INSTRUCTION MANUAL

D-Scaler System

Models Covered:
DS1000 & DS1100

2150 Elmwood Avenue - Buffalo, NY 14207
P# 716-876-9951 - F#716-874-8048 - www.mokon.com

MOK5003A 02/20

Table of Contents

Section 1 – Warnings and Cautions

Please read and understand this section before operating the system!

- The D-Scaler fluid should be used at ambient temperature.
  Caution: Do not exceed 120˚F

- The D-Scaler fluid should be diluted to a 50/50 concentration or less for use

- The D-Scaler fluid should not be circulated through or in contact with your system(s) for more than 4 hours at a time

- The solution does not corrode, erode, attack, pit, oxidize, or have deleterious affects on metals or materials such as copper, fiber, iron, steel, rubber, lead, or other materials or metals found in water cooled or water operated equipment when used as directed.

  The exception to the above statement are some alloys of aluminum, magnesium, and stainless steel. These metals will oxidize and with few exceptions, discolor. It is therefore not recommended for use with concentrated D-Scaler solutions.

- It is recommended the D-Scaler be diluted 50% or more when cleaning chrome as some chrome will discolor

- The D-Scaler fluid is an electrolyte, as are most cleaning agents. An electrolyte is any liquid that will transfer small electrical currents. Examples: salt water, vinegar, and coca cola. An electrolyte may cause plating in some types of equipment. This means a transfer of small amounts of metal onto another metal. In some instances, a thin coating of copper may be plated onto a steel drum while circulating an electrolyte such as D-Scaler fluid. The only time plating occurs is when two different metals are in an electrolyte solution. Some alloys of stainless steel are known to discolor and react galvanically in concentrated D-Scaler solutions. To minimize this, use a diluted D-Scaler solution.

Section 2 – Operating Procedures

2.1 What the D-Scaler System is and What it Can Do

The Mokon D-Scaler is a pumping system designed to circulate the D-Scaler fluid through your process and/or temperature control system to remove water scale, lime, rust, and other water formed deposits. The D-Scaler fluid is a non-toxic, non-flammable, USDA approved fluid that effectively dissolves approximately 2 pounds of deposit per gallon at 75 °F. The D-Scaler fluid is biodegradable and may be disposed of down a regular sewer system with a water flush per local, state, and federal regulations. This fluid is safe for your process and the environment.

2.2 What the D-Scaler System is Made Of

The basic components of the D-Scaler system are a motor, pump, 15 gallon reservoir, and a power cord mounted on a dolly with casters. The small series D-Scaler has a ½ hp motor with a pump capacity of 25 GPM at 15 PSI while the large series has a ¾ hp motor with a pump capacity of 25 GPM at 32 PSI.

2.3 Standard Rules to Follow

The following chart will help you to decide how much D-Scaler fluid and water you should need to clean your process, temperature control and/or heat exchanger. If your application is not listed and you need help determining the fluid amounts, consult the Mokon customer service department at (716) 876-9951.

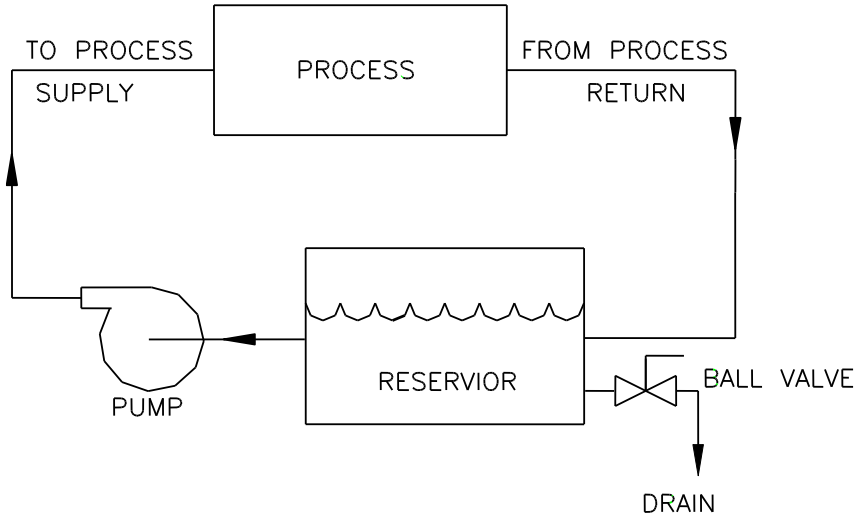
Application	Amounts
Boilers	1 gallon D-Scaler fluid per boiler horsepower
Condensers, chillers, and towers	1 gallon D-Scaler fluid per two tons cooling
Heat exchangers	Calculate the following formula: Where R=the radius of the heat exchanger and H= the height $\frac{(3.14 \times R^2 \times H)}{1728} \times 7.5 \times .25 =$ ____ Gallons

2.4 To Clean a Process Alone

- Step 1: Attach the process connections

D-Scaler System	Process
"To process"	Process inlet
"From process"	Process outlet

Caution: Do Not Exceed 120°F



- Step 2: Calculate the amount of water and D-Scaler fluid needed.
  (Equal amounts of both are suggested as the strongest concentration - use chart on pg.2)

  Note: Amount of D-Scaler fluid needed is dependent on the amount of Cleaning needed and size of process.

  The D-Scaler fluid has the ability to dissolve 2 pounds of calcium carbonate scale per gallon at 75°F and in concentrated form.

