

GOODWAY®

INNOVATIVE MAINTENANCE SOLUTIONS



Learn from the **COIL CLEANING PROS**

COIL CLEANING GUIDE

Energy Savings
Maximum Heat Transfer
System Longevity
Improved Air Quality



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GOODWAY- THE COIL PROS

Clean coils provide energy savings, maximum heat transfer, system longevity and improved indoor air quality.



Goodway provides the facts to make the RIGHT decision.

An A/C system operating with dirty coils can use up to 37% more energy! Higher temperatures and operating pressures caused by dirty coils can also shorten the life of the equipment. A fouled coil cannot supply proper heat transfer resulting in higher discharge pressures and greater energy consumption. Acid formation can also occur under these conditions, leading to lubricant breakdown and ultimately equipment failure. Cooling air passing through coils contains dust, dirt, pollen, moisture and other contaminants clogging the coils and promoting the growth of unhealthy or odor causing organisms.

"Dirty coils will drastically increase the costs of running your HVAC systems, plus put undue strain on system components."

Dirty Evaporator Coils:

- Reduced cooling capacity by up to 40%*
- Dropped energy efficiency up to 40%*

In addition, the evaporator coil and its condensate pan can become fouled with pollen, mold spores and other biocontaminants and can have an adverse effect on indoor air quality. With all the moisture around the evaporator coil, it can become a breeding ground for bacteria and mold.



Dirty Condenser Coils:

- Degraded cooling capacity by up to 40%*
- Reduced energy efficiency by about 60%*

* Source: SCE report, April, 2010

OUTDOOR COIL CLEANING

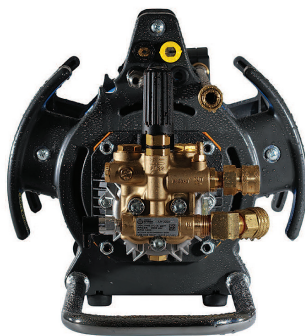
Deliver more water volume at lower pressure.



CC-400HF, HiFlo® Coil Cleaner



Specialized attachments let you clean behind coils too.



Advanced pump features.

Low Pressure, High Volume for Outdoor Coil Cleaning.

One of the most common methods for cleaning condenser coils is the use of pressure washers. The most popular pressure washer specifications being 1000 PSI at around 2 GPM. These specifications create a very high pressure jet stream with a relatively low volume of water. Not a good choice for cleaning delicate coils. To avoid damaging coils the nozzle has to be kept at a relatively safe distance which drastically reduces effectiveness.

"Pressure washers just crush fins. And hose attachments simply don't have the power to get through dirty coils."

Though significant pressure is necessary to penetrate deep coils, higher water volume rather than pressure alone is needed to do the work of flushing away the debris, especially when cleaning thick micro-channel coils. Goodway's Coil-Pro Hi-Flo Coil Cleaner is uniquely designed to deliver a much higher volume of water, 3GPM, at lower pressures, 400PSI.

INDOOR COIL CLEANING

Deliver a sustained water pressure at lower water volume.



CC-140 portable coil cleaner



CC-100 backpack coil cleaner



CC-JR portable coil cleaner

Low Pressure, Low Volume for Indoor Coil Cleaning.

The use of any significant volume of water for coil cleaning is ideal as long as you are outdoors or have adequate drainage. But what about for cleaning evaporators and condensers in occupied space where water isn't readily available or you can't safely use too much water? Generally these coils are also installed in tight quarters or remote areas with limited access to power. They could potentially be located over an office space or close to sensitive electronic equipment where overspray would present a hazard. Traditionally technicians have had to resort to spraying

these coils with foaming chemicals then simply rinsing them off with a low volume, very low pressure pump sprayer. An even less effective method is utilizing compressed air or brushes to remove the surface debris, followed by a foaming or aerosol chemical coating. Ideally in this situation you need a very portable self contained cleaning system capable of providing sustained water pressure at a low volume.

Goodway manufactures three different battery powered CoilPros that are 100 - 140 PSI at .25 - 1GPM systems, all with an onboard supply of water and chemical each machine designed for a different task.

CLEAN IN THE OPPOSITE DIRECTION OF AIR FLOW

For a more thorough cleaning with no chance of debris left behind.

Clean From the Inside Out.

When wet cleaning coils, it is important to be aware of the direction of air flow during operation through the coil bed. Traditional cleaning methods relied on simply trying to dislodge debris by continuing to force it through the coil. Often what this is really doing is forcing some of the debris deeper into the coil bed. Subsequent cleaning only adds to the buildup. Ideally all coils should be

cleaned in the opposite direction of air flow or reverse flow cleaning.

