

# SEPARATION<sup>®</sup>

E N H A N C E R

SEPARATION THAT MAKES SENSE

## **Installation & Operation Manual**

**SIMA**



Serial # \_\_\_\_\_

Model # \_\_\_\_\_

### ***Warning:***

**Read installation instructions completely before proceeding with installation process**

**SAVE THIS MANUAL FOR FUTURE REFERENCE**

**Eco1st Technology Group (1-714-662-7514) [www.Separationenhancer.com](http://www.Separationenhancer.com)**

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## **INTRODUCTION**

The equipment you have just received is unlike any other product on the market today. We have given immense thought to the design, components and choice of materials used in all of our equipment to ensure lasting performance and dependability.

## **How It Works**

When installed, the Eco1st Separation Enhancer® treats all fluids, gases and contaminants in the pipeline by breaking the molecular bonds and stripping away valence electrons causing complete ionization before, during, and after the Enhancer. All electrons are routed to the dedicated ground rod supplied with the Enhancer. This process causes all fluids, gases and contaminants to separate rapidly according to their specific gravity. By using the Separation Enhancer® customers have experienced these benefits and more. Some of which are listed below. For more information about your Separation Enhancer® and what can be generally be expected, visit our website [www.Separationenhancer.com](http://www.Separationenhancer.com)

### **Benefits**

- Reduce retention time
- Increase oil recovery
- Increase quality of oil & water - Lower BS&W
- Improves site efficiencies
- Reduce the need for chemicals and heat
- Reduces fluid friction and pump pressure
- Increases profitability

### **Features**

- No user adjustments
- No outside power source
- Built to accommodate any line size with no additional restriction to flow
- High grade stainless steel construction
- Made in U.S.A.

## Removing From Crate

When the lid of the crate is removed, make sure the following items are in the crate:

- (1) Separation Enhancer®
- (1) Instruction Manual
- (1) Grounding Kit
- (1) Ground Rod
- (2) Dissimilar Metals Gasket Kits
- (1) Lifting Straps

**If any of the items are missing, contact your account executive.**

If all supplies are accounted for, Use the straps provided to help lift the Separation Enhancer® out of the crate. Use of a forklift or crane is ideal to place The Separation Enhancer® from the crate to a designated location for installation.

***Note: Avoid aggressive handling of the Separation Enhancer®, Failure to do so will result in damage of internal components which could effect the over all performance of the Separation Enhancer®.***

### Installation

The installation of the Separation Enhancer® is simple. The Separation Enhancer® should be installed after the pump and prior to the holding tank. On page 5 you will find a spec sheet. Locate the accurate size Enhancer you have received on the spec sheet. Once you've found your Enhancer, use the spec sheet as a reference for installation.

A section of pipe will need to be removed from your pipeline in order to install the Separation Enhancer. Additionally, flanges will need to be installed to fasten the Enhancer in place. The dissimilar metals gasket kits. *(included in crate)* must also installed. Please follow the dissimilar gasket kit instructions on pages 8-10. Once you've fastened the Separation Enhancer® inline, You will then want to ground off the Enhancer by following the grounding instructions provided on pages 10-11. When finished grounding the Enhancer, your installation is complete. If at any point you run into any unresolved issues, please contact one of our customer service representatives for troubleshooting.

***Note: If Separation Enhancer® is exposed to freezing temperatures, The Separation Enhancer® requires freeze protection. Eco1st Technology Group does not warrantee cracks, fractures or damage of any kind resulting from freezing.***

