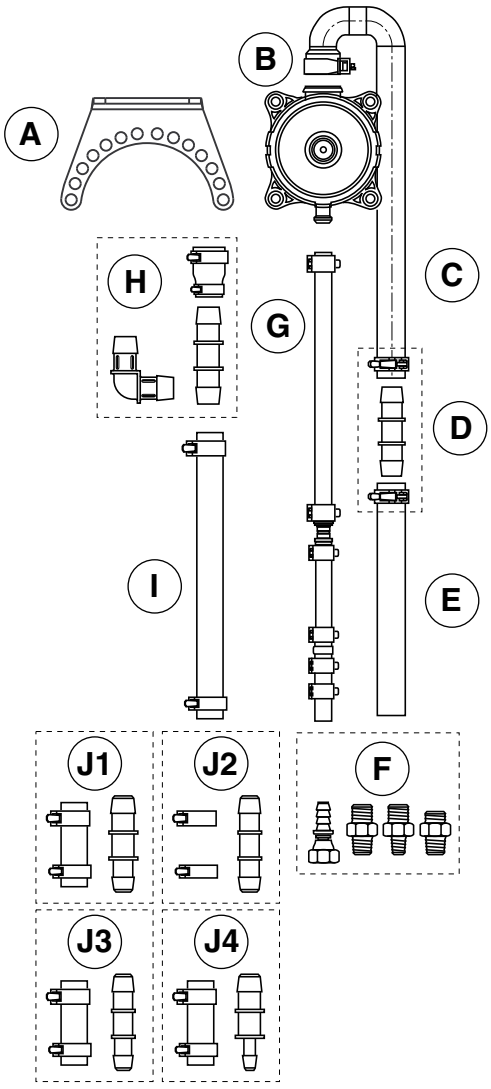
Fleetguard® Open Crankcase Ventilation (OCV) Kit Installation Instructions



Installation Instructions for:

CV50108 60-90 HP Applications
CV50109 91-120 HP Applications
CV50110 121-160 HP Applications
CV50111 161-220 HP Applications
CV50112 221-300 HP Applications

Parts List

Part	Description
A	Mounting Bracket (not included in the kit)
B	Breather Assembly (CV Unit) and Mounting Hardware
C	Vent Hose
D	Vent Hose Connector and Clamps
E	Vent Hose Extender
F	Cylinder Block Insert Fittings and Coupler
G	Drain Hose Assembly
H	Breather (CV Unit) Hose Connections and Clamps
I	Inlet Hose Assembly
J	Inlet Hose Connections and Clamps

Tools Required

Description
Hose Clamp Pliers
Hose Cutter
3/8" to 1" Ratchet and Socket Set
3/8" to 1" Wrench Set

⚠ **CAUTION:** **Use of this application will cause an increase in the engine crankcase pressure. The installer is responsible for the verification that this application is appropriate and that related crankcase pressure issues do not arise.**

⚠ **CAUTION:** **These instructions are intended for use by professional mechanics who are trained in the proper use of power and hand tools, using appropriate safety precautions (including eye protection).**

Crankcase Ventilation Kit Installation

Preinstallation

The Fleetguard® OCV Kit can be installed on many different engine platforms. Since engine design varies broadly, connection and fitting sizes will also vary by engine. To accommodate a broad range of applications, the kit includes extra fittings, connectors, clamps, and hoses. These parts have been packaged in different packs to assist you in choosing the right parts for your specific application. Since many of these parts appear to be very similar, we strongly suggest not opening the individual packs until you have determined what specific parts you will need for your engine application. Each pack is identified with a label (e.g. J1, J2) to reference its use in the appropriate installation step.

In some engine applications, the crankcase drain fitting for connecting and routing the drain line to the crankcase may need to be purchased from the engine manufacturer. We strongly suggest not drilling into the engine block or oil pan to use one of the fittings included in this kit. Check to determine if one of the fittings included in pack “F” can properly be installed in the engine block before proceeding.

Locating and Mounting the Breather Assembly

1. Check both sides of the cylinder block to determine the most suitable oil return option. Select a threaded boss or another entry option that will allow the drain hose, when installed, to run directly from the breather assembly to the crankcase. The drain hose must be free of any loops, kinks or abrupt bends to ensure proper oil drainage.
2. Find a mounting location for the breather assembly and bracket at least 14" (350 mm) above the oil level in the crankcase and a minimum of 4" (102 mm) from both the exhaust manifold and exhaust piping. The “cold side” of the engine is preferred. The breather assembly must be mounted vertically (as shown) for proper operation.

