unitherm EMCON

Product Catalogue

a generation ahead

company philosophy

1945 - 1948

1948 - 1957

1957 - 1992

1992 - 1997

since 1997

A generation ahead - With the invention of the Mono Airduct System a vision was turned into reality. Know-how, technical expertise and excellent product quality are just some attributes that make UNITHERM CEMCON to one of the most innovative and reliable partners in the field of kiln burners. The search for innovative solutions combined with the latest design and manufacturing methods allows UNITHERM CEMCON to meet the individual requirements of our customers.

The experience of more than 70 years combined with a flexible and highly motivated team enables continuous development of our entire product range. In times of rising energy and raw material prices, the firing system of UNITHERM CEMCON allows effective usage of existing resources and a maximum substitution by alternative fuels. During the last 20 years UNITHERM CEMCON has supplied and commissioned more than 450 firing systems all over the world to the full satisfaction of our customers.

It is a main concern of UNITHERM CEMCON to have a close, sustainable and long-term partnership with our clients. Our continuous support over the whole lifetime of our products guarantees a smooth and effective operation. A global service network completes our extensive range of services.

UNITHERM CEMCON - a generation ahead

Unitherm Cemcon is a worldwide supplier for the cement, lime and mineral industry. With more than 70 years experience Unitherm can provide a wide range of highly advanced tailormade firing systems designed and manufactured in **Austria**.

MONO AIRDUCT SYSTEM

Multifuel Kiln Burner

The M.A.S.© rotary kiln burner offers the user essential advantages compared with conventional burner systems.
The basic concept is to bring the complete primary air flow into a swirl of required intensity.

Patented flexible flame setting device:

The flexible flame setting device is located in the annular primary air channel, close to the burner nozzle head. The swirl intensity of the primary air is determined by the deflection of the flexible hose nozzles. These can be easily as well as continuously adjusted (0° - 40°) from the cold end of the burner (patent no. EP 0642645).

Improved burner cooling:

Contrary to conventional burners the complete primary air flows into a single air duct, thereby achieving an optimum nozzle cooling. High nozzle and refractory life-time is the benefit of our solution.

Divisible outer jacket tube:

The front part of the outer jacket tube can be executed in a divisible design. The internal fastening device does not contain any flanges in the hot zone and is making revision work much easier. Thereby the process of replacing the refractory takes less time and space than with conventional executions.

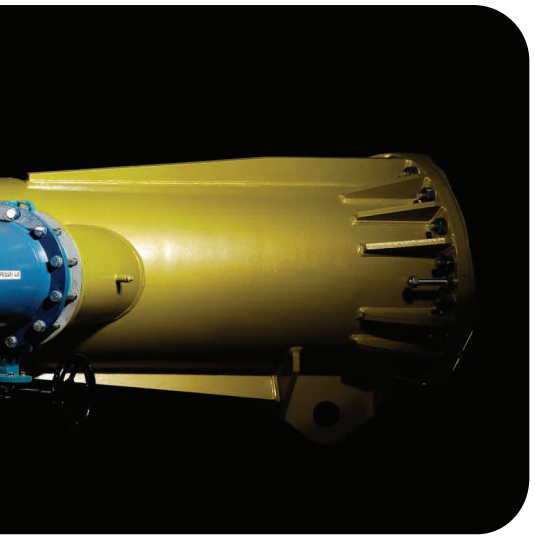
Reduction of NOx formation:

Due to less turbulence in the nozzle area and a close ignition distance together with accumulation of fuel in the centre of the flame a significant reduction of NO_x emissions is achieved.

Fuel types:

UNITHERM CEMCON kiln burners can be designed for natural gas, heavy fuel oil, coal dust, petcoke, solid and liquid secondary fuel firing or a combination of these fuels.

For more information see our M.A.S. kiln burner brochure.



