



BURNERS
SERVICES
CONSULTANCY
INNOVATIONS

www.vulcanburners.com

Products

Overview

Vulcan offer a range of products from the Vulcan Burner range, Dryer systems, Burner Servicing, Efficiency & consultancy works & Spare parts. All works & services are provided and carried out to the highest quality standards.

Vulcan Burners

The state of the art Vulcan Burner Range is designed & supplied with the highest level of innovation and efficiency. The Vulcan burner sets the standards for today's asphalt production, incorporating unique design concepts to ensure asphalt is produced at the most efficient level.

Vulcan burners have been developed with quality, efficiency and safety as key factors. The impact of our burners on the environment has also been a consideration. Since the burner range was launched in 2011, the Vulcan Burner is the number one choice in burner technology in the UK as the product has proven efficiency results with existing customers making repeat orders to improve the efficiency on their numerous sites.

In 2016 we have also launched our Vulcan LB LPG burner range to our specifications. Again it is designed with the highest level of innovation and the results from emissions to efficiency has been very pleasing. As well as the launch of the Surface & Batch series burners in 2018.

The design and manufacturing of all the Vulcan range of burners is carried out in the UK.

Features

- Excess air limitation control
- Optimum adjusting combustion chamber performance
- Combustion box temperature sensor
- Combustion air pressure with compensation control
- Ambient air compensation
- Airflow diagnostics
- Inverter controlled burner blower
- Manual and automatic temperature control
- Dual fuel capacity (bolt-on facility for natural gas)
- Fault diagnostics, with history log
- 180° acoustically suppressed air inlets
- Standard dual side facility
- Integral burner support, air intake and blower conveying track
- Sectional burner design to enable minimal manual handling
- Independent twin bearing supported impeller
- Easy Impeller replacement.

Burner Services

We are the largest servicing company for Asphalt Burners in the UK with the largest & most experienced engineering team at our disposal. We offer a high quality, comprehensive service to our clients within the quarrying sector. The emissions omitted from an asphalt plant can be contributed solely to the burner & its associated components. By optimising the running of the burner we ensure that the burner's emission levels and fuel usage are at its best.

Our aim is to ensure that the burner emissions are within legal limits and the fuel usage is kept to a minimum. We offer the highest professional advice on burner and burner related plant efficiency problems. Our burner fuel efficiency service is the most comprehensive and thorough on the market. By incorporating bag filter, dryer and vacuum pressure inspections we maximize your asphalt production activities and help avoid costly breakdowns. It is essential to ensure maximum efficiency when your asphalt plant is in production, especially in today's climate of high fuel costs and also environmental considerations. We offer efficiency advice throughout the asphalt plant production cycle

Our experience engineers advise all relevant aspects regarding upgrades, heat losses and repairs, adjustments and replacement parts are essential in preventing excess fuel usage and improving the performance of your burner. We are always trying to improve & maintain the highest level of service & this can be seen on the latest reporting system used by the Engineers. We have designed & commissioned a bespoke reporting software that the engineers can use directly on site on & offline using tablet technology.

We also provide package services that include pyrometer & temperature probe calibrations at excellent value.

Breakdown Response



Vulcan Burners service division ABS have an excellent record for Breakdown Response and endeavour to respond to breakdowns as a priority.

Our engineers can be contacted directly every day, all day, and seven days a week. Reactive & emergency repairs are controlled by our Service Co-ordinator who will log all calls and direct the relevant engineer to site.

All engineers have fully stocked vehicles with all essential standard spare parts & specialist tools. If defective parts are known in advance, the service co-ordinator will immediately place an order and the parts will be dispatched.

Rather than simply replace a worn, damaged or defective part, the engineers will also advise on upgrades or alternatives to the existing equipment. As an independent vendor, this advice is guaranteed to be impartial.

Spare Parts

Vulcan Burners currently have existing supply relationships in place with major global stockists for most ranges of equipment for the UK Asphalt Industry. Maintaining complete component item lists and catalogues to enable & identify past obsolete parts and source alternatives when possible.

We hold a comprehensive standard & specialist stock range of spare parts for asphalt plants and associated equipment on all vans and at two strategic locations. However while it is impossible to stock items for every eventuality, our dedicated relationships with suppliers mean we will endeavour to obtain parts as quickly as possible.

