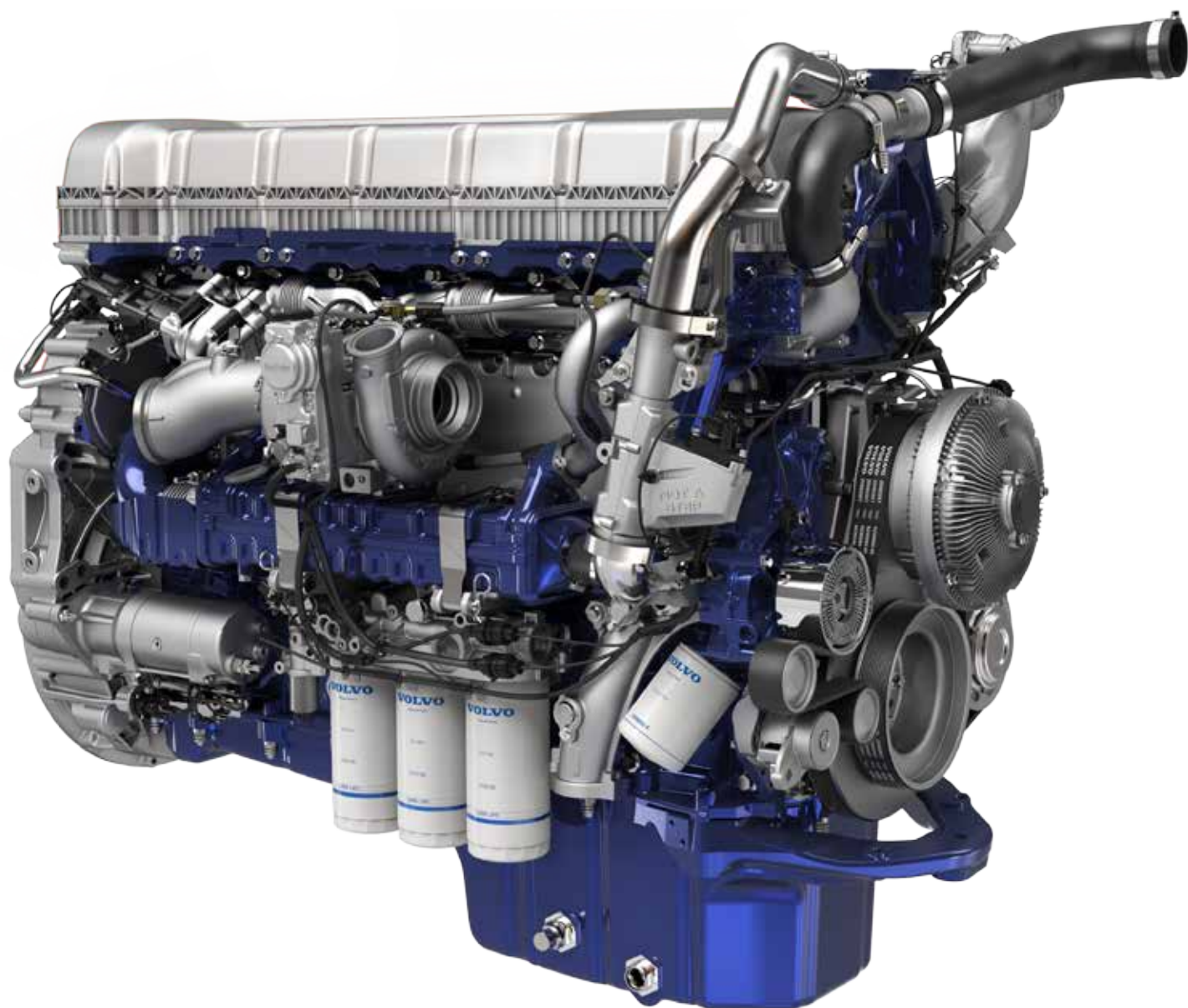




Volvo Trucks. Driving Progress

# VOLVO D13 ENGINE FAMILY



# Efficiency runs in the family.

SPECIFICATIONS	
<b>Ratings:</b>	
Base Engine Configuration	4 cycle / Inline Six
Emissions	SCR Selective Catalytic Reduction
Aspiration	Sliding Nozzle Variable Geometry Turbocharger
Cam / Valve Configuration	SOHC / 4 Valves per Cylinder
Cylinder Head	One Piece Rigid Deck Cylinder Head
Injection System	Common Rail
Maximum Fuel Injection Pressure, psi (bar)	35,000 (2,400)
Rating Uprateability	Software Only, Throughout Range
Displacement, cu. in. (L)	780 (12.8)
Compression Ratio	17.0:1
Bore & Stroke, in. (mm)	5.16 x 6.22 (131 x 158)
Cylinder Spacing, in. (mm)	6.61 (168)
Full Dress Dry Weight, lb. (kg)	2605 (1182)
<b>Fuel and Lubrication:</b>	
Fuel Specification	Ultra Low Sulfur Diesel, 15 ppm
Fuel Filters	Primary plus Secondary
Total Lube Oil Capacity, qts. (L)	38 (36)
Oil Filtration	Two Full Flow, One Bypass
Oil Drain Interval, Normal Service, miles (km)	45,000 (75,000)
Oil Specification	Volvo VDS-4, SAE 10W-30
FLOCS Oil Drain Kit	Optional
<b>Engine Equipment:</b>	
Air Compressor, CFM	Two Cylinder, 31.8
Retarder	I-VEB Volvo Engine Brake
Engine Brake Rating at 2200 rpm	500 hp @ 2200 rpm
Engine Brake Rating at 1500 rpm	350 hp @ 1500 rpm
Engine Brake Weight, lbs. (kg)	25 (12)
PTO Port for Live Rear PTO Pump or Shaft	Standard on VHD
Preheater, Electrical	Optional