**Eco1st Contact Information:  
Ph. (877) 842-5800**

# Specs Sheet

Separation Enhancer	Flow Rates: GPM	Length	Width	Height	Weight	Flange Center	# of bolts Per Flange	Bolt Size
2" Low Flow	20 - 50	52.5"	16"	13.5"	208 lb.	6.75"	4	3/4"
2"	50 - 125	60"	16"	12.75"	210 lb.	7"	4	3/4"
3" Low Flow	50 - 125	52.5"	16"	12.75"	210 lb.	7"	4	3/4"
3"	125 - 250	60.25"	16"	15"	270 lb.	8.25"	4	3/4"
4" Low Flow	125 - 250	54"	24"	15"	245 lb.	8.25"	8	3/4"
4"	250 - 500	64.5"	24"	17.25"	400 lb.	8.5"	8	3/4"
6" Low Flow	250 - 500	55"	24"	17.25"	405 lb.	8.5"	8	3/4"
6"	500 - 1000	67"	24"	19.75"	558 lb.	9.5"	8	3/4"
8" Low Flow	500 - 1000	56"	24"	19.75"	570 lb.	9.5"	12	7/8"
8"	1000 - 1600	70"	33"	23.75"	680 lb.	11.625"	12	7/8"
10" Low Flow	1000 - 1600	58"	33"	23.75"	710 lb.	14.25"	12	1"
10"	1600 - 2500	60"	33"	26.25"	868 lb.	14.375"	12	1"
12" Low Flow	1600 - 2500	59"	33"	25.25"	895 lb.	14.375"	12	1"
12"	2500 - 3500	87"	36"	30"	1410 lb.	x	12	1"

**Note: Lengths can vary between +.5" or - .5"**

**Each Enhancer has two flanges**

# Dissimilar Gasket Kit Installation Instructions

This gasket kit must be installed on metallic pipelines in order to break the electrical continuity between the Separation Enhancer® and the pipelines. The Separation Enhancer® only works when it is electrically isolated. Proper Installation of gasket kit is imperative. Please read the following instructions before installation.

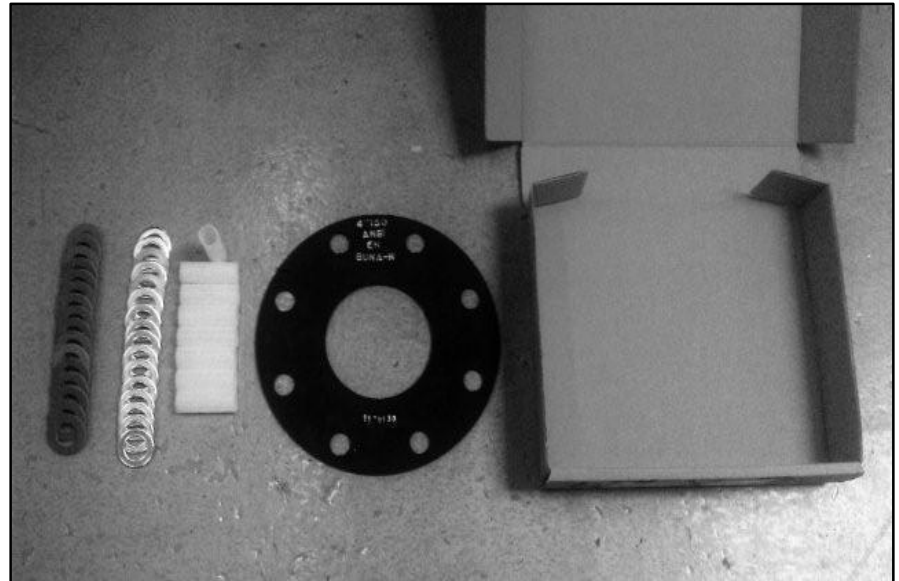
## Dissimilar Metals Gasket Kit

### **Material List: (2 Kits included)**

*(illustration from left to right)*

- Cork Washers
  - Metal Washers
  - Plastic Bolt Sleeves
  - Gaskets
- Bolts and Nuts are not included-

Gasket size & material quantities are determined by Irrigation enhancers # of bolts & flange size which vary depending on line size.