  Maximum amount of water and D-Scaler fluid is 5 gallons of each.

- Step 3: Remove the cover from the top of the tank and fill with the quantity of water obtained in step 2 (5 gallons maximum).

- Step 4: Plug D-Scaler system into a GFCI (Ground Fault Circuit Interrupter) outlet and flip toggle switch to "on". Let the water circulate for a few minutes to wet all of the surfaces of the process and process lines.

- Step 5: Slowly add the amount of D-Scaler fluid calculated in step 2 into the tank.

  Note: The fluid foams as it dissolves the scale. Therefore, adding the fluid slowly to the tank is necessary such that the foaming will not overflow the tank. The actual amount of foaming is dependent on the amount of scale in your particular process.

- Step 6: Intermittently observe the D-Scaler system while it circulates the fluid through your process for a maximum of 4 hours.

- Step 7: If you notice the fluid has stopped foaming before 4 hours of cleaning have expired the process is either clean of deposits or the D-Scaler fluid has removed all of the scale it can and needs to be replenished.

    - To determine if continued cleaning is needed slowly pour additional D-Scaler fluid into the tank. Add 1 quart for every gallon added in step 5. If you added 5 gallons of D-Scaler fluid in step 5, now add 1.3 gallons. If no foaming is observed, your process is clean and you may proceed to step 8. If the fluid foams, continued cleaning is needed. Allow the additional D-Scaler fluid to circulate until the 4 hour time span has expired.

  Note: Make sure you have the capacity when adding fluid.

  Note: Under no circumstances should the D-Scaler fluid be circulated through or in contact with a process for more than 4 hours at a time.

- Step 8: Flush the system (keeping it hooked up) by opening the drain valve at the bottom of the unit while adding a supply of clean water into the tank. Continue to allow the unit to run until the water flowing out the drain valve runs clear. Dispose of drained fluid according to local, state and federal regulations.

  Warning: When flushing the system, the supply of clean water added to the tank is very important. Do not drain the system without adding water at the same time. The pump on the D-Scaler system cannot be run dry. This can result in immediate and irreversible damage to the system, voiding your warranty.

  Warning: Step 8 above must not be omitted. It is imperative that the D-Scaler fluid is completely flushed from your process and the D-Scaler system. Failure to do so will void your warranty and potentially damage your process.

- Step 9: Turn off the system by flipping the toggle switch to "off". Turn off the supply water and continue to allow the balance of the water in the system to drain out the drain valve.

- Step 10: When all of the water is drained close the drain valve.

- Step 11: Disconnect the power cord from the GFCI outlet, disconnect the D-Scaler system from the process and clean any debris left in the bottom of the tank.

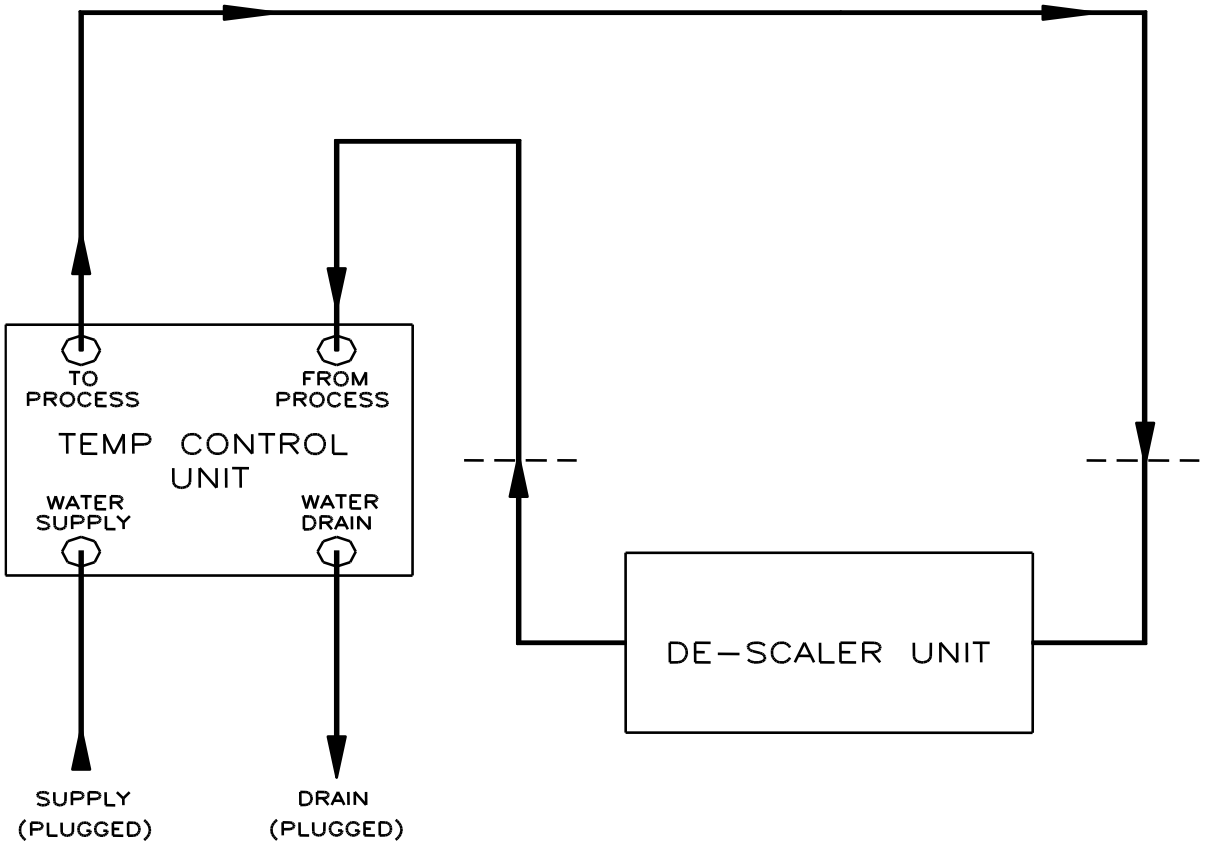
2.5 To Clean a Circulating Water Temperature Controller

