

Air Conditioning & Refrigeration System Flush

QT1100, QT1130, & QT1150



QT1150
Starter Kit



QT1100
2lb Can



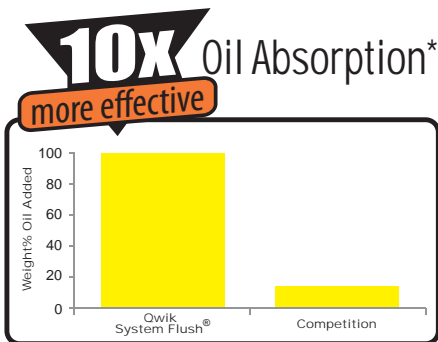
QT1130
1lb Can



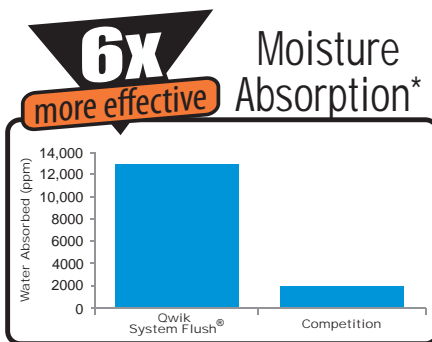
The original Qwik System Flush® was developed by Mainstream Engineering Corporation for the U.S. Air Force in 2001. EPA regulations brought about the need to find alternatives for the R-11 & R-113 flushing agents originally used to clean the pilot's oxygen breathing systems. Qwik-SF® was developed as a biodegradable, non-toxic flushing agent with no long-term environmental or health risks.

This same technology has been utilized to provide a flushing agent for today's HVAC systems that is still easy to use, ozone safe, biodegradable and non-carcinogenic. Qwik System Flush® effectively removes impurities, including oil, sludge, acid and moisture. Qwik-SF® is a must for system clean ups, retrofits and system burnouts.

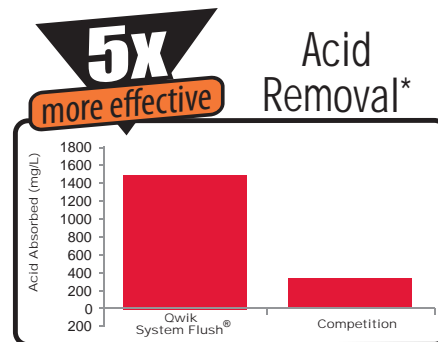
Notice how Qwik-SF® compares to the competition.



- BIODEGRADABLE
- NON-TOXIC



- NON-FLAMMABLE
- OZONE SAFE



- AEROSOL
- U.S. PATENTS:
7,566,409 and 7,736,537

*For any product evaluations, and independent test results proving product effectiveness, visit www.epatest.com/flush/

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Equipment Requirements

Equipment required to flush an Air Conditioning or Refrigeration System using Qwik System Flush® Aerosol or Liquid.

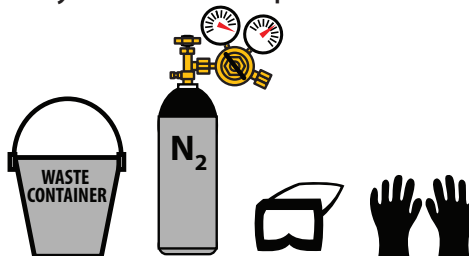
Required Equipment

The following equipment will be required for each flushing operation:

- Qwik System Flush®.** As a general rule, one two pound aerosol canister will clean up to a 10-ton system. The amount needed will vary by size and level of contamination. See the chart below to estimate what you'll need to complete your task.