Vulcan Burners continue to create new relations with high quality suppliers worldwide, this ensures that we can gain the most competitive prices for our customers.

Efficiency & Innovation

Our senior engineer Ian Lewis & his team can also provide site evaluations and consultations on specific issues. If a specific asphalt plant is not performing to its expectations or previous capacity, we can provide independent analysis and solutions.

Plant Upgrades



We also offer plant upgrades & innovations. Working hand in hand with the consultancy side, we can also improve the efficiency of existing equipment, we can carry out cost effective dryer re-insulations, lifter re-configurations, improvement on fuel delivery systems, enabled plants to increase the variety of mixes on plants that were limited.

Innovation Programs

In the past, we have worked with initiative funding & finance bodies such as Invest NI, Carbon Trust, Siemens energy efficiency financing and independent funding bodies for large and small scale projects. We continually run our R&D program for new innovations for asphalt applications.

Specification

ASPHALT DRYING CAPACITY						
@ 100 (kw) TPH	60	110	160	190	230	350
@ 85(kw) TPH	70	129	188	223	270	411
BURNER MODEL	V6	V11	V16	V19	V23	V35
Heat Output Mw	6	11	16	19	23	35
Blower Capacity (m ³ /h)	7500	12000	21000	30000	30000	45000
Blower Pressure (mmWS)	200	250	350	50	500	500
Blower Motor Size (kw)	11	15	30	45	45	55
Compressed Air Delivery (Bar)	6	6	6	6	6	6
FUEL OIL PUMP						
Capacity (L/min)	19	36	36	77	77	77
Pressure (Bar)	8	8	8	8	8	8
Motor (kw)	3	4	4	7.5	7.5	7.5
TURN-DOWN RATIO						
Gas Oil	1:7	1:7	1:7	1:7	1:7	1:7
Natural Gas	1:8	1:8	1:8	1:8	1:8	1:8
LPG	1:8	1:8	1:8	1:8	1:8	1:8
UTILITIES						
Natural Gas Incoming (mBar)	300	300	300	300	300	300
Compressor Size (cfm)	14.52	27	32.4	41.2	41.2	49
CUSTOM MODELS						
Internal Dryer Combustion	*	*	*	*	*	*
External Dryer Combustion	*	*	*	*	*	*
Rap Burner (Extended Nose)	*	*	*	*	*	*
Angled Frame	*	*	*	*	*	*

* Calorific values taken from the Department of Energy and Climate Change



Construction



The steel plate housing is of a split design which allows for ease of access to the burners internal components. The burner body incorporates a high performance radial axial fan which is driven by an externally mounted three phase motor. Due to the two part design feature of the burner it is possible to service and replace the combustion head, nozzle, swirl plate and ignition electrodes with minimal effort and time. The stainless steel alloy combustion head and the fixed air director can withstand temperatures up to 1100°C. The combustion head is adjustable, to attain the desired flame shape during commissioning. The burner has a built-in sighting window for flame observation.

Installation & Suitable Applications

The burner range has been designed for various process heating applications, and particularly for the production of asphalt. The burners are mounted horizontally, either in-line or can be angled up to 90° orientation.

Fuels

The dual fuel range of burners can be used with PFO, Kerosene, LFO Natural Gas, LNG and LPG or a combination of the above. Burners using other fuels are available on request.

Capacity Regulation Method

The patented dual fuel valve is directly driven by a servo motor and operates according to the load requirements.

Optimising Combustion Head Pressure
Vulcan burners are equipped with a system that optimises the combustion by monitoring and controlling the burner chamber air pressure. This system minimizes the amount of excess air and improves the combustion efficiency.

Vulcan Pre- Heater (Optional Extra)

The Pre-heater if fitted, is controlled via the BMS that maintains the required temperature for the heavy fuel oil. Accurate control of the oil temperature is vital to obtain optimal combustion conditions. In the heavy oil burners, the oil heated during pre-purge phase circulates within close proximity of the nozzle and ensures the correct oil temperature during the ignition phase.