- Step 1: Attach the process connections

D-Scaler System	Temperature Controller
"To process"	"From process"
"From process"	"To process"

Note: The "supply in" and "drain" connection for the temperature controller must be plugged.

Caution: Do not exceed 120˚F



- Step 2: Calculate the amount of water and D-Scaler fluid.
  (Equal amounts of both are suggested as the strongest concentration, use chart on pg.2).

  Note: Amount of D-Scaler fluid needed is dependent on the amount of cleaning needed and size of your temperature controller.

  The D-Scaler fluid has the ability to dissolve 2 pounds of calcium carbonate scale per gallon at 75°F and in concentrated form.

  Maximum amount of water and D-Scaler fluid is 5 gallons of each.

- Step 3: Remove the cover from the top of the tank and fill with the quantity of water obtained in step 2 (5 gallons maximum).

- Step 4: Plug the D-Scaler system into a GFCI (Ground Fault Circuit Interrupter) outlet and flip toggle switch to "on". Let the water circulate for a few minutes to wet all of the surfaces of the temperature controller.

  Note: Do not turn on the temperature controller, the D-Scaler system should be able to circulate the D-Scaler fluid throughout the system. If not, consult the Mokon customer service department at (716) 876-9951.

- Step 5: Slowly add the amount of D-Scaler fluid calculated in step 2 into the tank.

  Note: The fluid foams as it dissolves the scale. Therefore, adding the fluid slowly to the tank is necessary such that the foaming will not overflow the tank. The actual amount of foaming is dependent on the amount of scale in your particular temperature controller.

- Step 6: Intermittently observe the D-Scaler system while it circulates the fluid in your process for a maximum of 4 hours.

- Step 7: If you notice the fluid has stopped foaming before 4 hours of cleaning have expired the process is either clean of deposits or the D-Scaler fluid has removed all of the scale it can and needs to be replenished.

    - To determine if continued cleaning is needed slowly pour additional D-Scaler fluid into the tank. Add 1 quart for every gallon added in step 5. If you added 5 gallons of D-Scaler fluid in step 5, now add 1.3 gallons. If no foaming is observed, your temperature controller is clean and you may proceed to step 8. If the fluid foams, continued cleaning is needed. Allow the additional D-Scaler fluid to circulate until the 4 hour time span has expired.

  Note: Make sure you have the capacity when adding fluid.

  Note: Under no circumstances should the D-Scaler fluid be circulated through or in contact with a process and/or temperature controller for more than 4 hours at a time.

- Step 8: Flush the system (keeping it hooked up) by opening the drain valve at the bottom of the unit while adding a supply of clean water into the tank. Continue to allow the unit to run until the water flowing out the drain valve runs clear. Dispose of the drained fluid according to your local, state and federal regulations.

  Warning: When flushing the system, the supply of clean water added to the tank is very important. Do not drain the system without adding water at the same time. The pump on the D-Scaler system cannot be run dry. This can result in immediate and irreversible damage to the system, voiding your warranty.

  Warning: Step 8 above must not be omitted. It is imperative that the D-Scaler fluid is completely flushed from your temperature controller and the D-Scaler system. Failure to do so will void your warranty and potentially damage your temperature controller.

- Step 9: Turn off the system by flipping the toggle switch to "off". Turn off the supply water and continue to allow the balance of the water in the system to drain out the drain valve.

- Step 10: When all of the water is drained, close the drain valve.

- Step 11: Disconnect the power cord from the GFCI outlet, disconnect the D-Scaler from the temperature controller and clean any debris left in the bottom of the tank.

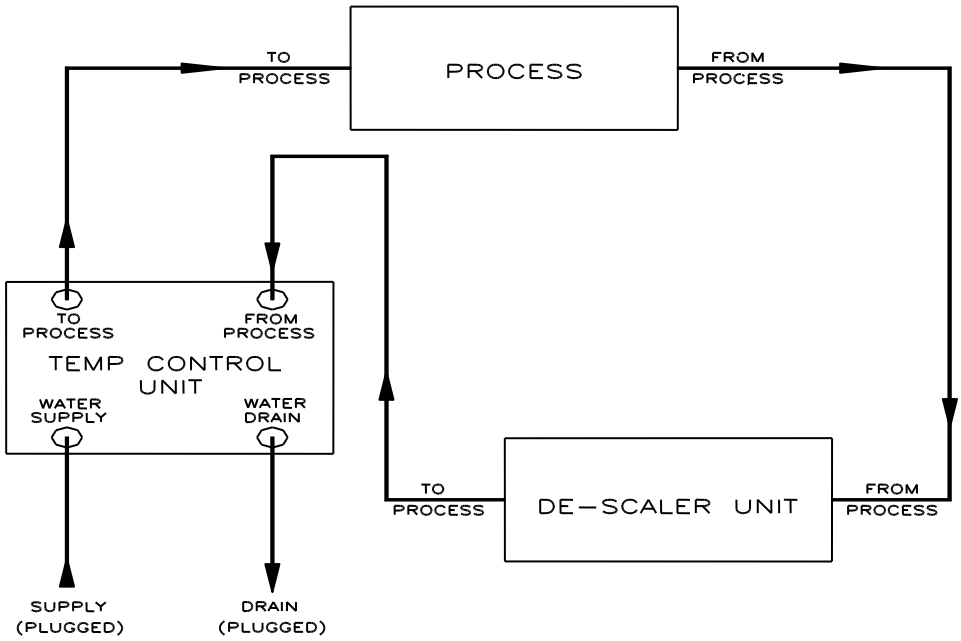
2.6 To Clean a Temperature Controller Connected to a Process