Part Number	Description
Qwik System Flush®	
QT1100	2 lb Aerosol can for up to 10 ton systems
QT1130	1 lb Aerosol can for up to 5 ton systems
QT1150	2 - 1 lb Aerosol cans for up to 10 ton systems

- Qwik-SF® Access Valve**, part number QT1105, or equivalent tool with a pressure relief valve.
- Refrigerant charging hose.
- A flare fitting for access to section to be flushed - either a flare fitting that you can braze onto the piping, a **Line Set Tool** (QT1110), or our **Squeeze-Type Nozzle** supplied with QT1150.
- An empty waste container to capture waste as it exits the HVAC system. *Dispose of waste as you would dispose of used refrigerant oil.
- Compressed nitrogen.
- Safety glasses
- Protective Gloves



Qwik-SF® Can Access Valve with Built-In Pressure Relief Valve
P/N QT1105



Charging Hose



Qwik-SF® Line Set Tool
P/N QT1110



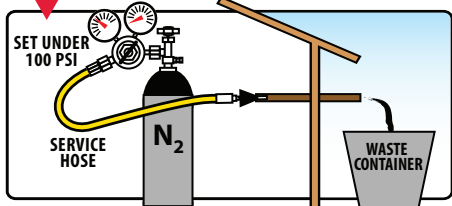
Squeeze-Type Nozzle Lineset Flush Tool
P/N QT1106

Simplified Flushing Procedures

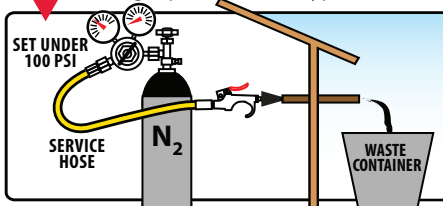
3+ Basic Steps to Flush an Air Conditioning or Refrigeration System using Qwik System Flush® Aerosol (QT1100, 1130 & 1150).

