

# PRODUCT RECOVERY BASIC SYSTEM



TrueClean®

INSTALLATION / OPERATION / MAINTENANCE  
RELEASE: 2025





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# Safety

## IMPORTANT SAFETY INFORMATION

Read this manual before installing, operating, and maintaining this equipment. Failure to read the manual can result in personal injury and/or equipment damage.

**Do not attempt to remove and/or modify any TrueClean products or programming.** Doing so can create unsafe conditions for the operator(s) and/or surrounding persons. Any change to TrueClean products or programming will void any and all warranties.

**Do not place any TrueClean product in an application where general product service ratings are exceeded.** Doing so puts the operator(s) and/or surrounding persons at risk of personal injury and/or result in equipment damage.

The words **DANGER**, **WARNING**, and **CAUTION** and their meanings, as used within these instructions, are listed below:



**DANGER**

Indicates an imminently hazardous situation, which if not avoided, has a high likelihood of resulting in death or serious injury. This symbol is used in only the most extreme at-risk cases and warrants immediate action.



**WARNING**

Indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury. This symbol is used for moderately at-risk cases and warrants immediate action.

**CAUTION**

Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. This symbol may also be used to alert against an unsafe operating or maintenance practice.

If, at any point during operation a Danger, Warning, or Caution indication is present, the operator should immediately take steps to resolve the problem and/or seek assistance from a supervisor.

**Do not remove any labeling on any TrueClean product.** Immediately replace any label that is missing.

## DISCLAIMER OF LIABILITY

TrueClean does not assume responsibility and expressly disclaims liability for loss, damage, or expenses that arise in any way from the installation, operation, use, or maintenance performed in accordance with this manual. TrueClean assumes no responsibility for any infringement of patents or other rights of third parties that may result from use of the module. No license is granted by implication or otherwise under any patent or patent rights.

TrueClean reserves the right to make changes to the product, specifications, or this manual without prior notice.

# Introduction

## ABOUT THIS MANUAL

**Thank you for purchasing a TrueClean® product.**

This manual contains installation, operation, and maintenance instructions specifically for the TrueClean Product Recovery Basic System. All Product Recovery Control Systems are available with optional equipment that can provide additional functionality.

This manual covers all aspects of the Product Recovery Basic System. The instructions provided are tailored exclusively for this system.

The Product Recovery Basic System is designed for minimal routine maintenance, but care and attention should be given to the instructions provided in this manual.

Do not remove any labeling on any TrueClean product. Immediately replace any label that is missing.

If, at any point, you have questions or concerns regarding your Product Recovery Basic System, please call 417.831.1411.

# Introduction

## TECHNICAL DATA:

- Maximum compressed air pressure: 145 psig
- Product temperature limit:
  - Urethane Projectile 200°F
  - Silicone Projectile 400°F
- Air inlet size: 1/2" FNPT
- Electrical Requirement: AC 120V, 60Hz +/- 6%
- Ideal Projectile Velocity: 3–5 feet per second

## AIR FLOW REQUIREMENTS

The air pressure and airflow settings to ensure smooth operation of the Product Recovery Basic Control Systems can vary depending on factors such as product viscosity and system back pressure. The following pressure and flow settings are the recommended settings for initial startup of your system. Adjustment of these settings may be required to achieve the appropriate performance for your application.

LINE SIZE	MIN. PRESSURE	MIN. AIR FLOW
1.5"	60 PSI	9 SCFM
2"	60 PSI	17 SCFM
2.5"	60 PSI	28 SCFM
3"	60 PSI	41 SCFM
4"	60 PSI	73 SCFM

Table 1 - Air Flow Requirements

# Introduction

## OPTIONAL IN-LINE FLOW METER

An optional in-line flow meter can provide accurate compressed air flow monitoring and be mounted horizontally, vertically, or inverted. This in-line flow meter is accurate to within  $\pm 2.5\%$  FS reading and repeatable to within  $\pm 1\%$  FS reading.

- $\frac{1}{2}$ " NPT dry seal connections
- Rated for 10-100 SCFM of flow
- Part number HFA-2-004

## BUILT-IN SAFETY

One important aspect of TrueClean's Product Recovery Control package is the built-in safety. Each control unit has integrated safety features including air lockout and emergency stop capabilities.

