

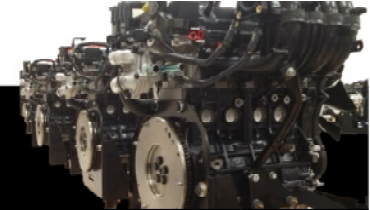


M-K POWER PRODUCTS CORP.
 3500 Laird Road, Unit 2
 Mississauga, Ontario
 L5L 5Y4

800 263-5011
 www.M-K.com

ZPP NA 416

4 Cylinder Inline | Naturally-Aspirated |
 1.6L - Gasoline, Natural Gas, Propane |



Specifications

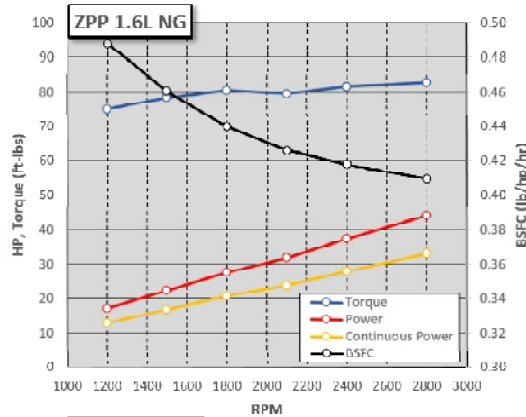
| | |
|-------------------------|-----------------------------------|
| # of Cylinders | 4 Inline |
| Operation | 4-stroke |
| Ignition | Spark-Ignited |
| # of Valves | 4/cylinder |
| Firing Order | 1-3-4-2 |
| Bore x Stroke | 76.5 X 87.0 mm 3.012" x 3.425" |
| Displacement | 1599 cc / 87.6 ci |
| Compression Ratio | 10.0 : 1 |
| Dry Weight | 126.3 kg / 278 lbs |
| Piston Speed @ 2400 rpm | 1,370 fpm |
| Piston Speed @ 1800 rpm | 1,028 fpm |
| Oil Capacity | 3.7L / 3.9 qts |
| Electrical System | 12 Volt |

Standard Features

| | |
|---|---------------------------------|
| ☆ | US EPA & CARB Certified |
| ☆ | CAN bus controlled—J1939 |
| ☆ | Full Built-in Engine Protection |
| ☆ | Stoichiometric Combustion |
| ☆ | 80A Alternator |

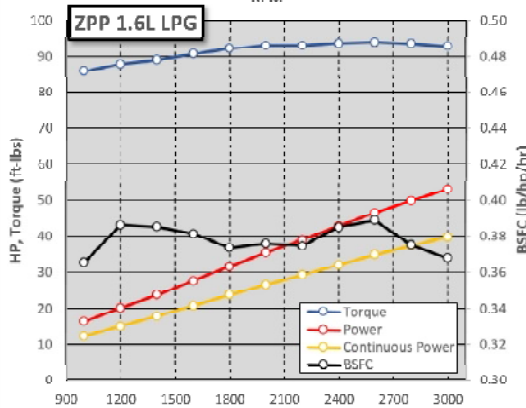
Optional Features

| | |
|---|-----------------------------|
| ☆ | Customer Specific Packaging |
| ☆ | Turn-Key Enclosures |

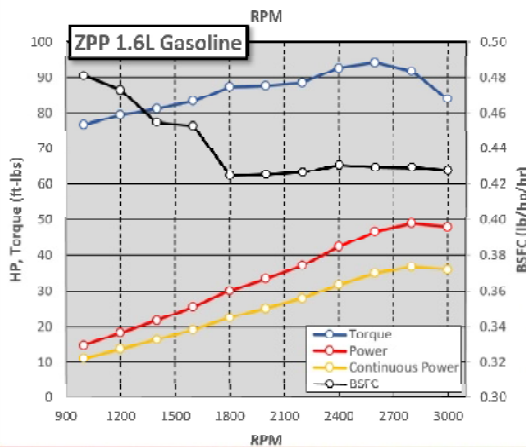


| Rating | Industrial Rating (bHP) | | Genset Rating (kWe) |
|--------------|-------------------------|----------|---------------------|
| | 2400 rpm | 1800 rpm | 1800 rpm |
| Intermittent | 37.3 | 27.6 | 18.9 |
| Prime | 33.6 | 24.8 | 17.0 |
| Continuous | 28.0 | 20.7 | 14.2 |

