

Nett[®] Exhaust Gas Diluter Installation

Installation – Vehicle Applications

1. Choose the location for the exhaust gas diluter on the vehicle. The outlet of the diluter should project away from the machine operator, towards the main ventilation air stream (for applications in enclosed environments). The diluter outlet should not be directed downwards, towards the ground. In outdoor applications, the diluter outlet should be directed horizontally to reduce moisture collection. Exhaust piping modifications, such as installing an additional elbow, may be needed to properly position the diluter.
2. **Flanged Inlet Diluters:** The diluter comes with two flanges, one is already attached to the diluter. Weld the other flange to the exhaust pipe. Use bolts to secure the diluter flange to the exhaust pipe flange.

Split-pipe Inlet Diluters: Insert the tailpipe into the inlet of the exhaust gas diluter. Use muffler clamps to secure the unit.

3. Make sure that the diluter is firmly attached to the vehicle. Exhaust gas diluters for larger engines may be heavy. Extra brackets may be necessary to support their weight. The brackets, if needed, can be welded either directly to the diluter unit or can be attached to the exhaust pipe upstream of the diluter. If the diluter or the exhaust piping is rigidly attached to the vehicle frame, a section of flexible piping must be installed to compensate for vibrations.
4. Once the installation is complete, start the engine and measure the engine exhaust backpressure using the 1/8" NPT port on the inlet pipe of the diluter. Ensure that the readings are within the engine manufacturer's recommendations. Record this initial reading for comparison with future readings to determine if the diluter requires cleaning or adjustment.

Installation – Stationary Applications

1. Choose the location for the exhaust gas diluter on the outside of the building or enclosure. The outlet of the diluter outlet should be directed horizontally to reduce moisture collection and away from building HVAC fresh air inlets, windows, doors or bystanders. Exhaust piping modifications, such as installing an additional elbow, may be needed to properly position the diluter.
2. **Flanged Inlet Diluters:** The diluter comes with two flanges, one is already attached to the diluter. Weld the other flange to the exhaust pipe. Use bolts to secure the diluter flange to the exhaust pipe flange.

Split-pipe Inlet Diluters: Insert the tailpipe into the inlet of the exhaust gas diluter. Use u-bolt or band-style pipe clamps to secure the unit.

3. Make sure that the diluter is firmly attached to the building or enclosure. Exhaust gas diluters for larger engines may be heavy. Extra brackets may be necessary to support their weight. The brackets, if needed, can be welded either directly to the diluter unit or can be attached to the exhaust pipe upstream of the diluter. If the diluter or the exhaust piping is rigidly attached to the engine's exhaust manifold, a section of flexible piping must be installed to compensate for vibrations.
4. Once the installation is complete, start the engine and measure the engine exhaust backpressure using the 1/8" NPT port on the inlet pipe of the diluter. Ensure that the readings are within the engine manufacturer's recommendations. Record this initial



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installation & maintenance

reading for comparison with future readings to determine if the diluter requires cleaning or adjustment.

Exhaust Gas Diluter Maintenance

Diluter Gap Adjustment

Nett® Exhaust Gas Diluters mix the exhaust gases with quantities of air. The driving force for the mixing process is the exhaust gas itself, being compressed and released at a high speed through a narrow gap. The higher the gas velocity, the more air is induced into the diluter and the higher the mixing ratio that can be achieved. However, higher gas velocities require smaller gaps and result in higher engine backpressure.

As a guideline, Nett® Exhaust Gas Diluters should operate at a pressure of 6 - 8 kPa (24 - 32 "H₂O), as measured at the sampling port at the diluter inlet at the rated engine speed and with a moderate engine load.

If a lower exhaust backpressure is required, (e.g. to allow for installation of other high pressure drop devices such as high efficiency mufflers) the diluter gap(s) can be increased. This, however, will result in a lower air mixing ratio.

If better dilution is required, the diluter gap(s) can be decreased. However, if the gap is too small, exhaust backpressure will increase beyond acceptable levels and a whistling noise may be heard. As a general precaution, the maximum acceptable exhaust backpressure level should be consulted with the engine manufacturer.

Special shims (single gap diluter) or distance washers (multi-gap diluter) are available for gap adjustment. To adjust the gap, the diluter should be removed from the application and disassembled.

In the case of a single-gap diluter (Nett 10/15/20), remove the ring of bolts from around the top cover and open the circular diluter channel. Carefully replace, remove or add shims. Re-assemble the diluter.

In the case of multi-gap diluters (Nett MG3/4/5/6/...), unscrew the nuts from the three gap assembly studs. Carefully disassemble the elements collecting all distance washers. Replace the distance washers and reassemble the diluter. It is recommended that all diluter gaps are set to the same thickness.

Maintenance

Nett® Exhaust Gas Diluters require very little maintenance. It is recommended that the following steps be included in the preventive maintenance schedule of vehicles/engines equipped with an exhaust gas diluter:

- (a) Visual inspection of exhaust gas diluter for excessive carbon deposits.
- (b) Backpressure measurement at sampling port on diluter inlet. This measurement should be compared with the initial reading taken when the diluter was installed.

If the diluter shows contamination with soot/carbon deposits or measures excessive backpressure, it should be taken off the exhaust system and cleaned. The backpressure should be re-measured after cleaning.



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Diluter Cleaning

- (a) Remove the diluter from the application.
- (b) Disassemble the diluter. Carefully remove the shim (single gap diluters) or collect all gap distance washers (multi-gap diluters).
- (c) Clean all diluter elements using a nylon or copper brush. Organic solvents or cleaning agents suitable for steel objects may also be used. The thin diluter shims have to be cleaned very carefully to avoid damage.
- (d) Assemble and reinstall the diluter on the application.

Nett Technologies Inc. has a corporate policy of continuous product development. Specifications are subject to change without notice.