16th April 2024

Free Technical Seminar / Workshop
ENERGY FROM WASTE AND BIOMASS PLANTS
New Technologies for Combustion Optimisation,
Retrofitting and beyond at Imperial College London

TECHNOLOGY OF FIRE

technik gruppe®

The Austrian Trade Commission London and TECHNIKGRUPPE in collaboration with Imperial College London invite you to a free technical seminar.

Registration with QR code on the right or with the link: http://tinyurl.com/technology-of-fire

ADVANTAGE AUSTRIA WKO

ABOUT THIS EVENT

It is with great pleasure that TECHNIKGRUPPE, after several successful international web presentations, will participate in a live technical seminar in London UK. Many thanks to Austrian Trade Commission and Imperial College London for supporting this event. Combustion optimisation can play a major role in improving the combustion performance of waste-to-energy and biomass-to-energy plants. However, retrofitting and modernisation of existing plants can provide significant economic benefits in addition to the technical benefits. Detailed technical analysis and assessment of appropriate methods and technologies for a specific plant are essential for good decisions.

The main idea of this event is to analyse the technical and commercial requirements for plant modernisation and detailed analysis of methods and applications. Participants of this event will get important information about technologies and practical results of EfW BtE plants. Some case studies of combustion optimisation in UK and EU plants will be explained in detail.

The exchange of experiences between technical managers, professors, engineers and businessmen will provide a solid basis for possible cooperation.

See you in London
Matthias Lukic, CEO TECHNIKGRUPPE and
Damir Zibrat, Business development Manager

Target audience:

- plant managers
- operational managers
- maintenance managers
- performance improvement engineers
- plant engineers
- plant operator supervisors
- plant operators

Key words:

- technology of fire
- combustion optimisation
- retrofitting of WtE and BtE plants
- forward moving grate
- new grate technology
- reliability
- profitability

Seminar invitation brochure and registration:
www.technikgruppe.com/technology-of-fire

Registration link: http://tinyurl.com/technology-of-fire
Registration e-mail: damir.zibrat@technikgruppe.com

Seminar is free for participants. Places are limited.
Participants should be registrated.

STAND PRESENTATION WORKSHOP ROUND TABLE DISCUSSION

WELCOMING WORDS

We are delighted to invite you in collaboration with TECHNIKGRUPPE to an engaging event on "**Energy from Waste and Biomass Plants**" on April 16th at Imperial College London

Austria, with its extremely high innovative potential, is one of the leading countries in environmental technology and Austrian businesses enjoy an excellent reputation world-wide. TECHNIKGRUPPE, along many other Austrian companies and research organisations can boast a high level of specialised know-how in energy-to-waste management, innovative energy solutions and resource efficiency.

This seminar presents a unique opportunity to share some of the latest technological advances such as combustion optimisation that contribute to a more sustainable energy production in the future.

Following the seminar taking place at Imperial College London, we will host a business networking event at the premises of the Austrian Trade Comission, conveniently located in walking distance from Imperial College.This evening gathering offers an excellent chance for further in-depth personal discussions and to explore potential collaborations with like-minded participants.

Please remember to register for the event and we look forward to see you in person on April 16th.

Find out more about Austria's surprisingsly ingenious companies at www.advantageaustria.org/gb

Best regards,

Michael Mueller

Trade Commissioner to the United Kingdom

Austrian Trade Commission London

Dr Peter Pesl

Head of Technology & Innovation

Austrian Trade Commission London

ADVANTAGE AUSTRIA WKO

SCHEDULE

technical seminar

16th April 2024
Imperial College London / Clore Lecture Theatre,
Adress: Room 213 (Huxley Building). Street entrance to the Huxley Building is from 180 Queen's Gate, South Kensington, London SW7 2AZ

08:00 – 09:30	Registration
09:30 – 10:15	Opening ceremony and invited guest speakers
10:15 – 10:30	Coffee Break
10:30 – 11.30	Basic technical background of combustion optimisation and analysis of positive impacts of implementations (Damir Zibrat)
11.30 – 11:45	Coffee Break
11:45 – 12:45	Advanced technical analysis of combustion optimisation and explanations of measurement results (Matthias Lukic)
12:45 – 13:30	Lunch Break
13:30 – 14:30	Case stories of implementation of combustion optimisations on plants in UK and EU (Matthias Lukic, Damir Zibrat, GUEST SPEAKERS)
14:30 – 14:45	Coffee Break
14:45 – 15:45	Round table discussion (combustion optimisation, retrofitting…)
15:45	Networking talks

business networking / project networking

16th April 2024
ADVANTAGE AUSTRIA (Austrian Trade Commission)
Address: 45 Princes Gate (Exhibition Road 45) SW7 2QA London (2-minute walk from Imperial College)

17:00 – 21:00	Networking/business talks (food and beverage organised)

Remember to REGISTER!

