



Ignition Systems

Pilots

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Flame Front Generator Panel

Pyrotechnical Ignition System

An
HS Group
Company





GREENS COMBUSTION

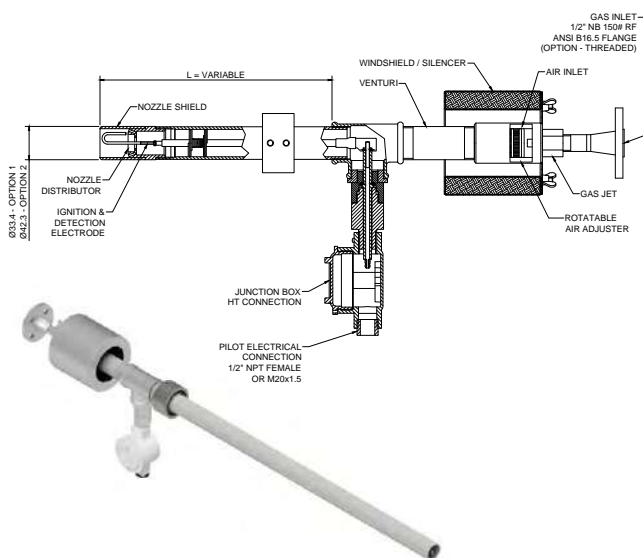
Ignition Systems

Greens Combustion design and supply a full range of industry leading ignition systems to provide instant, safe and reliable light off for burner and flare applications. Where required, GCL ignition systems can be supplied with a range of compact electric ignition and detection control units to facilitate both local and remote ignition control and flame status monitoring.

Pilots

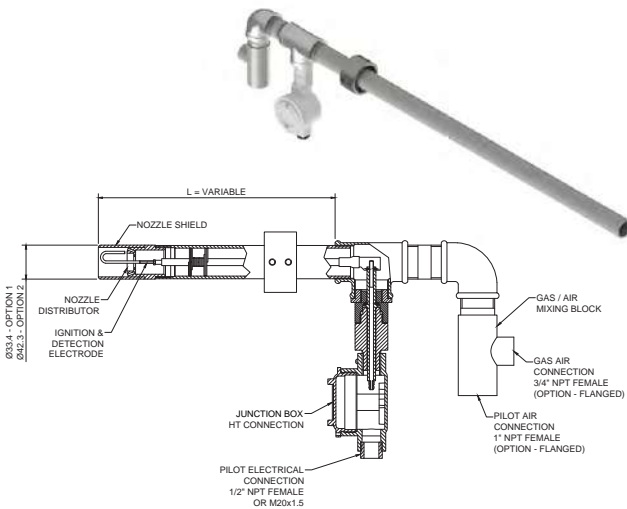
Whether your pilot needs are for new build, retrofit or upgrade, Greens Combustion have a selection of durable gas pilot models for all burner and flare applications, each designed to ensure robust ignition and stable operation across a full range of fuel gases and arduous conditions.

Self Inspiring



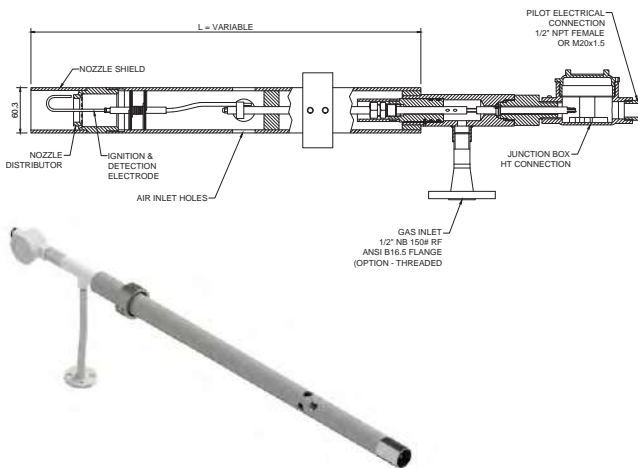
Type	SELF INSPIRING Single electrode pilot burner providing spark ignition and pilot flame detection (flame rectification) with a self inspiring air supply. Typically used with process heater burners.
Applications	Fired Heaters / Boilers / Incinerators
Ignition	8 kV Spark Voltage Via Central Electrode
Flame Detection	200 Vac Ionisation Signal Via Central Electrode
Draught Type	Natural
Liberation	Option 1 - 20 kW (OD = 33.4 mm) Option 2 - 30 kW (OD = 42.3 mm)
Fuel Gas	Propane, Natural Gas, Refinery Fuel Gas (up to 90% H2)
Air Supply	Inspired Atmospheric Air

