'an

China



Installation details

Location: Hyatt Regency Xi'an

Model: Vulcan S10

Area: the water main of the Chinese kitchen

Installed by: Hengsheng Chang Environmental Protection Technology Co., Ltd

Installation purpose

The two steamers in the Chinese kitchen had been scaled badly, they had been corroded and damaged in 2 years. The client used to clean with acid once a month, but the steamed food had the taste of citric acid, and the acid would even damage the equipment. Therefore, the client is looking for an efficient way to remove the scale without bad odour after cleaning.



Vulcan S10 was installed on the main water line of the Chinese kitchen.

The results

One month after the Vulcan S10 was installed, we opened the sewage outlet of the Chinese kitchen, and found that the scale scrap came out. At the same time, we compared the sewage outlet of the western kitchen without Vulcan, there is no scale coming out. The hotel manager is very satisfied with the results and is making a new purchase.



The scale scrap came out of the steamer in the Chinese kitchen.





Ibis Surabaya City Center Hotel

Indonesia



ibis

ibis Surabaya City Center Hotel

Economy hotel for business and leisure

The 224 modern and minimalist rooms feature the new ibis bedding, 4 modern High Tech meeting rooms, a lobby bar and restaurant. Perfect for business and leisure travelers.

Installation details

Location: IBIS Hotel Surabaya

Indonesia

Model: Vulsan S25
Area: water main

Installer: PT Biosolutions

www.biosolutions.co.id

Vulcan effect — before and after

Before installing the Vulcan system, the pipeline had a lot of sedimentation of scale, the client had to do manual cleaning.

After 3 months of Vulcan, it has begun to erode and clean the scale out of the system.

The clients are happy with the performance of Vulcan.

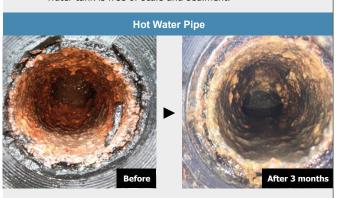








After 3 months scale is no longer forming and the hot water tank is free of scale and sediment.



After 3 months the rust in the pipe has lightened and the amount of scale is gradually reducing.



Ibis Budget Makassar Airport

Indonesia





ibis Budget - Makassar Airport Smart choice economy hotel, open to everyday adventurers

Located in the heart of Sultan Hasanuddin Airport, it offers simple and functional new bedding of 119 new cocoon rooms.

Installation Details

Location: Ibis Budget - Makassar Airport

Indonesia

Model: Vulcan Si

Area: Guest rooms — bathroom water

heating elements

Installer: PT Biosolutions

www.biosolutions.co.id



Picture 1. Vulcan installation process at the main incoming water line.

"Before" Vulcan Installation

Several rooms were monitored before Vulcan was installed and had large amounts of scale chunks on the heating element and at the reservoir sump (see pictures 2 & 3). Vulcan was installed at the main incoming water line to eliminate this problem (see picture 1).





Pictures 2 & 3. Scale previously coating the heating element and reservoir sump. (Picture taken from one of the rooms at IBMA hotel)

"After" Vulcan Installation

Scale gradually disappeared from the elements and reservoir sump. After 3 months scale is entirely gone from water heater elements and the reservoir sump.

Pictures 4 & 5. Three weeks after Vulcan installation, initial scale has been eliminated.

Vulcan has shown to successfully reduce time, energy and capital required by the hotel for water system maintenance. All pictures were taken from one out of ten rooms that were monitored before and after Vulcan was installed, and all rooms' water heater elements were also found to be free of scale.





Pictures 6 & 7. Twelve weeks after Vulcan installation, no scale at all.



Hotel Acacia Manila

Philippines



Acacia Hotel, Manila, Philippines

The Acacia Hotel is a five-star Hotel locating in Alabang, Manila.

Acacia Hotel Manila exhibits the excellence of a homegrown brand that is deeply rooted in passion, excellence, and service.

The hotel prides itself in creating an atmosphere of hospitality and exemplary service.

Like other hotels, they use chiller systems with cooling towers to provide cool air for whole hotel. And with hard water, they have problems with scale in the heat exchanger and they have used chemicals to solve.

With a desire to replace chemicals, they are looking for physical water treatments and find Vulcan. After installing Vulcan S500 unit, their heat exchanger always stays clean without any chemicals.



Here is the comment of the chief engineer: "The results are positive. We have recorded condenser approach value for 2 to 6 months after cleaning the tubes of the condenser, and there was a significant decrease on our chillers' condenser approaches. Our cooling towers remained clean and some of the stockup and passing valves are now usable. As regards the performance of the unit, we found it works well."

Model: Vulcan S500

Installation Location:

Main water supply of the cooling tower

Purpose:

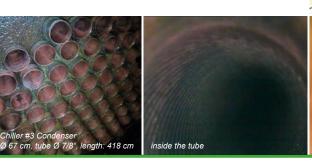
- · Clean scale deposit
- Prevent scale
- Reduce maintenance costs
- Replace chemical treatment and softener systems

Before Vulcan installation:

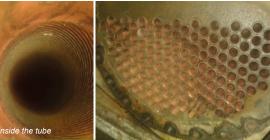
- Scale deposits in the heat exchanger
- Pipes clog

After Vulcan installation:

- Chiller and cooling tower stay clean
- No need to use chemicals











Palm Beach Hotel

Tunisia









Installation Details

Location: Palm Beach Hotel Hammamet, Tunisia

Model: Vulcan S25

Purpose: 1. To protect the hot water circuit, the kitchen and the Spa

2. To use an eco-friendly solution, without chemicals

3. To reduce the workload of cleaning the pipes with high

pressure water gun

Installer: STPE+

Palm Beach Club Hammamet

The hotel is located on one of the most beautiful beaches of the Gulf of Hammamet, in a magnificent 5 acres garden.

All rooms have sea, garden or pool views with terrace or balcony.



After Vulcan S25 had been installed for **6 months**, the boiler was opened: scale had been softer and left out.



The scale deposits were easily removed the boiler with ZERO chemical.

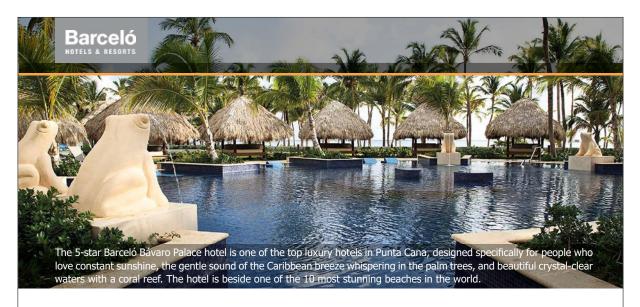


STPE+ SOCIETE DE TRAITEMENT | Route GP1 Manaret de Hammamet, 8050 Hammamet, Tunisie | www.vulcan-tunisie.com



Barcelo Bavaro Palace

Dominican Republic



Installation details

Location: Barceló Bávaro Palace

La Antagracia, Dominican Republic

www.barcelo.com

Models: 2 x S100 in hotel's main hot water lines

3 x Wilson S250 for cooling towers 4 x Wilson S500 for cooling towers

Installed by: InterClima

Installation purpose

Most of the hotels in the area of Bávaro/Punta Cana in eastern Dominican Republic depend on ground water wells for their domestic water supply, using traditional water softening equipment to reduce the scale and hardness of the water. The fact is that some of these resorts have very poor maintenance resulting in extensive scaling of cooling towers and domestic hot water piping and equipment.

The results

The project began with a mechanical room energy audit resulting in a great opportunity to upgrade the existing equipment with a very short payback period. The original installation was sold with an estimated payback of less than 2 years. To our customer's happy surprise, the actual payback was 9 months! The hotel maintenance manager is very impressed with the performance of the Vulcan systems, this opened up many additional opportunities including the subsequent chiller and cooling tower replacements.

Before Vulcan S100 was installed in hotel's main hot water line, the storage tanks had a solid 3 cm thick scale layer inside them and the pumping pressure from the booster set was at maximum while being unable to deliver adequate water pressure to the end of the line hotel rooms. After the 3 months period, an inspection of the inside of the storage tanks revealed that the scale layer was soft allowing them to mechanically clean them removing most of the calcium deposits. Other the following 12 to 18 months, the distribution lines also cleared up resulting in much improved flow and lower pumping costs from the booster sets.

The manager was instrumental in the approval of the resent trial installation of an S250 in the Royalton White Sands (Jamaica). We will continue to use the Barceló success in our future presentations.





Lhasa 21 Inn

China



Installation details

Location: Lhasa 21 Inn, Tibet
Model: Vulcan 5000

Area: Water main

Installed by: Shaanxi Wasser

Installation Purpose

In April 2017, a 6-ton tubular solar water heating system was installed. Without any water treatment, as of May 2018, due to the serious scaling problems, manual descaling and system maintenance had been made for 3 times. Even solar glass tubes, headers, valves, pumps, etc. must be replaced, the client had a large loss.





The results

1. After installing Vulcan 5000 for 1 month, the scales of the shower heads have been significantly reduced.





 The scales on the float valve in the hot water tank have been softened, they can easily be tapped off.
 See the video here: www.bit.ly/cn-tank





3. After 3 months of installation, we cleaned the hot water tank, and found a large amount of scales were drained out. The photo below is the scales removed from the water tank. Also, the heat transfer efficiency of the solar system has been significantly improved, the performance almost has stayed the same just like the beginning of installing Vulcan.







Furama Hotel Dalian

China



A luxurious five-star hotel with a long building has a total of 620 rooms.



Installation details

Location: Furama Hotel Dalian

www.furamahoteldalian.com

Vulcan S25 installed on the inlet pipe of the hot Model/Area:

water volumetric heat exchanger on the 31st floor of the West Building to solve the scale problem on the

12th to 25th floors.

Scale problems: Rusty water from the hot water pipes for bathing,

scale build-up on the surface of of the shower heads in the guest room, scaling of fins in heat

exchangers.

Installer: Dalian Jiayifang

www.vulcan-jiayifang.com



Vulcan S25 installed on DN80 copper pipe.

Visible results after 10 months – before and after

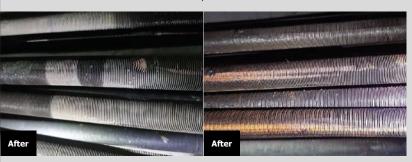
Heating elements in the heat exchanger





The hard scale between the fins affected the heat transfer efficiency and rusting caused problems with rusty water.





The fins were not cleaned before installing the Vulcan S25. 10 months later, the hard scale between the fins was removed and some areas were clean and even revealed the original colour of the copper tube. Vulcan has improved the water quality and saved energy and manual cleaning costs.

Shower heads



After using shower heads, a layer of scale would build up on the surface, giving it a dirty look.



No more scale build-up on the surface of the shower heads, and the water outlet is no longer blocked, which saves the cost of replacing and cleaning nozzle.



Karnavati Club Hotel

India



Karnavati Club Hotel in Ahmedabad, India

A prestigious name known among the most known clubs and recreational organizations of Ahmedabad is *The Karnavati Club*. The club, with an area of 500,000 sq.feet is located on the Sarkhej-Gandhinagar Highway. The club was established in 1989. And today, it is an ultimate success in the arena of recreational clubs.