Just like the entire Volvo engine family, the D13 is designed to produce the power needed for your specific application, the fuel economy crucial to your bottom line, and the reliability your customers demand. Volvo achieves these goals by starting with a foundation of proven, mature engine architecture, and then leveraging innovative hardware and technology to optimize performance, productivity and efficiency. Thoughtful features are expertly integrated to deliver the solution for your needs.

### High-efficiency aftertreatment system

Volvo's "one-box" exhaust aftertreatment system offers smaller system packaging and reduces weight by 17 pounds from previous systems. The one-box configuration provides better thermal encasing of exhaust energy, and improves muffler efficiency. The use of Cu-Z catalyst coatings improves both low-temperature NOx conversion, and long-term system robustness.

### D13 drivetrain recommendations

It is critical to specify the truck properly to achieve maximum fuel efficiency and performance.

Ask your salesman to help you choose a rear axle ratio appropriate for your expected cruising speed and gross combination weight.

Volvo 2017 engines have been designed to achieve maximum fuel efficiency by cruising at low engine rpm. In D13 regional haul specifications, the target is 1375 rpm at 65 mph.

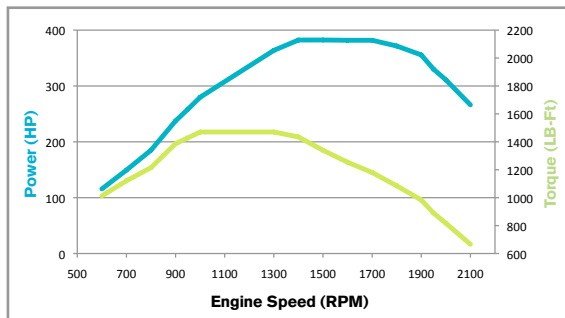
For example, with 80K lbs GCW, 1650 lbs-ft torque, 295/75R22.5 drive tires and .74 top gear ratio, the 3.36:1 axle ratio would come closest to the 1375 rpm at 65 mph recommendation.

Never specify a Volvo D13 engine for a cruise speed above 1550 rpm.