Main entrance from
Queen's Gate

Austrian Trade Commission
(45 Princes Gate) Exhibition Road 45
London SW7 2QA

Entrance from
180 Queen's Gate
London SW7 2AZ


technikgruppe

TECHNIKGRUPPE

Matthias Lukic

Technical expert, founder, owner and CEO of Technikgruppe. He is the Managing Director and the brains of the company with more than 25 years of experience in combustion of solid fuels on grates.

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Damir Zibrat

Business Development Manager of Technikgruppe. He is Master of Science in Electrical Engineering and has more than 25 years of experience in international strategical selling and marketing.

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damir.zibrat@technikgruppe.com

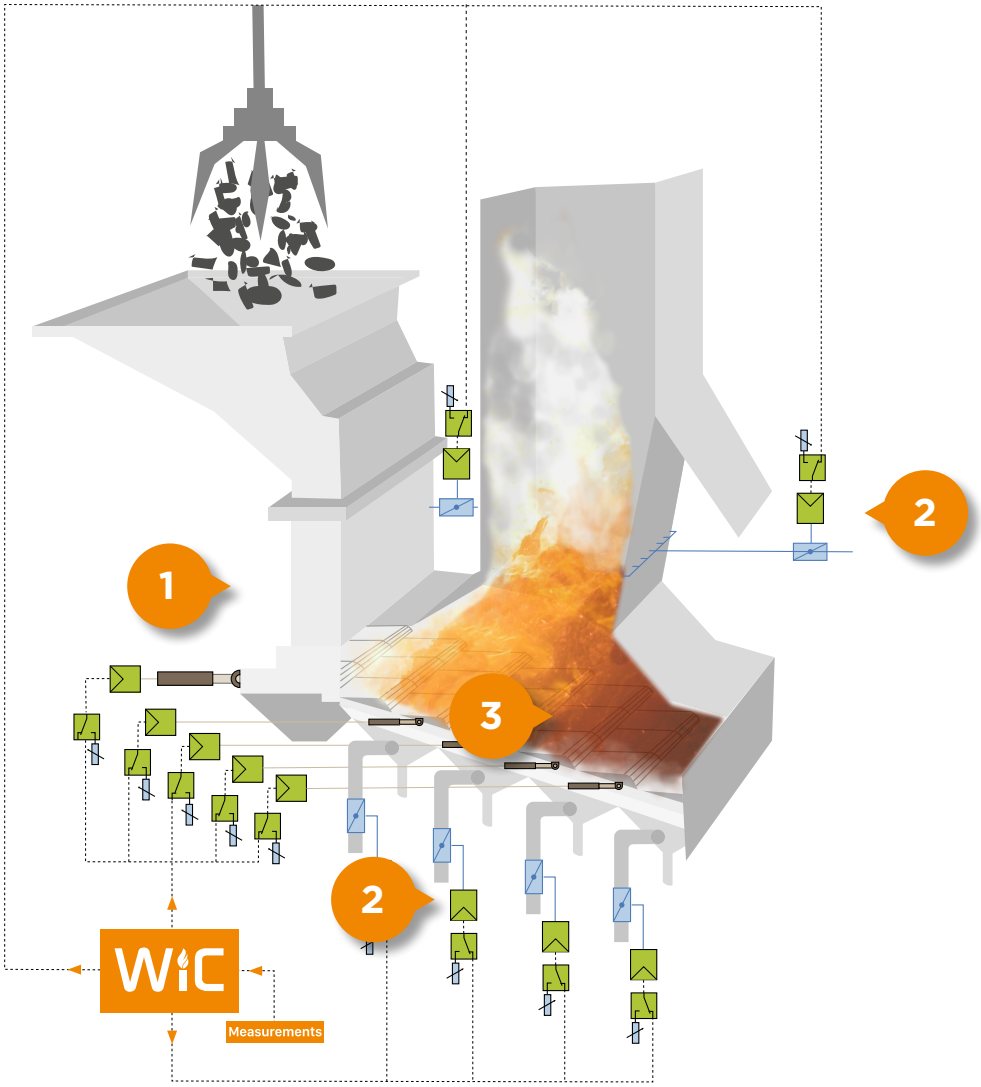
Do not hesitate to contact us.