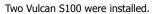
Installed: 1 x Vulcan S100 for swimming pool

1 x Vulcan S100 for the utility

Installed by: <u>BENCHM **A**RK Agencies PVT Ltd</u>









Salt based softener is replaced by Vulcan S100.



Karnavati Club Ltd.



Holiday Resort Lombok

Indonesia



Reason for Vulcan installation

Engineering had to manually remove scale from pumps, valves, kitchen equipment and from the 102 individual electric hot water heaters every 6 months because the property relies entirely on hard ground water which caused significant scale issues year after year.

Result installation of Vulcan S25

The Chief Engineer reported after an initial 6 months following installation of the electronic anti-scale system Vulcan S25 they were able to easily flush out already dislodged scale from each tank heating unit – instead of scraping away hard scale from the elements. After a second inspection the units were found to be almost entirely free of scale. Future inspections have now been reduced to annual, random inspections only – which is felt to be sufficient to ensure overall domestic water piping system cleanliness.

Inspection after 6 months

One of the water heaters at a Sea View Bungalow (photo) was opened for inspection and showed much dislodged scale particles at the bottom of the tank, with some easily removed soft scale still present on the element only. This water heater unit had not been scheduled for random inspection since installation of the Vulcan unit at the Resort.

Additional benefits reported

The General Manager and CE reported that shortly after the Vulcan had been installed, the linen being washed at the inhouse Laundry plant was softer and whiter. In addition, Food and Beverage staff reported brighter glass ware with the detergents working much better. Housekeeping staff reported that the usual white spots on bathroom tubs, counters and floors had entirely disappeared and that outlets of showers and taps needed no longer special attention with only basic wiping being sufficient to maintain their shine.

Holiday Resort Lombok, Indonesia

189 Bungalows / various types of guest rooms / extensive landscaped gardens / 2 Swimming Pools / several Food and Beverage outlets

www.holidayresort-lombok.com



Anti-Scale System Vulcan S25 installed



The little remaining scale is soft and easily flushed out since installation of the Vulcan Anti-Scale System.





Aura Hotel

Hungary



INSTALLATION DETAILS

Location: AURA HOTEL

8320 Balatonfüred,

Munkácsy M. u.5., Hungary

www.aura-hotel.hu

Model:

Vulcan S50

Area: Main water inlet pipe

Installed by: VARÁZSMAG Kft

PURPOSE

General protection of the piping system.

They had to maintain the ice-machines monthly, the faucets and shower heads were blocked by the scale after 6 months of opening the Hotel, the tiles and the shower walls were extremely scaly. They cleaned the bathrooms manually, that lasts for hours. The faucets had to be changed and the ice machine had to be repaired.

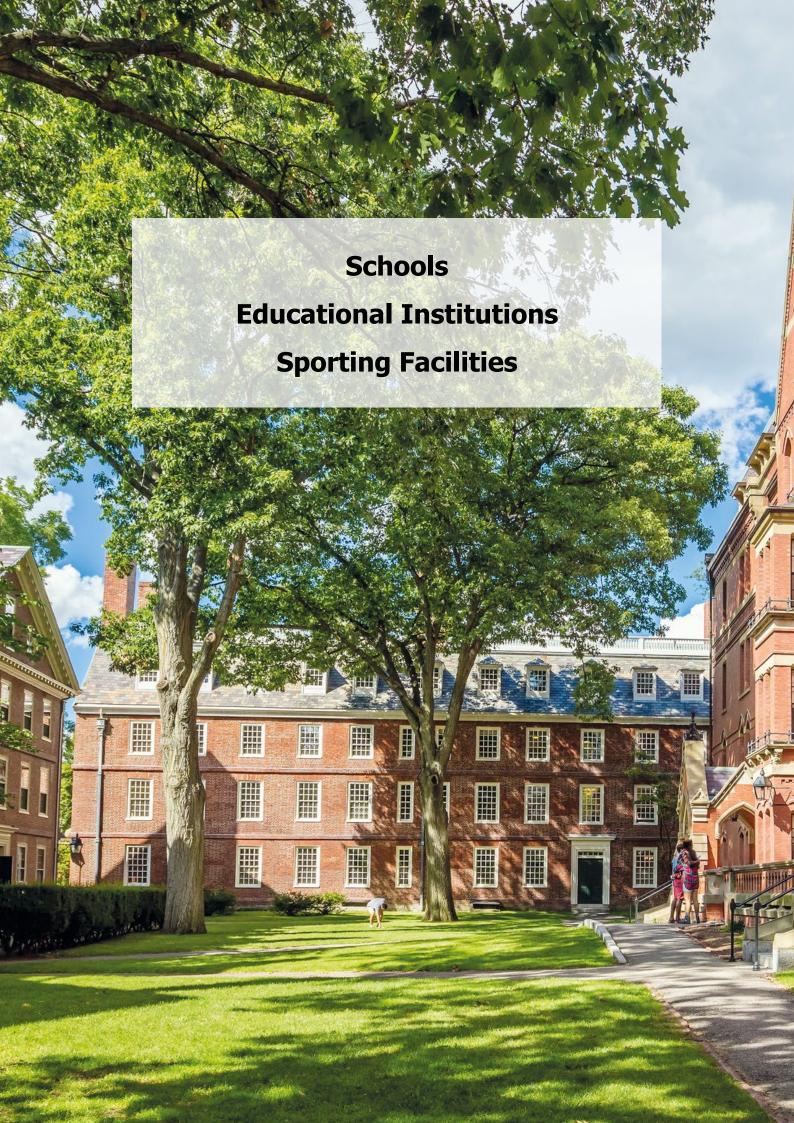
RESULTS

The faucets and tiles can be cleaned by wiping the powder-formed scale. The ice-machine working properly. The dishwasher gives out perfectly shiny and spotless dishes and glassware.













FAMU / FSU (Vulcan Effects on Cooling Towers) Florida Agricultural Mechanical University / Florida State University USA



Vulcan Effects on Cooling Towers

Installation details

Location: FAMU/FSU College of Engineering

Area: On the 10 inch diameter line that feeds twin cooling towers

(CT-1 and CT-2)

Model: Vulcan S25

Objectives: 1. To prevent scale buildup on the cooling towers

2. To remove the existing scale

3. To eliminate the need for chemicals or time-consuming

cleaning procedures
4. To reduce energy costs

Installed by: Ackuritlabs, Inc.

History

The maintenance for these cooling towers previously involved continuous injection of descaling chemical cleansers. The use of these cleansers was discontinued over a year prior to the installation of the Vulcan. In that time, the cooling tower flutes became encrusted with both scale and biofilm. Throughout the time period described below, there were no cleaning procedures in place with these cooling towers besides the treatment provided by the Vulcan.

Observations over time after the Vulcan installation

After 2 weeks, the green biofilm had begun to recede and gradually disappear.

After 3 weeks, the green biofilm had been further reduced and the scale deposits had begun to separate from the flutes in coin-sized flakes.

After 1 month, the green biofilm had almost completely disappeared from the surfaces in contact with the Vulcan-treated water. The flakes of scale previously observed had fallen off in most places. The cooling tower flute surface area covered with scale deposits had been decreased by **over 60%**.

The Vulcan does not change the water quality beyond its affect on its propensity to cause scale buildup. The pH, conductivity, dissolved oxygen level, and turbidity remained relatively constant during observation from before the installation to over a month after.

We are very optimistic about continued improvement with Vulcan.

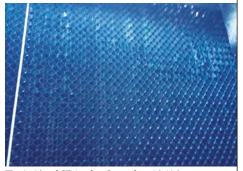


The photo above was taken of CT-1 about **3 weeks** after the Vulcan was installed.





Vulcan S250 installed on a 10 inch diameter line that feeds twin cooling towers (CT-1 and CT-2)



The inside of CT-1, after **3 weeks** with Vulcan. It illustrates clean flutes that are in constant contact with Vulcan-treated water and a few dry (untreated) areas that still have some remaining green biofilm.



The photo above was taken of CT-1 about **6 weeks** after the Vulcan was installed.



Spokane Public Schools Washington

USA



Vulcan installed in Spokane Public Schools

Dear CWT Team,

Spokane schools now have 6 Vulcan units installed.

One of the first Vulcan units is on a small cooling tower and this stays absolutely clean during the season. The tower was full of scale when we started and after 4 weeks, scale started to fall of in big chunks and now it is completely scale free.





Installation of Vulcan Descaler for the entire buildings water supply in the Roosevelt school

Our first installation in Spokane schools was in Shaw Middle School, 50 years old building and with rusty/dirty looking water.

This was installed before the school started in the fall.

After Christmas this year, the water is always clean and the janitor does not have to flush the piping anymore.

Have a great day.
Arne Vestad
IWTNA

Installation locations





Roosevelt Elementary School 333 West 14th Ave Spokane, WA 99204-3627 USA



Shaw Middle School 4106 N. Cook St. Spokane, WA 99207 USA



Florida State University

USA

Florida State University 600 W. College Avenue **Tallahassee** FL 32306



Dear Ackuritlabs Team,

Please find below photos of the Vulcan Descaler installed in the Florida State University Biomedical Facility.

These pictures are of a stainless steel rack washer and conveyer steam washer, after the Vulcan units were installed on the entire Biomedical Research Building.

Regards,

The Florida State Bio-medical Team



Vulcan unit installed on water main



Stainless steel rack washer now completely scale free















Beijing University of Chemical Technology (Student Dormitory)

China





Dear Christiani Wassertechnik GmbH (CWT),

Due to the shower head scaling problem in Changping student dormitory in Beijing University of Chemical Technology, the water was getting reduced after a month, and the shower head was blocked completely after two to three months. The scale was very hard, so we even had to use the 1.8mm driller to remove it. In addition, the drinking water heater in the student dormitory was scaled badly, two heating elements were completely scaled and no longer useful after one semester, we had to hire cleaning workers regularly, and the damage rate of heating elements was extremely high.

When I saw Vulcan products introduced by your distributor-Beijing North Xinhu Mechatronics Co., Ltd, we doubted if such a simple product could solve our scaling problem. Let's try and see.

We installed 2 Vulcan to test: one S25 for shower heads in the student bathroom; one S10 for heating elements of drinking water. After 2 months, no scale was found on the shower heads, only saw a thin layer of white membrane, and it was easy to remove. Also, the scale of heating elements were significantly reduced, Vulcan greatly extends the time of manual cleaning.

Through this test, we are very satisfied with Vulcan products with no doubts. Strongly recommended!

Kind regards,



Vulcan S25 for solving the shower head scaling problem.



The student dormitory of Beijing University of Chemical Technology





After installing Vulcan for 2 months, the scale of shower head has been reduced.



Prince Sattam bin Abdulaziz University

Saudi Arabia



Installation details

Model: Vulcan S250

Location: Prince Sattam bin Abdulaziz University

Al Kharj, Saudi Arabia

www.psau.edu.sa

Installed by: Wrood Al Shame for Trading &

Contracting Est.



First, wind plastic foil around the pipe to protect the impulse bands against condensation on the pipe.



Wrap the impulse bands around the plastic foil.



Connect the Vulcan S250 unit with the impulse bands. (Vulcan unit was installed in the outdoor case to prevent from humidity.)



