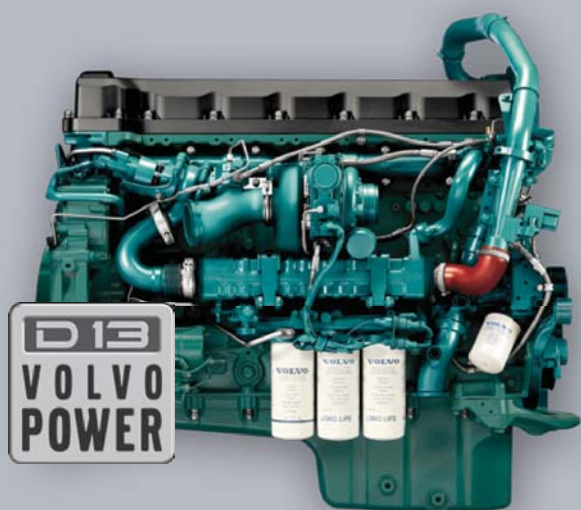


# VOLVO D13 ENGINE FAMILY



The Volvo D13's efficiency, power and light weight improves reliability and operating costs, while meeting EPA regulations. Fourteen power ratings are available, from 375 to 500 hp. Two XE ratings, six Eco-Torque and three Dual-Torque ratings provide "dual-personality" torque output for customers who desire the fuel economy of lower torque with the strong performance of higher outputs. Sold in VN daycabs and sleepers, the VHD and the VAH, it is the perfect choice for line haul, regional and vocational operations.



The D13 is fully EPA compliant. All regulated pollutants have been reduced 99% from untreated levels. Volvo meets these demands with outstanding reliability and economy, in part because we use Selective Catalytic Reduction for the highest efficiency. SCR allows us to pursue a passive regeneration concept that uses NOx in place of diesel fuel to regenerate the soot, further reducing your cost of operation.

## SPECIFICATIONS

Ratings:		Power: 375 to 500 HP Torque: 1450 to 1850 lb-ft
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		Dual Solenoid Electronic Unit Injection
Fuel Injection Pressure, psi (bar)		35,000 (2,400)
Electronic Management System		Volvo VECTRO
Rating Updateability		Software Only, Throughout Range
Displacement, cu. in. (L)		780 (12.8)
Compression Ratio		16.0:1
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)		2676 (1214)
Fuel and Lubrication:		
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)		35,000 (56,000)
Oil Specification		Volvo VDS-4, SAE 10W-30
FLOCS Oil Drain Kit		Optional
Engine Equipment:		
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
Preheater, Electrical		Optional

## FEATURES AND ADVANCED TECHNOLOGIES

## BENEFITS

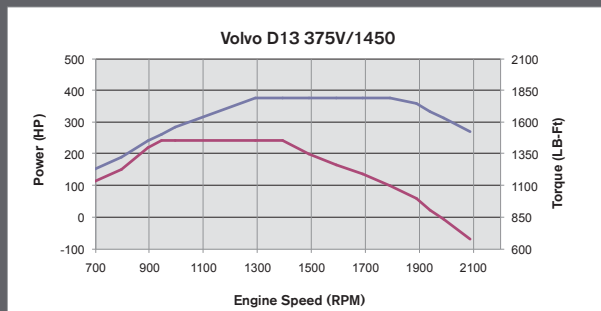
Warmhold Function	Warm up engine quickly and maintain engine temperature at very low idle speeds
Fuel System	Keeps fuel temperature regulated, allowing Volvo engines to operate more efficiently for better fuel economy and lower operating costs
Rear Mounted Engine PTO	Takes power directly from the engine, to utilize the PTO while the vehicle is being driven or stationary
Performance Bonus Guide	Patented sweet-spot measure to encourage soft driving for better fuel economy
Dual port poppet-style hydraulic EGR valve	Reliable stick-free performance. Close position to turbocharger assures precision EGR control for better fuel economy
Volvo air intake pre-heater	Assures starting in frigid climates



