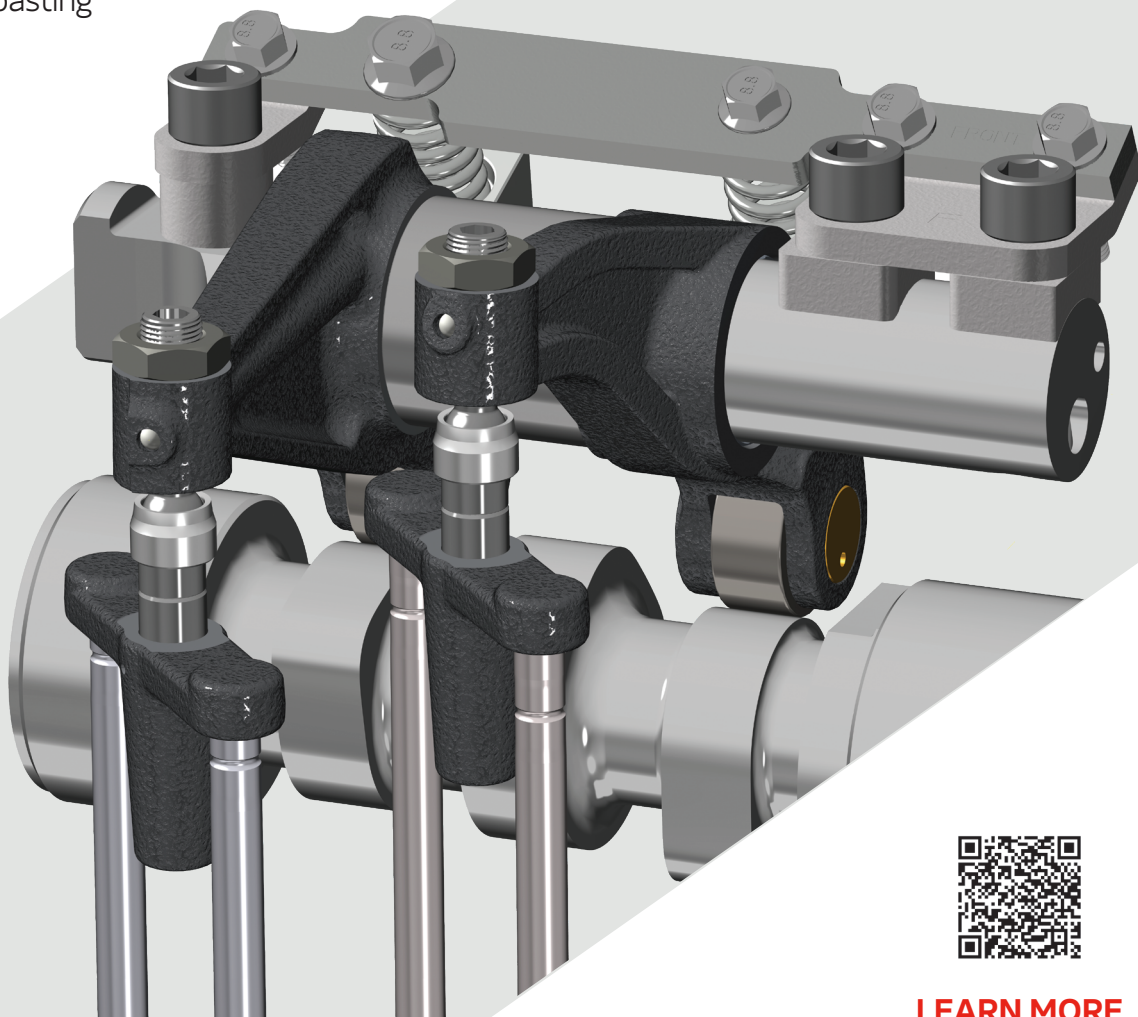




# Cylinder Deactivation

For improved fuel economy and exhaust thermal management

Cylinder deactivation (CDA) leverages Jacobs® well-established componentry to disable valve lift in selected cylinders thereby improving the thermodynamic efficiency of the remaining active cylinders. CDA also yields higher exhaust temperatures in operating cylinders to maintain aftertreatment temperatures in low load conditions, while coasting and during start-up.



*Jacobs*®



**LEARN MORE**

## Cylinder deactivation (CDA) benefits

- Impacts both CO<sub>2</sub> and NO<sub>x</sub> due to increased aftertreatment temperatures and reduced fuel consumption at the same time
- Fuel economy improvements through reduced pumping losses and friction
- 14-18% improvement in idle fuel consumption in 4-cylinder operation over 6-cylinder
- Improves combustion and fuel consumption in firing cylinders
- Faster engine and aftertreatment system warm-up
- Minimizes cooling of the aftertreatment during coasting and improves emissions by keeping the aftertreatment system hot during low load operation
- Capable of individual cylinder control and dynamically switchable between cylinders
- Even with a stock 2018 aftertreatment system, improves SCR conversion efficiency while still lowering overall fuel consumption (other keep warm strategies will cost more fuel)
- Available for a variety of applications including on- and off-highway light-, medium- and heavy-duty engines
- Compatible with different engine architectures by integrating into pushrod, rocker, bridge or finger follower
- Modular with High Power Density® (HPD®) and compression release engine brake technology



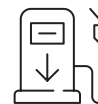
## Engine lab testing



**27,000+ HOURS**  
of durability testing on over 20 heavy-duty engine platforms



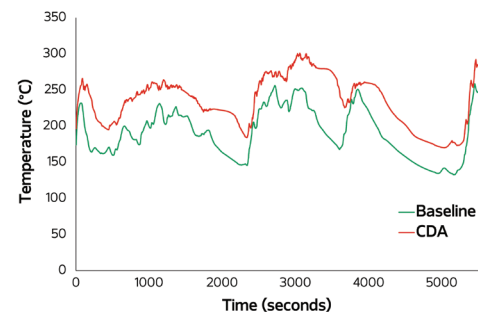
**470 MILLION CYCLES**  
of fatigue and overload testing



**FUEL CONSUMPTION**  
CFTP ↓2%    HFTP ↓4.1%  
LLC ↓10.4%



**CDA VS BASELINE LLC**  
for selective catalytic reduction (SCR) temperature improvement



## Cylinder deactivation on the road



**2.76% FUEL SAVINGS**  
during SAE J1321 standardized fuel consumption on-highway testing with fully loaded trailer



**KEY TECHNOLOGY**  
for meeting upcoming emission targets as demonstrated and mentioned by CARB and the EPA



**POSITIVE FEEDBACK**  
on drivability and noise, vibration and harshness (NVH) during demonstrations and real-world testing



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