- Step 1: Attach the process connections

D-Scaler System	Temperature Controller	Process
"To process"	"From process"	----
"From process"	----	Process outlet
----	"To process"	Process inlet

Note: The "supply in" and "drain" connection for the temperature controller must be plugged.

Caution: Do not exceed 120˚F



- Step 2: Calculate the amount of water and D-Scaler fluid.
  (Equal amounts of both are suggested as the strongest concentration - use chart on pg.2).

  Note: Amount of D-Scaler fluid needed is dependent on the amount of cleaning needed and size of your process and/or temperature controller.

  The D-Scaler fluid has the ability to dissolve 2 pounds of calcium carbonate scale per gallon at 75˚F and in concentrated form.

  Maximum amount of water and D-Scaler fluid is 5 gallons of each.

- Step 3: Remove the cover from the top of the tank and fill with the quantity of water obtained in step 2 (5 gallons maximum).

- Step 4: Plug the D-Scaler system into a GFCI (Ground Fault Circuit Interrupter) outlet and flip toggle switch to "on". Let the water circulate for a few minutes to wet all of the surfaces of the temperature controller, the process, and the process connections.

Note: Do not turn on the temperature controller, the D-Scaler system should be able to circulate the D-Scaler fluid throughout the system. If not, consult the Mokon customer service department at (716) 876-9951.

- Step 5: Slowly add the amount of D-Scaler fluid calculated in step 2 into the tank

  Note: The fluid foams as it dissolves the scale. Therefore, adding the fluid slowly to the tank is necessary such that the foaming will not overflow the tank. The actual amount of foaming is dependent on the amount of scale in your particular temperature controller and process.

- Step 6: Intermittently observe the D-Scaler system while it circulates the fluid in your process and temperature controller for a maximum of 4 hours.

- Step 7: If you notice the fluid has stopped foaming before 4 hours of cleaning have expired the process is either clean of deposits or the D-Scaler fluid has removed all of the scale it can and needs to be replenished.

    - To determine if continued cleaning is needed slowly pour additional D-Scaler fluid into the tank. Add 1 quart for every gallon added in step 5. If you added 5 gallons of D-Scaler fluid in step 5, now add 1.3 gallons. If no foaming is observed, your temperature controller is clean and you may proceed to step 8. If the fluid foams, continued cleaning is needed. Allow the additional D-Scaler fluid to circulate until the 4 hour time span has expired.

  Note: Make sure you have the capacity when adding fluid.

  Note: Under no circumstances should the D-Scaler fluid be circulated through or in contact with a process and/or temperature controller for more than 4 hours at a time.

- Step 8: Flush the system (keeping it hooked up) by opening the drain valve at the bottom of the unit while adding a supply of clean water into the tank. Continue to allow the unit to run until the water flowing out the drain valve runs clear.

  Warning: When flushing the system, the supply of clean water added to the tank is very important. Do not drain the system without adding water at the same time. The pump on the D-Scaler system cannot be run dry. This can result in immediate and irreversible damage to the system, voiding your warranty.

  Warning: Step 8 above must not be omitted. It is imperative that the D-Scaler fluid is completely flushed from your temperature controller and the D-Scaler system. Failure to do so will void your warranty and potentially damage your process and/or temperature controller.

- Step 9: Turn off the unit by flipping the toggle switch to "off". Turn off the supply water and continue to allow the balance of the water in the system to drain out the drain valve.

- Step 10: When all of the water is drained, close the drain valve.