"Ideally all coils should be cleaned opposite the air flow"

In order to accomplish reverse flow cleaning all Goodway CoilPros use specially designed wands with right angle nozzles that can fit between the grate to clean from the inside out!



Variety of attachments to clean opposite airflow



Available in sizes up to 6' long



Patented nozzles divert water and cleaner for optimal performance

THE BEST CHEMICAL FORMULATION

More cleaning power, no hazardous waste.



CoilShine biodegradable
Alkaline Coil Cleaner

CoilShine®

There are many acid and alkaline based coil cleaners available today. These chemicals clean by creating a chemical reaction between the cleaner and the metal. This reaction helps release the soils from the coil surface. When combined with a surfactant or detergent, the released soils are held in suspension until they are rinsed away. However, many cleaners are too aggressive and can actually pit and damage fins. Always choose a cleaner that offers protection against these ill effects.

Newer chemicals such as Goodway's CoilShine offer non-acidic, nontoxic, odorless formulations that perform as well as more hazardous cleaners.

The foaming properties of CoilShine when used with a CoilPro® system is important to help float debris out of the coil bed where it can be rinsed away.

While some chemicals are advertised as "no rinse", all cleaning chemicals should be thoroughly rinsed from the surface to prevent coil damage.

"All chemicals should be thoroughly rinsed to prevent coil damage."

COIL CLEANING SPECIFICS

Best practices for a safe jobsite.

Safety first.

Always practice safe working procedures when cleaning coils.

- Hazardous voltage! Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure power cannot be inadvertently energized. Failure to disconnect power before servicing could result in serious injury or death.
- Personal Protective Equipment (PPE) Required! ALWAYS wear Personal Protective Equipment including goggles or face shield, chemical resistant gloves, boots, apron or suit as required. When using cleaning chemicals, refer to the manufacturer's Safety Data Sheet (SDS) and follow all recommended safe handling practices. Failure to follow all safety instructions could result in minor to moderate injury.
- No Step Surface! When it is necessary to enter the air handler to gain access to coils, do not walk on the sheet metal drain pan. Walking on the drain pan could cause the supporting structure to collapse resulting in injury. Access to the coils. Inspect coils regularly. Adjust coil cleaning frequency based on the amount of deposits on fins.

COIL CLEANING WITH GOODWAY PRODUCTS

Cleaning air handler coils.

Air handlers are situated throughout larger buildings to supply conditioned air to the occupied spaces. They contain coils that must be cleaned.

- Shut down the system using approved lockout/tagout procedures.
- Locate the air handlers and get good access to the coils. Install removable panels if needed.
- Vacuum the coils and fins to remove dry debris. The Goodway 2-speed CoilVac® is designed for tight spaces. It works as both a vacuum and a blower to reach dust and dirt on all surfaces.
- Be sure the condensate pan and drain are clear before starting wet cleaning.
- When wet cleaning coils, it is important not to use more water than the condensate pan and drain line can handle. Doing so will result in a flooded work area and possible water damage. Goodway CoilPro Models CC-JR and CC-100 deliver just the right combination of pressure and water flow to effectively clean the coil without fin damage without overwhelming the drain line.
- Spray on non-caustic, non-fuming CoilShine and allow the thick foam 3 to 5 minutes of "dwell time" to loosen sticky biofilm deposits.
- Rinse with clear water and repeat as necessary. Keep the spray parallel with the fins.
- Clean the condensate pan and drain line. Use PanCare biocide to minimize the risk of future blockage.
- Reinstall the access panels and restart the system.

Cleaning condenser coils.

Condenser coils (sometimes referred to as “outdoor” coils) can often be far from water and power supplies.

- Shut off the unit using approved lockout/tagout procedures.
- If water and power are available, the CoilPro Models CC-600 and CC-400HF provide the extra power and water volume for cleaning stubborn debris. If water and power are not conveniently available, the CoilPro Model CC-140 is ideal as it carries its own supply of water, chemical and battery power on board
- Apply non-caustic CoilShine to the coils, allowing the foam a few minutes of “dwell time” to penetrate sticky residue.
- Flush the coils with clear water in the opposite direction of airflow to push dirt out the way it came in. Repeat as necessary. Keep the spray parallel to the fins.
- Restart the unit.

Cleaning PTAC coils.

PTACs supply heated and cooled air to a single room or suite of rooms on an on-demand basis. PTACs save on energy costs because they are localized and only heat and cool in-use areas. They are widely used in hotel and motel rooms, dormitories, offices, nursing homes and apartments. The PTAC is installed through a sleeve in the exterior wall of the building. They have both an evaporator coil and a condensing coil that require cleaning.