Check the functionality of Vulcan with a impulse detector.



To finish, install an insulation protection to cover the impulse bands completely against the elements.



Irrigation for a Football Field

Saudi Arabia

Irrigation water for the natural grass football fields





Dear Mr. Christiani,

Reference to the above mentioned subject, we have installed VULCAN S100. After a year, the result on irrigation water for the natural grass football fields was very satisfactory.

The company which is behind the maintenance of football fields feeling well, they have sent reports to the Saudi Government Sports Ministry they wrote on their reports that there's good result on using this devices.

For your information and references.

Engr. Ziad Sabbagh





Hartwall Ice Hockey Arena

Finland



HARTWALL AREENA Helsinki Halli Oy Areenakuja 1, FIN-00240 Helsinki

.....

Hartwall - Areena Areenankuja 1 FI-00240 Helsinki, Finland



CWT-Christiani Wassertechnik GmbH Herr Rolf Christiani Köpenicker Str. 154 10997 Berlin

Dear Sir

We have been using CWT-Christiani Wassertechnik Gmbh Vulcan water treatment equipment in our ice hockey hall Hartwall Arena.

We are using many sizes of Vulcan for several heating/cooling equipment in our water system:

- Vulcan 5000
- Vulcan S 25
- Vulcan S 100.

We have realibility with these systems and have been most satisfied in using them.

Vulcan is a high-quality and great solution to different kind of premises.

Yours sincerely,

Hartwall - Areena

Jeri Väänänen











Powerhouse Gym

USA



Installation Details

Location: Powerhouse Gym, Michigan, USA

www.powerhousegym.com

Model: Vulcan S25

Installer: Green Salt Free Water Solutions

Powerhouse Gym

The Powerhouse Gym name and brand has been one of the top leaders in the fitness industry for over 40 years. With 300 licensees in 39 states, Powerhouse has continued to steadily gain global attention by expanding into 17 different countries worldwide. The first Powerhouse Gym still stands in its original location and celebrated its 40th anniversary in 2014.

The Powerhouse Gym Trademark is associated with service and quality, and is apparent throughout each and every Powerhouse Gym that opens its doors to over 1.2 million dedicated members.



Step 1: Install the impulse bands

Step 2: Install the S25 unit on the water main and wrap the protection layer



Green Salt Free Water Solutions | 3596 W. Maple Rd. Ste 108, Bloomfield Hills, MI. 48301, USA | www.GreenSaltFreeWaterSolutions.com



Ice Stadium Neuchâtel

Switzerland





INTERMUNICIPAL UNION Direction of Skating Rinks



Vulcan S100

Anti-scale Vulcan W. Kurt 4103 Bottmingen

Mister,

Following our discussions at the Salon de l'immobilier Neuchâtelois, we agreed to install the Vulcan model S100 on our premises for a five-month test phase as soon as our ice period began operating in August.

The defined objective was mainly intended for the dumpsters of our two ice resurfacers, which are filled with snow all day long and therefore subject to weekly descaling.

After a few weeks, we noticed that the scale adhered less. This makes it easier to clean our machines, saving us time and products.

The test carried out allowed us to take the time to compare the positive effects of the Vulcan S100 on our installation and that the objective set was achieved.

We would like to take this opportunity to thank you for your warm cooperation and extend our warmest greetings to you, Sir.

Nicolas Matthey
Operations Manager

Quai Robert-Comtesse 4 - 2000 Neuchâtel - Tél. 032 717 85 50 - Fax 032 717 85 47 - Email : patinoires.littoral.ne@ne.ch





Ice Land Stadium

USA

My wife and I live on a 5 acre property at Gelo Australia. Our local water causes enormous proble of iron sludge and chips would build up in the pipir sprinklers. The situation was getting us both dow blocked and I was replacing the solenoids every s

Within three months of installing the CWT water trappeared. I was staggered by the results. The pip of the iron scale at all.



The results have been so successful we all garden and bird aviary. I would recommend this p in Australia. They're simple to install and maintena

Installation details

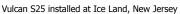
Model: Vulcan S25

Location: Ice Land, New Jersey

Installation area: Treats water used for ice production

Installed by: Princeton Management Advisory and Consulting LLC















Coca Cola

Morocco

Coca Cola

Installation details

Model: Vulcan 5000
Location: Coca-Cola Factory

Marrakech, Morocco

Area: the water inlet of the water recycling room

Pipe: 2", stainless steel pipe

After Vulcan installation:

- 1. Two weeks after Vulcan was installed, lots of scale deposits had disappeared in the pipe.
- 2. 48 hours after Vulcan was installed, the filter still stays clean.
- 3. Less maintenance.



Before Vulcan installation: the pipe was full of scale deposits



2 weeks after Vulcan was installed, scale had been softer and fallen out.



Without Vulcan, the filter was quickly stuck by scale deposits, and it had to be changed every 48 hours.



The Coca-Cola factory in Marrakech, Morocco



Vulcan 5000 was installed on the water inlet of the water recycling room.



 ${\bf 48\ hours}$ after Vulcan was installed, the filter still stays clean.

STE ETCT INDUSTRIE | 23, bd okbra bno nafii 3ème étage N°5 hay mohamadi casablanca, Maroc | www.vulcan-maroc.com



Nestlé Ice Cream

Israel



Installation details

Location: The ice cream factory of Nestlé

Kiryat Malachi, Israel

froneri.co.il

Model/area: S25 for the hot water tank.

Vulsan S10 for the CIP (cleaning-in-place

machines).

Problem: Very hard scale problems needed constant

acids treatment.

Result: Due to the excellent results from

Vulcan S25 running for 3 years, Vulcan S10 was introduced to solve the scale problems from the hot water piping in the CIP system.

Installed by: EYE-IN ELECTRONICS

www.eye-in-electronics.co.il



Nestlé is a Swiss multinational food and drink processing conglomerate corporation headquartered in Switzerland. It is the largest food company in the world.



Without Vulcan, the hot water pipe was blocked and the production had to be stopped to replace it. The Vulcan S10 was installed on the supply pipe and solved the problem.







The container looks shiny and clean inside and outside. The filters at the entrance also stay clean. No more extra treatment since then.



Yinmore Sugar Industry

China

英龙糖業 YINMORE SUGAR

Yinmore Sugar Industry Co., Ltd. is the largest sugar company in Yunnan Province, mainly engaged in the manufacture and sale of white sugar, refined white sugar, alcohol, compound fertilizer and organic fertilizer.

Installation 1

Location: The inlet of the fermentation broth in the alcohol

workshop Pipe size: 80 mm Model: Vulcan S25

Model: Vulcan S25

Result: After 2 months, the scale in the fermenter has been significantly reduced, it shows that Vulcan

been significantly reduced, it shows that Vulcan is also effective at the fermentation broth.



Installation 2

Location: The distiller inlet in the alcohol workshop

Pipe size: 80 mm Model: Vulcan S25

Result: After 2 months, the scale in the distillation tower

has been significantly reduced.



Installation 3

Location: Power workshop of the sugar factory

Pipe size: 100 mm Water flow: 80 m³/h Model: S100

Purpose: To solve the scaling problems of boilers Result: After 2 months, the scales in the salt ta

After 2 months, the scales in the salt tank of the water softener have been reduced, and the scales from the pipe also began to fall off,

so the water softener was turned off.



Installation 4

Location: The outlet of the refined syrup, the material

temperature is 60 °C

Pipe size: 150 mm Model: S100

Purpose: To solve the scaling problems of the refined

syrup processing equipment

It: The scaling problems of the syrup processing equipment and the filter have been solved, and the crystallization of sugar has not been affected.







Yunnan Salt Industry

China



Installation 1

Location: Before the heat exchanger of the first

cooling water system Pipe size: 80 mm

Model: Vulcan S25

After 2 months, the heat exchanger was opened. It was found that the scale on the wall of the heat exchanger became muddy and easy to clean. Result:



Installation 2

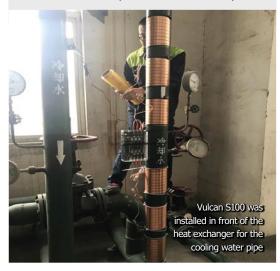
Result:

Location: Before the heat exchanger of the second

cooling water system

100 mm Pipe size: Vulsan S100 Model:

The water cooling system keeps running stably. It is not necessary to clean the scale every 2 months like before anymore.





Before installing Vulcan, the scale was very thick and hard in the heat exchanger tubes.



The scale becomes soft and muddy.





Winery Adam Müller

Germany



Installation details

Location: Leimen, Germany

System: Water treatment system

Area: Wine filling station

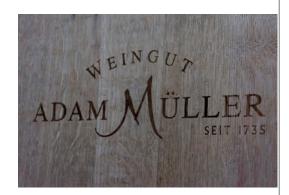
Cleaning machine

Purpose: Exchange of the water softener

with CWT water treatment system

Result: Water softener is stopped and

dismantled. CWT water treatment system works successfully.



For now we have used a salt-based water softener for our filling station. The hourly output of the unit is approx. 8 m³ of water. The water hardness is between 25 and 28 degrees German hardness

We have now used your salt-free water treatment system instead of the salt-based water softener. Up to date we are very satisfied. The water treatment system fully replaces the water softener for us

We use water temperatures of 14 $^{\circ}$ C - 90 $^{\circ}$ C. Herewith we do not notice any scale deposits. Even in the critical zone of the cleaning machine in the area of the warm water and alkaline solution, we have not noticed any limescale deposits.







Dairy Farm Rancho Dulce María

Mexico

Rancho Dulce María

Gómez Palacio, Durango, Mexico



INSTALLED AT: Dairy Farm Rancho Dulce Maria

MODELS:

Vulcan S50

For bathing and milking area, installed December 2019

Vulcan S250

For calves, production cattle and cattle stables, installed in April 2022

PURPOSE: Eliminate limescale build-up in the cooling tower, bathing area, water heater, bath sprinklers, pipes, biofilm in drinking troughs. Eliminate the use of anti-scale chemicals, save electricity by having pipes without scale blockages and provide better water quality for livestock.

SOLUTION: Vulcan Systems bring better water quality, better taste, which helps to increase intake, will inhibit the growth of algae and bacteria, due to the reduction of scale. Thus helping to improve the health of the livestock.

RESULTS: After 2 years, the cooling tower is free of limescale build-up on its walls and celdek. There has been no need to change celdek and its maintenance is minimal. No sprinklers have been damaged in the bathroom area. Cleaner areas, without using chemicals that damage the materials. Generating quantifiable savings.



















Delice Danone (Dairy Production)

Tunisia





Installation Details

Model: 2 x Vulcan 3000

Location: Delice Danone Usine

Tunisia

Installed by: STPE sarl Tunisie

Delice Danone Factory - Tunisia

The Fresh Dairy Products division manufactures and sells dairy products and other fermented dairy specialties. In this context, Danone relies on its ability to develop its range and continuously introduce new products in terms of flavor, texture, ingredients, nutritional content or packaging. Their brands include Activa, Oikos Greek yogurt & Danone children's yoghurt.