Forced Draught



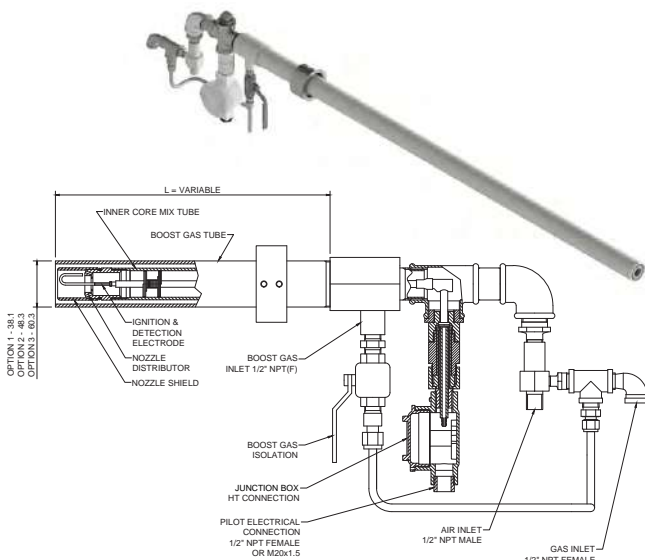
Type	FORCED DRAUGHT Single electrode pilot burner providing spark ignition and pilot flame detection (flame rectification) with a compressed or fan air supply. Typically used with process heater burners.
Applications	Fired Heaters / Boilers / Incinerators
Ignition	8 kV Spark Voltage Via Central Electrode
Flame Detection	200 Vac Ionisation Signal Via Central Electrode
Draught Type	Forced
Liberation	Option 1 - 20 kW (OD = 33.4 mm) Option 2 - 30 kW (OD = 42.3 mm)
Fuel Gas	Propane, Natural Gas, Refinery Fuel Gas (up to 90% H2)
Air Supply	Compressed or Fan Air

Induced Draught



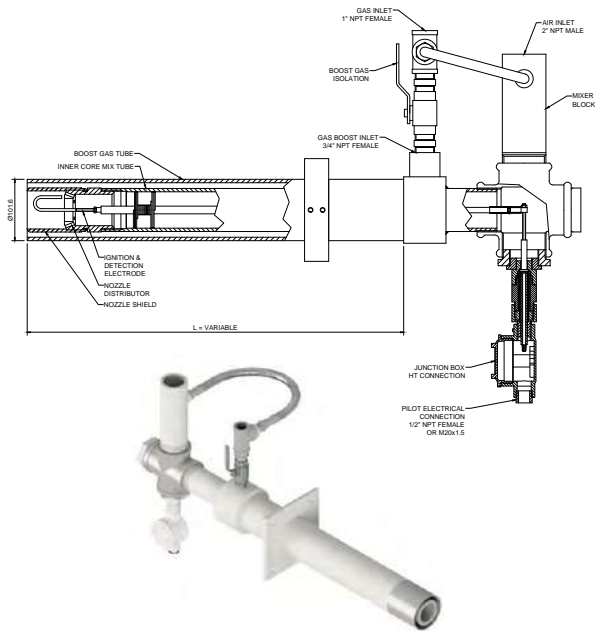
Type	INDUCED DRAUGHT Single electrode pilot burner providing spark ignition and pilot flame detection (flame rectification) whilst inducing burner windbox air for combustion. Typically used with register boiler burners.
Applications	Fired Heaters / Boilers / Incinerators
Ignition	8 kV Spark Voltage Via Central Electrode
Flame Detection	200 Vac Ionisation Signal Via Central Electrode
Draught Type	Induced (from main burner forced draught supply)
Liberation	Nominally 100 kW (OD = 60.33 mm)
Fuel Gas	Propane, Natural Gas, Refinery Fuel Gas (up to 90% H2)
Air Supply	Inspirated from the burner windbox

High Liberation



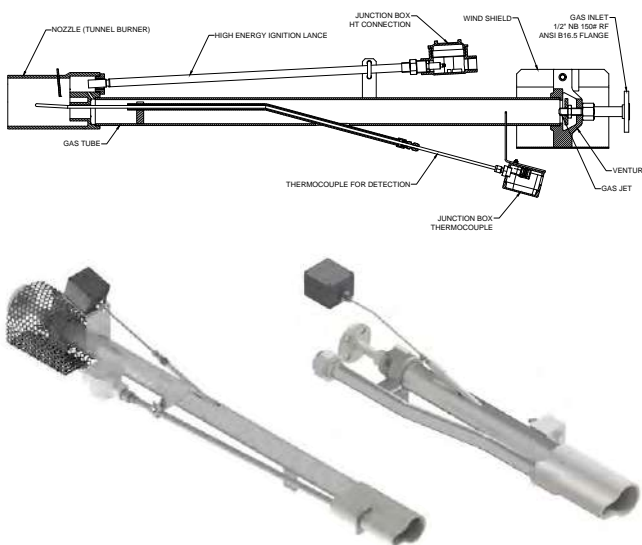
Type	HIGH LIBERATION Single electrode pilot burner providing spark ignition and pilot flame detection (flame rectification) with a compressed or fan air supply. Typically used where an inner premix flame is required for detection and neat gas outer flame is required for liberation boost.
Applications	Fired Heaters / Boilers / Incinerators
Ignition	8 kV Spark Voltage Via Central Electrode
Flame Detection	200 Vac Ionisation Signal Via Central Electrode
Draught Type	Forced
Liberation	Option 1 - Nominally 150 kW (OD = 38.1 mm) Option 2 - Nominally 200 kW (OD = 48.3 mm) Option 3 - Nominally 300 kW (OD = 60.3 mm)
Fuel Gas	Propane, Natural Gas, Refinery Fuel Gas (up to 90% H2)
Air Supply	Compressed or Fan Air