### AIR LOCKOUT CAPABILITY (FIG. 1)

- When the air is in the off position a pad lock can be attached to the air switch to prevent accidental operation.
- This enables compliance with OSHA lockout tag out requirements.

### EMERGENCY STOP CAPABILITY (FIG. 2)

- When the Emergency Stop is activated all operations are stopped and the light illuminates.
- To release the Emergency Stop twist in a clock-wise rotation until it pops up.

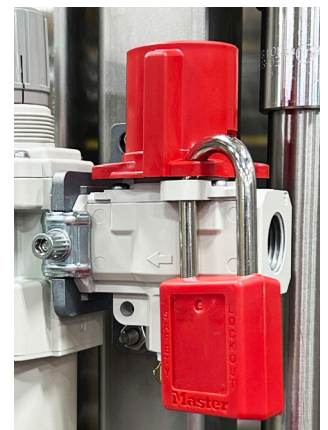


Fig. 1 - Air Lockout



Fig. 2 - Emergency Stop

# Installation

Mount cabinet in accordance with appropriate specifications, as determined by the conditions of the mounting location. Some of these specifications may be called out by NEMA, UL, CSA, etc.

If required, a licensed contractor should be consulted prior to installation.

## AIR CONNECTIONS

TrueClean's Product Recovery Control Panels are designed to be easy to install and intuitive to operate. It is recommended that Teflon tape, or a similar thread sealing compound, be used to eliminate air leakage at threaded air connections. Incoming plant air is connected at the cabinet input, and then from the exit of the cabinet to the launcher.

### AIR INPUT TO CABINET (FIG. 3)

- Air connection 1/2" NPT Female
- Supply with clean process air. Air is connected at the cabinet input, and then from the exit of the cabinet to the launcher.



Fig. 3 - Air Input

### AIR SUPPLY TO LAUNCHER (FIG. 4)

- When purchased with a system the hose will be configured to match the connection at the launcher.
- Standard hose length is 10 feet.



Fig. 4 - Air Supply

**Note:** TrueClean and the manufacturer of the components used recommend that the cabinet be supplied with clean process air at the recommended pressure and flow for your application. (See Air Flow Requirements Chart on page 6.)

# Installation

## WIRING LOCATIONS

**Warning:** To avoid electrical shock, ALL electrical work should be done by a licensed electrician, following industrial safety standards and meeting all local codes. All power must be OFF and LOCKED OUT during installation.

## BASIC PUSH BUTTON CONTROL SYSTEM CABINET

This indicates where the incoming electrical power and catch sensor wiring should be landed inside the Basic Control System Cabinet.

- Supply cabinet with AC 120V, 60Hz
- Terminate at locations shown (see Table 2).

## SENSOR WIRING DIAGRAM (FIG. 5)

BRN (Brown) – Sensor Power

BLU (Blue) – DC Common

BLK (Black) – Sensor Input

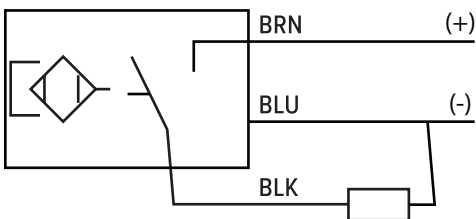


Fig. 5 - Sensor Wiring Diagram

LABEL	DESCRIPTION
FU1	120V AC SUPPLY
N	NEUTRAL
GND	EARTH GROUND
FU2	24V DC SUPPLY
1*	E-STOP POWER
2*	E-STOP INPUT
3	SENSOR POWER
4	SENSOR INPUT
5	LAUNCH SOLENOID (+)
6	LAUNCH SOLENOID (-)
7	POPPET VALVE (+)
8	POPPET VALVE (-)
9	LAUNCH BOOST SOLENOID (+)
10	LAUNCH BOOST SOLENOID (-)
11**	CYCLE COMPLETE OUTPUT (+)
12**	CYCLE COMPLETE OUTPUT (-)
0VDC	DC COMMON
0VDC	DC COMMON
0VDC	DC COMMON
0VDC	DC COMMON
24VDC	24V DC
24VDC	24V DC
24VDC	24V DC
24VDC	24V DC
GND	GROUND
GND	GROUND
GND	GROUND

\*REMOVE THE JUMPER BETWEEN TERMINALS 1 AND 2 WHEN USING A REMOTE EMERGENCY STOP PUSH BUTTON IN SERIES WITH THE PANEL-MOUNTED EMERGENCY STOP PUSH BUTTON

\*\*USE OF THE CYCLE COMPLETE OUTPUT IS OPTIONAL FOR REMOTE COMMUNICATION

Table 2 - Electrical Connections

# Operation

## BASIC CONTROL PANEL

In this section, you will find instructions regarding the launching of a product recovery projectile through the use of your basic control panel. Operators should take a moment to familiarize themselves with the items in bold below.