Traditional PTAC cleaning methods required the unit to be removed from its wall sleeve and taken elsewhere for cleaning. These methods are time consuming and leave the room unusable until the PTAC is reinstalled

The Goodway CoilPro makes cleaning PTACs much easier and faster. Using the Model CC-JR or CC-100 the PTAC can be cleaned in place by simply removing part of the unit from its wall sleeve and spraying the coils following the same methods described above. Both models carry their own supply of water and chemical and are battery powered for extreme portability, making them easy to move from room to room.

Cleaning Micro Channel Coils.

Larger and thicker coil beds such as those found in rooftop condensers require more pressure and volume to penetrate into the coil. Large, thick coils are cleaned using the same method described earlier but with different CoilPro models.

The Model CC-600 delivers 600 PSI at 1.6 GPM to penetrate up to 8” thick coils. It is dolly mounted and carries its own water and chemical supply or can be connected to an external water source.

The Model CC-400HF is a hand carried unit with the kind of portability that makes it ideal for rooftop jobs. Rated at 400 PSI at 3GPM, this unit is superior at flushing heavy dirt, debris and biological growth from the thickest coils.

TIPS AND BEST PRACTICES

Chemicals

Use chemicals appropriate for cleaning job at hand. Stick with safe and mild cleaners when possible. The Key is to only use as much chemical as is needed to do the job at hand.

Mix Cleaner

When mixing liquid cleaners, make sure to follow the manufacturers direction.

Pre-rinse

Pre-rinse coil before cleaning whenever practical to maximize the cleaning while minimizing chemical use.

Apply to cleaner and build foam

Be prepared to clean twice on a dirty coil

SAFETY FIRST

- Wear proper PPE
- Disconnect Power
- Lock out/ Tag out
- Protect the equipment and the area
- Pre-inspection
- Use appropriate pressure and water flow

COIL CLEANING LINEUP



The ultimate in portability

CC-100 CoilPro®

The CC-100 backpack battery powered CoilPro® features an on-board 5 gallon water tank, 3 quart chemical tank and 12 volt rechargeable battery making it completely self contained. Output water pressure is adjustable from 40 to 100 PSI with flow adjustable from 0.25 to 0.5 GPM. The unit is supplied standard with an 18 inch wand, three nozzles (foaming, flat spray and pinpoint), 10 foot self coiling hose, spray gun and a gallon of CoilShine concentrated coil cleaning solution. An optional wheeled dolly kit is available to convert the CC-100 from backpack to roll around configuration.



CC-JR CoilPro® Jr

The CoilPro® Jr. is a portable, extremely compact, self contained unit that requires no external power or water sources. The on-board 3.3 gallon water tank, 1.75 quart chemical tank and 12 volt rechargeable VRLA battery are all that are needed for cleaning smaller rooftop units, hard to reach air handlers and refrigeration condenser coils. Water pressure output is 125 PSI at 0.6 GPM. Chemical injection is operator adjustable from a 6:1 to a 30:1 water to chemical ratio. The unit is supplied standard with a 3 foot sectional stainless steel wand, two nozzles (flat spray and pinpoint), 10 foot self coiling hose, spray gun, adjustable carrying strap with shoulder pad and a gallon of CoilShine concentrated coil cleaning solution.



Grab and go coil cleaning



Variable pressure and water volume



HiFlo®, all-in-one

CC-140 CoilPro®

The very versatile CC-140 CoilPro® can be operated on either its on-board 5 gallon water tank and 12 volt rechargeable VRLA battery or AC power and an external water supply or any combination necessary. The CC-140 also carries 5 gallons of chemical in its secondary tank. Output water pressure is adjustable from 40 to 140 PSI with flow adjustable from 0.25 to 1 GPM. Water to chemical ratio is 6:1. The unit is supplied standard with an 18 inch wand, four nozzles (foaming, two flat spray and pinpoint), 25 foot hose, spray gun and a gallon of CoilShine concentrated coil cleaning solution.



CC-600 CoilPro®

The CC-600 CoilPro® is ideal for cleaning thicker coil beds up to 8 inches thick. It delivers 600 PSI output water pressure at 1.6 GPM. The CC-600 operates on AC power with either its on-board 5 gallon water tank or external water supply and its 5 gallon chemical tank. Water to chemical injection ratio is 6:1. The unit is supplied standard with an 18 inch wand, three nozzles (foaming, flat spray and pinpoint), 25 foot hose, spray gun and a gallon of CoilShine concentrated coil cleaning solution.



COIL CLEANING LINEUP *(continued)*



CC-400HF HiFlo® coil cleaner



Clean thick coils inside and out



Wands available for cleaning behind coils

CC-400HF CoilPro® Hi-Flo Coil Cleaner-Best choice for micro channel coils and thick, multi-pass coils up to 8" deep.