High Capacity

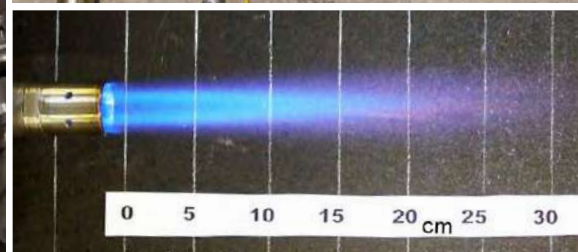


Type	HIGH CAPACITY Single electrode pilot burner providing spark ignition and pilot flame detection (flame rectification) with a compressed or fan air supply. Typically used for large capacity burners requiring a large igniter heat input.
Applications	Boilers
Ignition	8 kV Spark Voltage Via Central Electrode
Flame Detection	200 Vac Ionisation Signal Via Central Electrode
Draught Type	Forced
Liberation	Nominally 1300 kW (OD = 101.6 mm)
Fuel Gas	Propane, Natural Gas, Refinery Fuel Gas (up to 90% H2)
Air Supply	Compressed or Fan Air

Flare Pilot



Type	FLARE PILOT Self Inspiring gas pilot providing flame front or high energy spark ignition and pilot flame detection (thermocouple / temperature relay). Comprises a stabilised tunnel burner nozzle with built in flame retention and shield ensuring a stable flame and positive ignition in adverse weather conditions.
Applications	Elevated Flare Tips / Ground Flares / Burn Pits
Ignition	Option 1 - High Energy Spark Via Fixed Igniter Option 2 - Flame Front via FFG Panel
Flame Detection	Temperature Detection via Type K Thermocouple
Draught Type	Self Inspiring
Pilot Flame Stability	36 m/s (unprotected) 48 m/s (protected by windshield)
Liberation	Option 1 - Nominally 47 kW (Standard) Option 2 - Nominally 29 kW (Low Consumption)
Fuel Gas	Propane, Natural Gas, RFG (up to 50% H2), Low BTU
Air Supply	Inspired Atmospheric Air

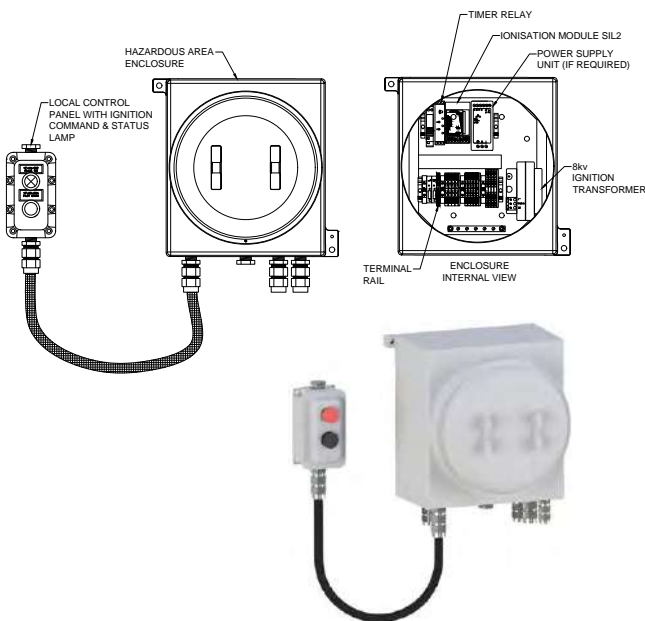


Ignition & Detection Control Units

Our pilot control units utilise proven high-tension or high-energy technology for remote pilot ignition, thus removing the need for operator presence within hazardous environments around fired equipment. In addition to reliable ignition, it is essential that the pilot flame be accurately verified, our Integrated control unit logic automatically switches to detection mode post ignition to detect the presence & condition of the pilot flame.