## LAUNCH CYCLE

1. Verify the Product Recovery Projectile is in the Launcher and ready for launch
  - The projectile should be inserted into the run of the launcher until flush with the ferrule face.
  - The air blow check valve can then be installed which will make sure the projectile is inserted properly.

**Note:** Inserting the projectile too far into the launch fitting could result in the projectile prematurely entering the process piping and be carried downstream with the product and possibly creating a blockage.
2. Verify the pneumatic lockout valve is in the On position
3. Press the Reset System button
4. **Hold the Start button down** for 3 seconds to launch
5. Once the projectile has reached the sensor, the control panel will automatically shut the air off, and the Cycle Complete (amber) light will illuminate and the optional Cycle Complete output will energize.
6. Remove the Product Recovery Projectile from the catcher.
7. Once projectile and piping has been cleaned, the projectile can be reinstalled in the run of the launcher
  - If you try to launch the system again without resetting, the Cycle Complete (amber) light will blink, letting you know the system has not been reset.
  - Please see additional troubleshooting steps in the troubleshooting section of this manual.

**Note:** Do not leave the air hose connected to the system when it is not in use.

When contacting your TrueClean distributor, please provide your representative with the following information: Product viscosity, system line size, air pressure, airflow.

If the airflow is unknown, the optional in-line flow meter, in the Introduction section of this manual, can be purchased for diagnostic purposes.

If you have any questions about your Product Recovery System, please contact your TrueClean distributor.

# Maintenance

**Warning:** Operators should not perform maintenance on the Product Recovery Control Panel before ensuring a safe maintenance environment.

To ensure a safe environment, it is recommended, but not limited to, verifying the following precautions are met:

- Power to the control panel should be OFF and LOCKED OUT.
- Pneumatic dump valve must be in the OFF position and pressure regulator gauge should indicate 0 psi.

General cleanliness will extend the life of your control panel and its components. Where possible, the area should be kept free of liquids and loose debris.

The product recovery projectile should be checked after each use for cracks or tears in the projectile. If the projectile is discovered to be cracked or torn, it should no longer be used, and a new projectile should be put into service.

## MONTHLY CHECKLIST

- Check air lines for cracks and leaks.
- Inspect the filter for dirt or debris and replace it as needed.
- Check for loose connections or connectivity concerns regarding the solenoid valves.

If any of the above issues exist, the Product Recovery Control Panel should not be used until they are resolved.

# Maintenance

## REPLACING COMPONENTS

TrueClean is providing general instructions regarding the replacement of components used in the manufacturing of our Product Recovery Control System.

## REPLACING "POLY" TUBING

1. Remove compressed air by closing the pneumatic dump valve at the pressure regulator and make certain the Control Panel is powered down.
2. Press the outer ring of the pneumatic fitting in, and then gently pull the cracked or leaking airline from the fitting.
3. Repeat the same procedure for the other end of the airline.
4. Use the cracked or leaking airline as a guide for the length of the new airline.
5. Trim the new section of airline to the appropriate length.
6. Install airline by pressing each end into pneumatic fittings.

**Note:** Ensure the outer rings on the pneumatic fittings extend after the new line is pressed in.

## REPLACING SUPPLY HOSES

The hoses supplied by TrueClean are typically manufactured using reusable ends. In most cases, the ends will simply unscrew apart. A vice may be needed to gently hold the coupling during disassembly.

1. Remove compressed air by closing the pneumatic dump valve at the pressure regulator and make certain the Control Panel is powered down.
2. Disconnect the damaged supply hose.
3. While holding the collar stationary, unscrew the spool.