# Specifications

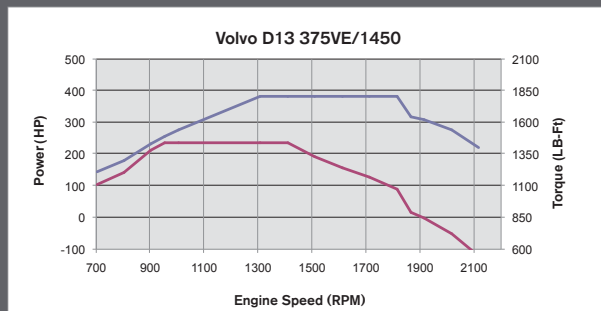


## Volvo D13 375V/1450\*



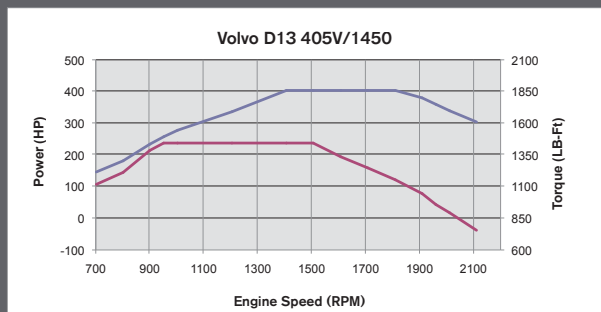
Advertised Power, HP	375
Peak Power, HP	390
Peak Torque, lb-ft@rpm	1450@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 375VE/1450\*\*



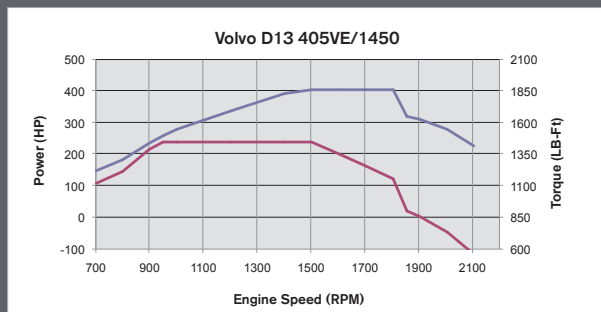
Advertised Power, HP	375
Peak Power, HP	390
Peak Torque, lb-ft@rpm	1450@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 405V/1450



Advertised Power, HP	405
Peak Power, HP	415
Peak Torque, lb-ft@rpm	1450@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 405VE/1450



Advertised Power, HP	405
Peak Power, HP	415
Peak Torque, lb-ft@rpm	1450@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

\*V indicates vocational application

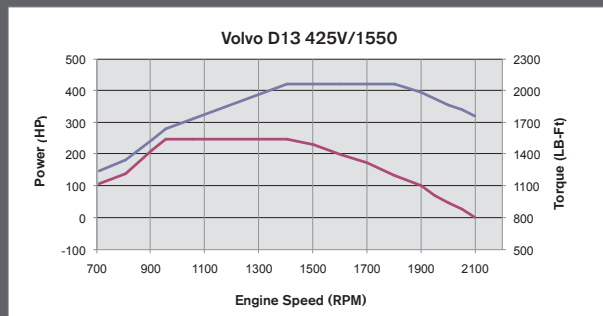
\*\*VE indicates highway application and reduced governor cut-in at 1800 rpm