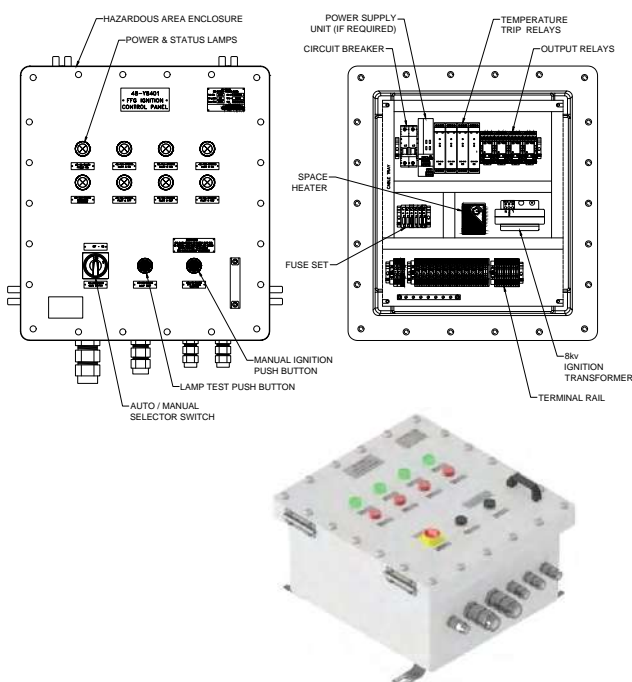


Ignition & Detection Control Unit for Single Electrode



Type	IGNITION & DETECTION CONTROL UNIT FOR SINGLE ELECTRODE Enclosed control unit providing high tension voltage to pilot electrode for spark ignition, switching to detection mode (ionisation) when the ignition command is removed.
Applications	Fired Heaters / Boilers / Incinerators
Function	Spark Ignition / Ionisation Flame Detection
Operation	Remote Signal from BMS / Local Signal from LCP
Protection Class	ATEX II 2G Exd IIC T4 Gb (Safe Area option available)
Mains Voltage	115 or 230 Vac (50 Hz)
Control Voltage	24 Vdc (remote signal from BMS or Local control)
Spark Outlet	8 kV
Flame Detection	SIL2 Ionisation Module
Flame Signal Output	Volt Free Relay

Ignition & Detection Control Unit for Flare Pilot



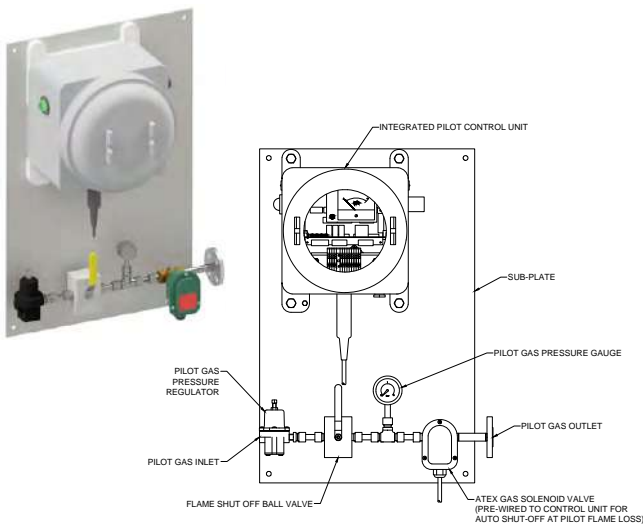
Type	IGNITION & DETECTION CONTROL UNIT FOR FLARE PILOT Enclosed control unit providing high energy or high tension spark ignition for flame front or pilot fixed lance, switching to detection mode (Thermocouple / temperature relay) when the ignition command is removed.
Applications	Elevated Flare Tips / Ground Flares / Burn Pits
Function	Spark Ignition / Temperature Relay Flame Detection
Operation	Automatic / Manual
Protection Class	ATEX II 2G Exd IIB+H2 T4 Gb (Safe Area & IIC options available)
Control Logic	PLC or Relay Based
Mains Voltage	115 or 230 Vac (50 Hz)
Control Voltage	24 Vdc (remote signal from BMS or Local control)
Spark Outlet	High Tension or High Energy
Flame Detection	Temperature Relays via Pilot Thermocouples
Flame Signal Output	Volt Free Relay / Status Lamps

Gas & Air Controls

Close and accurate control of pilot gas and air is essential in ensuring a correctly metered combustible mix at the pilot nozzle for both ignition and detection. Greens can offer bespoke gas and air controls designed to the exacting demands of international combustion and fuel handling regulations. The controls provide pressure regulation, indication, isolation and pre-mixing upstream of the pilot and can be integrated with our ignition and detection control units to provide auto shut-off at loss of a pilot flame to eliminate the risk of a deflagration or detonation.

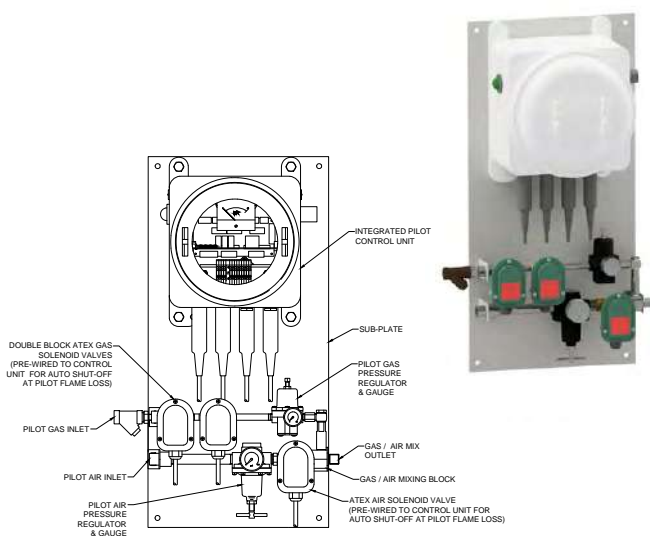


Gas Controls (Integrated with Pilot Control Unit)

