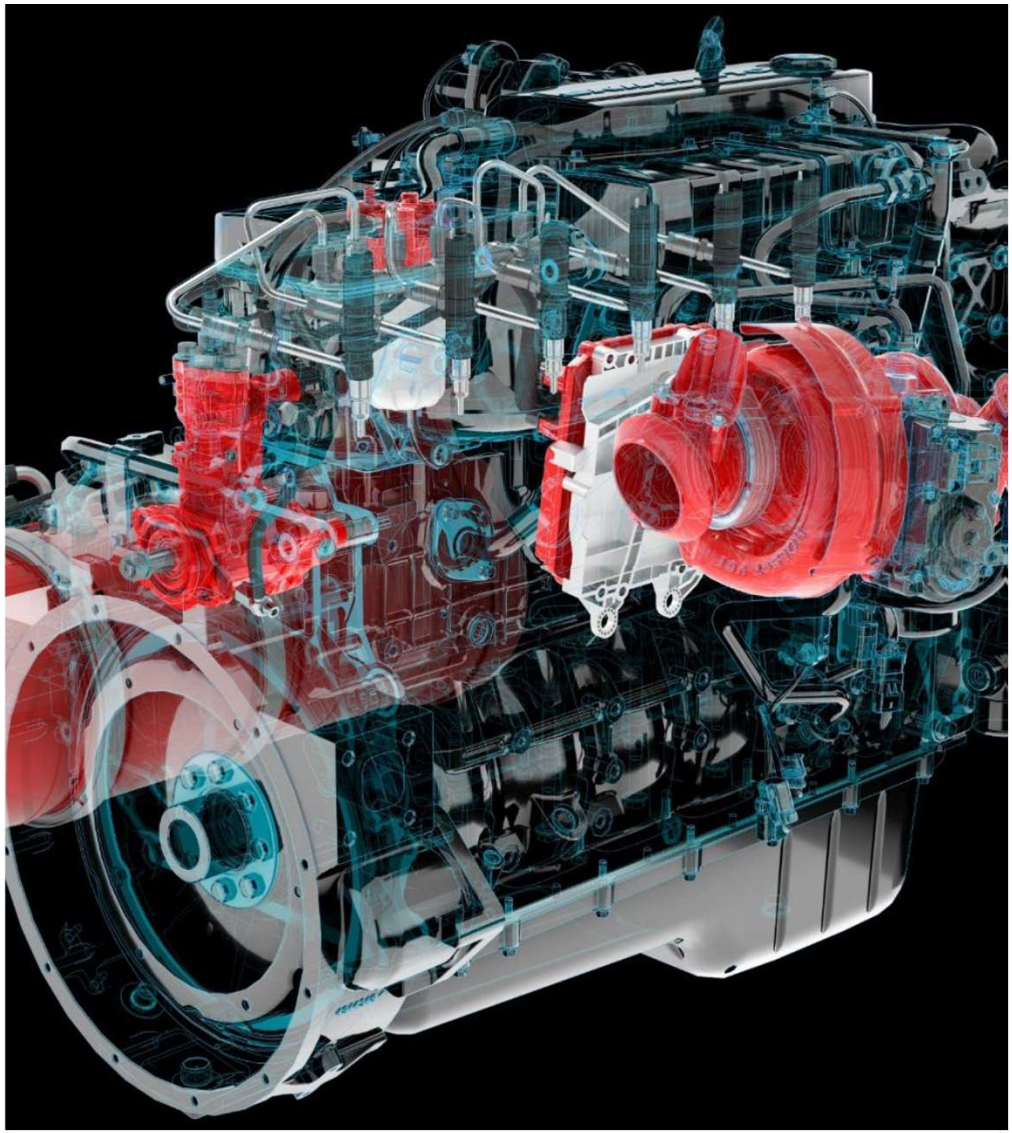

Distribution

Dual Fuel Kit

DBU

2025

Public

Our Story

WHY WE EXIST

OUR MISSION

Making people's lives better by powering a more prosperous world

WHAT WE WANT TO ACCOMPLISH

OUR VISION

Innovating for our customers to power their success

HOW WE WILL DO IT

VALUES

INTEGRITY
Doing what you say you will do and doing what is right

DIVERSITY & INCLUSION
Valuing and including our differences in decision making is our competitive advantage