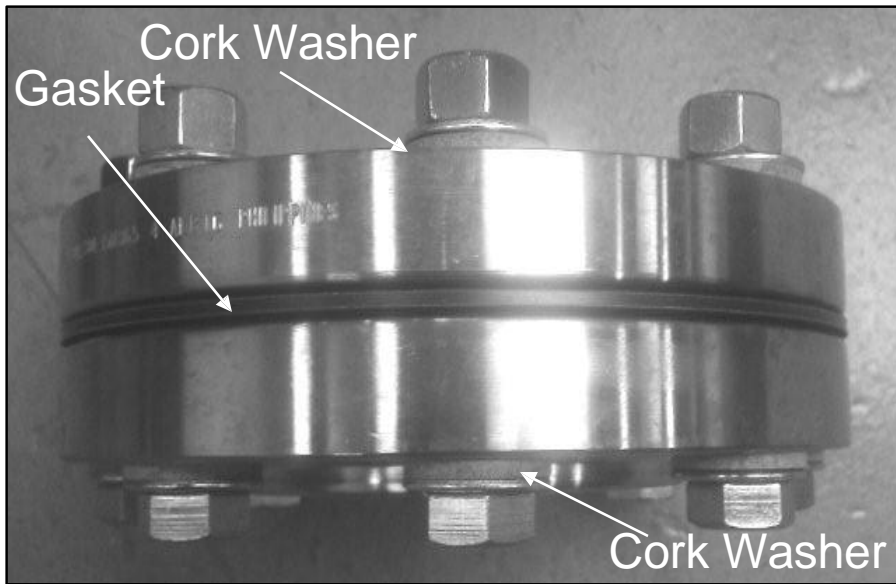


*This image illustrates only one 6" dissimilar metals gasket kit*

**Before proceeding, make sure all items on the material list are present. If not, contact your Dealer or Eco1st Customer Service.**

## Gasket Kit Installation

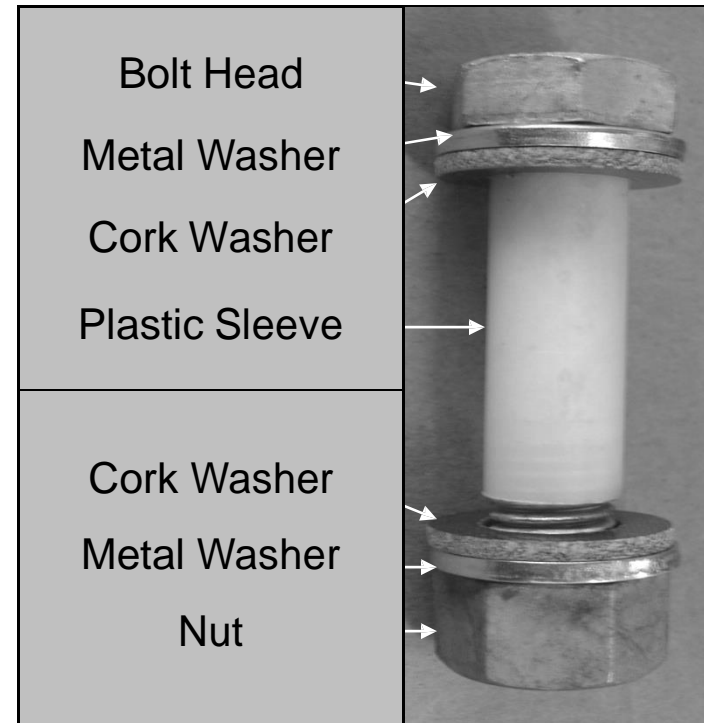
Starting with the bolts, put on one metal washer, a cork washer and the plastic sleeve in that order on every bolt. Then put the gasket between the flanges. Line up the holes. Then put the bolts into the holes. The cork washers should be touching the flange. Once all the bolts are in. Put on the cork washer, metal washer and the nut on each bolt, in that order. Tighten the bolts. Installation is complete.



The Illustration above is an example Of how the dissimilar gasket kit should look when installed correctly.

## Bolt Configuration

The illustration below gives you an example of how the bolts should look if you could see through the flange when assembled.



The only area that should make contact with the flanges when installed correctly, will be the cork washers and plastic sleeve.

**For any additional technical support or information contact: Eco1st (877) 842-5800**

# Grounding Instructions

## Purpose

The uniquely designed ground rod provided is used to connect to the Enhancer's ground wire, enabling the removal of electrons from the fluid and foreign contaminants within in the pipeline. This process is referred to as ionization. Without proper grounding optimum ionization will not occur. Proper grounding is essential and will reflect on the overall performance of the Enhancer.