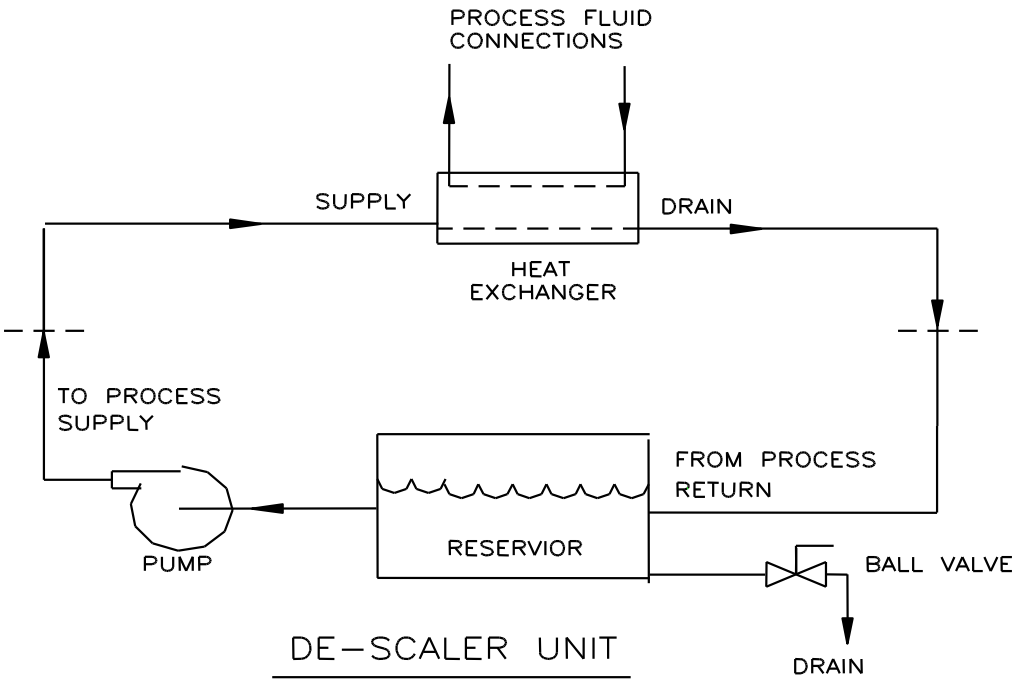
- Step 11: Disconnect the power cord from the GFCI outlet, disconnect the D-Scaler system from the temperature controller and the process and clean any debris left in the bottom of the tank.

2.7 To Clean a Heat Exchanger

- Step 1: Attach the connections as follows

D-Scaler System	Heat Exchanger
"To process"	"Supply water"
"From process"	"Drain water"

Caution: Do not exceed 120˚F



- Step 2: Calculate the amount of water and D-Scaler fluid
  (Equal amounts of both are suggested as the strongest concentration - use chart on pg.2).

  Note: Amount of D-Scaler fluid needed is dependent on the amount of cleaning needed and size of your heat exchanger.

  The D-Scaler fluid has the ability to dissolve 2 pounds of calcium carbonate scale per gallon at 75°F and in concentrated form.

  Maximum amount of water and D-Scaler fluid is 5 gallons of each.

- Step 3: Remove the cover from the top of the tank and fill with the quantity of water obtained in step 2 (5 gallons maximum).

- Step 4: Plug the D-Scaler system into a GFCI (Ground Fault Circuit Interrupter) outlet and flip toggle switch to "on". Let the water circulate for a few minutes to wet all of the surfaces of the heat exchanger.

  Note: Do not turn on the supply pump for the heat exchanger, the D-Scaler system should be able to circulate the D-Scaler fluid throughout the heat exchanger. If not, consult the Mokon customer service department at (716) 876-9951.

- Step 5: Slowly add the amount of D-Scaler fluid calculated in step 2 into the tank.

  Note: The fluid foams as it dissolves the scale. Therefore, adding the fluid slowly to the tank is necessary such that the foaming will not overflow the tank. The actual amount of foaming is dependent on the amount of scale in your particular heat exchanger.

- Step 6: Intermittently observe the D-Scaler system while it circulates the fluid in your heat exchanger for a maximum of 4 hours.

- Step 7: If you notice the fluid has stopped foaming before 4 hours of cleaning have expired the process is either clean of deposits or the D-Scaler fluid has removed all of the scale it can and needs to be replenished.

    - To determine if continued cleaning is needed slowly pour additional D-Scaler fluid into the tank. Add 1 quart for every gallon added in step 5. If you added 5 gallons of D-Scaler fluid in step 5, now add 1.3 gallons. If no foaming is observed, your heat exchanger is clean and you may proceed to step 8. If the fluid foams, continued cleaning is needed. Allow the additional D-Scaler fluid to circulate until the 4 hour time span has expired.

  Note: Make sure you have the capacity when adding fluid.

  Note: Under no circumstances should the D-Scaler fluid be circulated through or in contact with a heat exchanger for more than 4 hours at a time.

- Step 8: Flush the system (keeping it hooked up) by opening the drain valve at the bottom of the unit while adding a supply of clean water into the tank. Continue to allow the unit to run until the water flowing out the drain valve runs clear.

  Warning: When flushing the system, the supply of clean water added to the tank is very important. Do not drain the system without adding water at the same time. The pump on the D-Scaler system cannot be run dry. This can result in immediate and irreversible damage to the system, voiding your warranty.

  Warning: Step 8 above must not be omitted. It is imperative that the D-Scaler fluid is completely flushed from your heat exchanger and the D-Scaler system. Failure to do so will void your warranty and potentially damage your heat exchanger.

- Step 9: Turn off the unit by flipping the toggle switch to "off". Turn off the supply water and continue to allow the balance of the water in the system to drain out the drain valve.

- Step 10: When all of the water is drained, close the drain valve.

- Step 11: Disconnect the power cord from the GFCI outlet, disconnect the D-Scaler system from the heat exchanger and clean any debris left in the bottom of the tank.

2.8 D-Scaler Fluid Activity Testing

Objective:

To determine the remaining activity of the Mokon D-Scaler fluid solution.