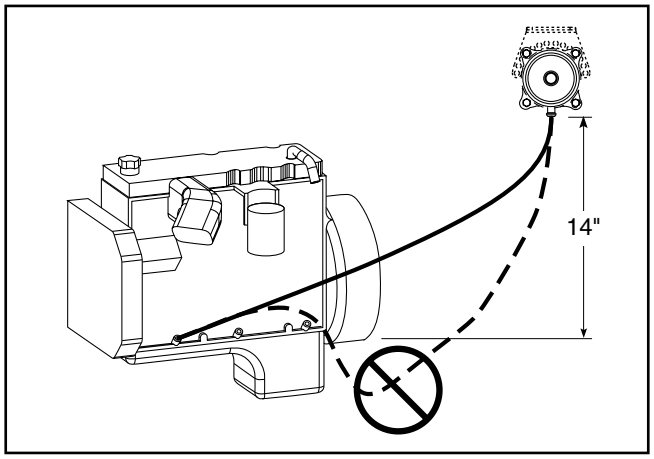


Figure 1 – Mounting Location

3. Install the mounting bracket (if used) to the mounting location selected. The mounting bracket can be attached to the breather assembly at four different positions by simply rotating the bracket. Attach the breather assembly to the bracket using the hardware provided. Ensure that the breather assembly is mounted vertically with the oil drain outlet directed downward.

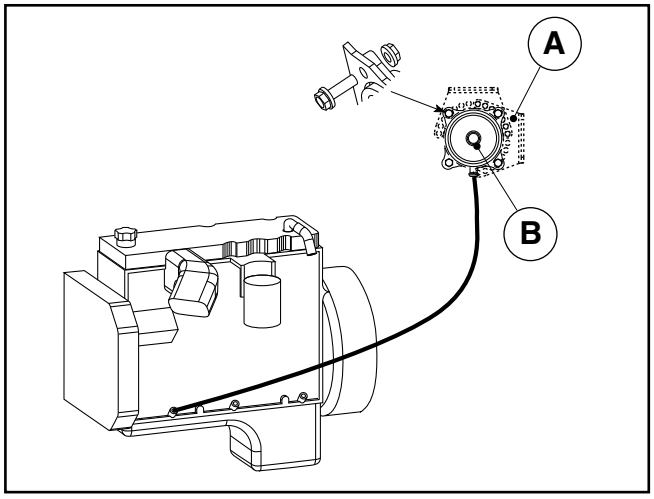


Figure 2 – Installing the Mounting Bracket Installing the Insert Fitting

4. Locate the selected threaded boss at the bottom of the cylinder block (above the pan rail) for installation of the cylinder block insert fitting. Check the boss opening ID to determine if any of the fittings included in the "F" pack can be used.

   If none of the fittings can be used, check with the engine manufacturer on the proper insert fitting to gain access to the crankcase. Once the proper crankcase fitting has been selected, proceed with Step 5.

Note: Do not drill into the engine block or oil pan to use one of the fittings included in the kit.

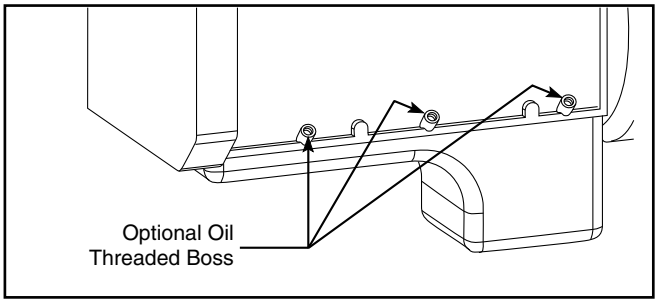


Figure 3 – Threaded Boss Locations

5. Remove the plug from the boss carefully to ensure that no contaminants enter the oil pan.
6. Install the new insert fitting by screwing it into the threaded boss. Tighten the fitting until it is properly seated against the boss. Do not overtighten.