# Specifications

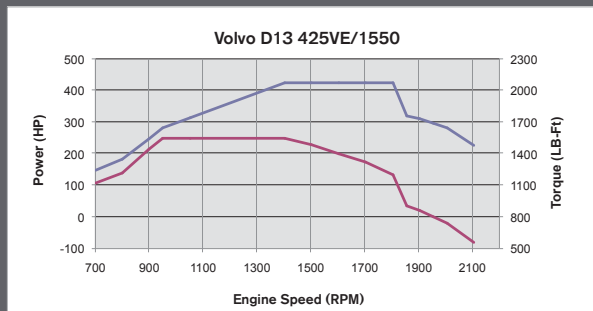


## Volvo D13 425V/1550



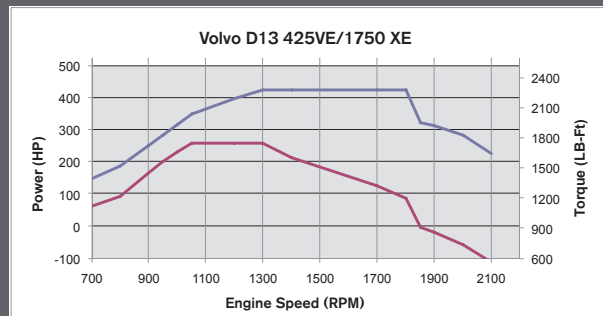
Advertised Power, HP	425
Peak Power, HP	435
Peak Torque, lb-ft@rpm	1550@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 435VE/1650



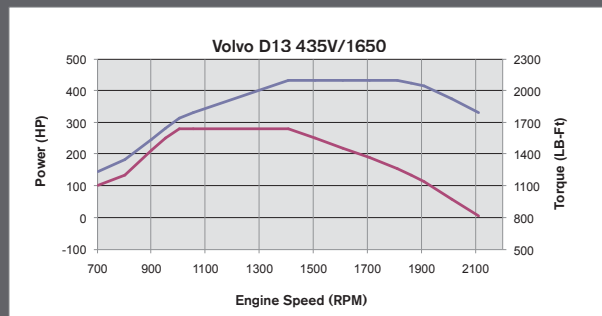
Advertised Power, HP	425
Peak Power, HP	435
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	1800
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 425VE/1750 XE



Advertised Power, HP	425
Peak Power, HP	435
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 435V/1650



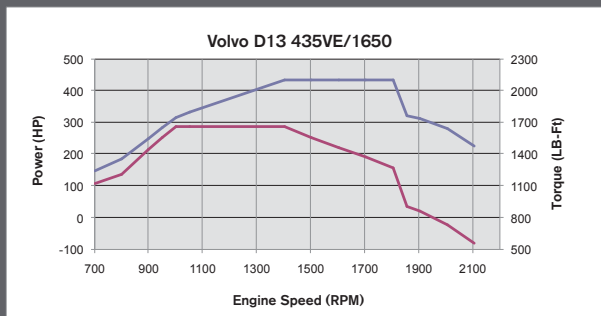
Advertised Power, HP	435
Peak Power, HP	455
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800



# Specifications

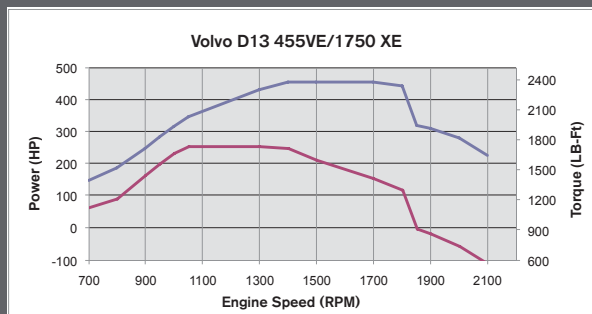


## Volvo D13 435VE/1650



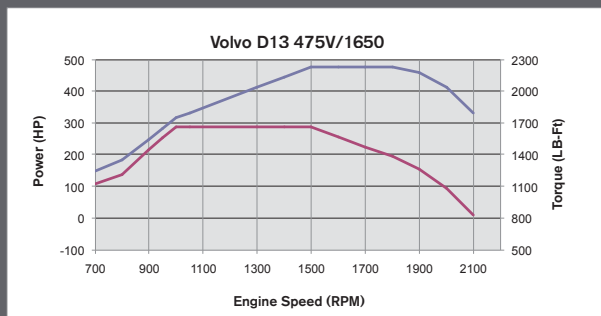
Advertised Power, HP	435
Peak Power, HP	455
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 455VE/1750 XE