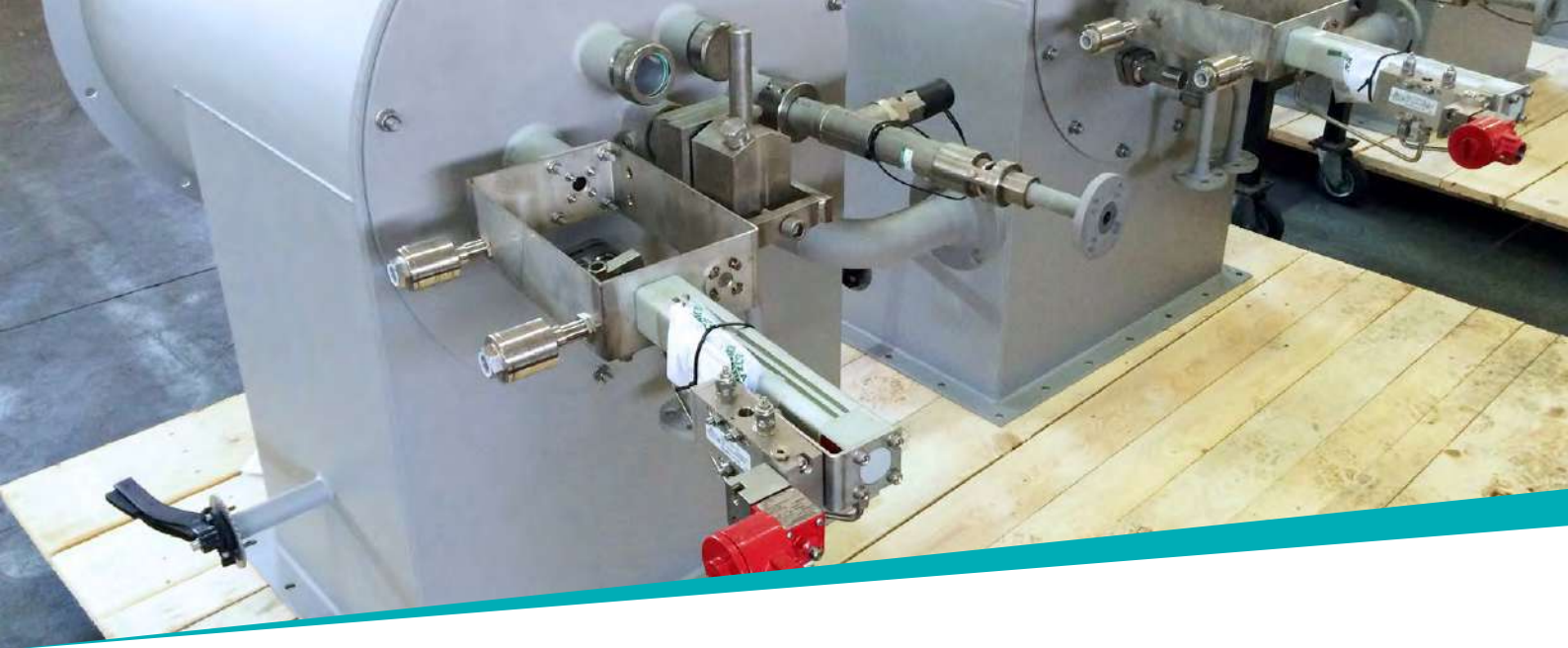


Type	GAS CONTROLS (INTEGRATED WITH PILOT CONTROL UNIT) Upstream pilot gas supply regulation, indication and isolation integrated with pilot ignition and detection unit to provide auto-shut-off of gas supply upon pilot flame loss. Typically used with self-inspiring pilot systems.
Applications	Fired Heaters / Boilers / Incinerators
Function	Pilot Gas Regulation, Indication & Isolation
Operation	Remote (Local option available)
Control Logic	Relay Based
Mains Voltage	115 or 230 Vac (50 Hz)
Control Voltage	24 Vdc
Fuel Gas	Propane, Natural Gas, Refinery Fuel Gas (up to 90% H2)

Gas & Air Controls (Integrated with Pilot Control Unit)



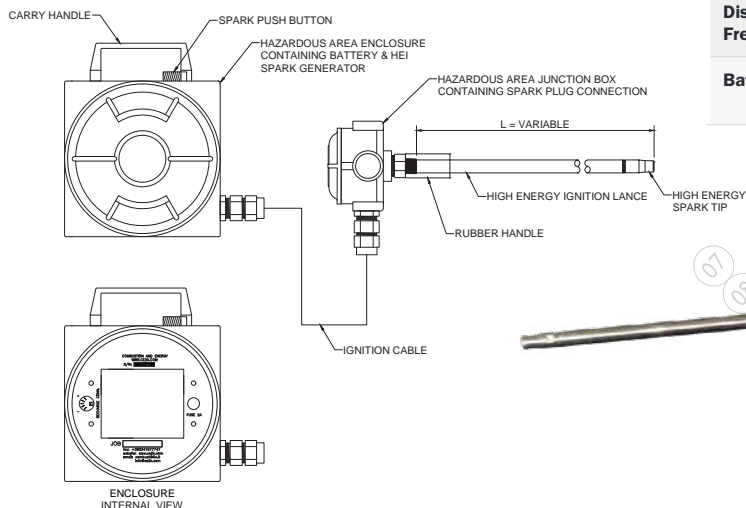
Type	GAS & AIR CONTROLS (INTEGRATED WITH PILOT CONTROL UNIT) Upstream pilot gas & air supply regulation, indication, isolation and pre-mixing with integrated pilot ignition and detection unit to provide auto-shut-off of gas and compressed air supply upon pilot flame loss. Typically used with Forced Draught pilot systems.
Applications	Fired Heaters / Boilers / Incinerators
Function	Pilot Gas & Air Regulation, Indication, Isolation & Pre-Mixing
Operation	Remote (Local option available)
Control Logic	Relay Based
Mains Voltage	115 or 230 Vac (50 Hz)
Control Voltage	24 Vdc
Fuel Gas	Propane, Natural Gas, Refinery Fuel Gas (up to 90% H2)
Air Supply	Compressed or Fan Air