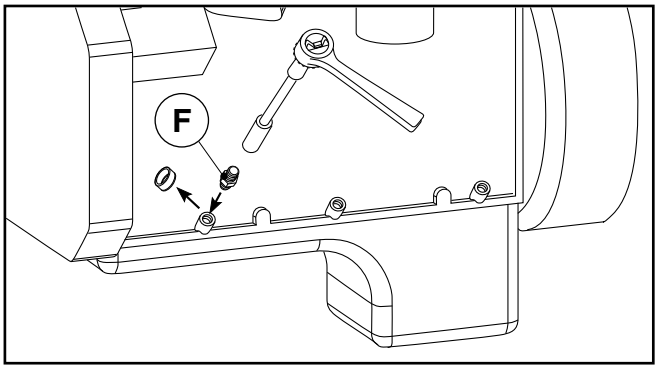


Figure 4 – Installing the Insert Fitting

Installing the Drain Hose

The drain hose assembly is three sections of hose with plastic connections. The smaller ID hose (0.375" (9.5 mm) connects to the barbed insert coupler. The large hose (0.5" (13 mm) connects to the breather assembly.

1. Attach the small ID drain hose to the barbed coupler. Ensure that the hose end is fully seated against the plastic collar on the fitting.

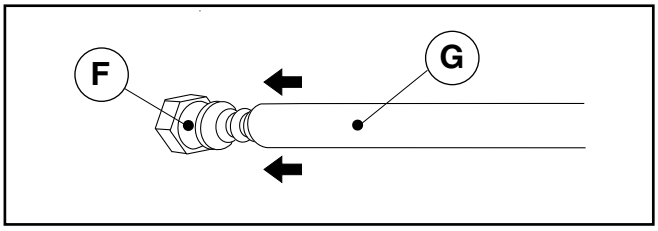


Figure 5 – Attaching the Drain Hose to the Coupler

2. Connect the drain hose assembly to the crankcase fitting by screwing the coupler onto the threaded end of the insert fitting. Tighten the connection until it is snug. Do not overtighten.
3. Route the drain hose assembly to the breather assembly to determine the proper length.

⚠ **CAUTION: The drain hose must be free of any loops, kins, or abrupt bends to ensure proper drainage.**

4. If the hose is too long, trim the excess from the larger ID section of the hose. Attach to the breather and secure with the clamp. Reinspect the hose and routing to verify that it is free of any loops, kinks or abrupt bends.

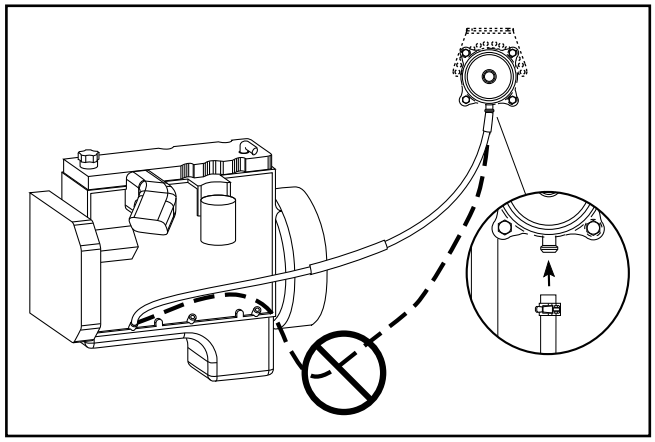


Figure 6 – Routing the Drain Hose

Installing the Vent Hose and Extension Vent Hose to the Breather Assembly

5. Using the clamps and plastic connector in the "D" pack, assemble the vent hose. First, slide the hose clamps over the hoses to be joined. Then join the two vent hoses using the plastic connector. Reposition the clamps to secure both hoses to the connector.
6. Install the curved end of the bent hose assembly to the breather assembly by first slipping the remaining clamp in the "D" pack over the end of the hose. Push the hose over the breather outlet. Secure with the clamp. Ensure that the entire vent hose assembly is directed downward.

   Stabilize the vent hose assembly by attaching the tie wraps from the hose to a secure point in the engine compartment.