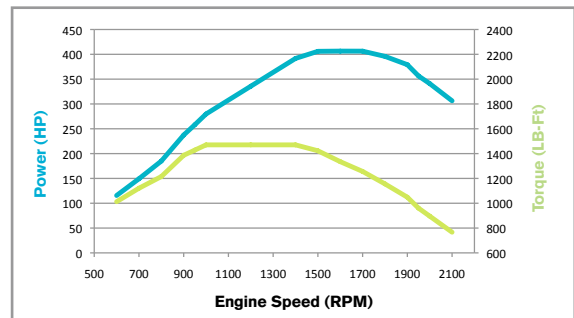
# Specifications

## Volvo D13 375V/1450



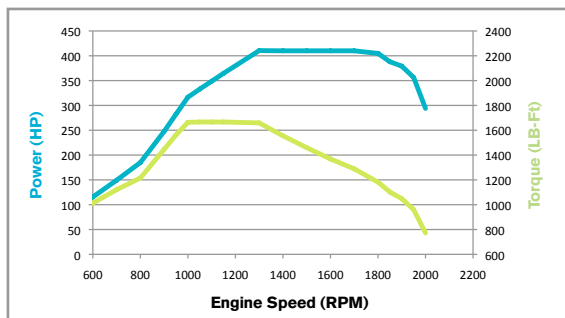
Advertised Power, HP	375
Peak Torque, lb-ft@rpm	1450@1000
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 405V/1450



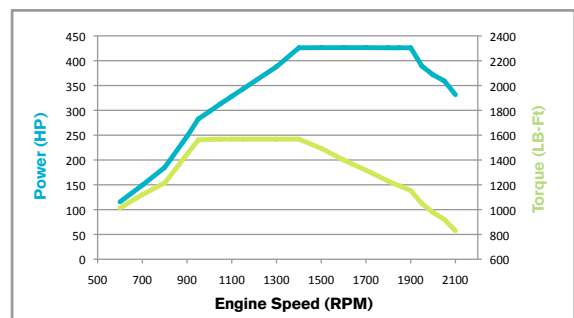
Advertised Power, HP	405
Peak Torque, lb-ft@rpm	1450@1000
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 405V/1650 XE High Torque



Advertised Power, HP	405
Peak Torque, lb-ft@rpm	1650@1000
Governed rpm	2100
Recommended cruise speed range, rpm	1150-1300
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 425V/1550

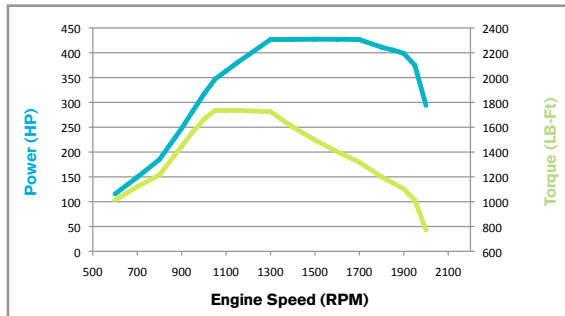


Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1550@950
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800



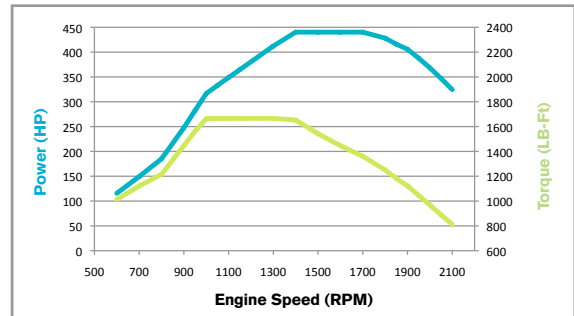
# Specifications

## Volvo D13 XE High Torque 425V/1750



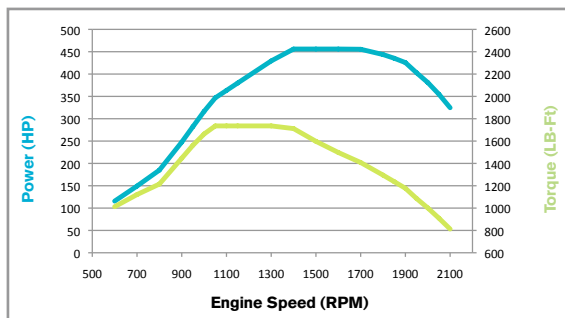
Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1150-1300
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 435V/1650