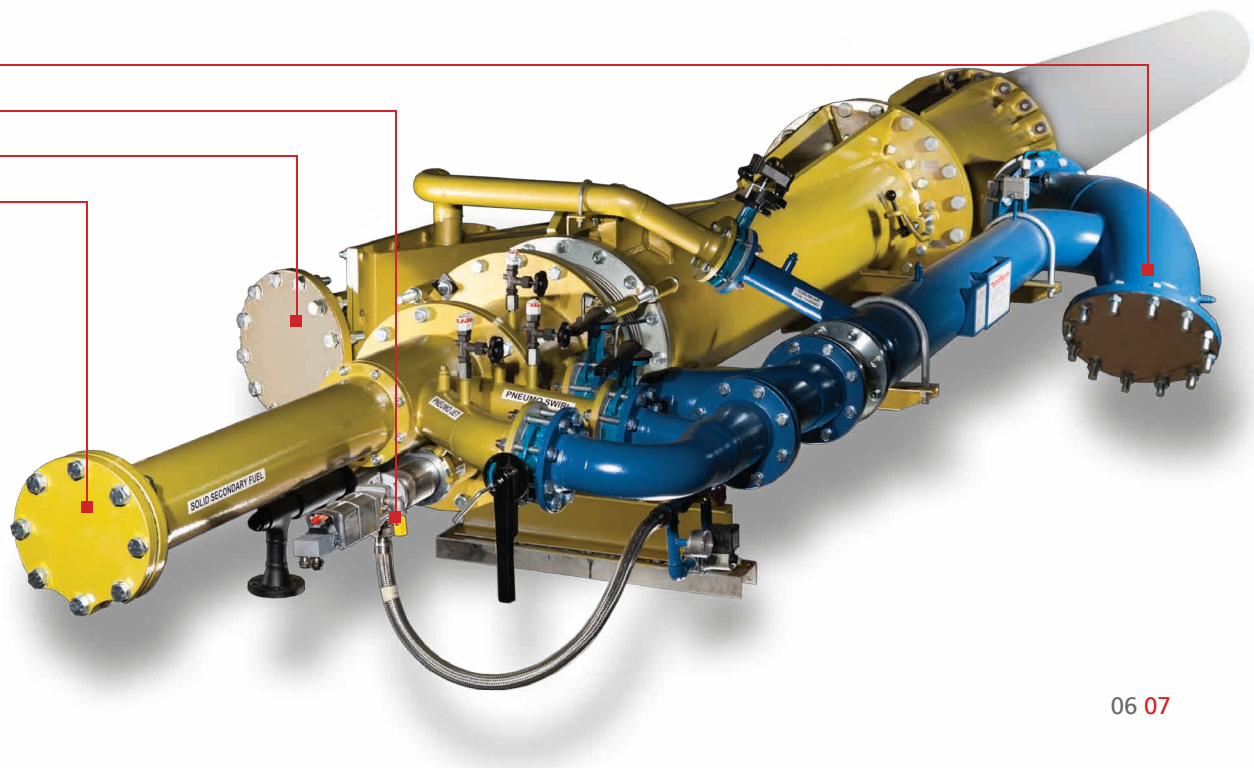
UNIQUE BURNING EFFICIENCY

Primary air

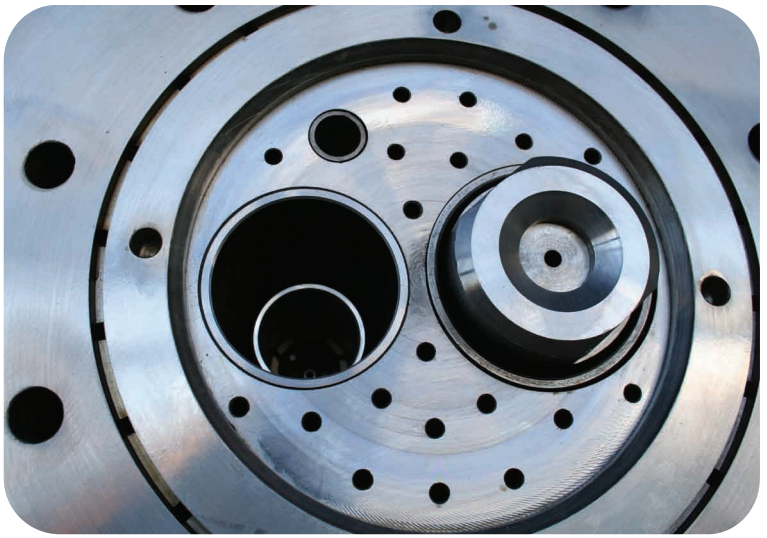
Fuel oil, ignition burner

Coal dust

Solid secondary fuel



M.A.S.
Kiln Burner
Flexible for any fuel



Multifuel Calciner Burner

UNICAL burners are custom built to be operated in preheaters and precalciner systems.

Calcination is one of the key points in the cement production. UNITHERM CEMCON developed an enhanced burner system to increase the quality of the material entering the kiln. The effect of continous improvement and the high combustion efficiency combined with the low NO_x burner execution results in a optimized combustion in the system. UNICAL burners can be installed in all calciner types.

Fuel types:

UNITHERM CEMCON calciner burners can be designed for natural gas, heavy fuel oil, standard coal grades, solid, pet coke and liquid secondary fuel firing or a combination of these fuels.

Performance range:

Between 0,5 - 165 MW per burner

Horizontal installation:

Fuel is injected in approximately rectangular angle to raw meal flow. The design changes in dependence of the fuel or combinations of fuels fired.

Vertical installation:

Fuel is introduced along the direction of raw meal flow which has been taken in via a swirl chamber.

Executions:

- installation: flanged or moveable with burner trolley
- suitable for all fuels

Accessories:

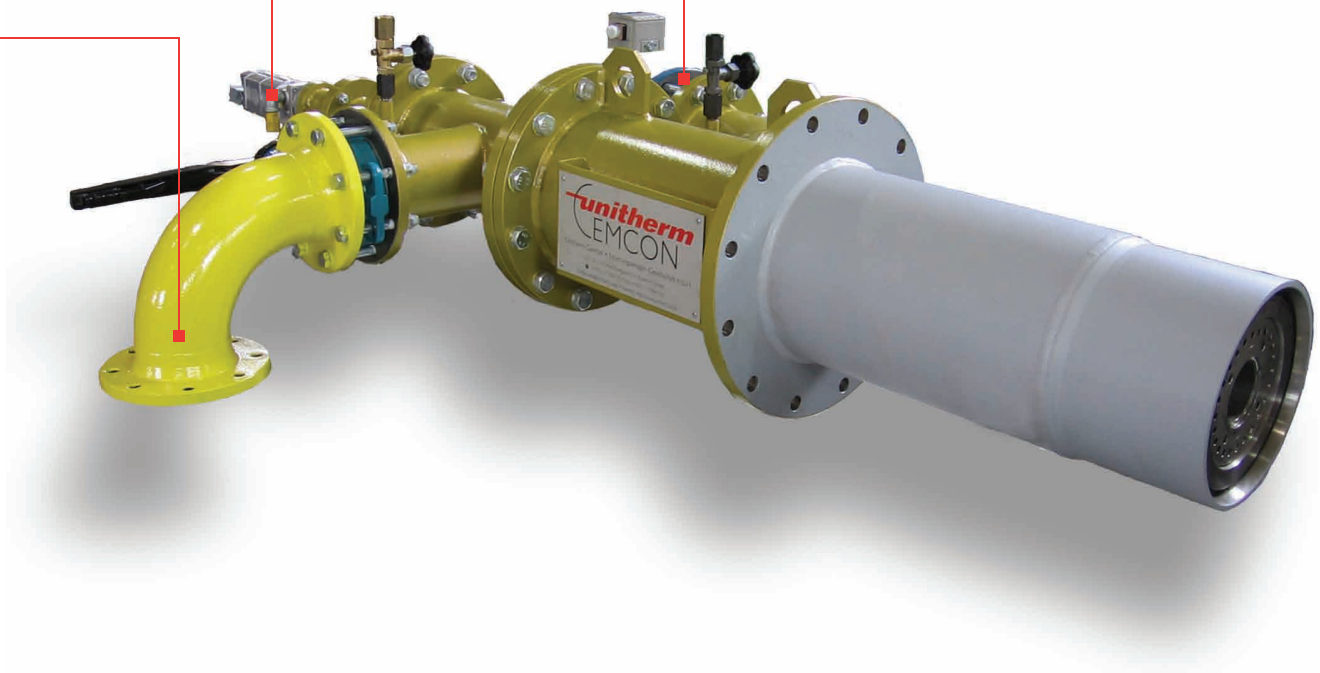
- Burner trolley
- Fuel supply systems
- Burner management system