Required Materials:

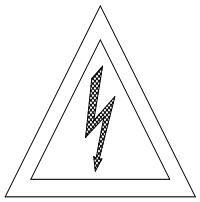
- 4 or 8 oz. Sample bottle (Clear)
- 1 teaspoon or equivalent size scoop
- Calcium Carbonate, in place of Calcium Carbonate powder, everyday black board chalk can be substituted

Procedure:

- Collect a 4 oz. sample of D-Scaler fluid solution.
- Using scoop, collect approximate ¼ teaspoon of Calcium Carbonate (chalk).
- Place Calcium Carbonate into the D-Scaler fluid solution.
- Observe the solution for foaming or bubbling.
    - If the Calcium Carbonate is immediately consumed →Solution still active.
    - If solution bubbles or foams slowly →Solution activity minimized.
    - If solution DOES NOT foam or bubble →Solution activity is depleted or spent.

Section 3 – Maintenance

3.1 Electrical Warning



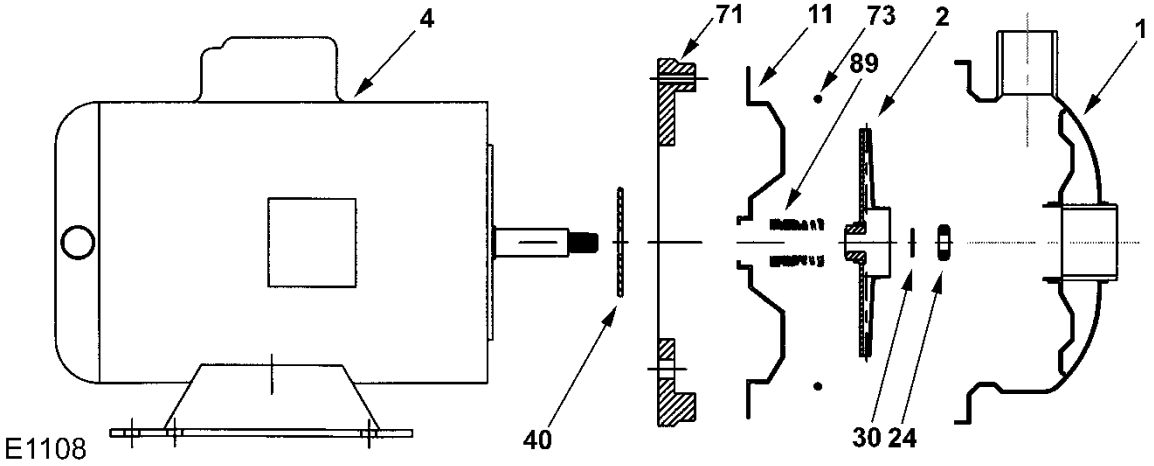
The D-Scaler system, as with all electrical equipment, should be connected according to all state and local codes. All installation, maintenance, service, repair, adjustment, and operation should be done only by appropriately trained electrical personnel who have read and completely understood this instruction manual. At the top is a symbol for *Electrical Danger.* All maintenance and service should be performed with the power OFF except where noted.

3.2 Pump Maintenance

Exploded View Drawing

REF. NO.	QTY.	.5 HP	0.75 HP	DESCRIPTION	PART #
1	1	✓	✓	CASE 1.25 x 1 NPT	018266
2	1		✓	IMPELLER 4.88", STAINLESS	018275
2	1	✓		IMPELLER 4", STAINLESS	018498
4	1	✓	✓	MOTOR 56J	CONSULT FACTORY
11	1	✓	✓	COVER, STAINLESS	018269
24*	1	✓	✓	NUT	018270
30*	1	✓	✓	D-WASHER	018371
40*	1	✓	✓	FLINGER	018272
71	1	✓	✓	DISC IRON	018273
73*	1	✓	✓	GASKET, CASE	018274
89*	1	✓	✓	SEAL, 5/8"	IN REPAIR KIT

*** - DENOTES COMPONENTS INCLUDED IN REPAIR KIT 018246.**



Seal Replacement/Maintenance

Warning: Make certain that the system is disconnected from the power source in compliance with all local and national codes before attempting to service or remove any components. Never run the pump when dry.

Maintenance:

Inspection: Pump should be periodically checked for proper operation. If the system has changed or if the pump is operating noisily or erratically, then the pump should be removed and examined. It should be repaired and parts replaced as necessary.

Cleaning: Remove oil, dust, dirt, water, chemicals from exterior of pump and motor. Blow out interior of open motors with clean compressed air at low pressure. Regularly drain moisture from TEFC motors.

Draining: If the pump is located in an area subject to freezing temperatures, the pump must be drained when not in operation or add sufficient antifreeze.

Seal Replacement:

Disassembly:

- Turn off power.
- Close suction and discharge valves (if equipped).
- Drain pump.
- Remove bolts holding base to foundation.
- Remove casing bolts.
- Remove motor and rotating element from casing, leaving casing and piping undisturbed, if possible. If not, then remove the whole assembly.
- Insert a screwdriver in one of the impeller waterway passages and back off the impeller nut (Ref 24).
- Remove motor shaft end cap. Insert a screwdriver in slot of motor shaft. While holding shaft against rotation, unscrew impeller (Ref 2) from shaft by turning counterclockwise when facing impeller.
- Pry off rotating member of mechanical seal from motor shaft by using two (2) screwdrivers. Be careful not to damage the pump cover (Ref 11).
- Remove pump cover (Ref 11 & 71) from cast iron disc. (There is no hardware used to attach cover to disc.) Place cover on a flat surface with convex side down. Push out stationary member of mechanical seal. It is not necessary to remove the cast iron disc from the motor to replace the seal.

Reassembly:

Caution: The mechanical seal is a precision product and should be handled accordingly. Use care when handling lapped running surfaces of the mechanical seal to ensure they remain clean and are free of chips or scratches.