⚠ **CAUTION: Do not collapse or kink the hose when securing the tie wraps. Ensure that the vent extension is pointed downward.**

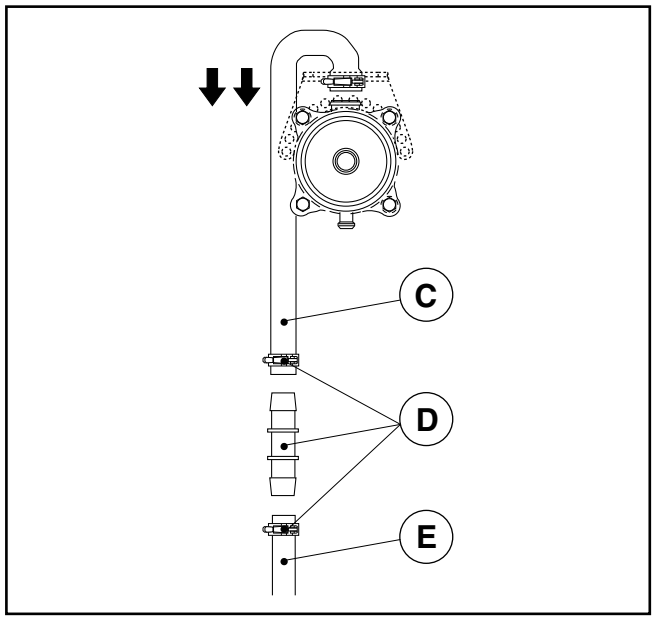


Figure 7 – Installing the Vent Hoses

Installing the breather inlet hose assembly first requires determining which inlet hose pack (J1, J2, J3, or J4) is needed for the engine application. Each "J" pack includes different size hoses, clamps, and adapters to connect the new breather hose assembly to the existing breather vent.

7. Remove the existing breather hose from the engine and determine the OD of the metal breather vent tube. Select the appropriate inlet hose connection pack (J1, J2, J3 or J4) based on the metal vent tube OD dimension. Each of the packs have different hoses with different (ID) dimensions to provide a proper connection to the existing breather vent tube.

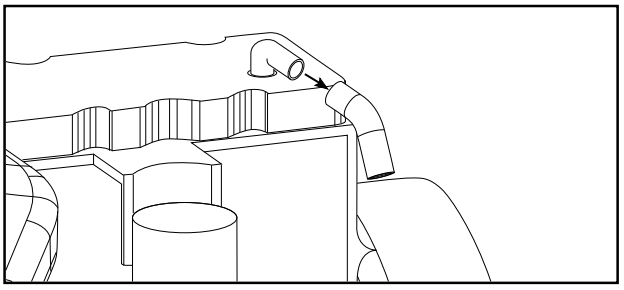


Figure 8 – Removing the Existing Breather Hose

8. From the selected "J" pack, install the correct 4" (102 mm) hose to the engine vent tube and secure with the clamp. (If the breather tube is a 0.75" (19 mm) OD, cut a 4" (102 mm) section of hose from the inlet hose (I) included in the kit.)

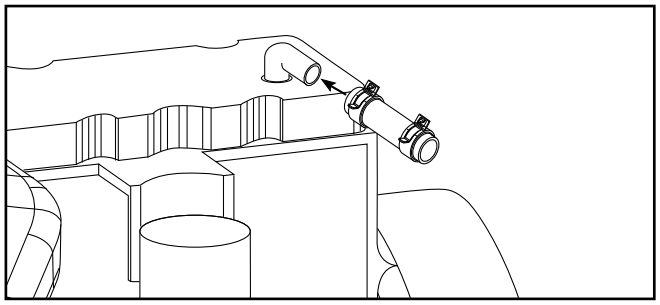


Figure 9 – Installing the Hose

9. Using the plastic connector included in the "J" pack selected, connect the 4" (102 mm) hose to the inlet hose assembly. First, slide the hose clamps over the hoses to be joined, then join the hoses using the connector. Reposition the clamps to secure both hoses to the connector.

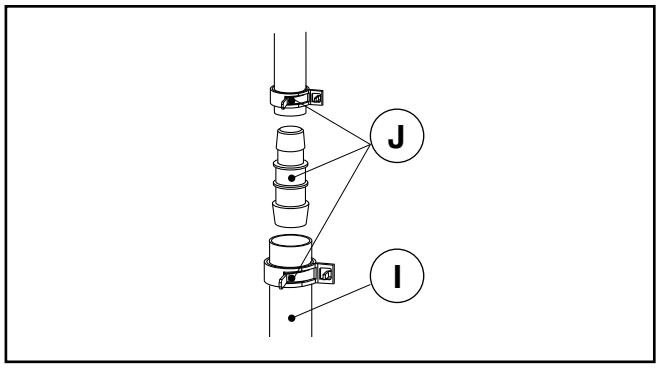


Figure 10 – Connecting to the Inlet Hose Assembly

10. Route the new inlet hose assembly to the breather assembly. Depending on the hose routing, determine which connector from the "H" pack to use. Either the straight or 90° connector can be used, depending on the location of the engine vent and the hose routing.