**Note:** The collar is the piece that covers the hose; the spool threads inside and press-fits the hose.

1. Repeat disassembly for the opposite end of hose.
2. Cut the new piece of supply hose long enough to match application.

**Note:** Hand pressure should be sufficient to push collar back onto each end of the hose.

1. Begin threading the spool by hand to keep the new hose from backing out and to help avoid cross-threading.

**Note:** You may need a vice to hold the collar while completing the reassembly.

1. Repeat assembly for the opposite end of hose.

# Maintenance

## REPLACING PRESSURE REGULATOR FILTER ELEMENT

The manufacturer of the supplied filter regulator recommends the filter element to be changed every two years, or when the pressure drop across the element exceeds 14 psig.

1. Remove compressed air by closing the pneumatic dump valve and ensuring that the regulator gauge reads 0 psi.
2. Locate the spring-loaded release on the front of the pressure regulator.
3. Press the release down and hold.
4. Turn the portion of the pressure regulator body below the release you are holding.
  - This may be more easily accomplished by holding the release with the thumb of the hand with which you intend to turn the body.
  - You should only need to turn the regulator body approximately half of a revolution before gently pulling it free.
  - **Note:** If you only turn the body a quarter of a turn, the release may try to "snap" back into place.
5. Once the body of the regulator is removed, you will be able to remove the element and replace it.
6. Put the body back on, and turn it back into position directly opposite of how you removed it.

# Maintenance

## REPLACING SOLENOID VALVE

The solenoid valves that TrueClean uses are rated for one million cycles, but there is not a performance guarantee for these items. While we do not offer a performance guarantee for the solenoid valves used, they are warranted, for a period of one year, to be free from manufacturer's defects.

1. Remove compressed air by closing the pneumatic dump valve and ensuring that the regulator gauge reads 0 psi.
2. Loosen the solenoid clamp by rotating the 3.0mm SHCS counter-clockwise for ~3 full turns.
3. Gently remove the solenoid valve from the mounting pad by lifting it from the bottom away from the base.
  - Locate solenoid sealing gasket as it may remove with the solenoid valve or remain on the manifold base.
  - Push the 3.0mm Socket Head Cap Screw (SHCS) in with the allen wrench which will open the lower solenoid clamp allowing the solenoid to seat firmly against the manifold base.
4. Re-use or replace the solenoid sealing gasket & ensure it is fully seated in the manifold base.
5. Insert the new solenoid into the manifold base by placing the upper latch portion under the upper clamp.

**Note:** It should never be necessary to force the new solenoid valve into place.
6. Tighten the 3.0mm SHCS to secure the solenoid to the manifold base.
7. Apply compressed air to the panel by opening the pneumatic dump valve and check for leaks.
8. Tighten the 3.0mm SHCS as needed to stop any leaks.

**Note:** If at any point you have questions or concerns regarding your Product Recovery Control System, please contact your TrueClean distributor.

# Troubleshooting

## Q. WHAT SHOULD I DO WHEN THE PRODUCT RECOVERY SYSTEM FAILS TO LAUNCH?

A. Try the following solutions:

1. Verify the Emergency Stop is not active.
2. Verify secure air hose connections.
3. Verify incoming plant airflow (SCFM) at the Product Recovery Control Panel meets minimum requirement based on your system size. (See Table 1 under "Air Flow Requirements" in introduction section.)

**Please Note:** Airflow in SCFM is not the same as pressure in PSIG.

4. Verify power to panel is on.
5. Verify the cycle complete light is NOT illuminated. If illuminated, press Reset System button.
6. If launching from the branch, consider launching from the run.

**Please Note:** Projectile should travel 3–5 feet per second.

**Please Note:** Some fine-tuning may be needed once Product Recovery System is applied on actual process line.

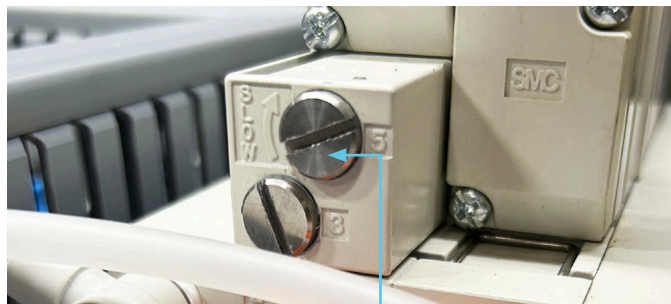


Fig. 6 - Slow Flow Adjustment

## Q. WHAT SHOULD I DO IF THE PROJECTILE GETS STUCK IN THE LINE (DOES NOT REACH THE SENSOR), OR IS TRAVELING TOO SLOW/FAST?