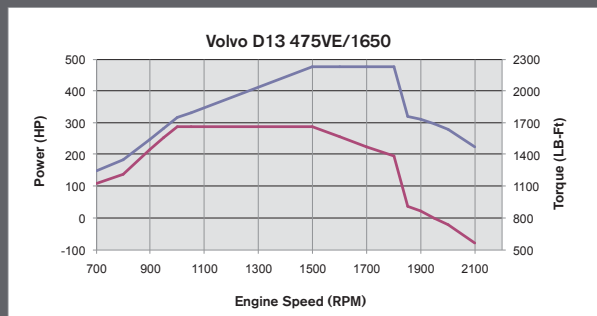
Advertised Power, HP	455
Peak Power, HP	465
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 475V/1650



Advertised Power, HP	475
Peak Power, HP	485
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 475VE/1650



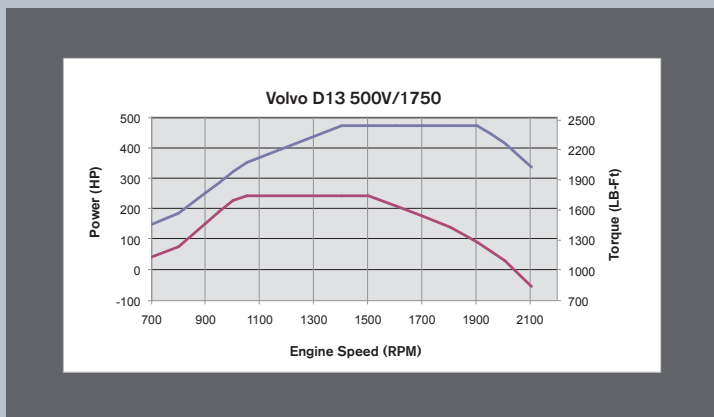
Advertised Power, HP	475
Peak Power, HP	485
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	1800
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800



# Specifications



## Volvo D13 500V/1750



Advertised Power, HP	500
Peak Power, HP	500
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

\*V indicates vocational application

\*\*VE indicates highway application and reduced governor cut-in at 1800 rpm



# Eco-Torque Specifications



Volvo's new Eco-Torque feature provides a new twist on encouraging fuel-economy driving. By switching to a lower torque curve in the top two gears, but allowing the higher torque curve during lug-back, Eco-Torque encourages low-rpm driving and provides a lower power level in non-demanding situations. But when conditions demand high torque at low rpm, the engine torque will switch up to the higher curve, in many cases allowing the hill to be topped in the highest gear.

Dual-Torque ratings have a similar dual personality, but serve a special purpose. They take advantage of several vendor transmissions that will allow a higher torque in the top two gears. This means that they must operate in their lower torque in the low gears.

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

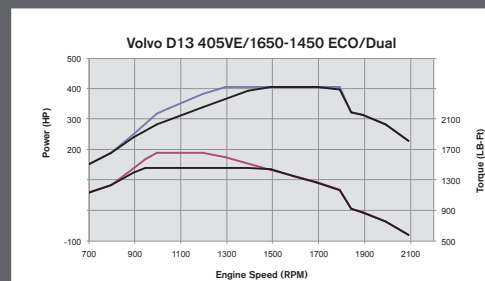
## ECO-TORQUE SPECIFICATIONS

Torque in all gears but top two, lb-ft	1850
Default torque in top two gears, lb-ft	1650
On demand torque in top two gears, lb-ft	1850

\*V indicates vocational application

\*\*VE indicates highway application and reduced governor cut-in at 1800 rpm

## Volvo D13 405VE/1650-1450 Eco/Dual



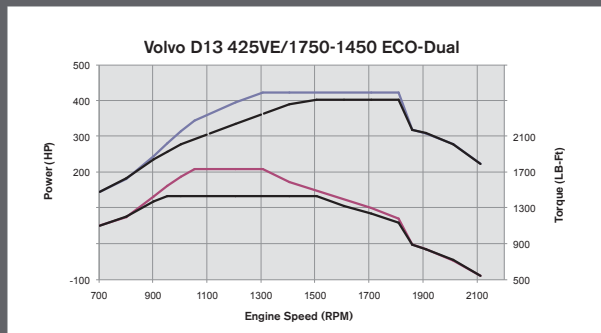
Advertised Power, HP	405
Peak Power, HP	415
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800