11. After determining which plastic connector will be used for the installation, preassemble the molded hose adapter to the plastic connector; secure with clamps.

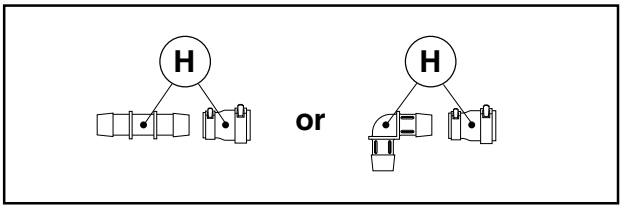


Figure 11 – Choosing a Connector

12. Install the molded breather adapter to the breather assembly and secure with the clamp. Route the inlet hose assembly to the plastic breather connector. Trim the 0.75" (19 mm) ID hose end to the proper length. Attach the hose to the plastic breather connector and secure with the clamp.

⚠ **CAUTION: Ensure that the hose routing is a minumum of 4" (102 mm) from both the exhaust manifold and exhaust piping. Avoid trimming too short to prevent hose kink after installation.**

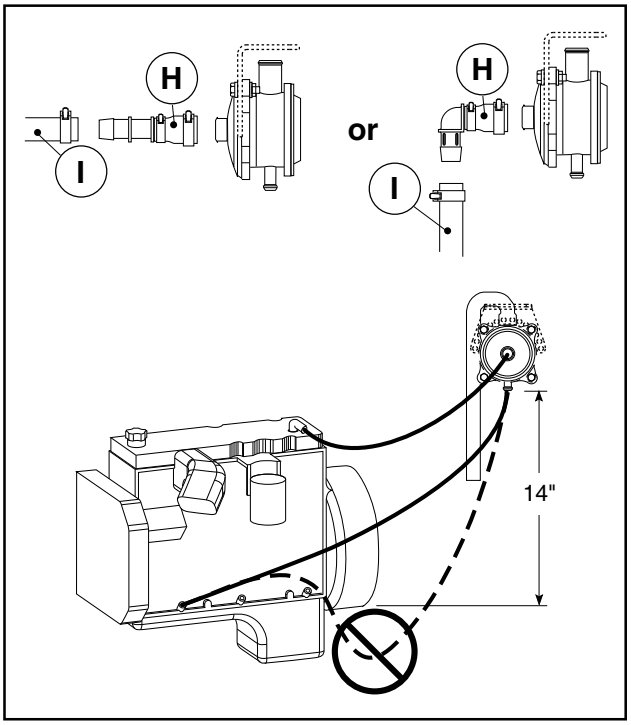


Figure 12 – Connecting the Breather Assembly

Ordering Information

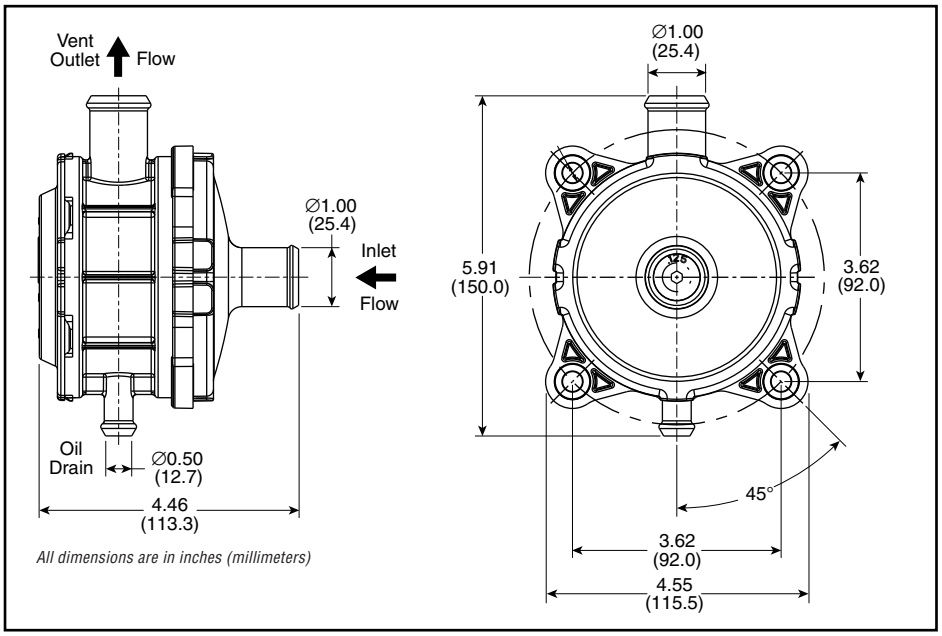
Part Number	Description
CV50108	60-90 HP Applications
CV50109	91-120 HP Applications
CV50110	121-160 HP Applications
CV50111	161-220 HP Applications
CV50112	221-300 HP Applications
Q157449-20	Bracket