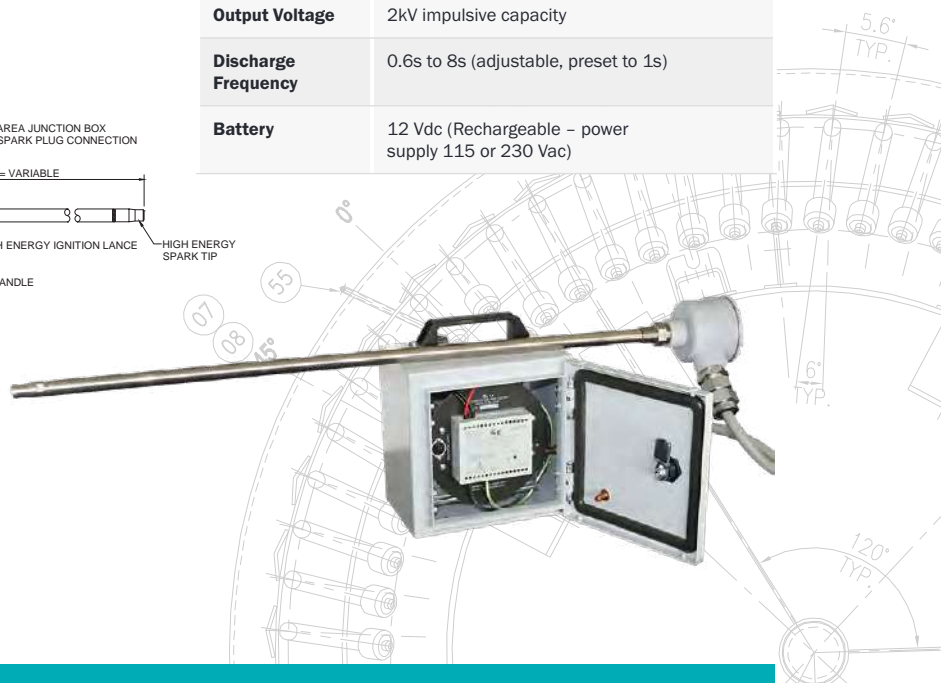
High Energy Ignition Systems

Greens offer portable and fixed high energy (HE) ignition systems where assured spark ignition of both gas and liquid fuel is required under any condition i.e. moist environment, high-pressure chamber etc. A portable HE igniter offers a cost effective solution where infrequent ignition across a high quantity of burners is required. Alternatively, if fixed HE ignition is desired bespoke retraction systems ensure the ignition tip is retracted from the hot & corrosive atmosphere after ignition.

