



BLEEDER BRAKE



HIGHER PERFORMANCE THAN EXHAUST BRAKES WHILE KEEPING VALVE TRAIN LOADING LOW

The Bleeder Brake is a simplified version of a traditional compression release engine brake with comparable retarding performance and noise levels similar to an exhaust brake. Bleeder brake technology is an ideal solution for small diesel engines.

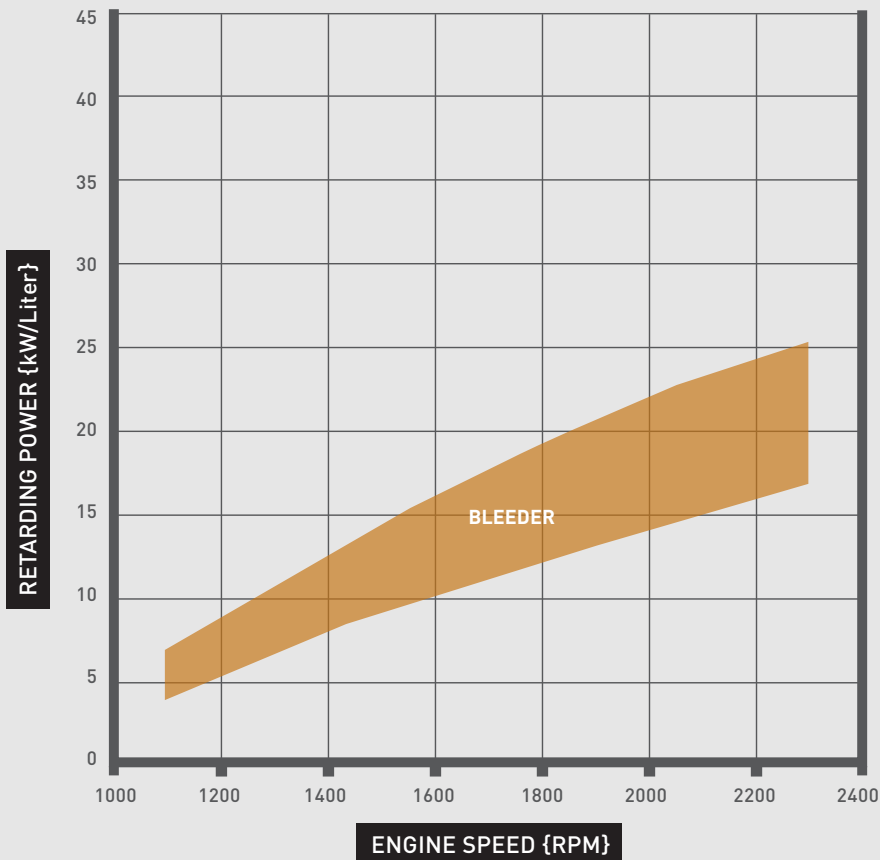
- ▶ Increased vehicle control
- ▶ Quiet operation, so it can be used wherever and whenever needed
- ▶ Design flexibility to work with most engines
- ▶ Low added weight
- ▶ Reduced wear on engine, tires, wheel ends and service brakes
- ▶ No additional valvetrain loading

HOW A BLEEDER BRAKE WORKS

When the bleeder brake is turned on, a piston extends to its full stroke and stays there, holding the exhaust open a small, fixed distance throughout the entire four-stroke engine cycle. Since the bleeder brake only holds the exhaust valve open a fixed distance, it can be designed to not put any load on the camshaft and most of the overhead components.

1. Exhaust valve is held open throughout all four strokes of the engine cycle.
2. The compressed air 'bleeds' out through the slightly opened exhaust valve during the entire compression stroke.
3. The engine pumps by pushing against the valve restriction and against the back pressure.
4. Bleeding off compressed air prevents the return of energy to the piston, which slows the vehicle down.

PERFORMANCE



* Demonstrated engine brake performance ranges from various engine tests and simulation results