Milk production



Vulcan 3000 installed in the Delice Danone factory



Milk production



Vulcan 3000 installed in the Delice Danone factory





Delicatessen Food Processing Plant

Morocco



INSTALLATION DETAILS

APPLICATION: Food processing plant delicatessen,

in Morocco

MODELS: 3000 for the boilers

Wiscon 3000 for the heat exchanger

Wilson 5000 for 2 sterilizers

PROBLEM: Limescale problems in the steam

boilers, the sterilizers and the heat exchanger. The client had to use

water softener.

RESULT: The water softener is replaced with

Vulcan and old scale becomes soft.

INSTALLED BY: STE ETCT INDUSTRIE, Morocco



Before using Vulcan, the steam boilers were nonstopping running for more than 1 year and a small layer of 0.5 mm limescale was found. After 2 months treating with Vulcan, the limescale can be removed easily by a finger.

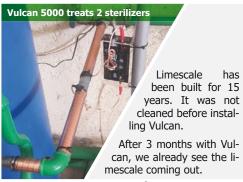




Watch the video results: http://y2u.be/4i_PIKk2ipI











Noon Crop Science

China



Installation details

Location: Jiangsu Noon Crop Science Co., Ltd

www.noonchem.com

Model: Vulcan S25

Area: Cooling tower water inlet

Purpose: Solving scaling problems in the cooling

tower condenser tubes

Result: Without Vulcan, the internal cooling

tower was heavily scaled, which seriously

affected the heat transfer.

The cooling tower had not been cleaned before the Vulcan S25 was installed. **After 6 months**, the old scale had disappeared and no new scale was formed. The customer is very satisfied.

Installer: Xinriyuan Company



Vulcan S25 was installed at the water inlet of the cooling tower.

Vulcan effects on the cooling tower condenser tubes – before and after

Without Vulcan, the internal cooling tower was heavily scaled, which seriously affected the heat transfer.



After 6 months, the old scale had disappeared and no new scale was formed.





Cooling Tower in a Medicine Factory

Japan

Vulcan test report on a cooling tower



Installation details

Model: Vulcan S100

Location: A medicine factory in Japan

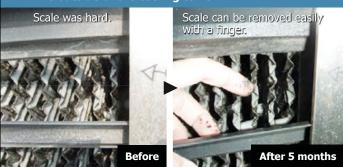
Area: Cooling tower
Pipe: 150 mm

Water capacity: 100 m³/h

Vulcan S100 installation

Vulcan effect — before and after

The outside of the cooling tower fill





Scale has been reduced.

Vulcan effect

Plate heat exchanger



Circulation pipe



Scale becomes soft and can be easily removed with a finger.





Marigot / Swarovski Crystal

Vietnam



Installation Details

Location: Marigot Vietnam LLC

(A company of Swarovski Group)

www.swarovski.com

Area: - Cooling towers

- Process water

- Water supply

Model: 6 x Vulcan 5000

1 x Vulcan S10

3 x Vulcan S25

2 x Vulcan S100

2 x Vulcan S500

Installed by: Chuc Hien Dat

Before Vulcan

- 1. Cooling towers: chemical dosing was necessary.
- 2. Process water pipes: cleaned every 3 months by chemical.

Vulcan Effect

- 1. Cooling tower and chiller system: after Vulcan S500 has been installed for 1 year, the condenser approach temperature < 2°.
- Cooling tower: after installing Vulcan, we still keep the chemical dosing system and check the water monthly. We reduce chemicals every month. After 6 months with Vulcan, the chemicals have been greatly reduced more than 80%.
- 3. Process water pipes: no need to clean every 3 months. The client has never cleaned by far with Vulcan.













SWAROVSKI

is a crystal producer headquartered in Austria. Swarovski has been a family-owned business since it was founded in 1895 by Daniel Swarovski.

Marigot Vietnam LLC

is part of the Swarovski Crystal Business, which represents the largest area of business for the Swarovski Group. Marigot Vietnam LLC manufactures jewelry and fashion accessories.





Nippon Sheet Glass Factory

Vietnam



Installation details

Location: Nippon Sheet Glass Factory, Vietnam

www.nsg.com

Model / Area: 1 x Vulcan S25 for a small stirrer

2 x Vulcan S500 for the cooling water systems

Installed by: Chuc Hien Dat



Before Vulcan

Many scales were in the piping systems, glass stirrers and the cooling towers. The client had to change the stirrers every year.

Test Vulcan S25 for 3 months

Vulcan S25 were installed as a test for a small stirrer for 3 months, and the scales in the

paddle have been greatly reduced. Thus, the client purchased 2 x Vulcan S500 to treat the cooling water systems.











Penoles Mining Industry

Mexico



Peñoles Industries Mexico



Peñoles Industries is a mining and metal group founded in 1887 and has been contributing to the economic and social development of Mexico.

www.penoles.com.mx

INSTALLATION DETAILS

Installed at: Químicas del Rey,

Peñoles Industries, Mexico

Model: Vulcan S250

is installed since 8 months





PURPOSE

Limescale in pipes and channels of the calcium chloride process.

SOLUTION

The limescale deposits became brittle in the pipe and in the gutter, which are now very easy to remove even by hand.

RESULTS

The water that is handled contains more than 70 gr/l of calcium, which caused constant blockages in the pipe and increased scale in the gutter through which the liquid poured, this could only be eliminated by means of mechanical tools, hitting pipes and gutter, at 15 days, the encrustation in the pipes became brittle, at 8 months, the encrustation in the gutter can be removed or removed with the hands.







Watch Video here:

Link:

https://bit.ly/3FFxYE6







TDK Electronics

China

Our Ideas for the Future







Installation details

Location: TDK Dalian Electronics | www.jp.tdk.com Model/Area: **Vulcan 5000** x 1 for reverse osmosis

pure water system

Vulcan S10 x 1 for circulating cooling system of the vacuum pump

Vulcan S150 x 1 for circulating cooling system of the Refrigerator No.5

Vulcan S250 x 1 for circulating cooling system of the Refrigerator No.4

Results:

The factory has a few cooling systems, they all had scaling problems. The customer started testing the Vulcan S10 in a small cooling system. After 1.5 years, the customer was very satisfied with the S10 results, then another 3 Vulcan devices were purchased.

Installed by: Dalian Jiayifang









TDK Dalian Electronics Co., Ltd. is a Japanese-owned company established in 1992. The company is covering an area of 137,000 square meters and employs 1,430 people. Mainly engaged in the manufacture, processing, assembly and sales of ferrite products.

Vulcan S10 effect verification

Before Vulcan

The pipe had been used for 15 years and had a very thick hard scale layer inside. The pipe was not cleaned before Vulcan S10 was installed. The following two photos are the observation points selected before Vulcan installation.





After Vulcan S10 was installed for 4 months

The scales inside the pipe have been gradually reduced, and they do not fall off in blocks, which will not affect the operation of pumps and other equipment. Because of the good results, the customer decides to apply Vulcan in several other cooling systems.







www.vulcan-jiayifang.com



Shengli Oilfield Petroleum Plant

China



SHENGLI OILFIELD



The front door of the station 20, Xian-he oil production plant.



The water inlet of heating furnace.

Installation details

Model: Vulcan S25

Location: Station 20, Xian-he oil production plant, Sinopec Shengli Oilfield

The water inlet of heating furnace Area:

Installation purpose

The gas heats the water in the furnace, then the hot water heats the tubes, so that the water temperature in the tubes rises from 40 $^{\circ}$ C to 70 $^{\circ}$ C. The water in the tubes passes through the pump, transported to various wells.

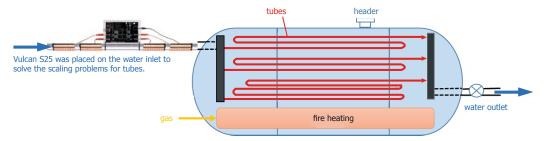
However, the heat exchanger efficiency is decreasing because of scale in the tubes. More gas has to be used to heat the furnace, so that the energy consumption is increased.

The calcium (Ca) content in the water is 1469.09 (mg/L), which is extremely high. The tubes are scaled badly because a variety of cleaning agents are added constantly and also the tubes are kept at a high temperature of 60 °C -70 °C. Every 3 months, the heating efficiency will be reduced down to 50% or even less. After running 1 year, the whole pipelines and the tubes need to be cleaned up manually, which is time consuming and costly, and reduces production capacity.

Therefore, before installing Vulcan, the scale of the tubes was removed. Then Vulcan S25 was installed to see how it performs.

Installation observation

After installing the Vulcan S25 for 6 months, we found that there is no additional electricity usage, and the overall heat exchanger efficiency is still at 80%. We approved Vulcan and will make the follow-up purchase for the whole project.



In order to heat the water in the tubes, the water temperature of the heating furnace is $70^{\circ}\text{C} \sim 80^{\circ}\text{C}$. The tubes are marked in red and have scaling problems. The tube diameter is 80mm.



Before installing Vulcan, the rust and pipe insulation were removed, and the impulse bands were winded on the pipe. Then, the outer insulation was put back.



Outdoor installation with self-made cover, to protect the unit from the





Hyundai Motor

Korea



Installation Details

Location: A car engine manufactu-

ring factory, Hyundai Motor Ulsan

Area: A cold water circulation

pipeline for the cooling tower and the induction hardening machine

Pipe size: 100 mm

Model: Vulcan S25

Installer: Vulcan-Korea team

Scale Problems

- Scale problems in the pipelines and the induction hardening machine.
- 2. There are 9 secondary small pipes, they had to be cleaned manually every 2-3 months.



Installation of a Vulcan S25 unit: May 21st, 2018.

Note: scale was not manually removed before the Vulcan was fitted on source pipe (see photo).

Examination of secondary piping: November 21st, 2018

 Since Vulcan S25 was installed, the Hyundai Engineering Team has stopped the regular manual cleaning process.

Observation: the flow rate with the Vulcan unit is now even higher than immediately after previous manual cleaning had been done.

 After Vulcan S25 had been installed for 6 months, the secondary pipes were opened: scale that had been left in piping had disappeared and all 9 secondary pipes had become clean (see photo).

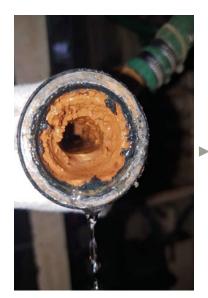
Observation: Biofilms in the cooling tower had disappeared since the Vulcan unit was installed.



Vulcan S25 was installed around 50 meter before the induction hardening



There are 9 secondary small pipes with water meters. These meters were installed to make sure a stable flow rate. If the flow rate goes down, it would cause a problem of the induction hardening machine. Therefore, the pipes had to be cleaned manually every 2-3 months.



First inspection: May 21, 2018. Inside of a secondary small pipe, before Vulcan S25 was installed.



Last inspection: November 21, 2018.After 6 months with Vulcan treatment: the pipe is free of scale.



Chrysler Automobile

USA



Installation Details

Location: Chrysler transmission plant

in Kokomo, Indiana www.chrysler.com

Area: High pressure wash station

Model: 36 x Vulcan S25

Installed by: Salt-Free Water Systems LLC

Annual Cost Savings

High pressure DeBurr/Washer: 100 gpm @ 1000 psi water & soluble oil. The annual cost savings = **\$15,000 per Machine/Year**



Vulcan S25 was installed on the high pressure wash station in the Chrysler ITP 2 plant.