## Grounding Kit

### **Material list:** *(illustration from left to right)*

- (1) - Volt Meter
- (1) - Scotch Pad
- (1) - 5/8" Ground Clamp
- (1) - Self Fusing Tape (Red)
- (1) - Ground Rod



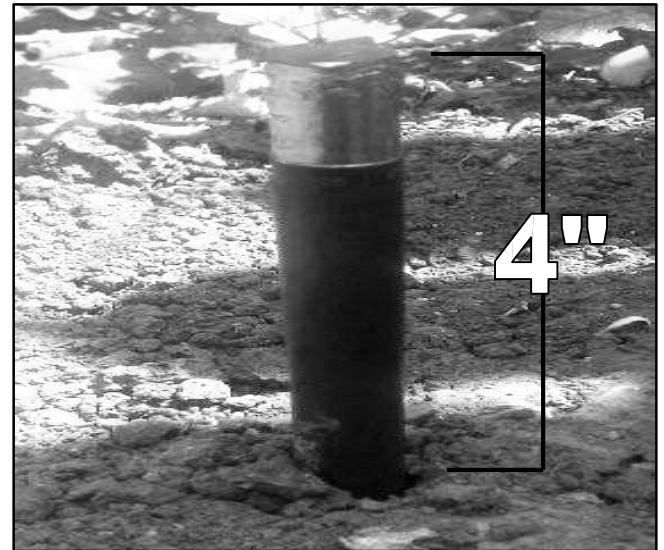
**Before proceeding, make sure all items on the material list are present. If not, contact your Dealer or Eco1st Customer Service.**



# Ground Rod

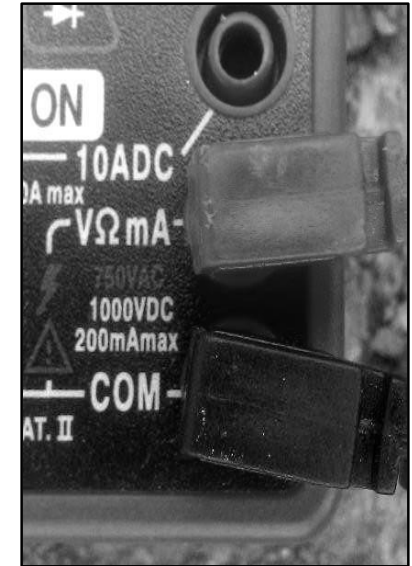
- Remove the red cap from the grounding rod exposing the copper tape. Use the Scotch pad to remove any oxidation on the copper tape to maximize conductivity. (top illustration)
- Then find a location furthest away from any electrical sources. Shaded locations are optimal but not a necessity.
- Once a designated location is found, drive the ground rod into the ground exposing 4" of the rod above the surface. (bottom illustration)

***Placement of the ground rod is very important. It should be located as distant from any known grounded power sources. i.e.: Pumps, Power transformers, Electrical Panels, Etc.***



## Volt Meter

- Turn the meter on, You will then need to set the meter to the lowest scale of the DCA section, Starting with 200 $\mu$ . work clockwise through the DCA scales when doing your readings. The DCA is the only section of the meter you will use. (top left illustration)
- There are 3 ports on the face of the meter, you'll only use the bottom 2 ports only. Plug the black wire in the port marked (com). Plug the red wire in the port directly above. (top right illustration)  
(black lead on bottom and the red lead above the black lead)
- Locate the ground wire attached to the Enhancer. Locate the loose end of the ground wire extending from the input end of the Enhancer. You will use the ground wire, ground rod and meter to measure electron flow.
- Grab the loose end of the wire and strip back the insulation about 1-1/2". Then clean off the exposed wire with the Scotch pad (include). This will remove any excess oxidation on the wire. Now, twist the exposed wire to condense.
- At this point, fluid must be flowing through the enhancer before the next step.
- Place the red lead in the exposed end of the ground wire. (bottom illustration) Then place the black lead on the copper portion of the ground rod. If the meter reads error, rotate the dial clockwise to the next scale and so on until you get a reading. The number that presents itself on the meter should be steady and should not fluctuate between 10-30 seconds.
- After you've recorded the ground reading from the meter, please note the scale and reading on the following page. You will then contact your account Eco1st Product specialist or Dealer to ensure you're receiving an optimum reading.