CARING
Demonstrating awareness and consideration for the wellbeing of others

EXCELLENCE
Always delivering superior results

TEAMWORK
Collaborating across teams, functions, businesses and borders to deliver the best work

LEADERSHIP CULTURE

Inspiring and encouraging all employees to achieve their full potential

BRAND PROMISE

Powering our customers through innovation and dependability

STRATEGY

Delivering value to all stakeholders

Karm Sales And Service Pvt. Ltd.
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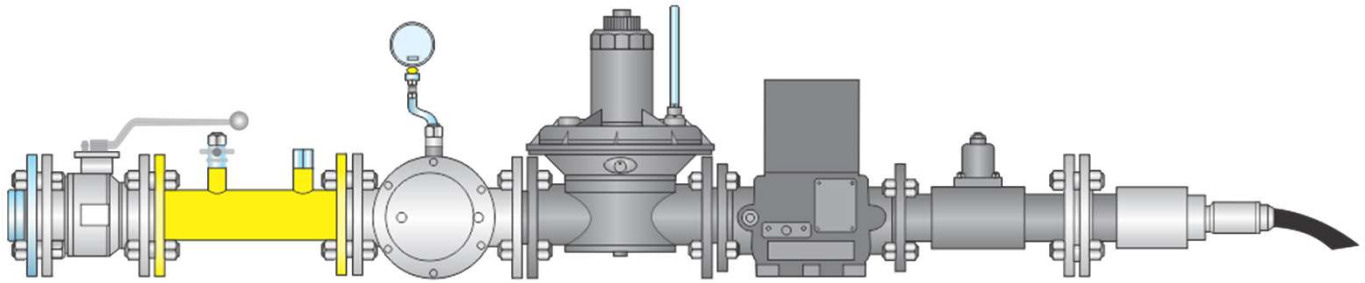
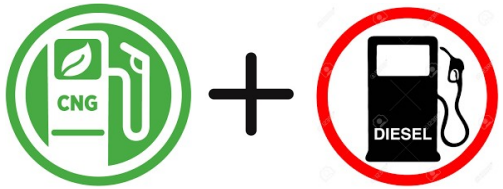
About Dual Fuel Kit