Vulcan Effect

Chrysler has had the S25 installed on the high pressure wash station for 3 weeks.

Before the Vulcan was installed, there would be a **12mm calcium buildup** in the nozzle by this time and they would exchange it with one that had been acid cleaned.

The maintenance man held the cleaned one in one hand & the one he had just removed, in the other hand. He was showing them to an engineer and held out the cleaned nozzle and said he was going to install it on the wash station - The engineer said "Why would you install the dirty nozzle instead of the clean one!" Everyone was amazed - 35 more Vulcan S25 were ordered after this test.

Screen and nozzle from high pressure deburr machine indiana transmission plant

After 3 weeks normal conditions





After 3 weeks with Vulcan S25 installed





Vulcan results: S25 has been installed for 3 weeks.



Honda Motor

China



Installation Details

Location: Dongfeng Honda Automobile Co., Ltd.

China

www.dongfeng-honda.com

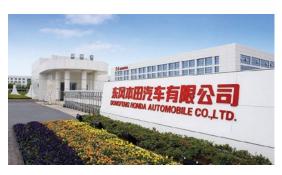
Area: Automobile casting cooling workshop

Scale problems: The circulating water system for the

production robots was heavily scaled and the large amount of scale in the pipes affected the production line.

Model: Vulcan S25

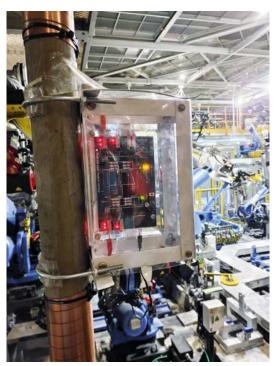
Installer: Xinriyuan



Dongfeng Honda Automobile Co., Ltd. is an automobile manufacturing company headquartered in China, and a 50:50 joint-venture between Dongfeng Motor Group and Honda Motor Company in Japan. The company was established in 2003 and has three production plants.

Vulcan Effect

After installing Vulcan S25 for **3 months**, the scale on the cooling water side has been significantly reduced, and the use of chemicals and acid has been also reduced. Now only simple manual cleaning is required, which is estimated to save at least US\$4,700 per year.



Vulcan S25 is installed on the main pipeline of the circulating water system for the production robots.





Huomei Wheel Factory

China



the Improvement Project for Reducing RO Membrane Replacement Frequency

Installation details

Installation location:

A factory in Inner Mongolia Huomei Wheel Manufacture Co. Ltd., which produces aluminium alloy wheel. Vulcan was installed in the painting workshop, for the pure water section. Pure water is produced by RO membrane (reverse osmosis membrane).

Model: Vulcan S10 is used as the

pretreatment of the RO membrane.

Pipe size , capacity: 65 mm, 15 m³/h **Installed by:** Suzhou KaiEnSheng

About Huomei Wheel Manufacture Company

Located in Huolinguole Industrial Park, Inner Mongolia. It is one of the largest aluminum wheels manufacturer in northern China.





Pure water process equipment.

Scaling problems

Before installing Vulcan, adding scale inhibitor was the only descaling method, and the RO membrane would be replaced every 2-3 months, sometimes even more often: every 1-2 months! Each replacement costs about 9,000 USD.

Results

Since the Vulcan was installed in April 2017, the RO membrane has not been replaced until now (October 2017), and the use of scale inhibitors has also been reduced by 50%. The estimated cost savings in 6 months has been around 25,000 USD.

After 3 years of Vulcan operation, the results are still very satisfactory, extending the life of the RO membrane by about **2-3 times**.

A letter from production department of Huomei Wheel Manufacture Company

From May 2016 to January 2017, 5 sets of RO membrane were replaced, they cost 50,000 USD.

The issue is urgent.

We found that the problem comes from the water quality. Suzhou KaiEnSheng recomands Vulcan for us to try. Surprisingly, the effect is very good.

Vulcan was installed on April 6, the conductivity after the three-stage RO membranes were: 17.1, 22.7, 21.5 (μ -Siemens/cm) on the day. Over 4 days, we already saw noticeable effect. We measured the conductivity again on May 4 after the three-stage RO membranes were down to 11.5, 11.5, and 11.6 (μ -Siemens/cm). We will keep tracking the effectiveness.





S10 was installed before the reverse osmosis membrane.



Suining New Oasis Printing & Dyeing Factory

China

Suining New Oasis Printing & Dyeing Factory

Installation details

Location: Suining New Oasis Printing & Dyeing Co. Ltd

www.xlztex.com

Model/Area: Model/Area: S10 x 2 for pre-dyeing system and post-dyeing system

S25 x 1 for water filtration of alkali recovery system

S100 x 1 for the sludge dewatering system

Result: 1. Saves a lot of water treatment costs

2. Reduces significantly the use of filter cloth (cost)

3. Reduces the workload for workers to fight against scale

Installed by: A Fei Te



Before Vulcan was installed, the pipe was scaled and rusty.



Vulcan S25 outdoor installation



The outer rust had been fallen off completely.



Vulcan S100 was installed in the sewage room to treat the sludge dewatering machine.



After Vulcan had been installed for 1 month, the scale was softened and falling off.



Toray Industries

Korea





INSTALLATION DETAILS

Location: Toray Industries, Inc

Gyeongbuk, Korea

Installer: DAWO INT Co., Ltd.

Model: Vulcan S25

Pipe size: 100 mm

Toray Group

Toray Industries produce, process and sell the following products: Fibers and textiles, plastics and chemicals, IT-related products, carbon fiber composite materials, environment and engineering products and pharmaceuticals and medical devices.

SCALE PROBLEM AND APPLICATION

- 1. Scale problem on the plate heat exchanger
- 2. Regular (every 2-3 months) chemical cleaning of the pipes and heat exchangers



Vulcan S25 installed at Toray Industries



Before – without Vulcan



After 3 months – with Vulcan treatment. Up to now the installed pipeline needed no cleaning.



Holcim Cement Factory

Vietnam



Holcim Kien Luong, Vietnam



About Holcim cement factory

Holcim is one of the world's leading suppliers of cement and aggregates, and Holcim Kien Luong is the biggest cement factory in Vietnam.

The factory has problems with hard water in chiller, grinder and water supply pipe. They planned to spend nearly 400,000 USD to build and buy chemical systems to solve the problems. However, after installing Vulcan units, all the problems are solved with only 30,000 USD. This is the best investment!

Before Vulcan installation:

- scale deposits in oil heat exchanger
- oil tempurature >50°C: very high
- to clean every month
- heat exchanger has corrosion
- scale deposits clog the pipe

Installed Vulcan models:



2 x Vulcan S250

1 x Vulcan S100

1 x Vulcan 5000

Installation locations:

- the main water supply for the cooling tower
- the cooling tower for the big grinder
- the cooling tower for the small grinder

Purpose:

- · clean scale deposits
- prevent new scale
- reduce maintenance costs
- replace chemical dosing and softener systems

After Vulcan installation:

- oil heat exchanger is clean
- temperature is stable at 37°C 40°C
- no need to stop machines to clean anymore
- save 7% energy consumption at grinders



Heat exchanger before Vulcan installation



Heat exchanger after 2 months Vulcan installation









Tien Phong Technologies Co., Ltd, No. 30, Street 12, Binh Hung Hoa ward, Binh Tan District, HCM City, Vietnam | www.tpcorp.com.vn | sale@tpcorp.com.vn



Huixi Metal and Steel

China



Huixi Metal and Steel

Installation Details

Location: Huixi Metal and Steel

Model: Vulcan S150
Area: Oxygen plant

Purpose: To solve the scaling problems of the chiller and

the pipes.

Effect: 3 months before installing the Vulcan S150,

the pipes were cleaned.

6 months after installing the Vulcan S150, no new scale has been formed in any of the

following areas:

Picture 1 - the main water supply pipeline of

the chiller

Picture 2 - the filter inner wall of the chiller

Picture 3 - the filter of the chiller

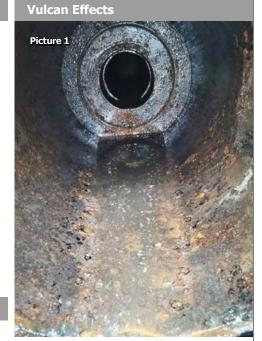
Huixi Metal and Steel

Subordinate to Yukun Iron and Steel Group, it is mainly engaged in metal casting, oxygen production, sintering, iron making, steel making, steel rolling and other production projects.

















Beihai Thermal Power Plant (Heat Pump Station)

China

Beihai Thermal Power Plant Heat Pump Station

Installation Model:



3 x Vulcan X-Pro 1

1 x Vulcan X-Pro 2

Installation Project: A New heat pump station
Installed by: Dalian Jiayifang Water Technology

X-Pro 1 for low temperature water network : circulating water system in Beiwang Station

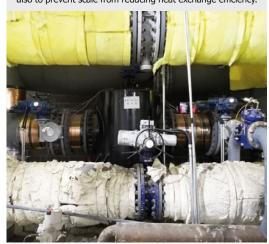
DN600, water flow 2600 m³/h, installed on the inlet pipe of the plate heat exchanger to prevent scale from reducing heat exchange efficiency.





X-Pro 1 for heating network : circulating cooling water system in Central Station

DN700, water flow 2949 m³/h, installed on the water inlet pipe of the heat pump to protect the inside heat exchanger, also to prevent scale from reducing heat exchange efficiency.





Installation purpose:

The heating system in the original heat pump station has serious scaling problems and the heat pump efficiency is reduced, which can not meet the heating demand. Therefore, the Vulcan X-Pro series were installed in the newly built heat pump station to protect the heat pump system and prevent the scale from reducing the heat exchange efficiency.

X-Pro 1 for heating network : circulating cooling water system in Donggang Station

DN700, water flow 2949 $\,\mathrm{m}^3/h$, installed on the water inlet pipe of the heat pump to protect the inside heat exchanger, also to prevent scale from reducing heat exchange efficiency.





X-Pro 2 for condenser : circulating cooling water system

DN1000, water flow 6700 m³/h, installed on the water inlet pipe of the heat pump to protect the inside heat exchanger, also to prevent scale from reducing heat exchange efficiency.













Cost Savings for Cooling Towers

Japan



Savings for cooling tower with Vulcan

Installation details

Model: Vulcan S100

Installation Area: cooling tower for 100RT turbo chiller, 24-hour yearly operation

Circulation Water Capacity: 120 m³/h

Pipe Diameter: 150 mm

Effect: chemical treatment reduced

Full Chemical-treatment vs. Vulcan-treatment Indicates:

Under 1 year, with Vulcan treatment is already less costly than full chemical treatment

Cost reduction by Vulcan 25-year warranty:

	without Vulcan	with Vulcan S100	savings
	water and electricity charges	water and electricity charges	
	sterilization / anti-algae products	sterilization / anti-algae products	
	anti-scale chemical treatment		
	maintenance cost		
1st year	39,902 USD	35,386 USD	4,516 USD
2nd year	79,804 USD	66,541 USD	13,263 USD
3rd year	119,706 USD	97,696 USD	22,010 USD
5th year	199,510 USD	160,006 USD	39,504 USD
10th year	399,020 USD	315,781 USD	83,239 USD
25th year	997,550 USD	783,106 USD	214,444 USD

Further benefits

Electric saving: about 5-15%, by the scale prevention on the turbo chiller

Gas saving: about 5-25%, by the scale prevention on the absorption chiller

Equipment life extension: about 30-60%



Supermal Karawaci (4-Year Cooling Tower Test)

Indonesia



4-Year Field Tested of Vulcan for the Cooling Tower at Supermal Karawaci (SMK)



Installation details

Model

Vulcan S500

Tested field

Supermal Karawaci, Tangerang, Indonesia

Operating times

This large mall operates 7 days a week from 9:30 to 21:30, 365

days of the year

Tested location

One of 7 cooling towers servicing the mall's water cooled package air-conditioning systems. The cooling tower selected is a 408TR system containing 45 m³ water volume with a water flow rate of

318 m³/h in an open circuit system.