# Eco-Torque Specifications

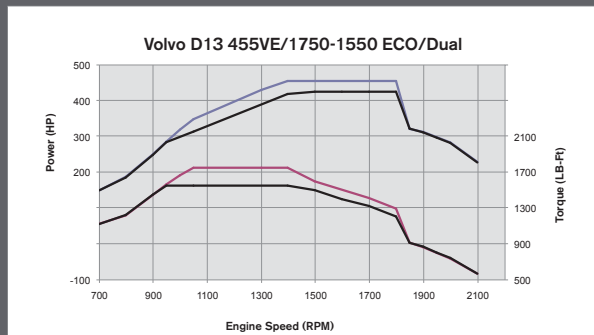


## Volvo D13 425VE/1750-1450 ECO/Dual



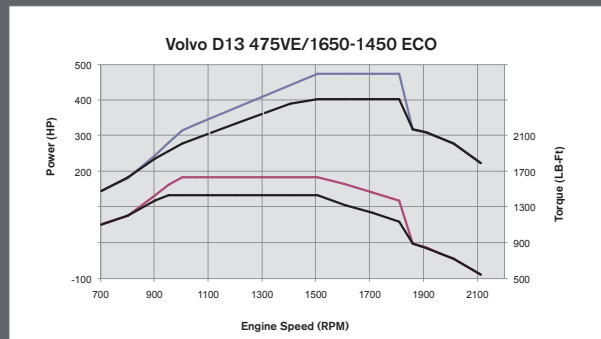
Advertised Power, HP	425
Peak Power, HP	435
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 455VE/1750-1550 ECO/Dual



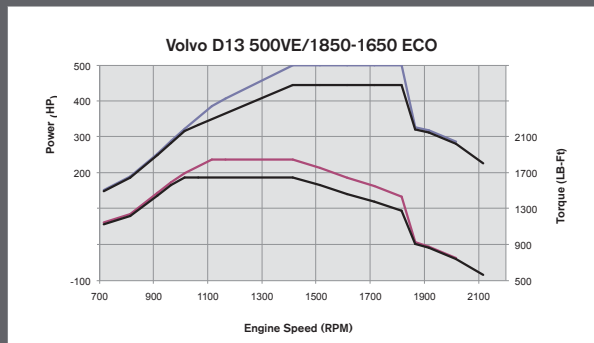
Advertised Power, HP	455
Peak Power, HP	465
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 475VE/1650-1450 ECO



Advertised Power, HP	475
Peak Power, HP	485
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 500VE/1850-1650ECO



Advertised Power, HP	500
Peak Power, HP	500
Peak Torque, lb-ft@rpm	1650@1050
Governed rpm	1800
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

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# Eco-Torque Specifications

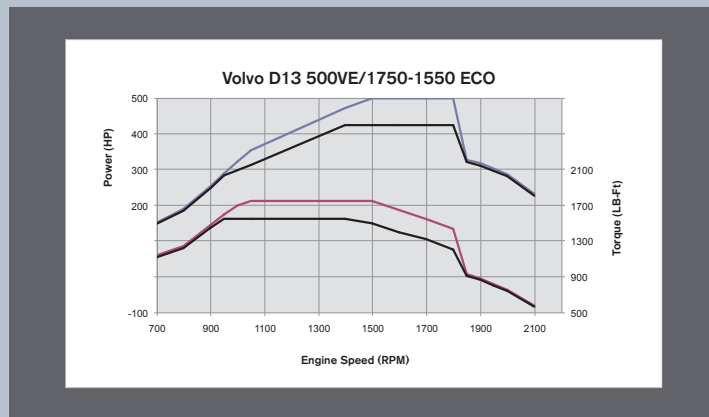


## Volvo D13 500V/1850-1650 ECO



Advertised Power, HP	500
Peak Power, HP	500
Peak Torque, lb-ft@rpm	1850@1050
Governed rpm	2100
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

## Volvo D13 500VE/1750-1550 ECO



Advertised Power, HP	500
Peak Power, HP	500
Peak Torque, lb-ft@rpm	1750@1050
Governed rpm	1800
Recommended cruise speed range, rpm	1200-1500
Start engagement torque, lb-ft@rpm	850@800

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