

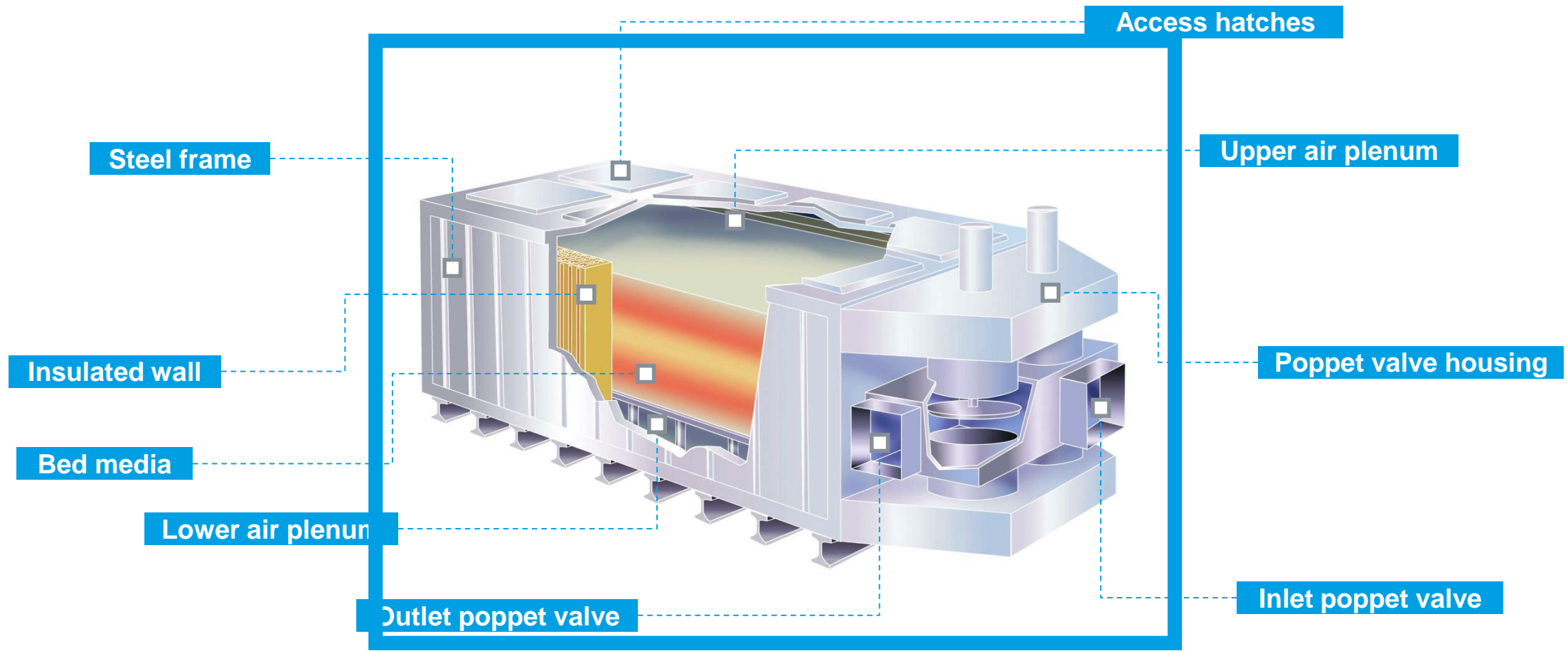
Oxi.X RV

# Electric RTO – flameless and CO<sub>2</sub> free

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# Oxi.X RV – Flameless RTO (Regenerative Thermal Oxidizer)





## Products and Services



Development of innovative and sustainable technologies as basis for higher efficiency and environmental protection in production



## Value Creation and Supply Chain



Consistent reduction of the environmental footprint of our own business activities while ensuring transparent supply chain processes



## Employees and Qualification



Perception as attractive and responsible employer with various career opportunities and qualification offers for our employees