Cleaning thick HVAC/R coils is no problem for the CC-400HF. This innovative system delivers 400 PSI cleaning power at 3.0 GPM. This delivers the perfect combination of water pressure and volume to effectively flush dirt and debris safely from thick evaporator and condenser coils without the damage associated with pressure washing. The extremely compact design of the CC-400HF makes it ideal for cleaning rooftop units. The built-in siphon injector delivers cleaning chemical at a 10:1 ratio. The unit is supplied standard with an 18 inch wand, two nozzles (foaming and flat spray), 12 foot hose, spray gun and a gallon of CoilShine concentrated coil cleaning solution.

COIL CLEANING ACCESSORIES

Unique tip on Wonder Wand cleans behind coils



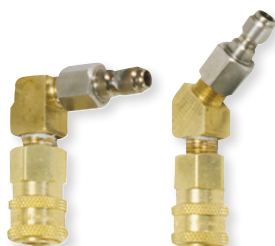
Stainless Steel Sectional Wonder Wand - (Fits CC- JR, CC-100, CC-140, CC-201T & CC-600)



WWSS-HF Stainless Steel Sectional Wonder Wand (for CC-400HF)



WWSS-EXT 16" Extension for Sectional Wonder Wand (works with WWSS & WWSS-HF)



Optional quick connect adapters for angled spraying



Flex wand bends to get in tight spots

CoilPro® Accessories

- The ultra thin Wonder Wand 90° spray wand is designed to slip between the fan guard grating of condenser units, allowing the thorough cleaning of coils from the inside without having to remove the top of the unit. The Wonder Wand is available in 36" and 48" lengths.
- 24" flexible extension wand for CC-JR, CC-100 and CC-140 allows the operator to get into tight inaccessible areas.
- Rollover nozzle assembly allows for mounting both a foaming and rinsing nozzle on the wand at the same time. Switch from one to the other simply by rolling it over.
- 10" flexible extension wand can be shaped as necessary to get into obscure areas.
- Foaming nozzle for injecting a thick layer of foam.
- Extension wands are available in 18", 24", 36", and 48" for greater reach when needed.
- 45° and 90° quick connect adapters for angled spraying.

COIL CLEANING ACCESSORIES *(continued)*



CVC-100 CoilVac Dry HEPA Vacuum

The CoilVac Dry HEPA Vacuum is extremely effective at removing heavy deposits from coils. It is powered by a two-speed 4 HP motor and can be used as both a vacuum and blower. This reliable HEPA cleaner with four-stage filter allows only clean, safe air to pass through its exhaust. The unit is supplied standard with a 6' vinyl crush proof hose, two piece 36" wand, 3" dual bristle dusting brush, 3" long bristle dusting brush, 5" blower/bulk pickup nozzle, four piece 29" flat wand with crevice tool tip, 6" flat brush and 48" shoulder strap.

CVC-CC-BRACKET CoilVac® Dolly Mounting Kit

This kit is used to attach the CoilVac to either the CC-140 or CC-600 CoilPro to create a complete coil cleaning system. The brackets and accessory bin attach to the CoilPro dolly without any modification needed. All mounting hardware is included. The CoilVac can be used while mounted to the dolly and the bin holds all tools and extra collection bags.



COIL CLEANING CHEMICALS



PANCARE

PANCARE is an EPA registered biocide. It is formulated to help prevent the build-up of slime and bacteria in HVAC condensate drain pans. It kills 99% of Legionella Pheumophila and Salmonella Typhii Bacteria. It also contains a rust inhibitor. Each tablet is weighted to prevent floating and will work for up to three months on a three to five-ton or a 45-ton system depending on the tablet strength) providing a constant release of biocide into the water.



COILSHINE®

COILSHINE® is an environmentally friendly, biodegradable concentrated, expanding foam detergent specifically formulated for use with the CoilPro®. This unique solution penetrates deep into coil beds for thorough cleaning. It is user friendly, non-acidic, and non-fuming, allowing it to be used in occupied areas and safely washed down drains.

NOTES



HVAC & FACILITY MAINTENANCE SOLUTIONS

For Sales Call: 1-800-333-7467
For Service Call: 1-800-370-2855

GOODWAY® TECHNOLOGIES CORPORATION
420 West Avenue, Stamford, CT 06902 USA

Tel: 203-359-4708 · Toll-Free Tel: 800-243-7932
Fax: 203-359-9601 · Toll-Free Fax: 800-359-9625
Email: goodway@goodway.com
Visit: www.goodway.com

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