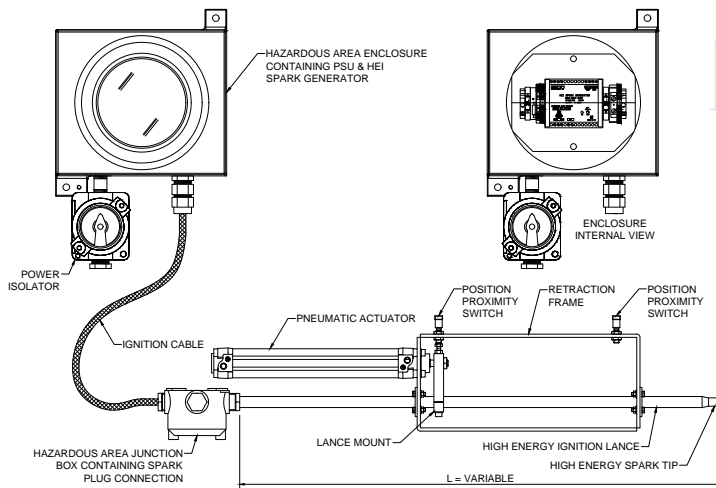
High Energy Portable Igniter



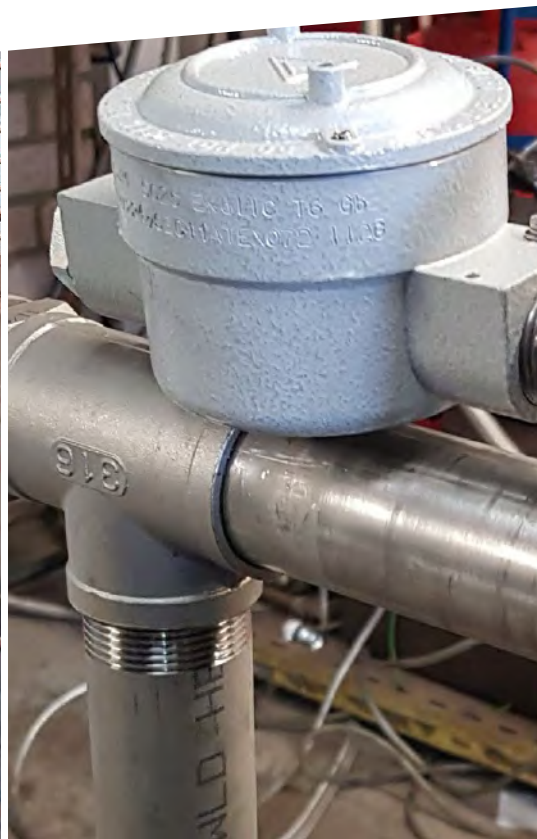
Type	HIGH ENERGY PORTABLE IGNITER Portable high-energy ignition systems providing safe and reliable burner ignition where a large number of burners require ignition on an infrequent basis.
Applications	Fired Heaters / Boilers / Incinerators
Function	High Energy Spark Ignition
Operation	Push Button
Protection Class	ATEX II 2G Exd IIC T4 Gb (Safe Area option available)
Power Discharge	7J
Output Voltage	2kV impulsive capacity
Discharge Frequency	0.6s to 8s (adjustable, preset to 1s)
Battery	12 Vdc (Rechargeable – power supply 115 or 230 Vac)



High Energy Fixed Igniter with Pneumatic Retraction



Type	HIGH ENERGY FIXED IGNITER WITH PNEUMATIC RETRACTION Fixed high-energy ignition systems providing safe and reliable burner ignition with safe retraction and extension of the ignition lance before and after successful ignition to prevent temperature wear.
Applications	Fired Heaters / Boilers / Incinerators
Function	High Energy Spark Ignition & Retraction
Operation	Remote Signal from BMS / Local Signal from LCP
Protection Class	ATEX II 2G Exd IIC T4 Gb (Safe Area option available)
Mains Voltage	115 or 230 Vac (50 Hz)
Control Voltage	24 Vdc (remote signal from BMS or Local control)
Power discharge	7J
Output Voltage	2kV impulsive capacity
Discharge Frequency	0.6s to 8s (adjustable, preset to 1s)



Flame Front Generator Panel

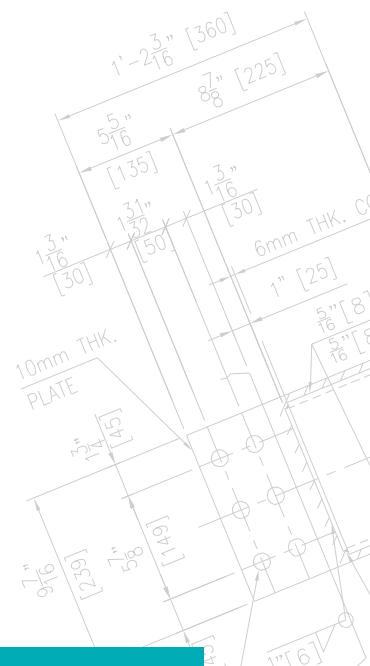
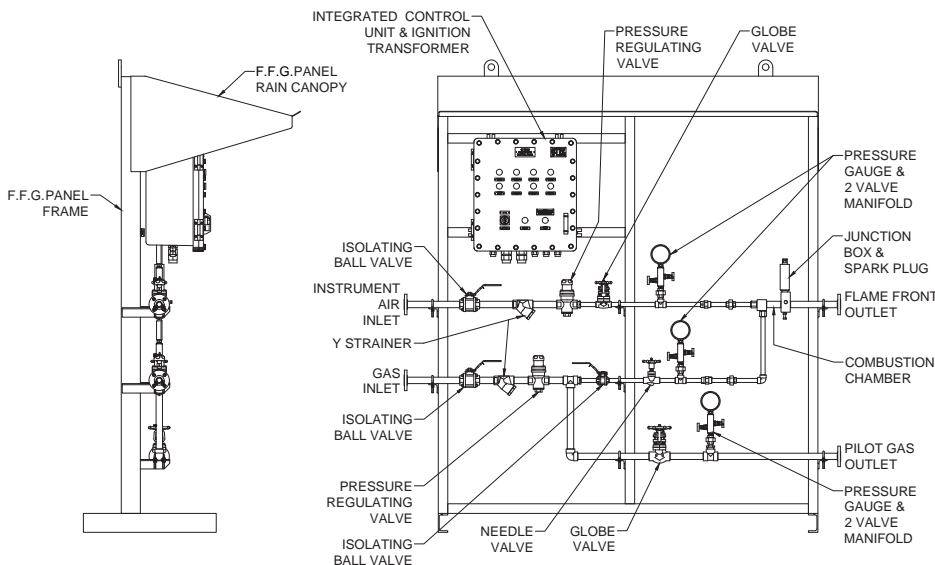
The flame front generator is a renowned, cost effective and time proven pilot ignition device that can be utilised with all types of ground and elevated flare systems. The FFG piping system is configured to accurately mix and ignite a blend of pilot fuel gas and compressed air that results in the propagation of a flame front through a flame front line to the flare pilot for ignition of the pilot fuel gas. The FFG is located at grade for ease of operation and maintenance and is integrated with a control panel for manual and automatic ignition control, valve actuation and pilot flame monitoring.