## Management and Governance



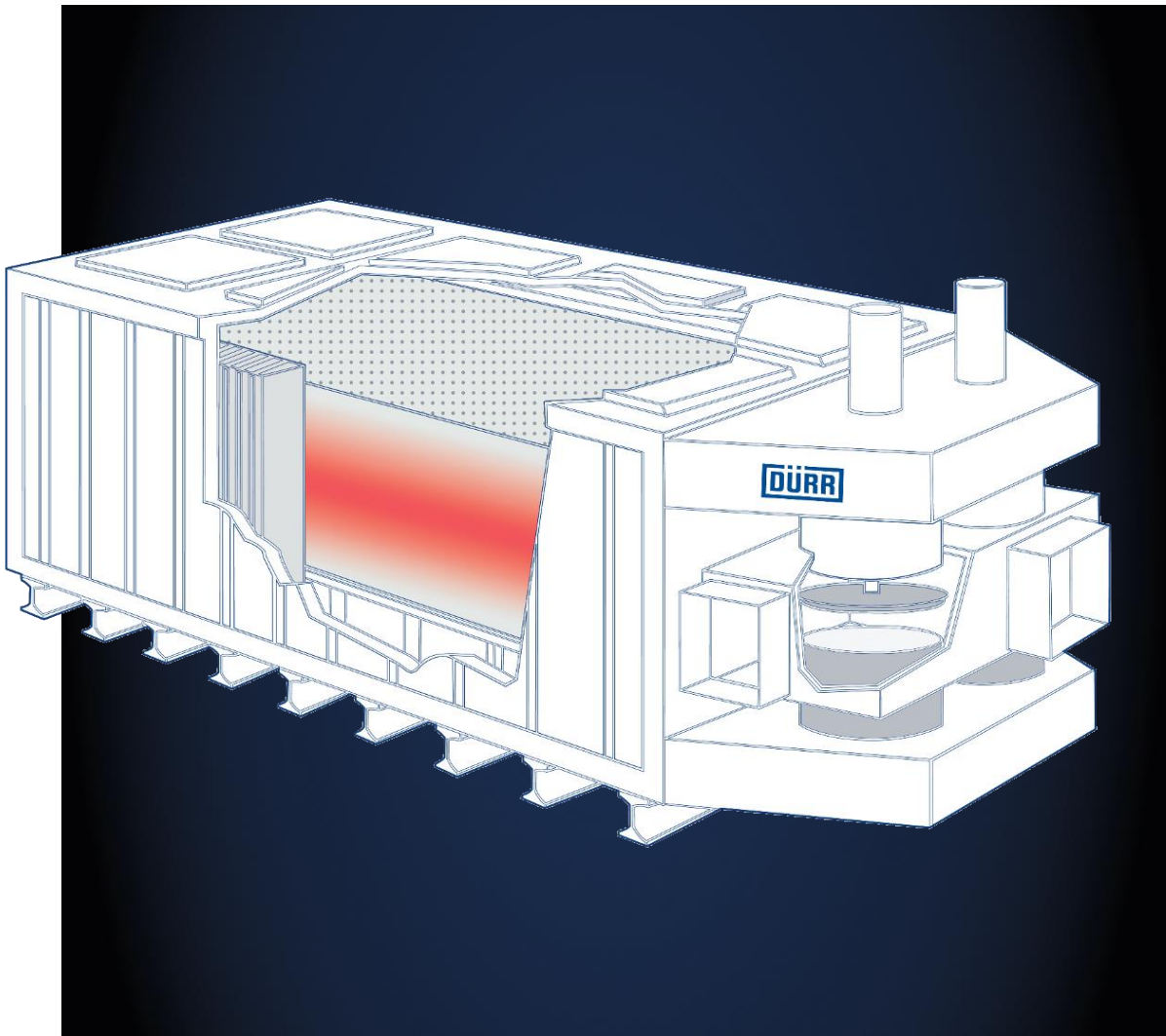
Sustainable business strategy with focus on profitable growth, future-oriented business models and responsible governance



## Engagement and Society



Active contribution to society through regional engagement, industry partnerships and support of global sustainability initiatives



Gotland Energy AB received several awards for the joint execution of the project with Dürr Megtec. Besides the **national innovation award** issued by the Schwedisch Institut of Quality (SIQ) in 2019, Gotland Energy AB and Dürr Megtec were awarded with the **International Quality Innovation Award** in February 2020.