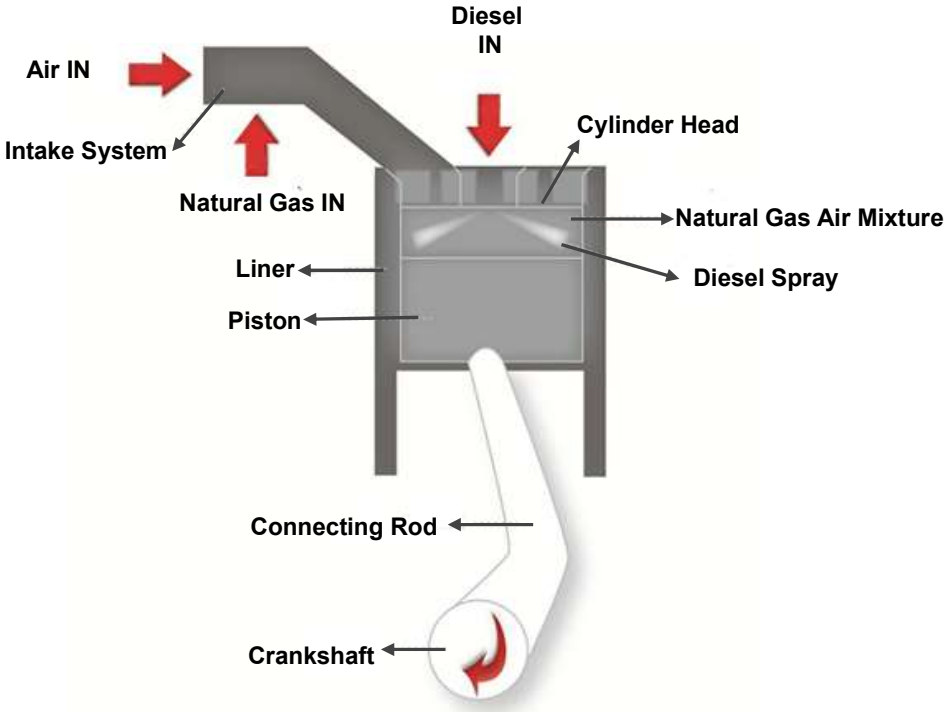


What is Dual Fuel Technology

What is Dual Fueling

- Dual Fueling is simultaneous combustion Methane rich gas (most often Natural gas) with Diesel as fuel.
- After conversion, the engine can continue to operate with only Diesel also. However, a ‘Gas only’ operation is not possible.
- During Dual Fuel operation, a reduced quantity of diesel fuel acts as the ignition source for the air-gas mixture.
- The Methane rich gas mix replaces significant proportion of Diesel to produce equivalent heat energy during combustion in the cylinder.

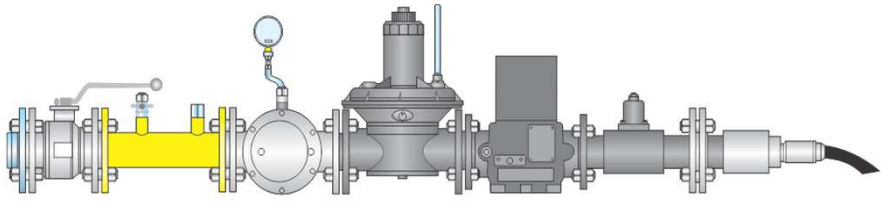




Dual Fuel Kit – How It Works?

Dual Fuel Technology

- The gas used for Dual Fueling is sourced from either piped gas or from local storage.
- It is injected into the combustion air stream via a Gas Train consisting of a gas filter, a gas pressure regulator and a solenoid valve.
- A throttle valve at the end controls the proportion of the gas injected.
- The gas train is designed to accept input gas at low pressure and deliver it to the engine at a slightly negative pressure.



Mixer

- Dual Fuel System delivers fuel gas to the combustion cylinders via the Gas Train into a special Air-Gas Mixer.
- The mixer is installed on the engine air inlet before the Turbo charger.
- Combustion is commenced by Diesel as the ignition source and followed by ignition of the Gas.

Controller

- Controller continuously monitors critical engine parameters through the operation and transitions.
- It provides complete safety to the engine while operating in the Dual-fuel mode.

Benefits Of Dual Fuel Kit

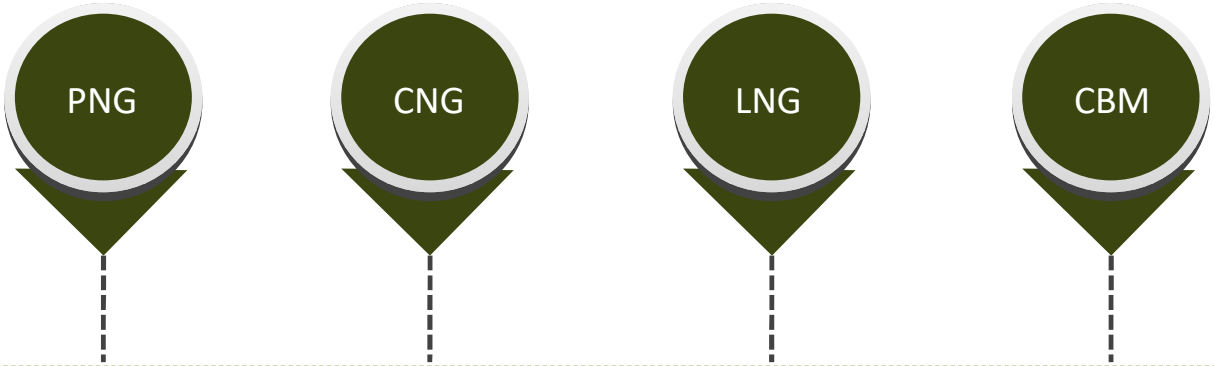
- Safety – Designed considering all safety norms and standards.
- Compliance – It is as per CPCB norm pollution control compliant product
- Flexibility - Can be operated on only diesel incase of non-availability of gas
- Field conversion is possible from diesel to dual fuel.
- Reduce the cost of generation - Dual fuel engines deliver financial savings through reduced diesel fuel consumption. Gas is Cheaper than Diesel
- No power lose - Higher specific power output compared to gas engine
- Few moving components and hence low maintenance cost.
- Low capital cost compared to gas engine