Flame Front Generator Panel



Type	FLAME FRONT GENERATOR PANEL (INTEGRATED WITH FLARE PILOT CONTROL UNIT) Integrated panel for the blending and ignition of a mixture of gas and air at ground level and onwards flame propagation through an ignition line to the flare pilot for reliable ignition in any weather conditions.
Applications	Elevated Flare Tips / Ground Flares / Burn Pits
Function	Flame Front Generation & Flare Pilot Ignition
Operation	Automatic / Manual
Draught Type	Forced Draught
Control Logic	PLC or Relay Based
Mains Voltage	115 or 230 Vac (50 Hz)
Control Voltage	24 Vdc
Fuel Gas	Propane, Natural Gas, RFG (up to 50% H2), Low BTU
Air Supply	Compressed or Fan Air





Pyrotechnical Ignition System (PTIS)

The demand from industry to transition away from continuous flare pilots has resulted in the development of the PTIS (also known as a ballistic ignition system) offering advanced flare ignition using a pyrotechnical pellet launched through a guide pipe to produce a highly reliable spark shower ignition at the flare tip. The PTIS provides 99.8% reliable, safe and on-demand ignition, regardless of weather conditions, thus minimising pollutant emissions by eliminating the need for continuous pilots and limiting the release of unignited flare gas to atmosphere.

Low Pressure Pyrotechnical Ignition System



Type	LOW PRESSURE PYROTECHNICAL IGNITION SYSTEM Pyrotechnical ignition system using a low-pressure air supply system to activate and launch a pyrotechnical ignition pellet through a pellet tube to a pellet collector adjacent to the flare tip. Upon arrival at the pellet collector, the pellet releases thousands of zirconium sparks in a large mist, covering the flare tip, and igniting the flare gas.
Applications	Elevated Flare Tips / Ground Flares / Burn Pits
Function	Pyrotechnical Ignition
Pellet	20 mm LP Flare Ignition Pellet (Nammo LP 2000)

System components



1. PELLET LAUNCHING SYSTEM

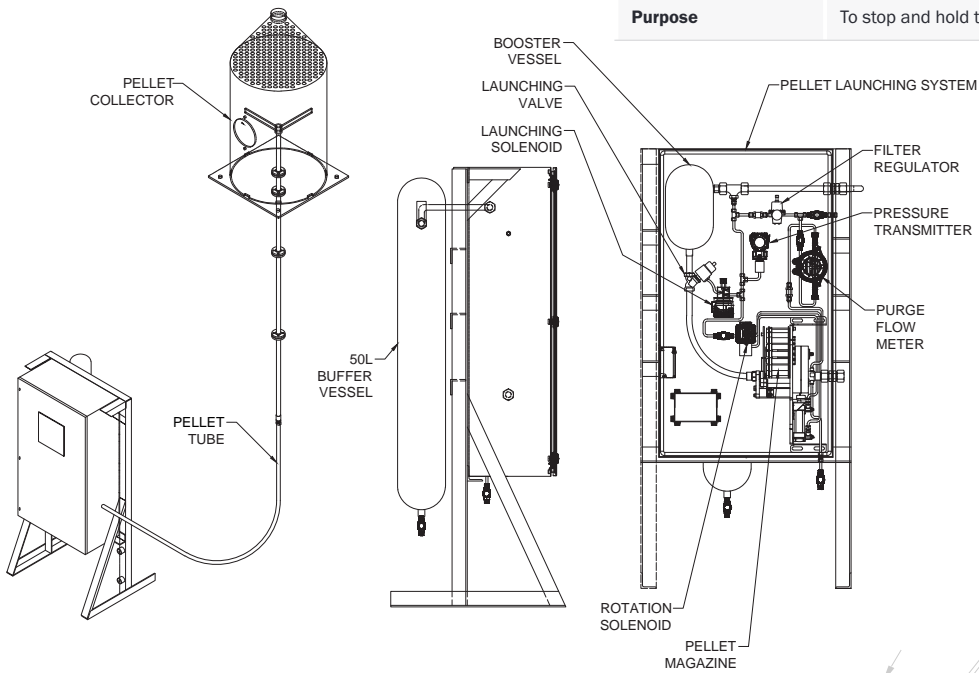
Purpose	To arm and launch ignition pellet
Area Classification	Designed for Zone 1 Installation
Capacity	20-chamber magazine

2. PELLET TUBE

Design	Modular tube and flange spool system
Purpose	For travel of pellet between cabinet and collector

3. PELLET COLLECTOR

Design	Cylindrical Open Container adjacent to flare tip
Purpose	To stop and hold the used ignition pellet



Contact us

We'd be delighted to hear from you – speak to the friendly Greens Combustion team to learn more about how we can help deliver optimal ignition systems, tailored to your needs.

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