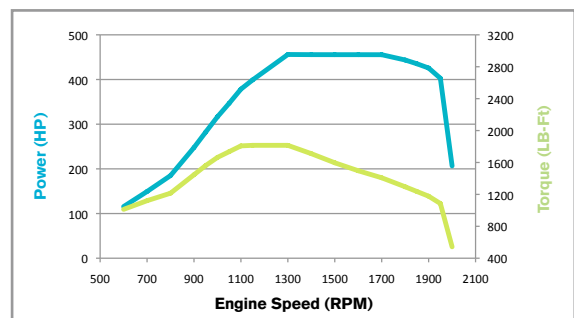
Advertised Power, HP	435
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 455V/1750



Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 XE - High Torque 455V/1850

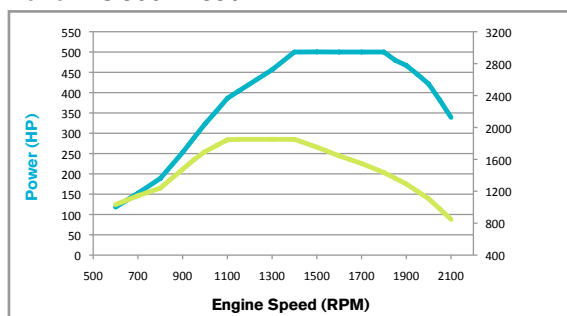


Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1850@1100
Governed rpm	2100
Recommended cruise speed range, rpm	1150-1300
Start engagement torque, lb-ft@rpm	750@800



# Specifications

## Volvo D13 500V/1850



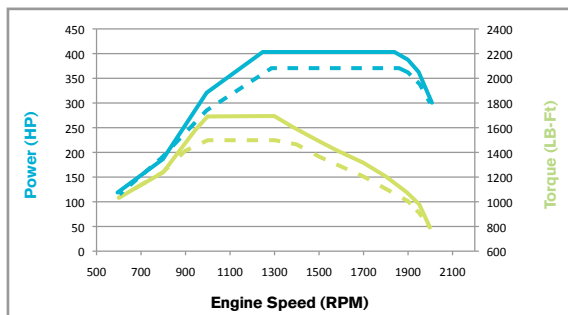
Advertised Power, HP	500
Peak Torque, lb-ft@rpm	1850@1100
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

FEATURE	BENEFIT
Variable Geometry Turbocharger (VGT)	Supercharges I-VEB system for high retarding horsepower at low rpm, where engine braking is needed most.
Common rail fuel injection	Precise control allows quicker, more accurate injection for improved fuel economy; clean installation improves reliability and reduces engine noise.
Ultra-high 35,000 psi fuel injection pressure	Finer fuel atomization for cleaner burn, reduced emissions and better fuel economy.
Low-friction, wave piston design	Reduces friction losses, benefitting power output and fuel efficiency. Wave design optimizes cylinder efficiency, reducing soot production.
Precision-Flow Cooled Exhaust Gas Recirculation	Tuned to give just the EGR flow needed, no more, no less, for optimum fuel consumption.
Oil-Cooled dual-port EGR valve	Consistent temperature; balanced pressure design with reduced opening force for high reliability and stick resistance.
Volvo engine family shares common architecture	Thorough component development assures more refined design.
Rigid deck cylinder head	Six headbolts per cylinder arrangement delivers uniform clamping force for long life.
Camshaft damper	Reduces injection system torsional vibration and high frequency buzz, for longer component life.
Smart fan clutch	Increases fuel efficiency by only running the fan when extra cooling is necessary, varying fan speed based on cooling needs.
Intelligently modulated I-VEB engine brake	Maintains steady vehicle speed during descent for greater driving comfort, improved safety.
Available I-VEB engine brake	Exceptional retarding, optimized for the rpm you drive, increasing service brake life.
Performance Bonus Guide driver coaching software	Increased fuel savings and driver retention by altering driver behavior through incentives.