Testing period

February 2014 - February 2018 (4 Years)

Installed by PT Biosolutions Indonesia



Vulcan S500 was located inside aluminum box and installed on a cooling tower main pipe.

Inspections during the 4 years: 10 times



First Inspection: March 4, 2014.

The heat exchanger tube plates were removed to reveal the inside surface of the copper tubes. Since these tubes had recently been manually cleaned, virtually no scale was present, as is on this photo.



Last inspection: February 12, 2018 at the end of the 4-year trial

The inside surfaces of the copper tubes show zero additional scale formation after 4 years in the test period.

The photographs show that the refrigeration condenser tubes, from the beginning to the end of the trial period, were "as clean as new".

Please note that for 4 years of 365 days continuous operation, there has been:

- No chemical water treatment.
- · No bleed off of waste water.
- · No cleaning of condenser tubes.
- · No water treatment specialists employed.
- Copper tubes in the condensers stay very clean - without scale.
- No cleaning of the cooling tower inside surfaces.

Summary of Benefits:

- Large savings on **chemicals**. The complete elimination of chemicals in this cooling tower operation during the field test supports the fact that Vulcan is "eco friendly" and would meet the Leeds and Green Mark Building Criteria required for "Green Building" designation anywhere in the world. Enjoy the benefits of a world class, sustainable and "Green" Cooling Tower!
- Huge savings on **blow down** water consumption. Significant energy and water savings due to clean condenser tubes and no need for water blow downs below electric conductivity 10,000 µS/cm levels with the electronic cooling tower water treatment system representing alone a saving of virtually all previously wasted water due to blow downs.
- Savings on **payroll** no operational stoppages required for condenser cleaning, less testing and fewer inspections needed.
- Savings on supervision engineers appreciate the "set and forget" of this automatic water treatment system. Frequency of inspections and laboratory expenses for cooling tower water testing are reduced due to the safety and reliability of the electronic systems.
- Scale formation was eliminated. Refrigeration compressors operated at peak efficiency due to no scale in the condensers.
- Rust prevention in iron pipes is an added benefit of the Vulcan system.



The Be'er Sheva Grand Mall

Israel

קניוני 🏈 עופר

Installation details

Location: The Be'er Sheva Grand Mall, Israel

myofer.co.il

Model/area: S250 x 4 units for 4 cooling towers

Problem: Each cooling tower has 2 heat exchangers.

The difference in pressure increased between the inlet and outlet of the heat exchanger, which showed

a developing blockage.

The heat exchangers had lost in work capacity every month due to the multiplicity of scale and rust.

Result: 5 months after installation, there are no scale issues

in any cooling tower heat exchanger systems.

Due to the excellent results, more Vulcan will be installed for the rest of the company's facilities in

Israel.

Installed by: EYE-IN ELECTRONICS

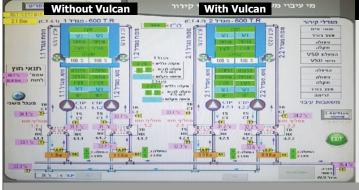


The Be'er Sheva Grand Mall

The Be'er Sheva Grand Mall is the largest shopping mall in the southern region of Israel, located in Be'er Sheva - the capital of the Negev. It features 220 stores.



Vulcan S250 outdoor installation: on the roof, with the sun most of the year. The temperature at this time was 38 - 40 °C. In winter, it is rainy and the wrap should be sealed to IP-68. Vulcan impulse bands were well wrapped and the Vulcan unit was in the outdoor box.



The result after 5 months installation:

On the right is a cooling tower with Vulcan.

The differences are clear:

- 1. The **pressure difference is lower** between the exit and the inlet of the heat exchanger in the right tower.
- 2. The water coming out of the heat exchanger is **colder** in the right tower.

www.eye-in-electronics.co.il



Tangshan Kailuan Group Linxi Mining (underground pump room) China

Tangshan Kailuan Group Linxi Mining Co.



Installation details

Model: Vulcan S350

Vulcan is installed in an explosion-proof

and waterproof box.

Location: Jiu Dong pump room

(600 meters deep underground)

Purpose: To solve the scaling problems and

corrosion of pipes in the underground

drainage system.

Installed by: Tangshan Jiuxin Technology Co.











Energy Complex Office Building

Thailand



Installation details

Location: Energy Complex Co., Ltd. (EnCo)

Bangkok, Thailand

www.energycomplex.co.th

Models: 1 x Models S250

1 x Word X-Pro 1

Area: Before the condenser water piping sys-

tem to treat all 7 cooling towers

Installed by: SGI Technology / Globen Engineering

About Energy Complex



Energy Complex is the first office complex in Thailand and Southeast Asia to be awarded the highest level of Platinum Green Building certification

from LEED (Leadership of Energy and Environmental Design) that serves as the prototypical building in Thailand for energy conservation, harmonious coexistence of industry and the environment and optimal utilization of resources.

Installation purpose

Before Vulcan was installed, the client used ozone water system to treat the condenser, but they still found massive scales in the basin of the cooling towers. They collected the scales from the basins and weighed them, there were around 150 kg (average) of scales every month.

The results after 4 months

Vulcan was added together with the ozone system to treat the water. After 4 months, the approach temperature of the chiller has been reduced, so that the energy has been saved from the machine. Also, the scales from the cooling tower basin have been reduced.



Vulcan S250 and X-Pro 1 were installed on the main return pipes of the condenser.

 $\ensuremath{\mathsf{7}}$ cooling towers were treated with Vulcan.







Średzki Water Park

Poland





Średzki Water Park in Środa Śląska, Poland

The water treatment system Vulcan S25 protects the entire water supply network and all the heating devices of the pools of the Średzki Water Park.

The costs of normal treatment products with such a water flow of 25 m³/h would mean operating costs at $3.900 \in \text{per month}$ (assuming 24 working per hour)! The cost of running the Vulcan S25 device is approx. $1,50 \in \text{per month}$.







Avril Supermarket

Canada



Installation Details

Location: Avril Supermarket

Ville de Laval, Québec, Canada

Model/Area: Vulcan 3000 was installed on the

greenhouse water inlet

Treatment area: 2640 drippers are used to water the entire

production

Scale problem: After 1 year without water treatment, there was an issue with limestone building

up in the irrigation system which blocked the drippers; 60% of the entire production (440 trays of microgreens) did not get an even distribution of water. It required us to manually water the unwatered parts of

each tray in order to prevent losses.

Client's feedback: "After 7 months with Vulcan, we're seeing

a huge improvement in regards to the even distribution of water. From now on, manually adding water to the unwatered parts of each tray won't be necessary since

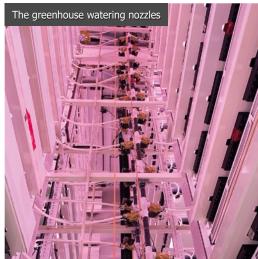
there isn't any! We are totally satisfied with Vulcan as well as the service."

Installed by: Gestion L.B. Inc

www.calcairesolution.com







Visible results of Vulcan water treatment - before and after





Paris Country Club — Golf Course

France



PARIS COUNTRY CLUB

Vulcan installed at:

Paris Country Club 59 Rue Jean-Baptiste Pigalle 75009 Paris France

Installed by:

CWT Preval France www.cwt-international.com

Model:

Vulcan S100

The Paris Country Club

The course is located just 10 minutes from Paris in the heart of the Saint-Cloud race course.

The Paris Country Club has a 9 hole golf course, driving range, 3 separate swimming pools, tennis courts, full gym, cinema, spa and massage area as well as a full restaurant.

Application:

The Vulcan S100 unit was installed on the water main for the Clubhouse, to protect the bathrooms and kitchen areas from limescale deposits.



Vulcan S100 Anti-Scale System



Aerial view of the Paris Country Club



Installation of the Vulcan S100 unit in the Paris Country Club



Pilbara Commercial Laundry Services

Australia

Pilbara Commercial Laundry Services

South Hedland, WA 6722 Australia



Testimonial with Jamie Cavey

Hi, my name is Jamie Cavey and I operate the only commercial laundry in Pilbara - the Pilbara Commercial Laundry Services. We are a mid-size operation that specializes in the laundering of hotel linen, mine site linen and work clothes.

Living in a hard water area like Pilbara means we have ongoing problems with calcium build up in our piping and air-conditioning systems. The calcium sticks to the heating elements and the whole internal section of the hot water system becomes completely clogged with calcium.

Twelve months ago we installed a German made CWT Water Treatment System from the team at Southern's Water Technology in Bunbury and immediately we noticed a significant reduction in the build-up of calcium.

I believe we have quadrupled the life span of our evaporated air conditioner and we haven't had to replace our hot water system for more three years.

Without the CWT Water Treatment System we would be replacing our hot water system every two years at a cost of more than \$10,000.

There is no doubt the CWT Water Treatment System will prolong the life span of your piping and hot water systems and evaporative air-conditioning units.

After the treatment, the adhesiveness of the crystals is reduced so that scale is unable to form in the pipes.

You can actually see the calcium slowly breaking down through the drainage system.

Sincerely,

Jamie Cavey



Mc Clean Public Toilet Center

Switzerland



McClean AG | Spitalstr. 18 | 4056 Basel

Vulcan-System Mr. W.Kurt Probsteiholzweg 11 4103 Bottmingen

Dear Mr. Kurt,

after a few months testing the Vulcan anti-scale system in our hygiene center in the station SBB of Basel, we are very happy with the results. The visible scale deposits are less and the cleaning is much easier than without Vulcan – with less need of chemicals. Also the scale depositis of the cisterns and shower heads are much less, so we have less maintenance costs. We recommend your Vulcan system and we will install more Vulcan systems in further of our sanitary stations in Switzerland.

With best regards

McClean AG

Raphael Zimmermann







Vulcan anti-scale system in the hygiene center of the station in Basel



McClean AG, Spitalstrasse 18, CH-4056 Basel
Telefon +41 61 327 46 46 Fax +41 61 327 46 47 E-Mail mcclean@mccleangroup.com



Carnation Production Antalya

Turkey





antalya tarım

Antalya Tarim is the distributor of De Ruiter Seeds since more than 25 years. Seed varieties include tomato, eggplant, cucumber, pepper, melon and rootstock. Antalya Tarim is involved in research and development projects on vegetable varieties not covered by the rest of the group.

www.antalyatarim.com.tr

Installation details____

Installed at: Antalya Tarım A.Ş.

in Antalya, Turkey

Model: Vulcan S50

used for irrigation systems

Purpose

Solving limescale problems in irrigation systems. It was also aimed to prevent the use of limescale and bicarbonate-derived fertilizers in water in the growing environment.