Gas Equipment



The gas related components of the natural gas and dual fuel burners comply to EN676 standard: two shut-off valves, pressure switches (min/max) and an automatic valve leak tester. Other piping related equipment is available on request.

Oil Regulator

The burner oil regulator controls the fuel consumption to the lance. If an ABS patented design dual fuel regulator is fitted, both fuel oils will be fully optimised to gain efficient combustion.

Flame Monitoring

The burners are fitted with automatic flame safe monitoring utilizing UV photocells.

Photocell

The UV photocell is externally mounted on a quick release hood base unit for maintenance and for cleaning purposes.

Control devices

The BMS monitors the sequence and control of the burner automatically. Historical fault diagnostics recorded.

Silencer

The integrated silencer located within the burner support structure ensures low noise levels at all times.

Vulcan Burner Components

Burner Management System



Precise reliable control of the combustion process is taken place via an Allen-Bradley PLC base control system. Using high precision directly coupled servomotors, the BMS enables the position of the fuel valve to be precisely controlled to 0.1 of degree accuracy and ensuring combustion efficiency is optimised at all firing rates. Reduced electrical consumption and further improvements in combustion control are being achieved through the use of a variable frequency drive controlled through a dedicated channel within the controller.

Positioning Motors



Running time is 60 seconds up to 90 degrees. Other running times aperture angle on request. Control voltage 230V /AC 110V/50Hz, three point step. Other voltages and frequencies available on request. Two way switch for bounding the regulating distance up to 90 degrees. Default two additional switch for your own use. One potentiometer NOVOTEC, 5KΩ. Other potentiometers or potentiometers values available on request.

Burner Safe Control



The LFE1/LEC1 controllers are designed for the fully automatic control and supervision of single-stage, multi-stage or modulating gas or dual-fuel burners. It is suited for use with expanding flame and interrupted pilot type gas burners.

- Pre-purge time adjustable between 8 and 63 seconds
- Operation optional with or without post-purging
- Fully automatic control of the valve, irrespective of the actuator running time
- The air pressure check can be combined with the functional check of the air pressure switch prior to start-up
- Ignition optional: direct ignition, with pilot burner, with or without ignition spark proving
- First and second safety time adjustable between 0 and 9 seconds
- Automatic test of the UV flame detector during burner off periods and during the purging times
- Optional semi-automatic start and operation.

Flame Scanner

The flame scanner/photocell operates by using the UV radiation emitted by gas or oil flames to generate the flame signal. The radiation detector is a UV-sensitive cell which consequently triggers a current in the flame detector circuit. The UV cell is designed to respond to glowing firebrick in the combustion chamber or daylight.

Fuel Control Valves (Oil)

There are two types of fuel valves in the Vulcan Range, the single fuel regulating valve and the dual fuel regulating valve. Both these valves have numerous advantages over the current valves supplied by burner manufacturers. The first being the level of accuracy and ease of control that is achieved. The dual fuel regulating valve enables two fuels to be optimised to the same level of accuracy. This guarantees that whatever fuel you select to burn will be performing at its optimum efficiency.

Fuel / Air Pressure Sensors



- Measuring range: 1 to 10 or 1 to 60 bar
- Rugged aluminium housing
- Protection IP 65.

Innovative Features

The Vulcan fuel regulating valve has unique and innovative features; it has been designed for dual fuel capacity which allows both fuels to be optimised.

Due to the accuracy of the flow rate that is achieved, efficient combustion is assured for whichever fuel is being burned, regardless of their differential viscosities.

This enables substantial cost savings not only when you are burning the preferred fuel but also on the secondary fuel.

- Accurate low flame set up for both fuels.
- Increased efficiencies for both fuels
- Main valve span adjustment can be carried out while the burner is running
- Accurate span capabilities for both fuels
- Compact design
- Minimal pipe work from the fuel valve to the lance
- Secondary fuel valve and linkages are not required
- Delivery pressure ports are built into the valve block for both of the fuels
- Fuel pump delivery pressure can be lowered
- A Three port change-over valve not required
- Fuel contamination problems are eliminated
- Pipe work clean fuel flushing highly reduced
- Minimum loss within secondary fuel is minimized
- Flame characteristics comparable on fuel change over





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