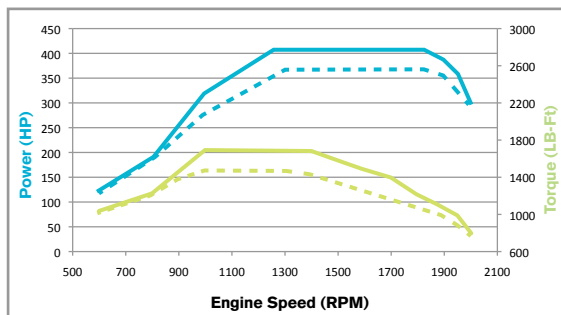
# Eco-Torque/ Performance-Economy Specifications

## Volvo D13 405V Eco-Torque Performance/Economy 1650-1450



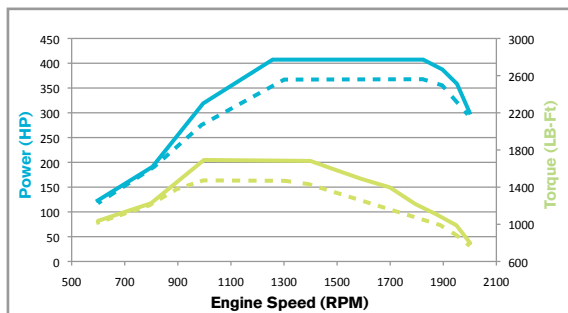
Advertised Power, HP	405
Peak Torque, lb-ft@rpm	1650@1000
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 XE-Economy 405V 1650-1450



Advertised Power, HP	405
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1150-1300
Start engagement torque, lb-ft@rpm	750@800

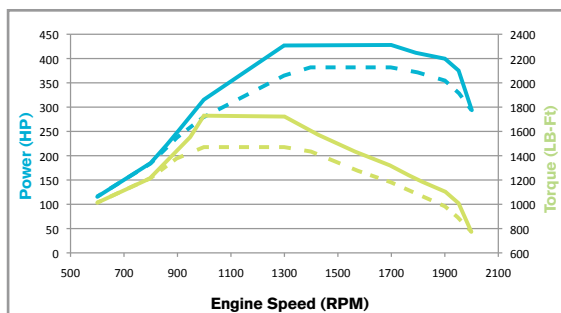
## Volvo D13 XE-Adaptive Gearing 405V 1650-1450



Advertised Power, HP	405
Peak Torque, lb-ft@rpm	1650@1000
Governed rpm	2100
Recommended cruise speed range, rpm*	1150-1300
Start engagement torque, lb-ft@rpm	750@800

\*Top gear.

## Volvo D13 425V Eco-Torque Performance/Economy 1750-1450

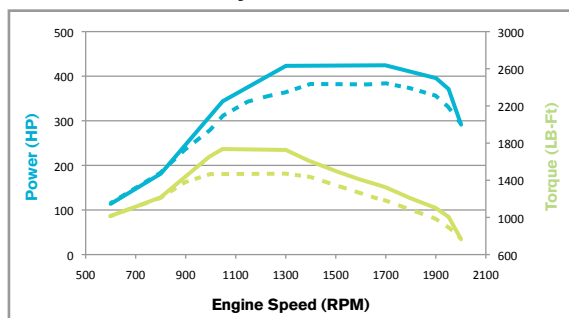


Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@900
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800



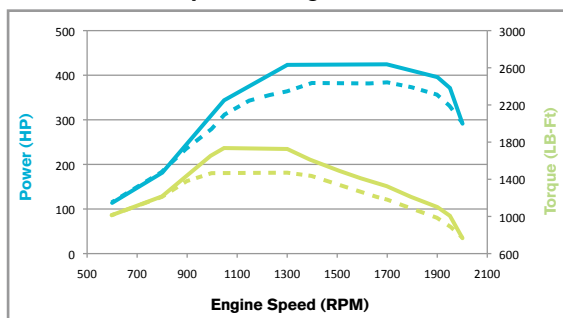
# Eco-Torque/ Performance-Economy Specifications