Results

The production of cut flowers requires intensive use of plant nutrients. After a trial period of about 5 months, the impressions were as follows. When it was observed that the plant has better roots and green parts than expected, leaf and soil analysis was performed again.

When we compared the analysis before and after the use of Vulcan, the analysis showed that after the use of Vulcan, there was a higher rate of plant nutrient transfer from the calcium and minerals in the water as well as from the reserves in the soil to the plant.

The absence of limescale stains on the green parts was also a positive result. There was an increase of the quality with the use of Vulcan. Especially the flower branch weight is an important criterion and we have observed an increase in this area. Fertilizer savings were achieved with the use of Vulcan.





Riverview Hospital

USA







Installation details

Model: Vulcan 5000

Vulcan S10

Location: Riverview Hospital

Noblesville, Indiania

Installation area: Swimming Pool

Installed by: Salt-Free Water Systems



Vulcan 5000 on main pool skimmer line



Vulcan S10 on main pool line



Swimming pool chlorinator in service 30 days before installing Vulcan units



Swimming pool chlorinator in service 30 days after installing Vulcan units



Lavender & Vineyard Farm

Turkey







INSTALLATION DETAILS

Installed at: Private Farm of lavender and

vineyards in Izmir, Turkey

Model: Wilcan S50

installed in the water system

INSTALLER

ATİLLA YILMAZ TARIM DANIŞMANLIK SAN. ve Tic. www.vulcanturkey.com

PURPOSE

Solving limescale problems in the irrigation systems and better processed photosynthesis, which is inhibited by limescale cyanide. Protecting heating and cooling systems in farm buildings against limescale.

RESULTS

With the introduction of Vulcan, the blockages in the irrigation systems were not noticed again. After Vulcan was started to be used, it was observed that the plants could be fed more easily, the plant roots were stronger, fertilizer and water utilization increased.

In addition, limescale stains on the plants caused by limescale disappeared. The equipment in the main building and technical buildings were protected against lime and rust.



www.vulcanturkey.com

info@vulcanturkey.com

Tel. 0554 568 10 95





Garden Shop (Plant Cultivator)

Greece

Dimitrios Vasileiadis Garden shop Thessaloniki Greece

Christiani Wassertechnik GmbH Selerweg 41 12169 Berlin Germany

Dear CWT,

I am a professional cultivator of decorative plants and trees for more than 30 years. I have always hard water quality problems. This water, I irrigate with it, comes from a bore. This water is brackish, which means of course, it is very bad for the plants. Actually, I have been burning my plants all these years because of too much salt.

I also have to emphasize on the fact that all these years the leaves of the plants had a white color and not the well-known green color. That is of course because of too much salt of the water.

Installing the Vulcan S25 device, I found out that there is not anymore white sedimentation on the leaves and soil. Most of all I realize that there is a big improvement in the growth of my plants. I also found out that there is a better and quicker foam creation. Wherever we want to wash our hands or even clothes etc.

Finally, I must say that I really found the solution to my problem, which has been bothering me for all these years, using the Vulcan device.

I really have to thank you from the bottom of my heart.



Without Vulcan



With Vulcan S25

Δημήτριος Βασιλειάδης



Poultry Farms

Morocco

The Cooling Systems in the Poultry Farm



Installation details

Location:

3 chicken farms in Morocco

Area:

• 6 cooling systems

· Drinking water of hens

Model:

Vulcan S10

Result:

The customer built the new cooling tower pads to test the Vulcan effects and compared the old pads which had not been cleaned for more than 5 years.

After Vulcan had been installed for 2 weeks:

- For the new pads, the new scale formed like powder, and it can be eliminated very easily.
- For the old pads, it took longer time to clean the old scale with a water gun.

Installed by: STE ETCT INDUSTRIE



Vulcan S10 was installed in the water main to treat 6 cooling systems in 3 chicken farms.



Without any water treatment, the scale was hard like stones, which had not been cleaned for more than 5 years.



After Vulcan S10 had been installed for 2 weeks, the old scale had been softer, and the new scale had formed as powder. The new scale was easy to clean, and the old scale took more time to clean up with a water gun.

See the video here: www.bit.ly/ma-poultry



Cattle Farm

Germany

Christiani Wassertechnik GmbH (CWT) Selerweg 41 12169 Berlin Germany

Dear Mr. Christiani,

Thank you a lot for sending me the stronger electronic system, which I installed immediately. I noticed that the drinking behavior of the animals improved promptly. I can give you more details after a longer observation period. Now about the promised observation of the CWT water treatment device:

After 2-3 days of the installation, it was remarkable that the lactating cows were permanently drinking from the drinking trough and that therefore the milk production also improved after 14 days, which again led to higher weights of the piglets (before: ca. 7 kg, now: 8 kg). This continued for several months.

Furthermore, we observed that scale and biofilms in old pipes for liquid feeding dissolved, leading to an improved feeding behavior of the fattened pigs. Moreover, we used to have trouble with flank abscesses due to biofilms that were probably caused by bacteria discarding endotoxin. This progressively improved with the use of CWT water treatment.

I can also tell you about a cow farmer whose pipes were not clogged anymore after the installation of CWT products. Before, he had to flush the pipes every 4 weeks with air and water to make sure the cows could get enough water through the pipes. He could furthermore observe that the biofilm on the high-alloyed steel drinking trough dissolved after 14 days. After about 4 weeks, the farmer also reported that the cows produced about 0.5 L more milk per day.

Negative observations:

The next year in February, I started to occasionally add acids in the tubes with the consequence that the positive effect of the CWT water treatment mostly vanished. Furthermore, new biolfilms built up in the pipes, which I could make visible by flushing the pipes. The animals began to show more flank abscesses and ear necrosis again. This improved again after the flushing in the beginning of June. Then, on 19 July, I installed the stronger electronic system. Since then, I have the feeling that the livestock has stabilized and has become more vital.

I hope I can give you more positive news soon and that I can tell you, whether an occasional addition of acid to the water system is possible without damages, since it is common practice to use acidy products in farms holding pigs and turkeys.

Please don't hesitate to contact me for further questions.

Best regards,

Hubertus Fasselt







Long-Term Care Centers

Canada

LONG-TERM CARE CENTRES

Installation Details

Location: Long-term care centres (CHSLD)

Fortierville, Québec

Model: Vulcan 5000

Installed by: Gestion L.B. Inc





After 6 months, the opening of the hot water tank:

Before using Vulcan: hard scale problems in the hot water tank.

With Vulcan, the scale has softened and the large pieces of scale have fallen, it could be taken out by the technician easily.



The client's feedback:

"Here is what was taken out of the tank and as you can see the walls of the tank has no trace of scale, very good result."

See the video: www.bit.ly/ca-tank



Maternity Home

Israel



58-007378- 1.ע.ר. 02-6234023. קרית יערים, טלו-סטון ת.ד. 5255 ירושלים טל. 2556 U.r. v. Griyat Yearim, Telshe Stone P.O.B. 5255 Jerusalem Tel 02-6234023

To: Eye in Electronics CEO

Review of the VULCAN equipment

 $\label{thm:main_stallation} \mbox{Installation location: Main water feed of Mother and baby convalescent home} - \mbox{Telshe Stone}.$

System installed: VULCAN S100

The system was installed on our main source of water supply in the main water supply to the building. Before installing VULCAN, we treated the scale with water softeners, which required large amounts of salt, cleaning and maintenance.

- \blacktriangleright For dishwashing systems, hot water for showers and washing machines we used salt softeners.
- ▶ Drinking water boilers and kettles in the wards required weekly cleaning with tartaric acids.
- ▶ Shower heads needed frequent treatment to remove scale deposits.

After installing the VULCAN system:

- lacktriangle We have stopped consuming acids to clean the drinking water containers. They can now be cleaned by hand.
- ▶ Water softeners have been taken out of operation and no more salt is used!
- ► The dishwashers are clean!
- ► The shower heads < After a period of cleaning all the pipes > do not need cleaning and no replacement is required.

Savings:

- ► In cleaning materials, filters, maintenance time, and not needing to stop the use of facilities just for the sake of cleaning the water systems.
- ► Financial savings: the price of a VULCAN system is covered within a reasonably short period of time.

Best regards, G. P. General Manager





Mother and baby convalescent home.



The salt bags on the left side are no longer used and replaced with Vulcan.









Vulcan in Apartment Buildings (Test Report)

Switzerland

REPORTOFUSINGVULCAN



2 Apartment Buildings in Etagnières, Switzerland

Installation of 2 x Vulcan S25

Installation Place: Cold water main pipe

Pipe diameter: 50 mm









Results before and after the Vulcan installation

Kitchen Kettle

<u>Before (without Vulcan)</u>: A layer of scale had accumulated at the bottom over time, it was impossible to remove it with a plastic spatula. We could only leave vinegar to let it act for a long time, so that the scale could be removed.

After (with Vulcan): Scale is easy to be removed, even with a finger or a damp cloth.

External surfaces of pots and pans

<u>Before</u>: If you do not wipe off water right away, the water would leave spots and it would be difficult to remove afterwards. You can only clean with dishwashing detergent again, and wipe off water without delay.

After: Even the pot has been dry for 30 minutes, it is still easy to remove spots with a damp cloth. If it is left to dry for a longer period, e.g. 1 night, the spots disappear after rubbing the surface for several times with increased pressure but still without detergent.

Sink (stainless steel)

<u>Before</u>: Quick greasy fouling, especially after removing residues from cooking oils with rinse water from cooking tools. Rough sponge and brush with degreasing detergent needed.

After: The degreaser is still necessary but the cleaning is easier and less work.

Dishwasher (internal wall is stainless steel)

<u>Before</u>: White layer of scale adherent (on the bottom and on the door) was difficult to remove; anti-scale product was required.

<u>After</u>: The white powder on these surfaces is easy to remove with a wet sponge (no special cleaning product).

Chrome faucet

<u>Before</u>: Scraping scales with a knife onto the spay heads was necessary because the outlet holes of the spay heads were stuck by scales.

<u>After</u>: If scale builds up on these elements, it can be easily removed without an anti-scale product.

Filter holder of faucets and filters (kitchen and bathroom)

<u>Before</u>: Limestone was strongly stuck on the circumference of the rings and also visible in the plastic filters (inner side). To remove the scale by soaking in vinegar is necessary. The outlet holes in the spray head (kitchen) were frequently blocked by hard-to-remove scale deposits.

After: No deposit was found inside the filters or on the outside rings. The water comes out of the shower head without any obstacle, and no new deposit accumulates in the holes of the spray head.

Worktops (granite surfaces)

<u>Before</u>: Accumulation of a layer of scale left by the water around the tap; After drying the surface appeared dull and dirty. No anti-limestone (acid) product should be used on this mineral surface. Natural stone care products are only effective on a scale-free surface. Scraping of the stone surface with a metal spatula after using the steam cleaner at the maximum pressure.

After: The cleaned and treated surface regains the original shine and brightness; Its maintenance is no longer a problem: the limestone powder is easily removed with a damp cloth. The stone care product is used from time to time with better efficiency.