A. Try the following solutions:

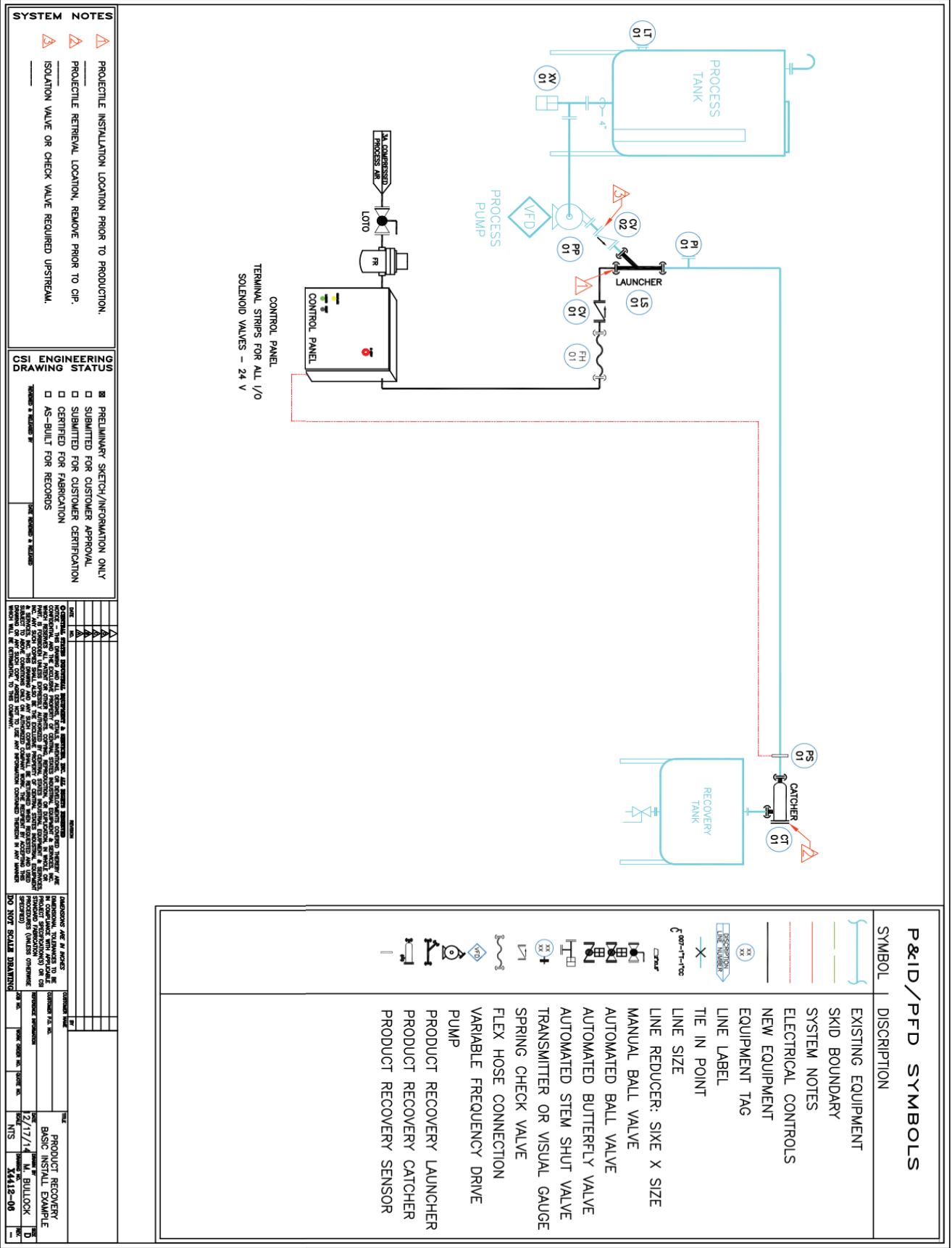
1. Verify air pressure for your application on the regulator.
2. Ensure the air hose connections are secure.
3. Check restrictions in the air to the projectile/launcher, and check for downstream restrictions in the piping.
4. Adjust slow flow under solenoid inside control panel. (See Figure 6.)
5. Install optional flow meter (see "Optional In-Line Flow Meter" section in Introduction), especially if unsure of air supply to projectile.
6. Consult your TrueClean distributor regarding specific application. Please have process specifications available when calling.