**Volvo D13 XE-Economy 425V 1750-1450**



Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@1000
Governed rpm	2100
Recommended cruise speed range, rpm	1150-1300
Start engagement torque, lb-ft@rpm	750@800

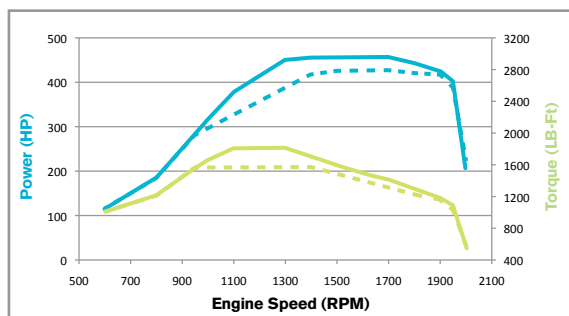
**Volvo D13 XE-Adaptive Gearing 425V 1750-1450**



Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@1000
Governed rpm	2100
Recommended cruise speed range, rpm*	1150-1300
Start engagement torque, lb-ft@rpm	750@800

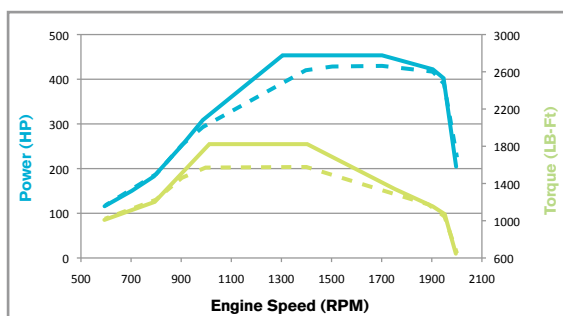
\*Top gear.

**Volvo D13 455V  
Eco-Torque Performance/Economy 1850-1550**



Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1850@900
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	750@800

**Volvo D13 XE-Economy 455V 1850-1550**



Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1850@1000
Governed rpm	2100
Recommended cruise speed range, rpm	1150-1300
Start engagement torque, lb-ft@rpm	750@800



# Dual Torque Specifications

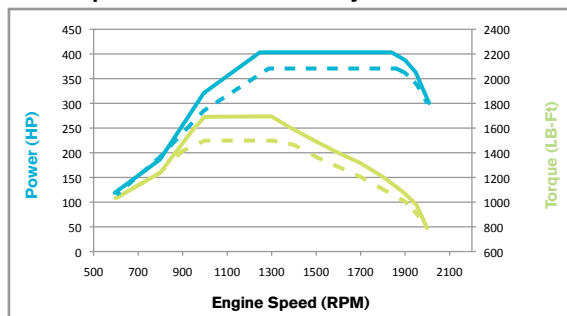
TORQUE MANAGEMENT			
Package	Gear	Torque Curve	Torque Switching Gears
Eco-Torque Performance	1-10	High	Top 2
	11-12	High or Low	
Eco-Torque Economy	1-8	High	Top 4
	9-12	High or Low	
XE - High Torque	1-12	High	None
XE - Economy	1-7	Low	8, 9, 10, 11
	8-11	High or Low	
	12	High	
XE - Adaptive Gearing	1-7	High	Top 5
	8-12	High or Low	



# Dual Torque Specifications

## Volvo D13 405V

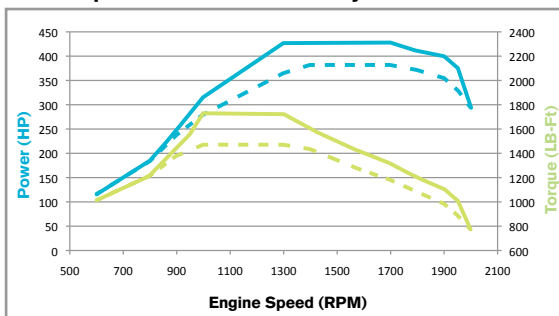
### Eco-Torque Performance/Economy 1650-1450



