

# ZPP NA 428

4 Cylinder Inline | Naturally-Aspirated |  
2.8L - Gasoline, Natural Gas, Propane |

26502 Newbanks Road, Abingdon VA 24210  
PH: 276.525.4760 | FAX: 276.645.8681



## Specifications

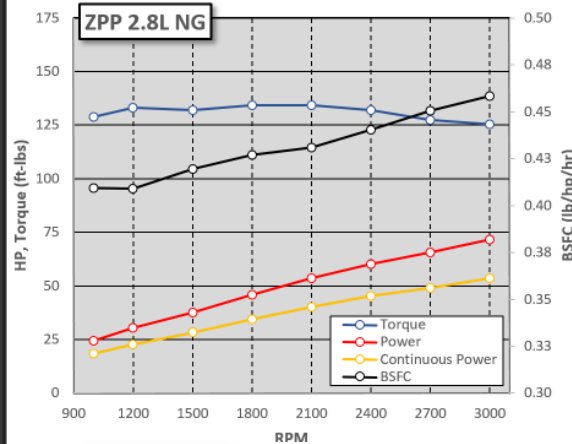
# of Cylinders	4 Inline
Operation	4-stroke
Ignition	Spark-Ignited
# of Valves	2/cylinder
Firing Order	1-3-4-2
Bore x Stroke	98.4 X 91.0 mm 3.874" x 3.583"
Displacement	2799 cc / 170.8 ci
Compression Ratio	9.5 : 1
Dry Weight	153 kg / 337 lbs
Piston Speed @ 2400 rpm	1,433 fpm
Piston Speed @ 1800 rpm	1,075 fpm
Oil Capacity	3.8L / 4.0 qts
Electrical System	12 Volt

## Standard Features

☆	US EPA Certified
☆	CAN bus controlled—J1939
☆	Full Built-in Engine Protection
☆	Stoichiometric Combustion
☆	Cast Iron block and head

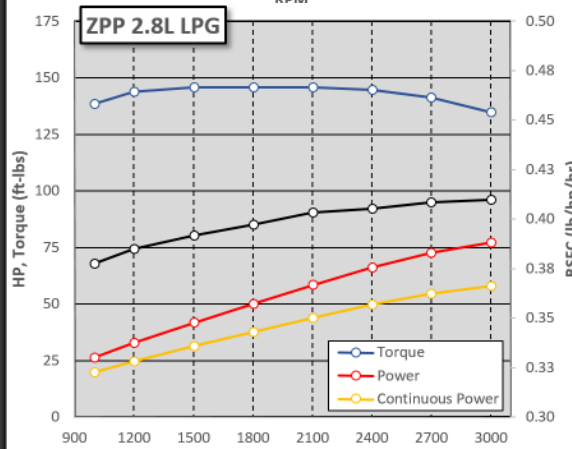
## Optional Features

☆	Customer Specific Packaging
☆	Turn-Key Enclosures

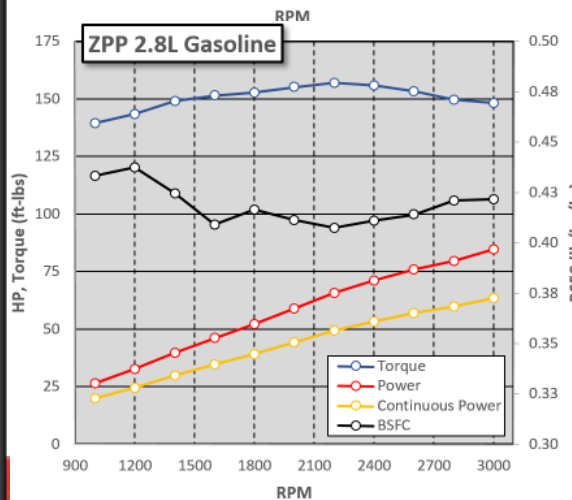


Rating	Industrial Rating (bHP)		Genset Rating (kWe)
	2400 rpm	1800 rpm	1800 rpm
Intermittent	60.3	46.0	31.6
Prime	54.3	41.4	28.4
Continuous	45.2	34.5	23.7

\*All data is corrected per SAE J1349  
\*Performance is NET including losses from engine auxiliaries (alternator, fan, water pump, air cleaner, catalyst)  
\*NG is pipeline grade gas  
\*LPG is commercial grade  
\*Gasoline is pump gasoline  
\*Electrical kW calculated with 92% generator efficiency