**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 | 42.0 | 31.6 | 21.7 |
| Prime | 38.6 | 28.5 | 19.5 |
| Continuous | 32.1 | 23.7 | 16.3 |



| Rating | Industrial Rating (bHP) | | Genset Rating (kWe) |
|--------------|-------------------------|----------|---------------------|
| | 2400 rpm | 1800 rpm | 1800 rpm |
| Intermittent | 42.3 | 30.0 | 20.5 |
| Prime | 38.1 | 27.0 | 18.5 |
| Continuous | 31.8 | 22.5 | 15.4 |



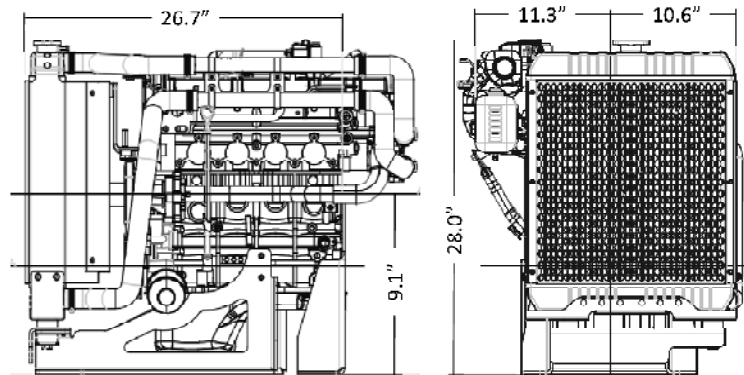
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Fuel System Features

- ☆ 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) |
|-------------|-----------------------|--------------------|---------------|----------------------|---------------------|--------------------|-----------------------|
| 2800 | 82.7 (112.2) | 44.1 (32.9) | 127.8 | 18.0 | 296 | 0.409 | 1,019 |
| 2400 | 81.6 (110.6) | 37.3 (27.8) | 126.1 | 15.6 | 255 | 0.418 | 899 |
| 2100 | 79.5 (107.8) | 31.8 (23.7) | 122.9 | 13.5 | 222 | 0.426 | 838 |
| 1800 | 80.5 (109.2) | 27.6 (20.6) | 124.4 | 12.1 | 199 | 0.440 | 785 |
| 1500 | 78.4 (106.2) | 22.4 (16.7) | 121.1 | 10.3 | 169 | 0.460 | 725 |
| 1200 | 75.1 (101.8) | 17.2 (12.8) | 116.0 | 8.4 | 138 | 0.488 | 629 |

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) |
|-------------|-----------------------|--------------------|---------------|----------------------|---------------------|--------------------|-----------------------|
| 2800 | 93.6 (127.0) | 49.9 (37.2) | 144.7 | 18.7 | 293 | 0.375 | 1,368 |
| 2400 | 93.7 (127.1) | 42.8 (31.9) | 144.8 | 16.5 | 258 | 0.385 | 1,319 |
| 2000 | 93.1 (126.3) | 35.5 (26.4) | 143.9 | 13.3 | 209 | 0.376 | 1,239 |
| 1800 | 92.3 (125.1) | 31.6 (23.6) | 142.6 | 11.8 | 185 | 0.374 | 1,184 |
| 1600 | 90.8 (123.0) | 27.6 (20.6) | 140.2 | 10.5 | 165 | 0.381 | 1,151 |
| 1200 | 87.9 (119.2) | 20.1 (15.0) | 135.8 | 7.8 | 122 | 0.386 | 1,075 |

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 | 91.8 (124.4) | 48.9 (36.5) | 141.8 | 21.0 | 308.6 | 0.429 | 1,358 |
| 2400 | 92.7 (125.6) | 42.3 (31.6) | 143.2 | 18.2 | 267.7 | 0.430 | 1,427 |
| 2000 | 87.7 (118.9) | 33.4 (24.9) | 135.5 | 14.2 | 208.8 | 0.425 | 1,360 |
| 1800 | 87.4 (118.5) | 30.0 (22.3) | 135.0 | 12.7 | 187.2 | 0.425 | 1,300 |
| 1600 | 83.4 (113.0) | 25.4 (18.9) | 128.8 | 11.5 | 169.0 | 0.453 | 1,303 |
| 1200 | 79.5 (107.8) | 18.2 (13.5) | 122.9 | 8.6 | 126.6 | 0.473 | 1,237 |