Advertised Power, HP	405
Peak Torque, lb-ft@rpm	1650@1000
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 425V

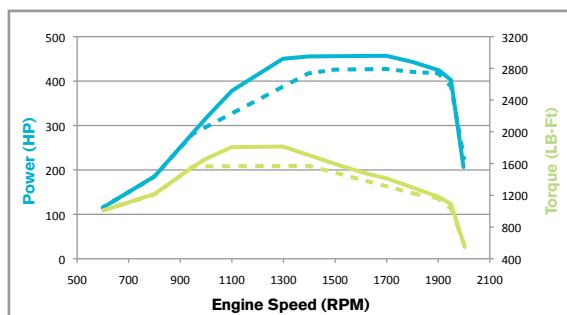
### Eco-Torque Performance/Economy 1750-1450



Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@900
Governed rpm	2100
Recommended cruise speed range, rpm	1250-1500
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 455V

### Eco-Torque Performance/Economy 1850-1550



Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1850@900
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	750@800

## VOLVO DUAL-TORQUE RATINGS

Dual-Torque ratings serve a special purpose. They take advantage of certain vendor transmissions that will allow a higher torque level in the top two gears. This means that they must operate in their lower torque in the lower gears.

On a steep grade, performance is enhanced when the engine automatically switches to the higher power and torque curve. Under this full-load, low-rpm condition, the engine runs at maximum efficiency but will revert to the low curve when the power demand is removed and cruise conditions are resumed. This saves fuel by encouraging operation under load at a lower, more efficient rpm, and creates an engine spec that is capable of cresting hills in the top gear.

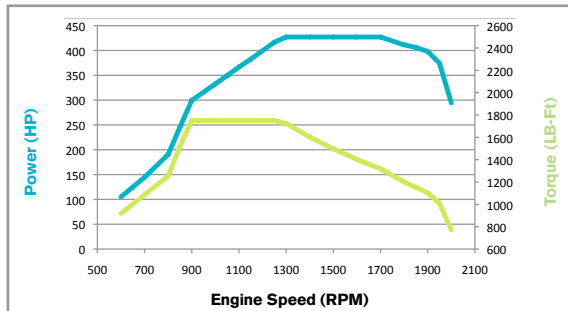
	MAXIMUM FUEL ECONOMY	MAXIMUM PERFORMANCE	MAXIMUM DRIVEABILITY	USE OF LOWER RATED TRANSMISSIONS	MAXIMUM UPGRATEABILITY
BASE RATINGS	X	✓	✓	X	✓
ECO-TORQUE RATINGS	✓	X	✓	X	✓
DUAL-TORQUE RATINGS	✓	X	X	✓	X



# Turbo Compounding Specifications

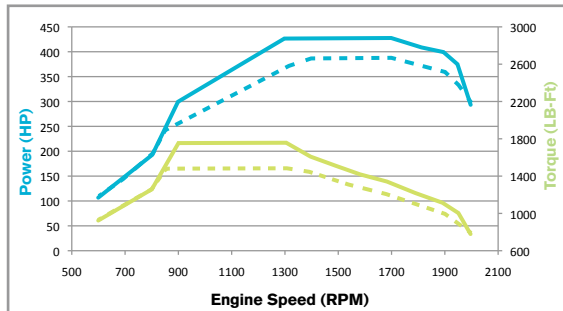
Available mid-2017

## Volvo D13 XE High Torque TC 425V/1750



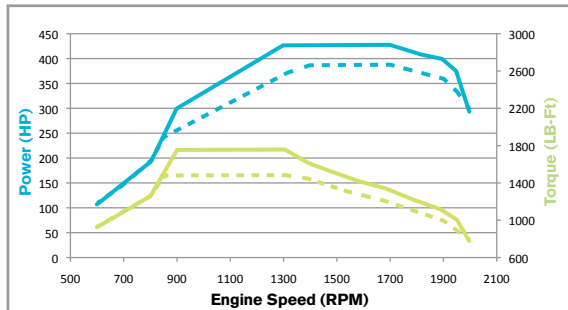
Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@900
Governed rpm	2100
Recommended cruise speed range, rpm	1050-1250
Start engagement torque, lb-ft@rpm	750@800