Washbasins (bathroom)

<u>Before</u>: "Rust" fast and sticky. The deposits could only be removed with an abrasive sponge + degreasing detergent and sometimes an anti-scale product.

After: The deposits are easy to remove with a damp cloth. The use of soap only serves to ensure the hygiene of the surfaces.



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Toilet (Ceramic)

<u>Before</u>: Even after using the w.c. brush, the "traces of marks" had a tendency to clog especially to the bottom of the bowl. "Hygo WC maximum power gel" cleaning products were necessary to ensure proper hygiene.

<u>After</u>: These spots are now easy to "erase." Even if it is necessary to use cleaning products for reasons of hygiene or for routine maintenance, it still saves the use.

Fittings

<u>Before</u>: The deposits of scale were less around these elements because they were less accentuated on the ceramic than on the granite. An anti-lime product helps to eliminate scales around the linings (easy knife scraping).

After: Wet wiping is already sufficient, even without anti-scale product.

Shower heads

Before: The water outlets were often blocked by scale deposits.

After: There are no more obstructions and the water flows smoothly.

Shower cabin (glass)

We have not noticed a great difference between before and after at the level of the glass walls: glass is the material on which the scale attaches the least, especially since they are vertical walls on which water flows easily. Another co-owner found that the stains on the glass walls were easier to remove than before.

Shower enclosure frame (aluminum)

<u>Before</u>: It was necessary to scrape the deposits of scale accumulated at the junction of the shower tray with the knife, an anti-lime product (acid) can not be in contact with this metal. **<u>After</u>**: The deposits are removed with ease.

Conclusions

After Vulcan was installed for 1 week, in general, we quickly noticed a marked decrease of adhesive forces of the water on most surfaces in contact with water over a prolonged period. The comfort provided by this limestone converter is very appreciable compared to the previous situation

Another advantage of this system, and not the least, is its excellent efficiency / price ratio; There will be no additional charges thereafter and its consumption of electricity is insignificant. It is more appreciable while the loads of the building always tend to increase.

Our wish was to find a solution to the problem, not by totally eliminating the scale, but by finding a way to convert its physical structure so that it can improve the cleaning effort and protect the devices without the addition of chemical substances.

We have no particular interest (financial or otherwise) in promoting this system and we also needed evidence of its effectiveness, which we have received from these tests.

This device is an excellent compromise for solving the problems in our building caused by the hard water.

We firmly believe that this is the most advantageous system and strongly wish to keep it.

Maintenance is simple because no maintenance is required after the unit is installed. There is no dependence on products to be added and which must be managed throughout the year. The composition of the water remains unchanged, which is a strong positive point for health.

Observations after Vulcan disconnected

15 days were needed to make the first observations:

- Aspect of the water: the water appears heavy and oily again.
- Water has become aggressive on the skin (shower).
- The scale sticks again on the kitchen tap fittings.
- The scale is deposited again on the granite and it is difficult to remove.
- The scale is deposited back to the bottom of the kettle and can not be removed with a hand or a damp cloth.
- The internal surface and the dishwasher tank are again covered with scale.
- The clogging of bathroom sinks has begun to occur again (the scale adheres to the ceramic).

After 4 years of building pipe expansion, it took only one week to make initial observations of the efficiency of the VULCAN descaler.

But the time to reappear of scale deposits or water effects on the skin after the system was shut down was twice as long.



Garden Sprinkler Systems

Australia

LANCE BUTCHER Gelorup Western Australia

Water treatment system by CWT Germany

My wife and I live on a 5 acre property at Gelorup, 20 minutes south of Bunbury in Western Australia. Our local water causes enormous problems with our reticulation system. Large quantities of iron sludge and chips would build up in the piping system and block the solenoids and individual sprinklers. The situation was getting us both down. It seemed like the sprinklers were continually blocked and I was replacing the solenoids every six months.

Within three months of installing the CWT water treatment system the rust residual and sludge disappeared. I was staggered by the results. The pipe was completely clear and there were no signs of the iron scale at all.

Areliable and clean sprinkler system is very important for us to maintain a healthy garden which contains more than 200 rose bushes and half an acre of trees and cottage garden. Our horse paddocks are also under reticulation. The CWT system has saved me an enormous amount of time and money and I'm no longer cleaning sprinkler heads or replacing the solenoids in the reticulation system.

The results have been so successful we are now planning a major expansion of the garden and bird aviary. I would recommend this product for anyone who lives in a hard water area in Australia. They're simple to install and maintenance free.



Lance Butcher from Western Australian enjoying his clean sprinkler system after installing the water treatment system by CWT.



Hairdresser Recommendation Letter

Switzerland

Hairdresser Claudia Gugler-Roux 3182 Ueberstorf, Switzerland

www.coiffureclaudia.ch



Recommendation Vulcan

Ueberstorf, November 2011

In the course of my almost 25 years of career as an hairdresser, I have been dealing with the element of water every day. That is exactly how long I have been searching for a method to reduce lime deposits.

For 10 years now I have been running my business in my own house. All the more I was interested in doing something against the constant cleaning and descaling in the household. Furthermore, the whole family prefers tap water as their main drink. So the quality of the water is very important to us.

Vulcan sounds very interesting and I decided to install such a device for a test.

After we have been using Vulcan for half a year, we can make the following positive observations:

- Less limescale deposits in shower, bath, WC.
- Easier cleaning of our glass shower cabin (considerably less limescale deposits).
- The water is noticeably softer, which is noticeable when washing my customers' hair.
- The drinking and tap water is of a higher quality. It is noticeably more velvety and tasteless.
- Taps and nozzles are less calcified.
- The coffee machine is hardly calcified any more.
- Generally less consumption and use of conventional descaling agents.

All in all only positive findings. We bought the Vulcan with complete conviction. If the statements also apply to the water pipes in the house, our water pipe system will not incur any expensive maintenance costs in the next few years, so that this investment has also paid off here.

 $Addendum\ 27.05.2020: Even\ after\ 9\ years\ I\ am\ still\ very\ satisfied\ with\ Vulcan\ and\ am\ happy\ to\ give\ my\ consent\ for\ the\ publication\ of\ this\ reference.$

Claudia Gugler-Roux

All 6 condominium and 4 private houses were equipped with Vulcan S25 & Vulcan 5000.







Nobilis Residence Building

Canada



Installation Details

Location: Le Nobilis Residences

(269 flats in the building)

Blainville, Québec,

Canada

Scale problem: Had to clean the scale with chemicals

manually

Model/Area: $1 \times V5000$ for the hot water recirculation

1 x S50 for the water entrance

Treatment area: Whole piping system

Testing period: 12 months

Installed by: Gestion L.B. Inc

www.calcairesolution.com

The Results

The good comments of the director of the residence:

After 1 year of use, the results are positive, the cleaning of limestone in kitchen appliances has decreased by **75%**. We have done tests on the filters in the kitchen, we stopped changing the kitchen's water filters in 2018 when installing the Vulcan system. In 2020, the old filters of 2018 are made immaculate white as if they were new, we can affirm that the **Vulcan system makes it possible to stop filter changes**, with a fairly high efficiency that the Vulcan system was used to clean the old filters clogged.

We also noticed a complete stop of the service calls concerning the limestone in the showers of housing. Before the Vulcan system, we had to clean the shower heads in each of the homes every 16 months. Since the installation of the system, no customer has requested service for cleaning.

In summary, we are completely satisfied with the system, and we can say that customer service and water quality have been greatly improved.







Steinbeis Institute (Household Equipment Test)

Germany



TRANSFERZENTRUM REUTLINGEN ANGEWANDTE UND UMWELTTECHNIK

(Transfer Centre - Applied and environmental chemistry)

Expertise

Concerning the effect of the water-treatment device "Vulcan 5000"

<u>Test subject:</u> water treatment device "Vulcan 5000"

Manufacturer: Christiani Wassertechnik GmbH (CWT)

Heinrich-Heine-Str. 15 D-52249 Eschweiler

Test instruction:

A test should be carried out to determine whether Vulcan 5000 can reduce lime deposits in water pipes and household equipment in a purely physical manner without altering the water chemically.

Experimental demonstration of function:

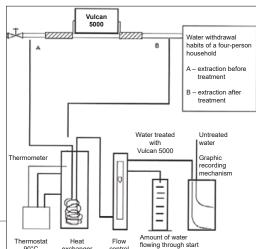
The effect was verified in a heat exchanger arrangement using two identical testing units. Water was withdrawn from the water pipes simultaneously upstream and downstream of the device to be tested and calcium precipitation forced in the heat exchangers.

As lime deposits increase, the flow of water decreases. The more water flows through the experimental arrangement, the smaller tendency there is for the water to form scale on pipes and container walls. The test was carried out on the basis of the practice-related water withdrawal of a four-person household with the additional regular withdrawal of five litres of water at half hourly intervals for a total of six weeks.

This test showed that the tendency to form lime deposits is reduced considerably by the "Vulcan 5000" water-treatment device. In addition, the effect continues for some days after "Vulcan 5000" has been switched off. Seemingly, the effect is not only limited to a certain part of the pipe, but also passed into the water flowing nearby sections of the pipe.

Reutlingen,

(Prof. Dr.D. Frahne)





Residential Client from Bünden

Germany

Dear Ms. David,

I would like to take this opportunity to thank you once again for the great offer to test your Vulcan 3000 for six weeks.

My results ...

The device was very easy to install on the water pipe.

After plugging in the power supply, it was ready to go.

Rartelheimer

And how it started....

After just two days (by which time the water in the hot water tank had almost been replaced), the limescale deposits in the bathroom (glass door and fixtures) were noticeably reduced. We could also notice positive effects of the "lime converter". Hardly any deposits in the black kettle and coffee maker. Another positive point is that you have the feeling of softer hair after showering.

What can I say, that device meets our expectations to our complete satisfaction.

Thank you very much.

With best regards

from Bünde





Residential Client from Ottobrun

Germany

Christiani Wassertechnik GmbH Köpenicker Str. 154 10997 Berlin Germany Family Janker from Ottobrunn

First-hand report concerning the Vulcan 5000 electronic water treatment system

Dear Mr. Christiani,

We would like to in the following share our experience with the VULCAN 5000 device.

We installed the VULCAN 5000 device for a trial period back to last year. As the results of the device during the trial period were positive and conformed with our decalcification requirements, the only thing preventing us from making the purchase immediately was that we were waiting to test two further devices.

The other two devices which were based on magnetism could not maintain the same results achieved by the VULCAN 5000. The effect of one device was incomparable, the other device was difficult to assemble due to incorrect dimensions. Since our family house is an old building with an extension built in 1991, the water pipelines are so laid out that the distance from the wall to the centre of the 1 inch supply line is only 25mm. Despite this narrow width the installation of the VULCAN 5000 device was not a problem.

After we sent back your device and the other two shortly after, we put off the issue of water softening and decalcification. However, after visiting the 'Heim & Handwerk' trade fair in Munich this year, we decided to purchase your device, due to our high water hardness.

Since the installation we have noticed the immediate effects of softer water as well as a decrease in the amount of scale. The reduction of scale is particularly visible in the transparent water container of our espresso machine as well as in the aerators. We are confident that we have purchased the correct device for our house with a good price/performance ratio.

Yours Sincerely,

Family Janker V