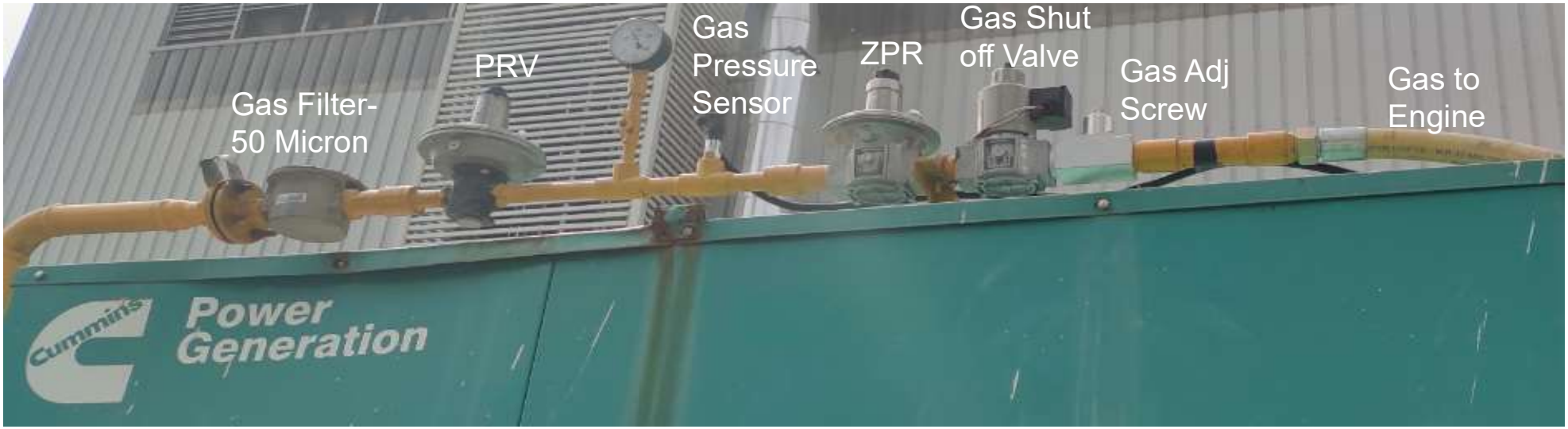


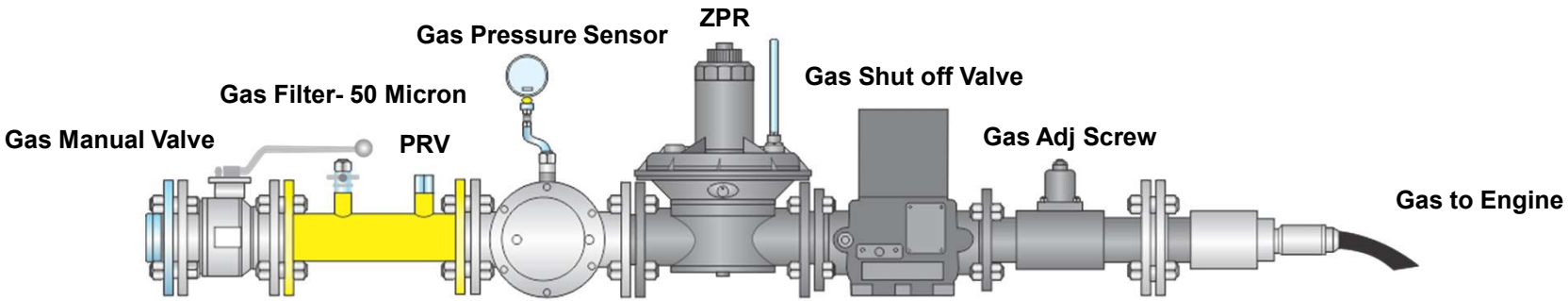
Compatible Fuel Gases



- Gas quality and composition are critical factors for Dual Fuel operation.
- PNG (Piped Natural Gas); CNG (Compressed Natural Gas); LNG (Liquefied natural gas); CBM (Coal Bed Methane) have a high concentration of methane and calorific value close to Diesel; resulting in optimization of substitution. For lower quality gasses substitution rates are lower.
- The Gas quality required is of Fuel Grade. Sufficient filtering means must be installed to ensure particulate and liquid contents are kept to a level approximating fuel grade standards.
- It is also important to determine the caustic compounds, if any, present in the fuel which may potentially cause harm to the engine and/or gas components of the System.

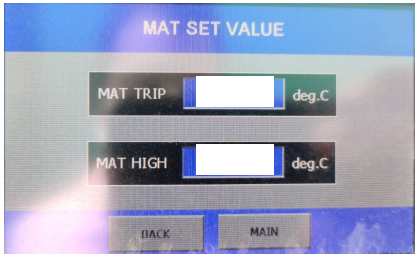
Gas Train: Dual Fuel Kit

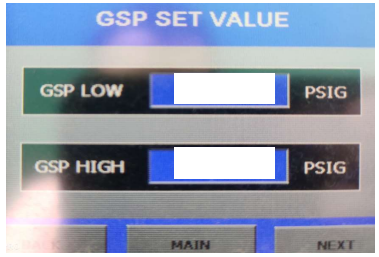


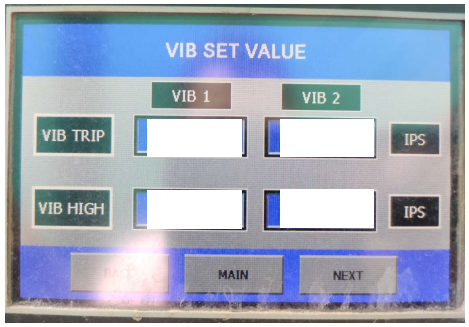


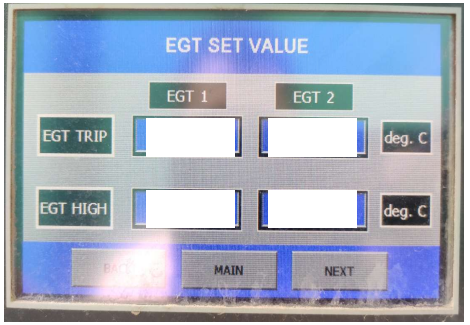
Dual Fuel Kit: Display parameters & Available Set Point

- **MAP-** Manifold Pressure (PIS)
- **GSP-** Gas Pressure (PIS)
- **MAT-** Manifold Temperature
- **EGT-** Exhaust Gas Temperature
- **VIB-** Vibration (Inches Per Sec)









Dual Fuel Kit Scope

Gas Train

- Manual Valve, Gas filter, Pressure regulator, Pressure Gauge, Zero Pressure regulator and Gas adjusting valve
- Gas piping from gas train to Gas mixer and Gas mixer unit (depends number of Turbocharger in engine – same qty as Turbo

Sensors

- Gas pressure sensor, Intake pressure sensor, Intake manifold temperature sensor
- Exhaust gas temperature sensor (inline 1qty, V type 2 qty).
- Vibration sensor (inline engine 1 qty, V type Engine 2 qty)

Controller Panel

- PLC, input / output units
- HMI and switches / buttons/ wirings etc

Remote monitoring system Optional (not included in standard kit)

Installation of kit

Accessories & Installation

Exclusions

- Gas connections
- Gas pipeline works
- Civil works
- Pollution certification and emission measurements
- Any flow meters – Gas / Diesel
- Any maintenance checks (BCD&E) and any existing issues
- Any parts which is not included in Dual Fuel kit

Dual Fuel Installation requirements

- Gas connections need to be provided by customer at the point of use with an isolation valve
- Engine health check – Leakages, blowby, any other performance issue need to be check and correct before conversion.
- Fuel filter need to be change
- Routine maintenance checks should not due.
- End customer need to provide the load trial in Diesel and Dual Fuel mode to ensure the performance after installation
- Minor welding works support need to be provided by end user