Installed		Less emission	
> 600 sets		$\text{NO}_x < 5\text{mg/Nm}^3$	
Efficiency		Temperature difference	
> 99%		< 20°C	
Less VOC		Less energy consumption	

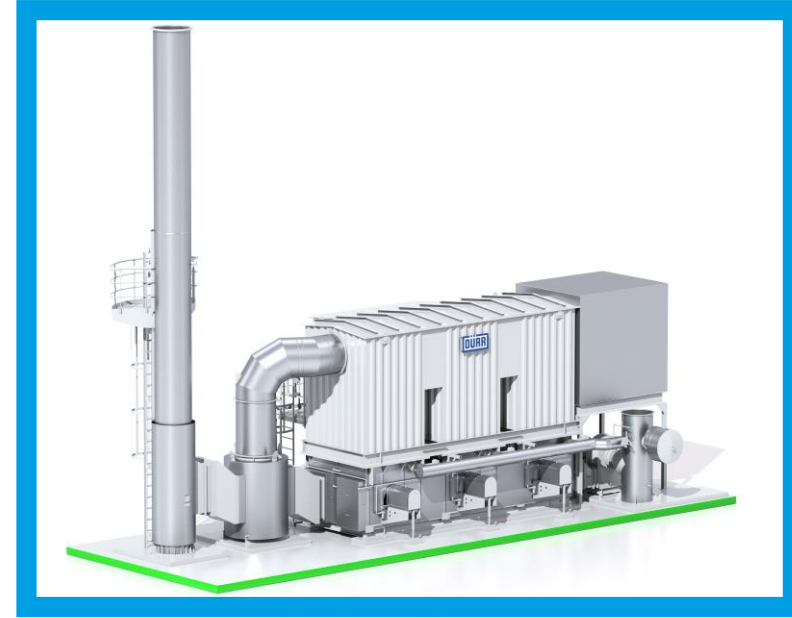


# Difference between flameless RV and RE (Traditional RTO)



RV

- ❑ Use green electricity, achieved “0” carbon emissions
- ❑ Flexible start-stop function with idling mode
- ❑ Flow range 200-35,000 Nm<sup>3</sup>/h
- ❑ Skid design, short installation and commissioning



RE

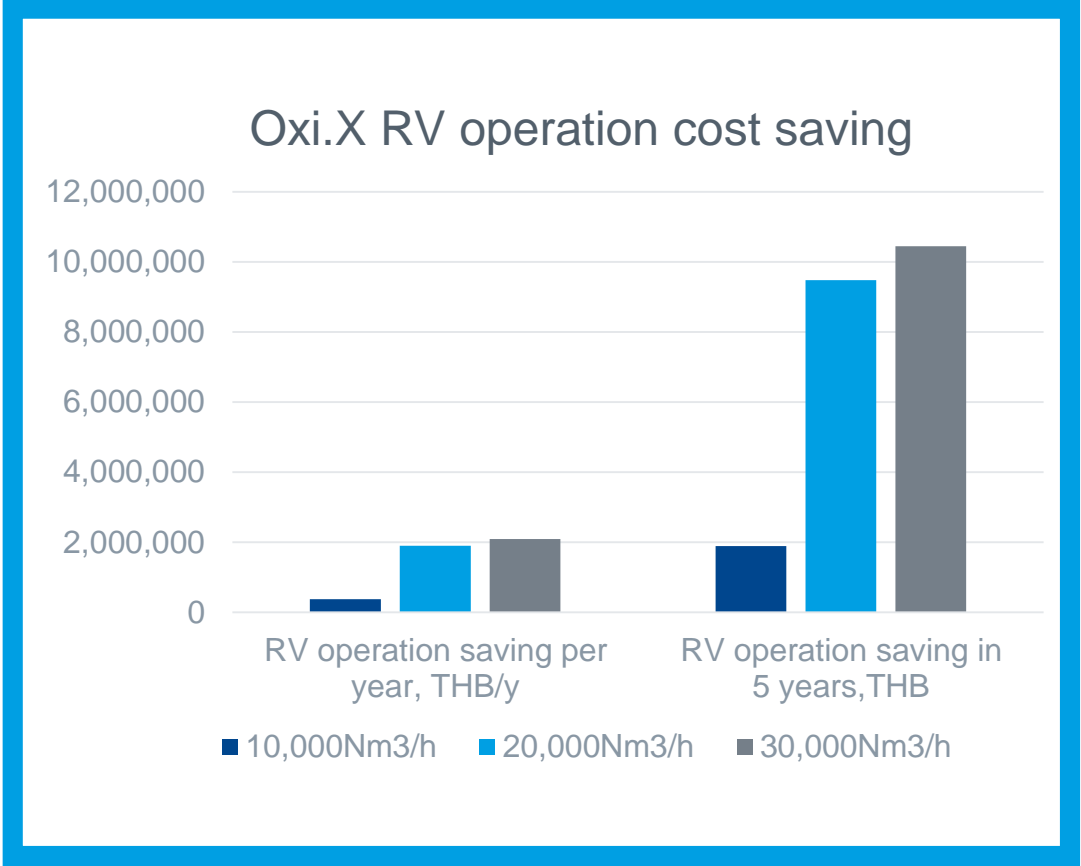
- ❑ Fossil energy use
- ❑ Pre-heat request
- ❑ Flow range 5000-300,000 Nm<sup>3</sup>/h
- ❑ On site assembly, long site work