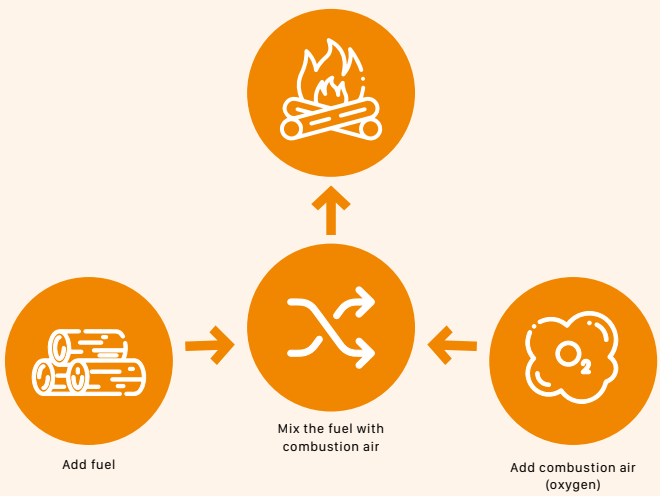
TG is an Austrian engineering company with well trained employees having international experience and worldwide engagement. Due to its long experience in Energy-from-Waste and biomass TG also acts as an independent consultant for technical and commercial issues.

The development of the WiC (Waste incineration Control) is based on more than 25 years of experience in optimisation on forward moving reciprocating grates.

TG has optimised grates of different grate manufacturers and collected great experience in the field of combustion technology.

TECHNOLOGY OF FIRE





The combustion process in Energy from Waste and Biomass plants is very complex, and the demands on control systems in those plants are very sophisticated. There are many theories about the best techniques to recover the energy from waste, and there are equally many different approaches to find the right solutions.

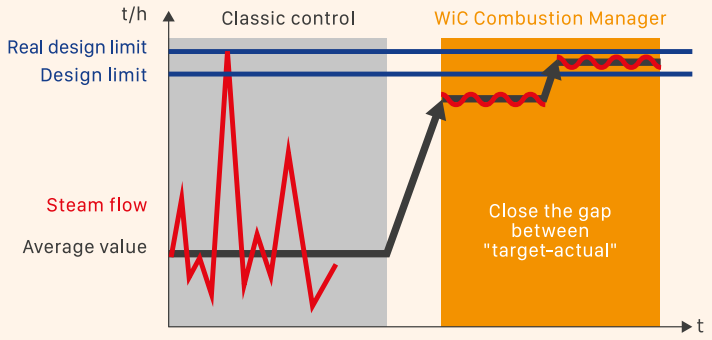
In most conventional combustion systems there are numerous implemented control algorithms and many disagreements on how to compare different methods.

Put simply, there are three main actions which have an influence on the combustion process.

1. Adding fuel into the combustion chamber
2. Adding combustion air (oxygen) into the combustion chamber
3. Mixing the fuel with combustion air

ENHANCEMENT OF STEAM PRODUCTION TOWARDS REAL DESIGN LIMIT

Steam Flow Optimisation



With implementation of traditional control systems, significant overshooting in steam production is possible; this is the main reason why the setpoint (average steam production) is kept below the design limit.

Traditional controls are very likely to produce dangerous overshoots above design limits! Therefore, in most cases, the design limit (MCR) is set **below the real design limit**.

That means, that in most cases the boilers are built with reserves to cover overshooting due to lack of combustion control quality. These reserves may be utilised by implementing a more reliable and stable combustion control system. → WiC

OUR WAY TO OPERATIONAL OPTIMISATION

Basic principles

After more than 25 years of experience in combustion optimisation, we can say that forward-moving reciprocating grates are ideally suited to the application of the 3 basic principles for combustion control.

These 3 main actions involve around 30 actuators. But these actuators offer many possible combinations for fine tuning. If we have 20 actuators and each actuator has 10 possible positions – how many possible combinations do we get??