UNIVERSALLY APPLICABLE

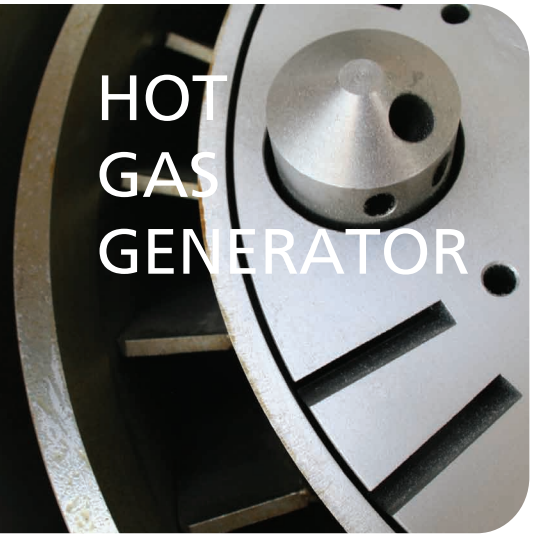
Primary air

Fuel oil, ignition burner

Natural Gas



UNICAL
Calciner Burner
Flexible for any fuel



Hot Gas Generator

Hot gas generators fabricated by UNITHERM CEMCON are designed for direct heating and subsequent drying.

Typical areas of application are:

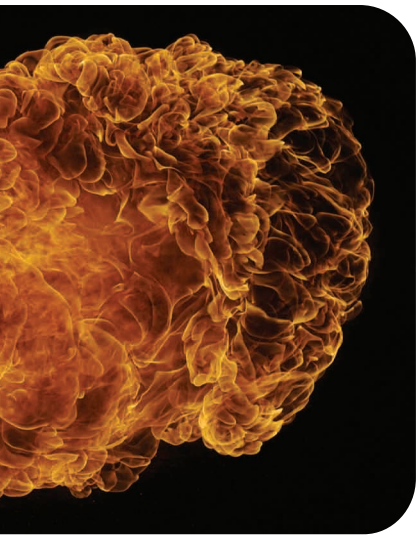
- Coal grinding plants
- Cement- & raw mills
- Mineral drying processes

Due to long term experience, UNITHERM CEMCON hot gas generators are especially designed to the process requirements.

More than 250 UNITHERM hot gas generators are in operation in various industries to cover the drying demand.

The hot gas generator types HR and HG can be designed for all liquid and gaseous fuels.
Coal and petcoke can be fired with the vertical HG design only.
For solid fuels as well as for low calorific gases UNITHERM CEMCON uses tailor-made burner solutions.

Hot Gas Generator	Type „HG“	Type „HR“
Execution	steel structure with inside brick lining	steel structure with 3 layers of heat resistant steel
Air outlet temperature	350°C - 1300°C	100°C - 350°C
Range of performance	0,7 MW - 60 MW	0,7 MW - 12 MW
Fuels to be fired	liquid and gaseous fuels and coal or petcoke	liquid and gaseous fuels
Installation	vertical and horizontal	vertical and horizontal
Heat storage capacity	high	low