Specifications

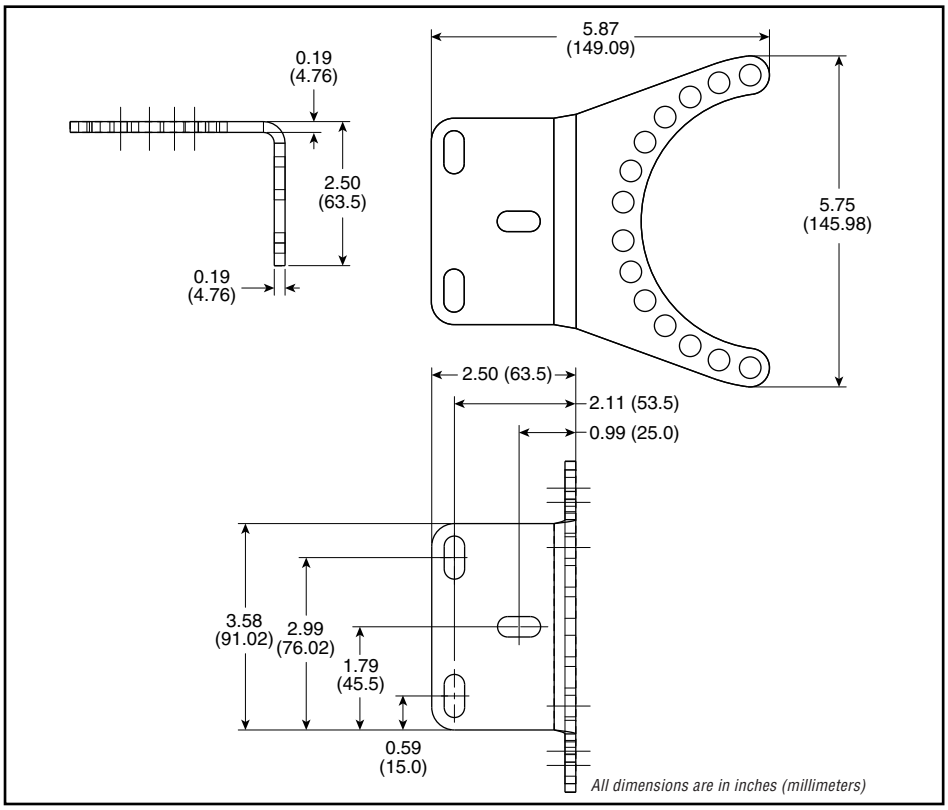
Part Number	Minimum Flow	Maximum Flow	Maximum Restriction*	Kit Weight (Dry)
CV50108	1 ft^3/min (28 L/min)	3 ft^3/min (85 L/min)	6 inH_2O (152 mmH_2O)	9.9 lbs (4.5 kg)
CV50109	2 ft^3/min (56 L/min)	4 ft^3/min (113 L/min)	8 inH_2O (203 mmH_2O)	9.9 lbs (4.5 kg)
CV50110	3 ft^3/min (85 L/min)	6 ft^3/min (170 L/min)	11 inH_2O (279 mmH_2O)	9.9 lbs (4.5 kg)
CV50111	4 ft^3/min (113 L/min)	7 ft^3/min (200 L/min)	7 inH_2O (178 mmH_2O)	9.9 lbs (4.5 kg)
CV50112	5 ft^3/min (142 L/min)	4 ft^3/min (227 L/min)	8 inH_2O (203 mmH_2O)	9.9 lbs (4.5 kg)

Dimensions

Breather Assembly



Mounting Bracket (Part Number Q157449-20)



Filtration

For more information, visit
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LT32540 – Rev. 1