1 A nitrogen flush is required **before** flushing any system with Qwik System Flush®

1 INITIAL NITROGEN FLUSH
Using QT1110 (Line Set Flush Tool)

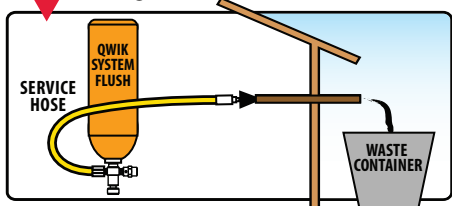


1 INITIAL NITROGEN FLUSH
Using Squeeze Nozzle-Type Tool

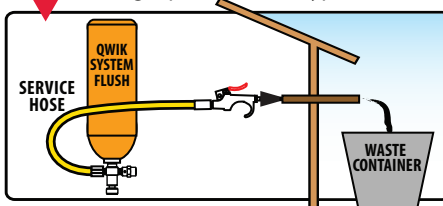


2 Introduction of Qwik System Flush® to flush the system

2 Qwik SYSTEM FLUSH Aerosol
Using QT1110 (Line Set Flush Tool)

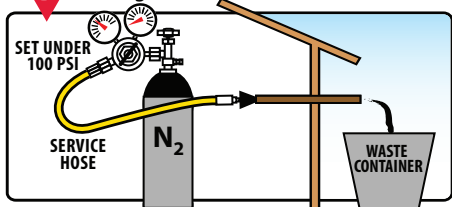


2 Qwik SYSTEM FLUSH Aerosol
Using Squeeze Nozzle-Type Tool

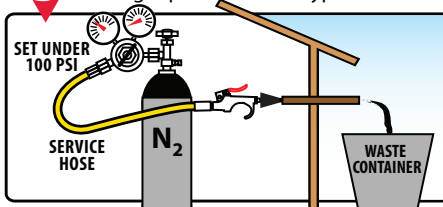


3 A nitrogen flush is required **after** flushing any system with Qwik System Flush®

3 FINISHING NITROGEN FLUSH
Using QT1110 (Line Set Flush Tool)



3 FINISHING NITROGEN FLUSH
Using Squeeze Nozzle-Type Tool



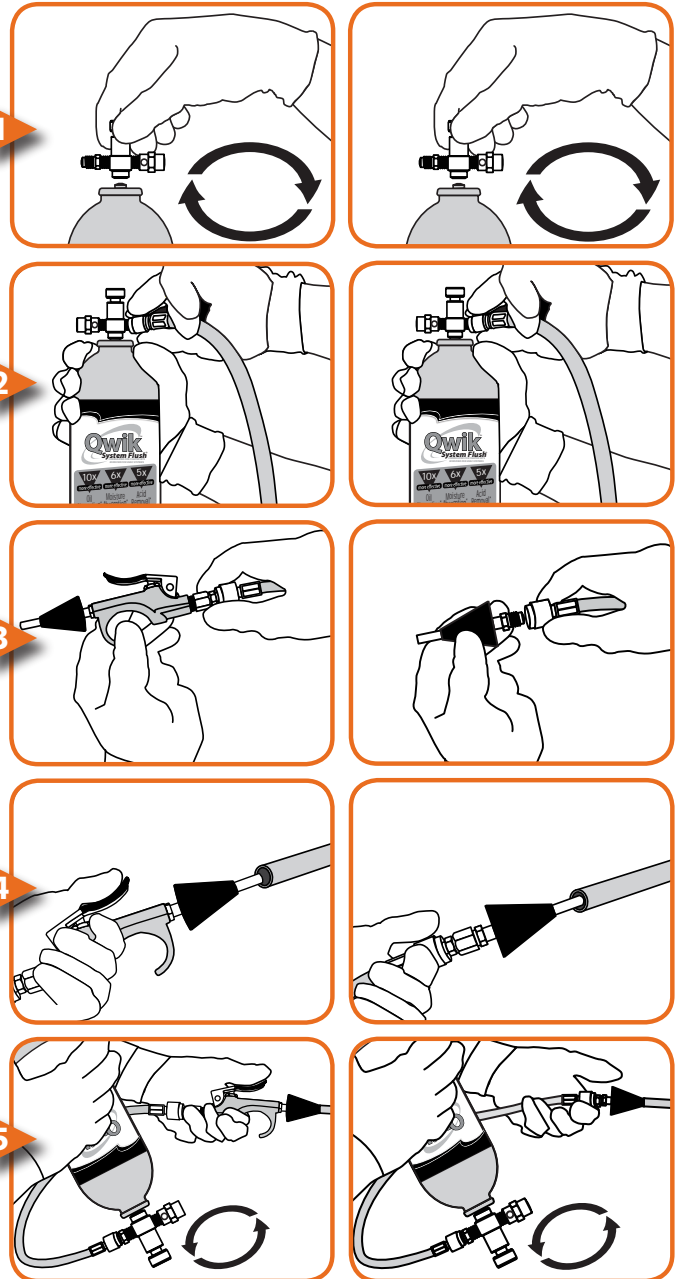
Preparation for Use (Aerosols)

Instructions for preparing Qwik System Flush® Aerosols to Flush an Air Conditioning or Refrigeration System.

A nitrogen flush is required before and after flushing with Qwik System Flush®

INSTRUCTIONS:

- 1** Twist *Can Access Valve* [p/n QT 1105] (clockwise) onto threaded tip of Qwik System Flush® aerosol container.
- 2** Attach hose to threaded flare fitting on *Can Access Valve*.
- 3** Place the other end of the hose on the flare fitting at the point of injection. If no flare fitting is available at the point of injection, either use *Line Set Flush Tool* shown in image #3 [p/n QT 1110] or braze a flare fitting to the piping at the point of injection.
- 4** If you used a *Line Set Flush Tool*, place it in the line set at the point of injection as shown in image #4.
- 5** Making sure to hold the Qwik System Flush® upside down during the flushing procedure, twist the knob of the *Can Access Valve* clockwise to release Qwik System Flush®, twist the knob counter-clockwise to stop releasing Qwik System Flush®.



Product Application

Qwik System Flush® is used in the same manner as R-11 except that **Qwik-SF®** (Aerosol-Type) requires the use of an aerosol can access valve (shown at right). Mainstream Engineering's **Qwik-SF®** Can Access Valve, [p/n QT1105}, should be available at the location where you purchased **Qwik-SF®**.

If you have used another brand of access valve (i.e., NuCalgon's 4300-99) in the past, then your access valve injection tool should be compatible with **Qwik-SF®**.