## Grounding The Enhancer

- Once an optimum ground reading is established, fold the exposed end of the wire in half. This will give the wire more surface area to make contact with the copper tape on the ground rod. (top illustration)
- Secure the ground wire to the ground rod using the ground clamp. Feed the ground wire up through the bottom of the clamp on the opposite side of the bolt as the picture illustrates. (middle illustration)
- The final step is to wrap the entire ground clamp with the red self adhesive tape to completely waterproof the connection. You will need to peel back the clear plastic liner on the tape as you apply the tape. (bottom illustration)

## Maintenance

The Separation Enhancer® requires no maintenance. Although, it is important to check the grounding of the Separation Enhancer® from time to time to ensure the Separation Enhancer® is grounded as illustrated on pages 9–11. Over the course of a few years or more, the zinc point of the ground rod will eventually erode, causing the ground rod to be less conductive. When checking the continuity of the ground rod, if you find the reading to be much less than years prior, it may be time to replace the ground rod. Contact your Licensed Dealer or Eco1st directly to evaluate whether it's time for a replacement ground rod.



# Ground Reading Memo

Ground Reading	Date

## Contact Information for Eco1st Technology Group

### Customer Service

**7575 Reynolds Cir  
Huntington Beach, Ca 92647**

**Toll Free: 855-842-5800  
PH: 714-662-7514  
FX: 714-842-5899  
info@eco1st.net**

**Memo:**

## Warranty & Maintenance Disclaimer

- **EQUIPMENT INSTALLATION.** END-USER agrees to have the Equipment safely installed by someone experienced installation of piping systems and who understands the importance of following the Installation Instructions included with the Equipment. This process includes using the supplied volt/ohm meter to measure the electron flow rate “Equipment Performance Readings” This measurement or reading is done by attaching one meter test lead to the Equipment grounding wire and then the remaining meter test lead is placed in conductive contact with the copper tape on the exposed end of the supplied dedicated grounding rod; which had been driven into the earth in an earlier step. Then observe and note the meter readout while fluid is flowing through the equipment. One of the last and most important installation steps: Contacting and reporting the meter readings to ECO1ST.
- **OWNERSHIP OF EQUIPMENT.** The Equipment will be deemed to be personal property, regardless of the manner which it may be attached to any other property. ECO1ST shall be deemed to have retained title of ownership to Equipment at all times. The END-USER shall immediately advise ECO1ST with regard to any notice of claim, levy, lien, or legal process issued against the Equipment.
- **CARE, USE AND MAINTENANCE.** All Equipment is constructed of high grade stainless steel and fitted with solid state components that are designed for a lifetime of service protected from the environment in sealed housings. The only occasional service required with the Equipment is replacement of the specific earth grounding rod which is supplied by ECO1ST. The grounding rod should be replaced approximately once every three years. The instructions included with the equipment, describe grounding rod installation and Equipment performance testing procedures necessary for this process which can be done by the END-USER. At any time should END-USER have any questions or concerns ,ECO1ST welcomes the opportunity be of assistance to END-USER. ECO1ST should be contacted by END-USER particularly if the END-USER suspects or becomes aware of damage to Equipment, accidental or otherwise. All Equipment service or repair will be performed by ECO1ST. The ECO1ST team intentionally endeavors to enable our Equipment END-USER to experience every possible benefit the Equipment and its performance can provide. When our equipment END-USER’s has greater success at reaching or exceeding their process and business goals, then our business benefits as well. Although the Equipment is a patented technology, there are aspects of its function and design contained in its sealed outer housing and its sealed core located within the flow tube assembly that ECO1ST holds as a valuable trade secrets and as such, confidential and proprietary in nature. Now therefore the END-USER understands and agrees not to access or breach any sealed component part or section of the Equipment. The END-USER additionally agrees not to permit anyone else to access or breach any sealed component part or section or otherwise violate the integrity of the Equipment as well. END-USER is NOT to attempt any repairs to the Equipment, without first consulting with ECO1ST. END-USER shall not remove, alter, disfigure or cover up any numbering, lettering or insignia displayed upon the Equipment. END-USER agrees to safeguard the Equipment from careless, unusual, needlessly rough, handling or usage, including damage and theft. END-USER agrees to return the Equipment in a clean and functional condition, similar to the condition it was received with normal wear and tear expected. ECO1ST and its authorized representatives shall have the right of access to the Equipment in order to perform the services required of ECO1ST hereunder. Failure to adhere to this policy will result in a breach of this Agreement.