

# ENGINE GENERAL SPECIFICATION

## IL6H-NL70

### TECHNICAL DATA :

#### Engine Specification

Engine Make & Model	Clarke IL6H-NL70
Base Engine:	Iveco 8361-SRi49 Diesel
Diesel 4 stroke – Injection Type	Direct
Aspiration	Turbocharged \ Intercooled
Cylinders, number & arrangement	6 x Inline
Bore x Stroke	115 x 130 mm
Total Displacement	8102 cm <sup>3</sup>
Compression ratio	15.8:1
Mass moment of inertia (excluding flywheel)	0.394 kg.m <sup>2</sup>
Flywheel mass moment of inertia	1.09 kg.m <sup>2</sup>
Engine rotation (viewed facing flywheel)	ccw
Dry weight – standard engine	700 kg

#### Engine Net Performance (at 2600 RPM)

Nett Power output @ flywheel	265 kW (355 BHP)
Mean effective pressure (BMEP)	1.1 MPa (11.3 kg/m <sup>2</sup> )
Mean Piston speed	13 m/s
Specific Fuel consumption	231 g/kWh
Specific Lube oil consumption	0.8% max fuel consumption

#### Air Induction System

Intake air flow:	1300 m <sup>3</sup> /h
Max recommended intake restriction (clean filter)	250 mm.H <sup>2</sup> O

#### Fuel System

Injection Pump	Bosch – in line
Max speed droop – steady conditions	10 %
Max fuel feed pump suction head	0.8 m
Fuel specification	DIN 51601

#### Exhaust System

Exhaust gas flow	1560 kg/h
Maximum exhaust gas temperature	640 °C
Maximum allowable restriction	500 mm H <sup>2</sup> O

#### Lubrication System

Lube oil specifications	MIL-L-2104 C
Total system capacity including sump & filters	20.4 ltrs
Oil capacity of standard sump @ minimum level	10.5 ltrs
Oil capacity of standard sump @ maximum level	16 ltrs
Maximum lube oil temperature	125 °C
Lube oil filter - full flow	Twin
Minimum lube oil pressure @ rated speed	196 kPa (2 kg/cm <sup>2</sup> )

## **ENGINE GENERAL SPECIFICATION (continued)**

### **IL6H-NL70**

#### Cooling System – Primary

Coolant capacity	37 ltrs
Maximum engine water temperature	93 °C

#### Cooling System – Secondary

Cooling method	FH400 3 Pass Heat Exchanger
Raw water flow rate	180 ltrs/min
Raw water maximum pressure	4.5 bar
Raw water minimum pressure	2.0 bar
Raw water maximum temperature	20 °C

#### Heat rejection @ Full load

Engine to coolant	473 kCal/kWh
Engine to exhaust	725 kCal/kWh
Radiated to ambient	46 kCal/kWh
Charge cooler to coolant	53 kCal/kWh

#### Electrical System

Voltage	24 volts
Starter motor rating	4.0 kW
Alternator output	24 volts / 45 amps
Starter breakaway current	1020 amps

#### Noise Levels @ 1m (free field)

Top	94 dB(A)
Left side	94 dB(A)
Right side	97 dB(A)
Front	98 dB(A)
Overall	107 dB(A)
Exhaust - unsuppressed	122 dB(A)
Exhaust - suppressed (standard silencer)	94 dB(A)
Exhaust - residential silencer	80 dB(A)

#### Power rating as Emergency Firepump Driver

Continuous for duration of the emergency to standard SAEJ.1349, ISO 3046,  
Conditions: 25°C, 60% Humidity, 752 mmHg:

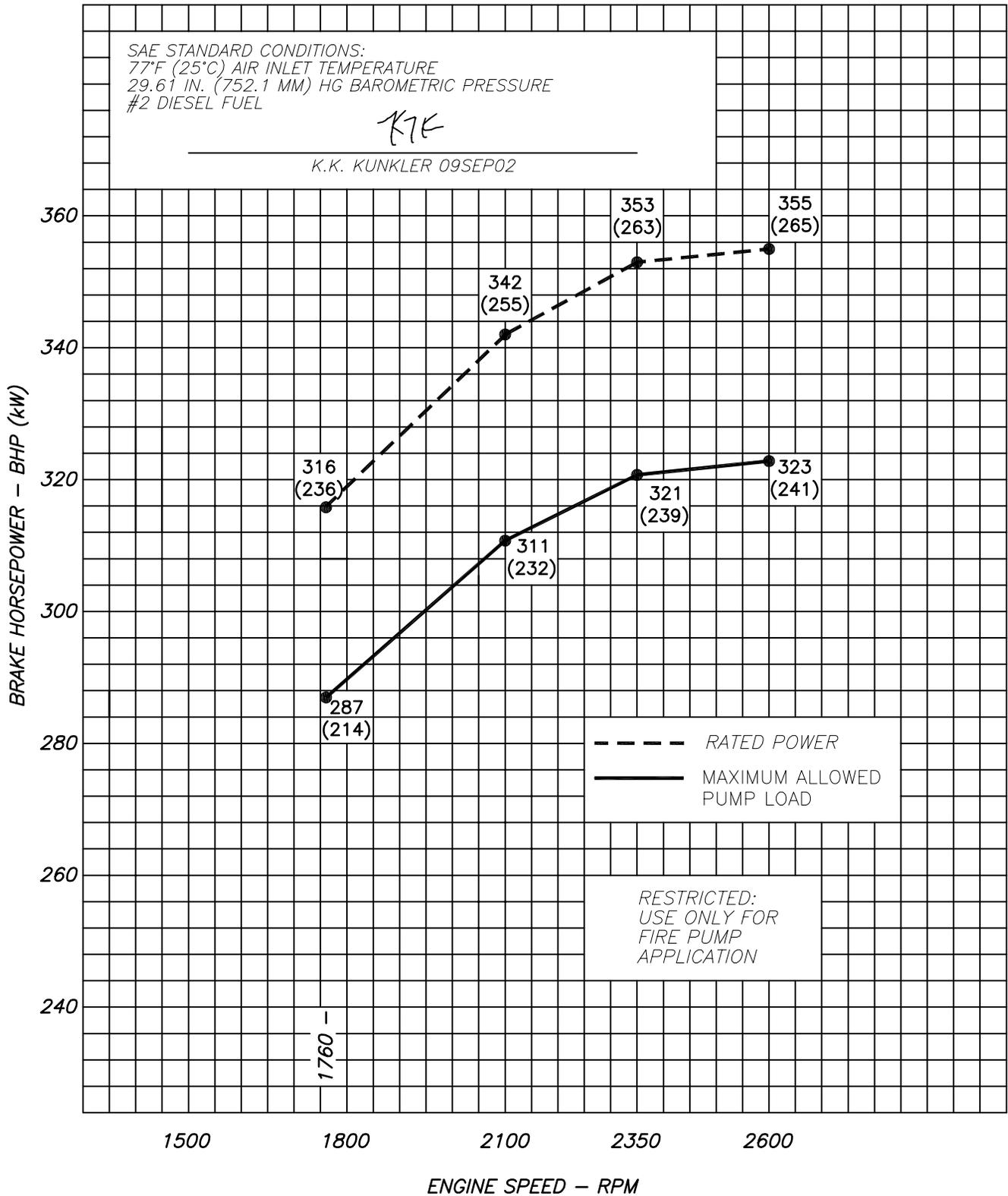
1800 RPM	238 kW	2100 RPM	257 kW
2200 RPM	260 kW	2350 RPM	265 kW
2600 RPM	265 kW		