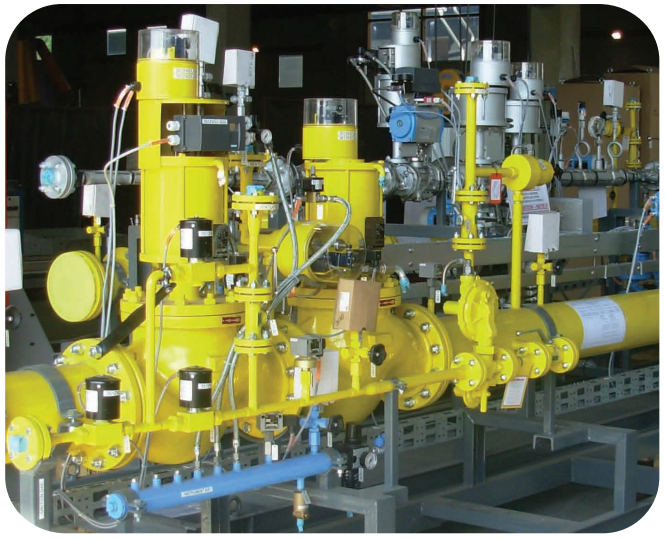


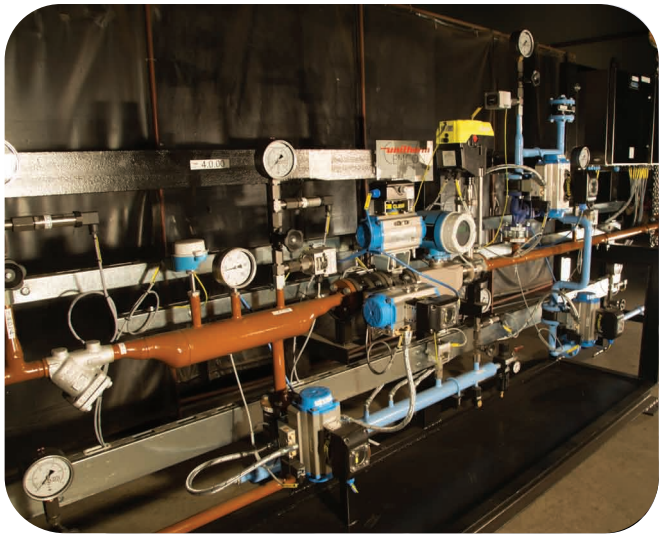
UNIFORM TEMPERATURE DISTRIBUTION

horizontal design | fuel: natural gas, heavy fuel oil — **Type HR**

Type HG — vertical design | fuel: petcoke, natural gas

FUEL SUPPLY SYSTEM





Fuel Supply System

UNITHERM CEMCON fuel supply and control systems are manufactured for oil, gas and liquid alternative fuel for kiln- and calciner operation.

Application for fuel gas systems:

- Pressure reducing stations
- Burner regulating valve trains for control & safety shut off

All stations are fabricated according the valid technical standards.

Application for fuel oil systems:

- Thermo oil boiler system
- Unloading pump station
- Tank suction preheater
- Filter/ pump station
- Preheater station
- Burner operating valve train

Application for liquid alternative fuel systems:

- Pressure reducing station
- Burner operating valve train

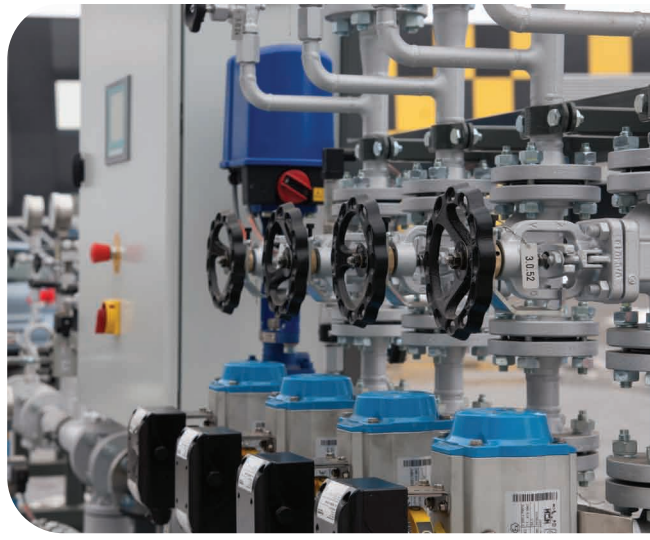
UNIGRESS DDM-XL oil lance:

- Capacity: max 8000 kg/h
- Pressure: 6-7 bar
- Compressed air atomizer

UNIGRESS ZL oil lance:

- Capacity: max 15000 kg/h
- Pressure: 40 bar
- Pressure atomizer

COMMUNI-CATION



Burner Management System

The burner management system is one of the most important components to optimise burner and kiln line operation.

UNITHERM CEMCON provides solutions based on experiences in kiln firing system operation, at safest level and highest flexibility for your (specific) application.

The design of the burner management system is in accordance with the latest VDE and EN regulations. For BMS all major brands are available (Siemens, Allen Bradley, ect.). A free programmable control unit is provided for monitoring and control tasks of burner and fuel supply systems.

Communication between BMS and superior management system is performed by an internal communication processor (Profibus DP, Ethernet or others), enabling remote controlled and local operation.

An operation panel with LCD as multi purpose screen is used for local operation (HMI).
Different operation pictures with indicated progress data, release conditions, system and control parameter can be viewed by using defined function keys.

System handling is menu-supported. (Standard language English - translation into other languages is possible)

ACCESS-ORIES

Burner Accessories

Ignition burner:

For rotary kiln burners the installation of an ignition burner is obligatory according to EN 746-2 for operation without visual supervision.

The properties are:

- Ignition fuel: natural gas, propane gas or diesel
- Kind of ignition: high voltage
- Flame control: ionisation rod
- Ignition air: taken from primary air (no additional fan)

Internal flame detector:

We provide an „internal flame detector“ enabling a direct view into the flame. Malfunctions (loss of flame signal) caused by clinker dust are prevented in this way. The optical lens is protected from heat by internal cooling air.

The unit consists of:

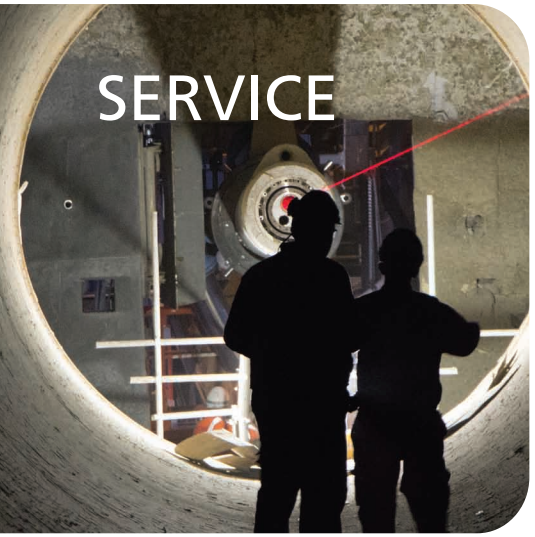
- Optical lens with fiber optic cable
- Flame detector, mounted on burner evaluation unit

Burner trolly:

Along with our burners we provide burner trollies in supended or floor mounted design. Each trolly is costum built to fit the local plant conditions and demands. The front and rear suspension allows the burner to be aligned according to the requirements of the process.

The unit consists of:

- Adjustable burner position in axial and radial directions
- Manual adjustment of front and rear suspension
- Manual or motor supported adjustment of the trolly



Service and Maintenance

Regular maintenance and service is vital for a high and reliable performance of our product. Thanks to the efforts of our engineers, UNITHERM CEMCON is known for its high quality products all over the world. Our product can be operated for many years without major investments in maintenance.

Visit us at **www.unitherm.at/service**

We offer:
- World wide service
- Supervision of erection
- Commissioning and staff training
- Maintenance assistance

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