## Volvo D13 XE - Economy TC 425V 1750-1450



Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@900
Governed rpm	2100
Recommended cruise speed range, rpm	1050-1250
Start engagement torque, lb-ft@rpm	750@800

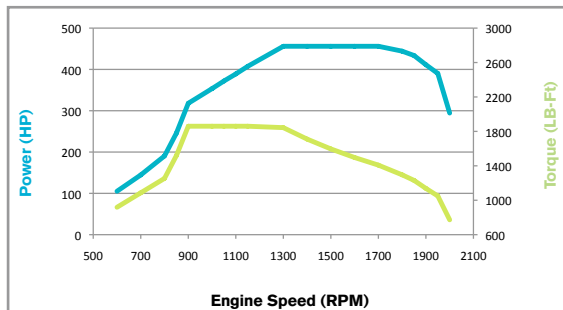
## Volvo D13 XE Adaptive Gearing TC 425V 1750-1450



Advertised Power, HP	425
Peak Torque, lb-ft@rpm	1750@900
Governed rpm	2100
Recommended cruise speed range, rpm*	1050-1250
Start engagement torque, lb-ft@rpm	750@800

\*Top gear.

## Volvo D13 XE - High Torque TC 455V/1850



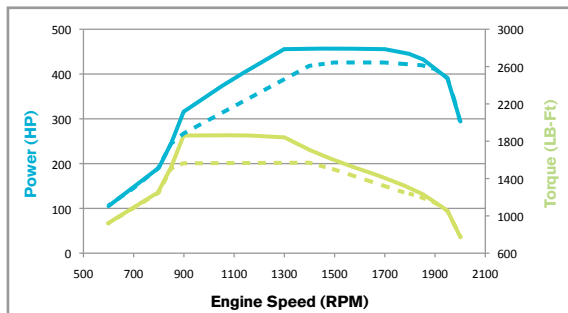
Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1850@900
Governed rpm	2100
Recommended cruise speed range, rpm	1050-1250
Start engagement torque, lb-ft@rpm	750@800



# Turbo Compounding Specifications

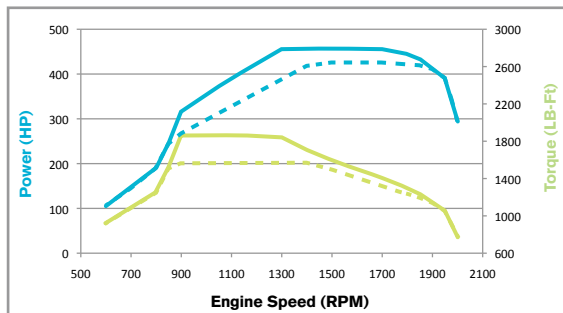
Available mid-2017

**Volvo D13 XE - Economy TC 455V/1850-1550**



Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1850@900
Governed rpm	2100
Recommended cruise speed range, rpm	1050-1250
Start engagement torque, lb-ft@rpm	750@800

**Volvo D13 XE - Adaptive Gearing TC 455V 1850-**



Advertised Power, HP	455
Peak Torque, lb-ft@rpm	1850@900
Governed rpm	2100
Recommended cruise speed range, rpm	1050-1250
Start engagement torque, lb-ft@rpm	750@800



**Volvo Trucks**

[www.volvotrucks.com](http://www.volvotrucks.com)

Volvo Trucks Canada  
2100 Derry Road West, Suite 410  
Mississauga, Ontario L5N 0B3

Volvo Trucks North America  
7900 National Service Road  
Greensboro, NC 27409

Volvo Trucks Mexico  
Torre Zentrum piso 21  
Av. Santa Fe #495 Col. Cruz Manca  
Del. Cuajimalpa Ciudad de Mexico.  
CP05340

Some vehicles shown with optional equipment.

©2016 Volvo Truck Group North America, LLC