Qwik System Flush® is most commonly used to clean residual contamination after a compressor burnout or any time you install new system components with a previously used line set.

The instructions that follow describe using **Qwik-SF®** in a proper compressor burnout/changeout procedure but are also applicable to any other **Qwik-SF®** use, such as conversion of HCFC refrigeration components to HFC refrigeration components.

When a compressor burns out, highly acidic oil is formed. Although the majority of this oil remains in the compressor, some oil is always present in the plumbing and remaining components of the system. If you are changing the entire system, including any piping between components in a split system, then there are no issues.



However, if you are not replacing the piping between the components or other parts of the system, then perform the following steps:

1. Recover any refrigerant in the system.
2. Open the system and cut out the following components:
 - Filter-Drier(s),
 - Expansion Valve(s),
 - Compressor(s).

In a burnout / changeout, the filter-drier and compressor would need to be replaced anyway.

3. Place a waste container where both nitrogen and flush carrying waste will be exiting the system (*see Required Equipment #5, page 2*).

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Product Application

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4. Connect the nitrogen gas supply (see *Required Equipment #6, page 2*) to a flare fitting (see *equipment required #4, page 4*) and perform a nitrogen purge at each area that you intend to flush. Let the nitrogen flow for at least 5 minutes or longer if debris continues to exit.
5. The ideal use for the nitrogen is to physically blow as much contaminated oil out of the system that you can. Use your judgement to open the system anywhere you expect oil is trapped, and then use the nitrogen to blow this oil and other debris from the system. Never purge through an expansion device (capillary tube, orifice plate, TXV, etc.) as this will likely clog the device.
6. Next, use **Qwik System Flush®** to clean wherever you used nitrogen as a purge. Once again, if it is practical, the best method for cleaning piping or system components is to replace all the piping and system components. However, if full replacement is impractical, it must be cleaned by something more effective than nitrogen. A nitrogen purge is not capable

Qwik System Flush®
should never
be used in
a compressor,
expansion device,
or filter/drier.

of removing all of the contaminated oil from the inside surface of a line set and should only be the beginning and end of a thorough cleaning process.

7. After using nitrogen to purge the system, the most effective way to remove the remaining residual oil from the pipe lines is to use Mainstream's **Qwik System Flush®** (see page 3). **Remember that it is still necessary to perform a nitrogen purge before and after using Qwik-SF®.** The **Qwik System Flush®** solvent has excellent absorption capacity, (see *test results at www.qwik.com*) therefore, a relatively small amount of **Qwik System Flush®** is needed. The more contamination that you remove with a nitrogen purge **before**, the less **Qwik System Flush®** will be wasted removing contamination that does not require a solvent. Nitrogen is much less expensive than any flushing solvent and should be used liberally in comparison.
8. Repeat a nitrogen purge on all areas where **Qwik System Flush®** was introduced into the line set. Never exceed 100 psig. When you purge these

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Product Application

...continued from page 6

areas, you will see the solvent exiting the line as a liquid. Continue purging the line for an additional minute after you no longer see **Qwik System Flush®** exiting the system.

9. A flushing solvent cannot be used for components such as the compressor, filter/drier, or expansion device. Always remove filter-driers when performing a flush, and never try to flush through expansion devices. Once you have cleaned or replaced as much of the piping and components in the system as possible, continue to step 10.
10. Connect the new components, installing BOTH a new liquid-line filter/drier and a new suction line filter/drier into the system. The purpose of the suction line drier is to catch residual acidic oil remaining in the system before

it can enter the suction line of the compressor and contaminate the compressor oil, leading to premature compressor failure.

11. Leak test, evacuate and charge the system with refrigerant.
12. As an option to further assure all acid and moisture has been removed, use QwikInjector® to introduce QwikShot® (acid treatment) into the operating system. One bottle will treat up to a 5-ton system.
13. Allow the system to operate for a minimum of 15 minutes, and then use QwikCheck® to test for acid. If acid is detected, wait an additional 30 minutes and retest for acid. If acid is still detected, then install new filter/driers again as discussed in step 10 and repeat steps 12-13.

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