## Q. WHAT SHOULD I DO IF I SEE EXCESSIVE WEAR OR DAMAGE TO THE PROJECTILE?

A. Try the following solutions:

1. The Projectile could be traveling too fast. Verify incoming plant airflow (SCFM) at the Product Recovery Control Panel is appropriate, initially based on your system size.
2. Consult your TrueClean distributor regarding specific application. Please have process specifications available when calling.

# Basic Install Example



# Warranty

- A. GENERAL PROVISIONS: Central States Industrial Equipment & Service Inc. (the "Company") warrants exclusively to the original purchaser (the "Customer") that equipment or parts thereof manufactured and sold by the Company will be free from defects in material and workmanship only, under normal use and service, for a period of one (1) year from the original shipment date. The Company shall not be liable for any loss of revenue or profit, loss by reason of plant shutdown, non-operation or increased cost of operation, loss of products or materials, or other special or consequential loss or damages resulting from any such warranted defects. This warranty will not apply to any equipment or parts which has been subjected to accident, alteration, abuse, or misuse. This warranty is in lieu of all other warranties. All other warranties, both express or implied (including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose) warranties are hereby excluded and waived. The Company's only obligation and liability shall be to fulfill the warranty specifically stated herein. The Company will neither assume nor authorize any other person to assume for it any other obligation or liability in connection with the equipment or parts. In the event of a claim under this warranty, the Company's sole and exclusive liability for any warranted equipment or parts shall be, at the Company's option, limited to the following (a) the purchase price of the equipment or parts that are defective, (b) replacement of the defective equipment or parts or (c) repair of the defective equipment or parts.
- B. RETURN OF PARTS OR EQUIPMENT TO COMPANY PLANT: In the event the Company elects to inspect the alleged defective equipment or parts for possible repair, Company will notify Customer in writing, and the equipment or parts must be returned with transportation cost prepaid by the Customer. In the event the Company's inspection confirms defective equipment or parts covered by this warranty, the Company shall have the option to select any of the remedies described in Section A above. No transportation for returned or replaced items will be paid by the Company unless written approval for transportation charges is given by the Company.
- C. COMPONENTS NOT MANUFACTURED BY THE COMPANY: Components not manufactured by the Company, but furnished as part of its equipment (for example: valves, controls, gauges, electrical switches or instruments, etc.) will be warranted by the Company only to the extent of the component manufacturer's warranty.
- D. REPAIR OF EQUIPMENT INSTALLED IN THE CONTINENTAL UNITED STATES: In the event the Company elects to repair a covered item and it is, in the judgement of the Company, impractical to return the equipment or parts for repairs, the Company may arrange for the repairs to be made by its personnel or, at its option, sublet such repairs to a qualified company. The Customer will be expected to cooperate by making the equipment or parts available and accessible when the work is scheduled and is expected to provide the necessary utilities. If local labor conditions prohibit such work being done by Company personnel under the conditions and at the rates payable by its contracts with its employees, the Company obligation shall be limited to supervision of the work, replacement of defective parts, and labor costs in an amount equal to the amount which would be payable for a reasonable number of hours required to make the repairs at the rates payable under the terms of Company contracts with its employees. In such event, all labor costs shall be paid by the Customer and the Company will reimburse the Customer to the extent set forth above.
- E. REPAIR OF EQUIPMENT INSTALLED OUTSIDE THE CONTINENTAL UNITED STATES: In the event the Company elects to repair a covered item for a Customer located outside the continental United States and it is, in the judgement of the Company, impractical to return the equipment for repairs, the Company shall have the additional options (in addition to the other options described herein) of either sending a service representative to repair (or supervise the repairs) or paying Customer a reasonable amount to allow the Customer to have the repairs made locally; provided, that in such situation, Company shall have no obligation to repair or replace equipment or parts that are repaired on by third party contractors selected by Customer.



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