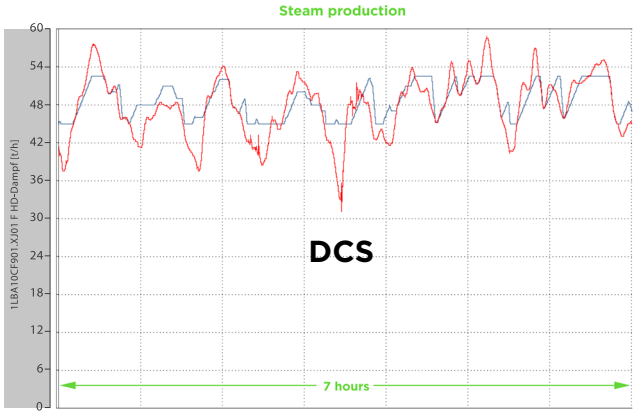
1	actuator provides	10 combinations	// 0-1-2-3-4-5-6-7-8-9-
2	actuators provide	100 combinations	// 00-01-02-03-04- ……..96-97-98-99
3	actuators provide	1000 combinations	// 000-001-002-003-004-005-006-007 ……997-998-999
20	actuators provide	100 000 000 000 000 000 000 possible combinations for fine adjustment	
		// 00 000 000 000 000 000 000 ……. 99 999 999 999 999 999 999	

The status of the combustion process is changing every few seconds! That means – every few seconds we need to fine adjust the actuators. It is clear that the definition of appropriate combination every few seconds is a very complex task.

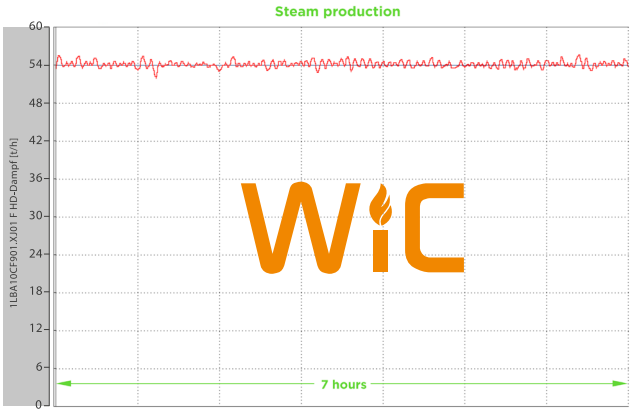
Whereas the checking of combustion quality itself is very simple → see some diagrams of KPI's from a combustion process.

THE WIC COMBUSTION MANAGER...

- **Stabilises and improves steam production**



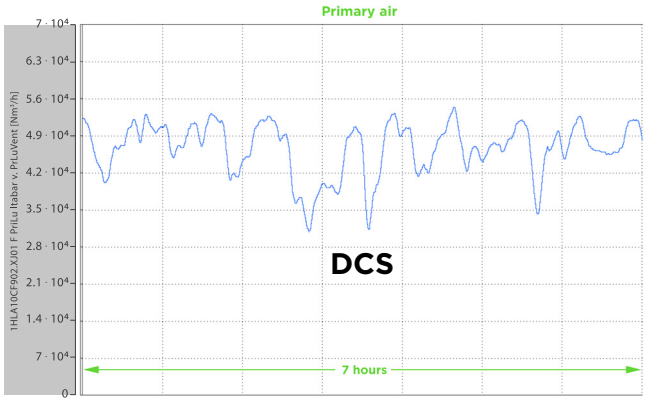
Steam production controlled by DCS



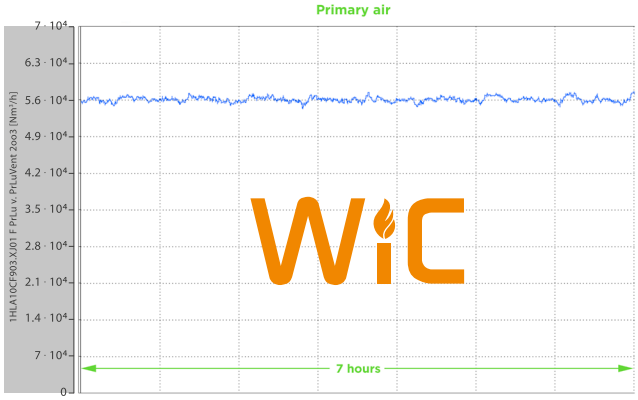
Steam production controlled by WiC (same line)

N.B.! In most cases, boilers are designed with large reserves due to lack of precise combustion control. This allows the combustion capacity to be increased by optimising the combustion control.