# CLARKE

Fire Protection Products, Inc.

FIRE PUMP MODEL IL6H-NL70  
HEAT EXCHANGER COOLED  
TURBOCHARGED  
RAW WATER CHARGE COOLING  
8.1L 6 CYLINDER





**IL6H-NL70  
INSTALLATION & OPERATION DATA (Continued)**

<b>Exhaust System</b>	<b>1760</b>	<b>2100</b>	<b>2350</b>	<b>2600</b>
Exhaust Flow - m <sup>3</sup> /min. (ft. <sup>3</sup> /min.).....	49.0 (1730)	57.0 (2014)	62.1 (2192)	65.3 (2307)
Exhaust Temperature - °C (°F).....	Max. 500 (932)			
Maximum Allowable Back Pressure - kPa (in. H <sub>2</sub> O).....	500 (20)			
Minimum Exhaust Pipe Dia. - mm (in.)**.....				
<b>Fuel System</b>				
Fuel Consumption - L/hr. (gal./hr.).....	62.5 (16.5)	67.8 (17.9)	69.9 (18.5)	70.5 (18.6)
Fuel Return - L/hr. (gal./hr.).....				
Total Supply Fuel Flow - L/hr (gal./hr.).....				
Fuel Pressure - kPa (lb./in. <sup>2</sup> ).....				
Minimum Line Size - Supply - mm (in.)**.....				
Minimum Line Size - Return - mm (in.)**.....				
Maximum Allowable Fuel Pump Suction				
With Clean Filter - mH <sub>2</sub> O (in. H <sub>2</sub> O).....	0.6 (25)			
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - m(ft)...	3.0 (9.8)			
Fuel Filter Micron Size.....				
<b>Heater System</b>				
Jacket Water Heater.....	Optional			
Wattage (Nominal).....				
Voltage - AC, 1P.....	230 (+5%, -10%)			
Optional Voltage - AC, 1P.....	115 (+5%, -10%)			
Lube Oil Heater Wattage				
(Required Option When Ambient is Below 4°C (40°F)).....				
<b>Induction Air System</b>				
Air Cleaner Type.....	Canister Dry Type - Drip Proof			
Air Intake Restriction Maximum Limit				
Dirty Air Cleaner - mm H <sub>2</sub> O (in. H <sub>2</sub> O).....	Max. 500 (19.7)			
Clean Air Cleaner - mm H <sub>2</sub> O (in. H <sub>2</sub> O).....	Max. 250 (9.8)			
Engine Air Flow - m <sup>3</sup> /min. (ft. <sup>3</sup> /min.).....	16.9 (597)	20.7 (731)	22.2 (784)	23.4 (826)
Maximum Allowable Temperature (Air To Engine Inlet) - °C (°F)***.....	54 (130)			
<b>Lubrication System</b>				
Oil Pressure - normal - kPa (lb./in. <sup>2</sup> ).....	Min. 294 (43)			
In Pan Oil Temperature - °C (°F).....	Max. 120 (248)			
Oil Pan Capacity - High - L (qt.).....				
Total Oil Capacity with Filter - L (qt.).....	20.4 (22)			
<b>Performance</b>				
BMEP - kg/cm <sup>2</sup> (lb./in. <sup>2</sup> ).....				
Piston Speed - m/min. (ft./min.).....				
Sound Pressure Level - dB(A) @ 1m.....				
Power Curve.....				

\*\* Based On Nominal System. Flow Analysis Must Be Done To Assure Adherence To System Limitations.

(Minimum Exhaust pipe Diameter is based on 1m of flexible section,  
2m of rigid section, 1 90° elbow, and a silencer (as supplied by Clarke).

\*\*\* Review For Power Deration If Air Entering Engine Exceeds 25°C (77°F)