



JACOBS IEGRSM AND IEGR + BRAKE



IEGRSM Benefits

Reduced formation of Nitrogen Oxides (NO_x)

Helps meet the latest emissions standards

Utilizes proven, reliable components and functional product designs

Compact design with minimal added weight and height

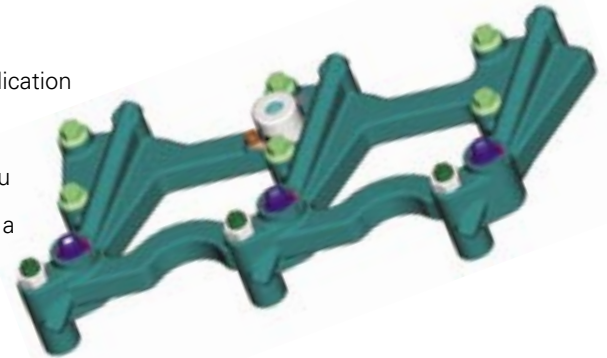
Engines require little to no modification

Over forty years of precision valve actuation expertise

2003

Utilizing the foundation of proven Jake Brake technology, Jacobs develops a variable EGR device to help engines meet the US EPA, Euro and Japan emissions regulations for off-highway applications.

Jacobs IEGR for Off-highway application and Jacobs IEGR+Brake for On-Highway applications can help you achieve your business goals all in a compact and reliable solution.



1998



Jacobs Vehicle Systems develops and produces integrated braking rockers. Future plans include engine overhead component manufacture and assembly for the world's leading diesel engine manufacturers.

1961

Jake Brake® legendary product: Bolt-on engine brake units that provide precision hydraulic exhaust valve actuation for engine braking purposes. Uses injector, intake or exhaust cam lobes.



Utilizing proven, reliable technology to meet future diesel engine tailpipe emissions requirements.

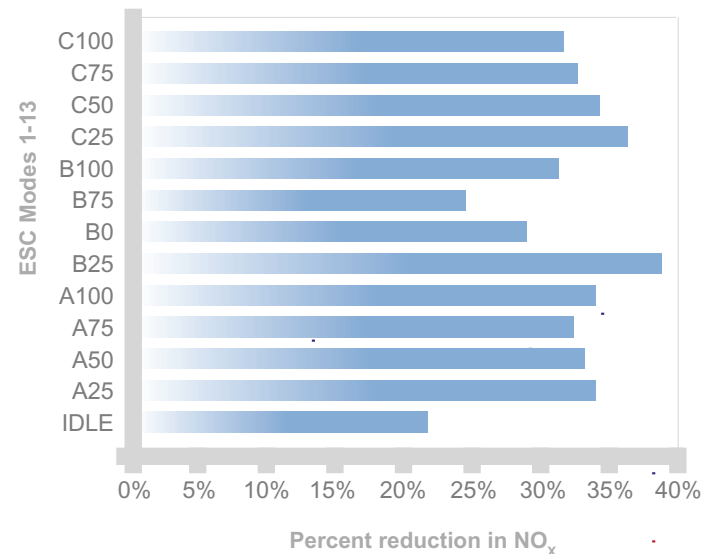
Fifty years ago, Clessie Cummins believed the *diesel engine* could be used on “both sides of the hill.” From that idea, the Jake Brake® engine brake was born.

About ten years ago, we began to test our theories of utilizing the precise valve actuations used in the *engine brake* on both sides of the hill. As a result, Jacobs variable valve actuation (VVA) was inspired. This research, combined with over forty years of precision valve actuation expertise, has yielded a NO_x reduction solution which provides Internal Exhaust Gas Recirculation (IEGR) by altering engine valve lift. Jacobs IEGR reduces peak combustion temperatures and, therefore, reduces the formation of Nitrogen Oxides (NO_x) to levels acceptable to meet upcoming emissions standards. Jacobs IEGR utilizes proven, reliable components and functional product designs mastered by Jacobs with its well-known Jake Brake® engine brakes. With over 2,500,000 engine brake systems sold and over 2.5 Trillion kilometers of road experience with precision valve actuation, the Jacobs IEGR system design is a solution you can trust.

Additionally, relative to other NO_x reduction technologies, the Jacobs IEGR system is a very attractive option. Our system is compact, mounting directly to the engine overhead with minimal added weight and height. An engine packaged with Jacobs IEGR will require little to no modification without increasing radiator capacity. Engine serviceability is not compromised, and operation is transparent to the driver. If desired, an engine braking function can be integrated into the Jacobs IEGR product. When compared to other NO_x reduction options, the cost of Jacobs IEGR system is very competitive.

Reliable, cost-effective NO_x reduction technology is ready to help your engines meet upcoming tailpipe emissions for diesel engines. Turn to the experts the diesel industry has come to for over forty years. Turn to Jacobs.

Emissions Reductions using Jacobs IEGR™



At Jacobs Vehicle Systems, our philosophy is to continue to build on our foundation of partnership and legacy of trust with engine manufacturers. We will place no limitations on our thinking on their behalf. We will accept no restrictions in our planning for their success. We will constantly look for ways to serve them and their end-users by doing whatever it takes to provide the best in innovative and proven solutions.

Customer and industry expectations are our baseline, and we intend to continue to exceed them with the most powerful and robust engine retarding and valve actuation technologies possible.