- **Stabilises the combustion (primary) airflow**



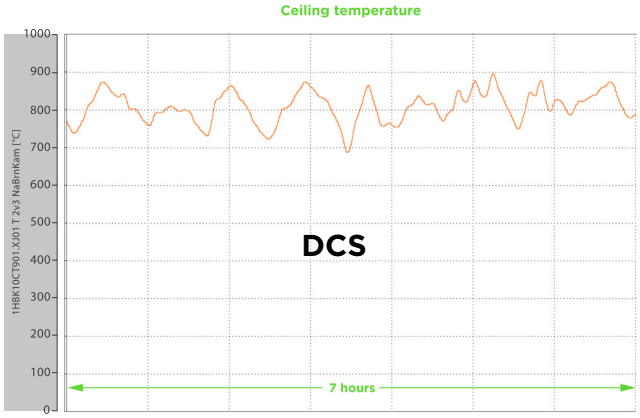
Primary air controlled by DCS



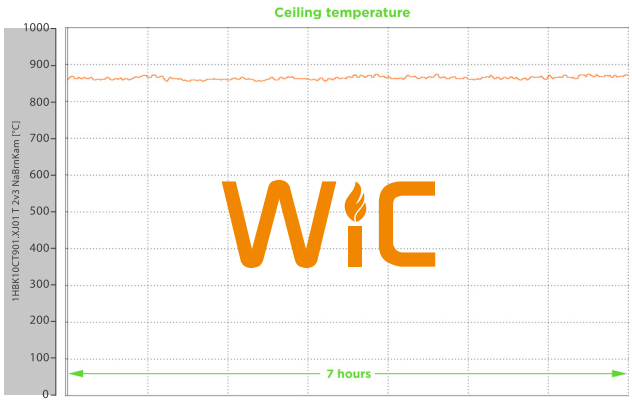
Primary air flow controlled by WiC (same line)

Please NOTE! The higher amount of primary air is related to an increase of waste throughput/steam production

- **Stabilises the flue gas (ceiling) temperature**



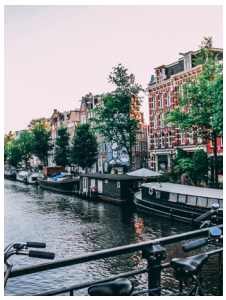
Ceiling temperature with DCS



Ceiling temperature with WiC (same line)

Please NOTE! The average temperature is, of course, higher because of enhancement of waste throughput/steam production

TECHNIKGRUPPE
International Events



2023

8-10 MAY
WtE and Biomass Plant Optimisation Workshop,
Amsterdam / Netherlands

2022

8-11 NOV
Key Energy Expo,
Rimini / Italy

2023

5-7 JUNE
International Conference,
Piacenza / Italy

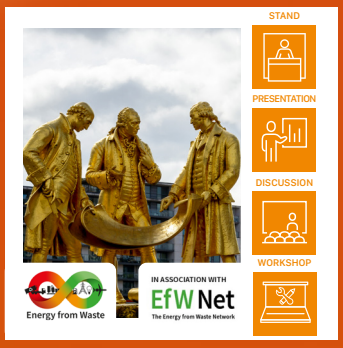
2022

21-22 NOV
Venice 2022 / Italy

2022

12-14 OCT
WTERT Conference
New York / USA

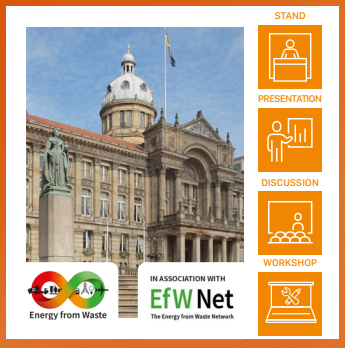
TECHNIKGRUPPE
UK Events



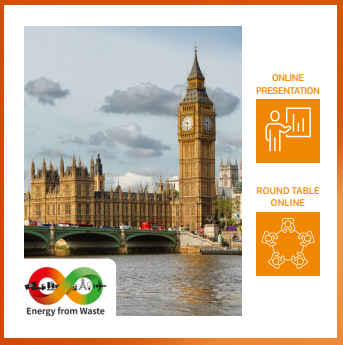
2023
19-20 APRIL
Conference Aston,
Birmingham / UK

2023
15-16 MARCH
EfW Conference,
London / UK

2022
29 SEP
EfW Webinar
Online



2022
27-28 APRIL
Conference Aston,
Birmingham / UK



2021
10-12 MARCH
EfW Conference,
London / UK / Online

2021
27 OCT
EfW Webinar
Online

2020
24 NOV
EfW Webinar
Online

2020
4-5 MARCH
EfW Conference,
London / UK

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