- Clean gasket and flange faces, seal seat cavity and shaft, in particular, shaft shoulder fitting against impeller.
- Lubricate the seal seat cavity of the cover and the rubber cup or O-ring of stationary seal seat with the lubricating fluid that comes with the mechanical seal or repair kit. Press the stationary seat in seal seat cavity in the cover squarely and evenly using an arbor press (if possible) and the cardboard disc supplied with the seal. Be certain that the lapped face (shiny side) is facing you.
- Position the cover (Ref 11) so that the convex side with the lapped seal seat is facing you. Place the cover on the motor disc and align the holes in the disc with the holes in the cover. (Note: There isn't any hardware required to attach the cover to the motor disc.)
- Apply the lubricating fluid that comes with the mechanical seal or repair kit to the motor shaft and the rubber bellows of the rotary seal. Slide the seal head on the shaft; press the rubber drive band on the rotary head until the lapped face on the head seats firmly against the lapped face of the stationary seat. Install seal spring on head and seal spring retainer on spring. Do not chip or scratch faces during installation. Take extra care to make sure the lapped faces are clean.
- Hold shaft against rotation as described in step 8 of disassembly procedure, then thread impeller on shaft until it is tight against the shaft shoulder. The impeller will compress the seal spring to the proper length assuring correct pressure on lapped faces.
- Replace D-washer (Ref 30) and impeller nut (Ref 24) holding impeller against rotation as indicated in step 7 of disassembly procedure (2 & 3 hp 1 ph, and all 3 ph motors only).
- Remove any burrs caused by screwdriver on the vane of impeller in waterway passages.
- Replace motor and rotating element in casing. Be sure that any damaged O-rings are replaced

  - or -

  If whole assembly was removed install O-ring on cover. Be sure that any damaged O-ring is replaced.
- Position case (Ref 1), cover (Ref 11), and motor disc (Ref 71) so the holes line up. Install socket head cap screws through the case and cover and thread into motor disc. Tighten all cap screws alternately and evenly until finger tight.

  - or -

  When whole assembly is removed place pump casing against pump cover. Ensure that impeller eye is centered in pump case and position case, cover and motor disc so that the holes line up. Install socket head cap screws through the case and cover, thread into motor disc. Tighten all cap screws alternately and evenly until finger tight.
- Finish tightening the cap screws alternately and evenly to approximately 6 ft. lbs. torque. Note: It is imperative that screws be tightened alternately and evenly, as this action centers the cover in the casing, assuring proper alignment. Binding of the impeller in the case and adaptor may occur if the cap screws are not tightened as listed above.
- Replace hold-down bolts.
- Check for free rotation after assembly is completed.
- Replace motor shaft end cap.
- Seal all drain openings using pipe sealant on threads.
- Re-prime before starting. Do not start until pump is completely filled with water.

Section 4 – Condensed Parts List

For Model DS1000

Part No.	Description
010007	Descaler Fluid 5 Gallon
012048	Hose Clamp
018246	Pump Seal Kit Assembly
018253	½ HP Centrifugal Pump
026587	Power Cord with Plug 12’
026546	120V Lighted Toggle Switch
043077	½” Ball Valve
600044	1” Hose Kit Assembly

For Model DS1100

Part No.	Description
010007	Descaler Fluid 5 Gallon
012048	Hose Clamp
018246	Pump Seal Kit Assembly
018295	¾ HP Centrifugal Pump
026587	Power Cord with Plug 12’
026546	120V Lighted Toggle Switch
043077	½” Ball Valve
600044	1” Hose Kit Assembly

Section 5 – Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET

REVISED December, 2010

Mfg. For: MOKON DIVISION
Protective Closures Company, Inc.
2150 Elmwood Avenue, Buffalo, NY 14207
716-876-9951

Manufactured By:
Delta Products Group
P.O. Box 6466, Aurora, IL 60544
630-264-6001

PRODUCT INFORMATION

TRADE NAMES OR SYNONYMS: ***Mokon Descaler Fluid, 888 Descaler Industrial Descaler***
FORMULA: PROPRIETARY, CONFIDENTIALITY REQUIRED
CHEMICAL FAMILY: WATER SCALE, LIME & RUST SOLUTION

ACTIVE INGREDIENTS

MATERIAL OR COMPONENT	APPROXIMATE %
HYDROGEN CHLORIDE, AQUEOUS	LESS THAN 10
DELTA PROPRIETARY COMPOUNDS	LESS THAN 7
AMINE PENETRANT MIXTURE	LESS THAN 12

NOTE: This material is an aqueous organic solution and as such should **NOT** be considered hazardous under normal use conditions. Laboratory tests indicate material to be BIODEGRADABLE when used as directed. USDA has authorized this product for use in plants under their jurisdiction. A3 Cleaners with no food contact.

SARA TITLE III & TSCA

Section 302 Extremely Hazardous Substances or Section 313 Toxic Chemicals: **None**
ALL components of this product are listed on the TSCA list of controlled substances.

