



The Multi Fuel Burning Revolution

Welcome to utilize the digital generation of high tech burners for industrial purposes

Lime Kiln Burners

Recovery Boiler Burners

Boiler Start-Up And Auxiliary Burners

Odorous Gases Burners

For retrofits and rebuilds

The burner is a wearing part and its performance determinates the energy efficiency and the economics of the whole system



Old oil burner



New multi fuel burner

Replacing the old burner with the most efficient burner technology will amaze you with its benefits and fast payback time:

- Easier and better mixing, atomizing and utilization of any practical fuels
 - Gas, fluid, solid fuels can be burned with the same burner
 - Biogases, methanol, pitch, tar etc. is burned with only one flame
 - Only one nozzle and air feed for all different fuels
 - Reduced steam consumption for atomizing process
 - Ability to use variation of poorer quality fuels, including stinky or bio based fuels
 - Optimized and reduced fuel costs with more economical fuel mixtures
- Simply better combustion and thermal efficiency with improved flame adjusting
 - New combustion furnace cameras to enable constant control of perfect flame
 - Complete one flame control for multi fuel mixtures with wide operation area
- Reduced emissions to air
 - Less ash and NOx and other effluents
 - Preparing for the all future pollution restriction requirements already today
- Trouble free ignition, shorter start-up sequence
- Remote control possibility
- Less down time because of cleanliness or plugging problems
- Lower boiler maintenance cost

For the majority of cases the real payback times are clearly less than 1 year!

Utilizing the experience and the power of latest technologies provides:



Both innovative hardware and sophisticated software

Hardware: New innovation in burner nozzle geometry

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| ▪ Multi fuel burner – gas, fluid, solid fuels | = Flexible fuel usage |
| ▪ Self-Cleaning Design | = High uptime |
| ▪ No Mixing Chamber | = No clogging |
| ▪ Low Steam Pressure | = Better steam economy |
| ▪ High Up-Down Ratio | = Better process economy |
| ▪ Better Atomisation | = Better fuel economy and flame control |
| ▪ Over 270 different setups | = Tailor made for your process |

Software: Complete Burner Management System

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| ▪ Burner Management System – CE-Marking | = Quality system included |
| ▪ Burner Control System – Plug & Play | = Fast start-up |
| ▪ Burner Safety System – SIL-3 | = Safety with fast reaction time |
| ▪ Flame Monitor System with Heat resistant cameras | = Better control and troubleshooting |
| ▪ Management Intelligence – Remote Support | = External expert support |
| ▪ Valve Trains - Media Flow Control & Measure | = Integrated for fast and reliable operation |

This all results in;

- Lower Life Cycle Costs with less, quicker, easier maintenance and shorter down-time
- Superior performance which we can meet with our EMB & Performance Guarantees that you can turn into the return of investment

How to proceed to improve your process efficiency?

- Invite ProBoreal Finnish or Clean Combustion expert to visit and to audit the mill
- Fill up the questionnaire with the experts
 - Based on data, a status analysis and options for future will be done in a few weeks
 - Analysis results are presented and explained
- The basic audit can be done as an independent project, the cost will be absorbed if it leads to a burner rebuild project
- Based on discussions and the customer interest we make a pre-design, quotation and a schedule plan
- We will carry out the project completely or just the burner modification
- After the project start-up the follow-up, remote control and support is provided by ProBoreal and/or Clean Combustion experts

Our process:

1. Current status analysis
2. Mapping of possible solutions using a holistic approach
3. Tailor-made design of a new burner and its control systems
4. Installation
5. Starting up and operational fine tuning
6. Verification of the improvements and handing over for the customer

References:

Clean Combustion AB, a Swedish family company, has developed this technology from 1990's and has already delivered 26 lime kiln installations and 89 vortex injectors / burners installed, mostly in Sweden, but the technology is spreading rapidly globally. The technology and its benefits have been proven plenty of times.

The complete list and map of installations is available.

Who to contact:

In Finland ProBoreal Oy is the contact – easy to cope and discuss with Finnish industry experts.