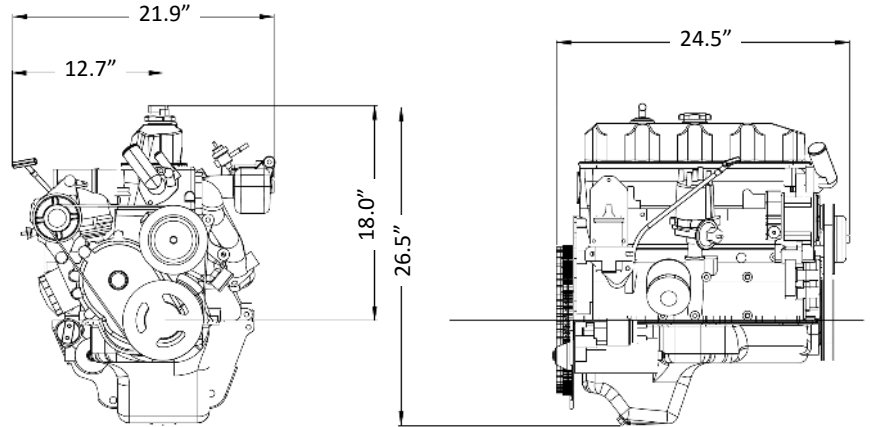
Rating	Industrial Rating (bHP)		Genset Rating (kWe)
	2400 rpm	1800 rpm	1800 rpm
Intermittent	66.1	50.0	34.3
Prime	59.5	45.0	30.9
Continuous	49.6	37.5	25.7



Rating	Industrial Rating (bHP)		Genset Rating (kWe)
	2400 rpm	1800 rpm	1800 rpm
Intermittent	71.3	52.3	35.9
Prime	64.1	47.1	32.3
Continuous	53.4	39.3	26.9

## Fuel System Features

☆	Natural Gas, LPG, or Gasoline
☆	Air-valve Mixer based fueling
☆	Electronic, closed-loop control
☆	EPA certified to pipeline quality fuels
☆	Electronic Throttle body
☆	Inline catalyst provided with engine



*\*All data is corrected per SAE J1349*

Pipeline NG

RPM	Torque ft-lbs (Nm)	Power BHP (kW)	BMEP (psi)	Fuel Flow (lb/hr)	Air Flow (lb/hr)	BSFC (lb/hp/hr)	Exhaust Outlet (F)
2700	127.5 (172.9)	65.6 (48.9)	113.9	29.6	484.7	0.451	1,448
<b>2400</b>	<b>132.0 (178.9)</b>	<b>60.3 (45.0)</b>	<b>117.9</b>	<b>26.6</b>	<b>435.5</b>	<b>0.440</b>	<b>1,412</b>
2100	134.2 (181.9)	53.7 (40.0)	119.8	23.1	379.6	0.431	1,362
<b>1800</b>	<b>134.3 (182.0)</b>	<b>46.0 (34.3)</b>	<b>119.9</b>	<b>19.6</b>	<b>322.1</b>	<b>0.427</b>	<b>1,306</b>
1500	132.1 (179.1)	37.7 (28.1)	118.0	15.8	259.4	0.420	1,231
1200	133.1 (180.5)	30.4 (22.7)	118.9	12.4	203.9	0.409	1,143

Commercial LPG

RPM	Torque ft-lbs (Nm)	Power BHP (kW)	BMEP (psi)	Fuel Flow (lb/hr)	Air Flow (lb/hr)	BSFC (lb/hp/hr)	Exhaust Outlet (F)
2700	141.3 (191.6)	72.6 (54.2)	120.5	29.6	464.2	0.408	1,454
<b>2400</b>	<b>144.7 (196.2)</b>	<b>66.1 (49.3)</b>	<b>120.5</b>	<b>26.8</b>	<b>419.5</b>	<b>0.405</b>	<b>1,438</b>
2100	145.9 (197.8)	58.3 (43.5)	120.5	23.5	368.3	0.403	1,390
<b>1800</b>	<b>145.8 (197.7)</b>	<b>50.0 (37.3)</b>	<b>120.5</b>	<b>19.9</b>	<b>311.0</b>	<b>0.397</b>	<b>1,326</b>
1500	145.9 (197.8)	41.7 (31.1)	120.5	16.3	255.7	0.392	1,264
1200	143.8 (194.9)	32.9 (24.5)	120.5	12.7	198.4	0.385	1,174

Gasoline

RPM	Torque ft-lbs (Nm)	Power BHP (kW)	BMEP (psi)	Fuel Flow (lb/hr)	Air Flow (lb/hr)	BSFC (lb/hp/hr)	Exhaust Outlet (F)
2800	149.6 (202.8)	79.7 (59.5)	133.6	33.5	493.1	0.421	1,648
<b>2400</b>	<b>155.9 (211.4)</b>	<b>71.3 (53.1)</b>	<b>139.3</b>	<b>29.3</b>	<b>430.8</b>	<b>0.411</b>	<b>1,612</b>
2000	155.2 (210.4)	59.1 (44.1)	138.6	24.3	357.4	0.411	1,583
<b>1800</b>	<b>152.7 (207.0)</b>	<b>52.3 (39.0)</b>	<b>136.4</b>	<b>21.8</b>	<b>320.2</b>	<b>0.417</b>	<b>1,557</b>
1600	151.5 (205.4)	46.2 (34.4)	135.3	18.9	277.9	0.409	1,530
1200	143.5 (194.5)	32.8 (24.4)	128.1	14.3	210.9	0.437	1,414