PHYSICAL DATA

BOILING POINT: AROUND 213° F
SOLUBILITY IN WATER: COMPLETE
SPECIFIC GRAVITY, (WATER = 1): 1.046
VAPOR PRESSURE: 30 TORR.
VAPOR DENSITY, (AIR = 1): GREATER THAN 1
PERCENT VOLATILE BY VOLUME: 99.6%
APPEARANCE: DARK LIQUID WITH PRECIPITATE
ODOR: CHARACTERISTIC
FREEZING POINT AROUND 30° F
PHYSICAL STATE: LIQUID

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: NO FLASH POINT, EXTINGUISHES FLAME.
EXTINGUISHING MEDIA: DOES NOT SUPPORT COMBUSTION.
SPECIAL FIRE FIGHTING PROCEDURES: NONE- WATER WILL CONTROL, AS WILL CO_2.
UNUSUAL FIRE & EXPLOSION HAZARDS: NON-COMBUSTIBLE OR EXPLOSIVE.
HEALTH: 0
FLAMMABILITY: 0
REACTIVITY: 0
PERSONAL PROTECTION: A GLASSES

HEALTH HAZARD DATA

THRESHOLD LIMIT VALVE:	NONE FOR TOTAL - MATERIAL IS AN AQUEOUS ORGANIC SOLUTION AND AS SUCH HAS LITTLE VAPOR PRESSURE. NO NOXIOUS FUMES ARE GENERATED FROM ITS USE.
EFFECTS OF OVEREXPOSURE:	NOT CONSIDERED HAZARDOUS WHEN USED AS DIRECTED.
EMERGENCY FIRST AID PROCEDURES:	IF EYE/SKIN CONTACT, COPIOUS WATER RINSE. CONSULT A PHYSICIAN. NOT TO BE TAKEN INTERNALLY. IF INGESTED- DO NOT INDUCE VOMITING - DRINK MILK, EGG WHITES, ETC. AS DIRECTED BY PHYSICIAN. WASH WITH SOAP AFTER USE.

REACTIVITY DATA

STABILITY:	STABLE
INCOMPATIBILITIES (MATERIALS TO AVOID):	STRONG CAUSTICS AND/OR BLEACH PRODUCTS
HAZARDOUS DECOMPOSITION PRODUCTS:	NONE
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR
CONDITIONS TO AVOID:	EXCESSIVE HEATING OVER 120° F

SPILL AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS:	RINSE WITH COPIOUS AMOUNTS OF WATER TO DILUTE TO DRAIN.
DISPOSAL METHOD:	EXPENDED PRODUCT MAY BE DISPOSED DOWN SEWER WITH WATER FLUSH PER LOCAL REGULATIONS. THIS MATERIAL IS **BIODEGRADABLE**.

SPECIAL HANDLING INFORMATION

VENTILATION:	**1. LOCAL EXHAUST**: NORMAL **2. MECHANICAL (GENERAL):** SUFFICIENT **3. RESPIRATORY PROTECTION (TYPE):** NONE REQUIRED
PROTECTIVE GLOVES:	AS RECOMMENDED BY SAFETY DEPARTMENT.
EYE PROTECTION:	AS RECOMMENDED BY SAFETY DEPARTMENT.
OTHER PROTECTIVE EQUIPMENT:	NONE REQUIRED, BUT DO AS RECOMMENDED BY SAFETY.

SPECIAL PRECAUTIONS

HANDLING AND STORING:	NONE REQUIRED
CAN MATERIAL BE STORED OUTSIDE?	YES, MAINTAIN MATERIAL BETWEEN 30°-120° F
OTHER PRECAUTIONS:	Do not circulate material for more than a four hour period without consulting the manufacturer. Most ***Mokon Descaler*** cleanings may be accomplished in an average of two hours. Please use material only as directed. Use ***Mokon Descaler*** at an ambient temperature. Do not pressurize circulating solution or elevate temperature above 120° F. Test on small hidden sample area for any compatibility concerns.

Section 6 – Warranty

D-SCALER WARRANTY

All new D-Scaler systems manufactured by MOKON are guaranteed to be free from defective material or workmanship for one (1) year from the date of purchase. MOKON'S obligation under the WARRANTY SHALL BE LIMITED, TO THE ORIGINAL CUSTOMER, TO REPAIR OR REPLACE DEFECTIVE PART(S) OF THE SYSTEM, UPON CUSTOMER COMPLIANCE WITH THE INSTRUCTIONS CONTAINED HEREIN. Upon discovery of any alleged defect, it is the responsibility of the customer to contact the MOKON service department with the complete model number, serial number and the date of purchase. MOKON'S obligation under this warranty is limited to make good, from or at its factory, any parts which are returned to the company (prepaid) and deemed to defective, within the time frame of the warranty. The customer also has the option of forwarding the system to MOKON (Buffalo, NY), prepaid by the customer and with a return authorization from MOKON for inspection and component replacement or repair (if non warranty) or to have a MOKON service technician come to its facilities (based on availability) if it issues a purchase order agreeing to pay for all reasonable labor time, transportation, food and lodging costs if the problem is not covered by this warranty. Repair and replacement in any manner provided above shall constitute a fulfillment of all liabilities of MOKON concerning the quality of the D-Scaler system.

No allowances, credits or reimbursements will be made for any replacement or repair made or provided for by the customer unless authorized in advance, in writing, by MOKON.

Failure to flush the system will void the above warranty! Failure to add supply water during the flushing of the system will also void the above warranty!

The warranty set forth above is in lieu of any and all other warranties expressed or implied including warranties of merchantability and fitness for a particular purpose. Mokon shall in no event be liable for any consequential damages or for any breach of warranty in an amount exceeding the original price.

2150 Elmwood Avenue - Buffalo, NY 14207
P# 716-876-9951 - F#716-874-8048 - www.mokon.com