# Difference between flameless RV and RE



Flowrate, Nm3/h	RV/RE model	RE invest cost saving, THB	RV operation cost saving, THB/h	Time needed for balanced invest and operation cost, y	RV operation cost saving per year, THB/y	RV operation cost saving in 5 years, THB	CO2 reduction through RV(green electricity), t/y
10,000	RV1213	-34,000	47	/	380,000	1,900,000	142
	RE3010						
20,000	RV2413	986,000	237	0.52	1,900,000	9,480,000	391
	RE3015						
30,000	RV3513	1,076,000	261	0.51	2,090,000	10,450,000	479
	RE3025						

Oxi.X RV and Oxi.X RE invest and operation cost compare



Oxi.X RV operation cost saving

# CO<sub>2</sub> neutral VOC treatment

## Oxi.X RV





# Oxi.X RV applicable technology



**Coffee roasting**  
**Cocoa process**



Coffee exhaust  
Air volume: 8,200 Nm<sup>3</sup>/h

- ✓ Cooling
- ✓ Mixing
- ✓ Alkalizing
- ✓ Coffee roasting
- ✓ Milling, grinding



**Tires**  
**Technical rubber**



Coating exhaust  
Air volume: 7,000 Nm<sup>3</sup>/h

- ✓ Mixing
- ✓ Tire cord manufacturing
- ✓ Rubber (synthetic rubber)
- ✓ Coating applications
- ✓ Curing/vulcanization (tire presses)



# Oxi.X RV applicable technology



**Foam process**  
**Lab, test room site**



Foam exhaust  
Air volume: 4,500 Nm<sup>3</sup>/h

- ✓ Lab, test
- ✓ Foaming, WAX
- ✓ Foundry technology
- ✓ Li-battery production



**Automotive**  
**Surface painting**



Car body oven  
Air volume: 1 x 9,000 Nm<sup>3</sup>/h

- ✓ ED/PVC/TC/UBC
- ✓ Dry oven
- ✓ Spray booth
- ✓ IMO, flash off
- ✓ Sealer

# Oxi.X RV applicable technology



## Chemical industry



Chemical  
Air volume: 5,000 Nm<sup>3</sup>/h

- ✓ Fine chemical
- ✓ Additive
- ✓ Paint production
- ✓ Waste water plant, exhaust air from production



## Gas generate electricity



Biogas exhaust  
Air volume: 17,000 Nm<sup>3</sup>/h

- ✓ Biogas, marsh gas
- ✓ Waste gas
- ✓ VAM gas, gas generate

# Oxi.X RV applicable technology



**Coating process**



Printing air  
Air volume: 7,000 Nm<sup>3</sup>/h

- ✓ Printing
- ✓ Coil and can coating
- ✓ Technical textiles/foil/paper/PVC/film foil
- ✓ Printing/paper/packaging/foil printing



**Landfill**

**Coal mine ventilation air methane**



Gotland energy  
Air volume: 7,000 Nm<sup>3</sup>/h

- ✓ Leachate
- ✓ Biogas
- ✓ Bad smell
- ✓ Ventilation air methane

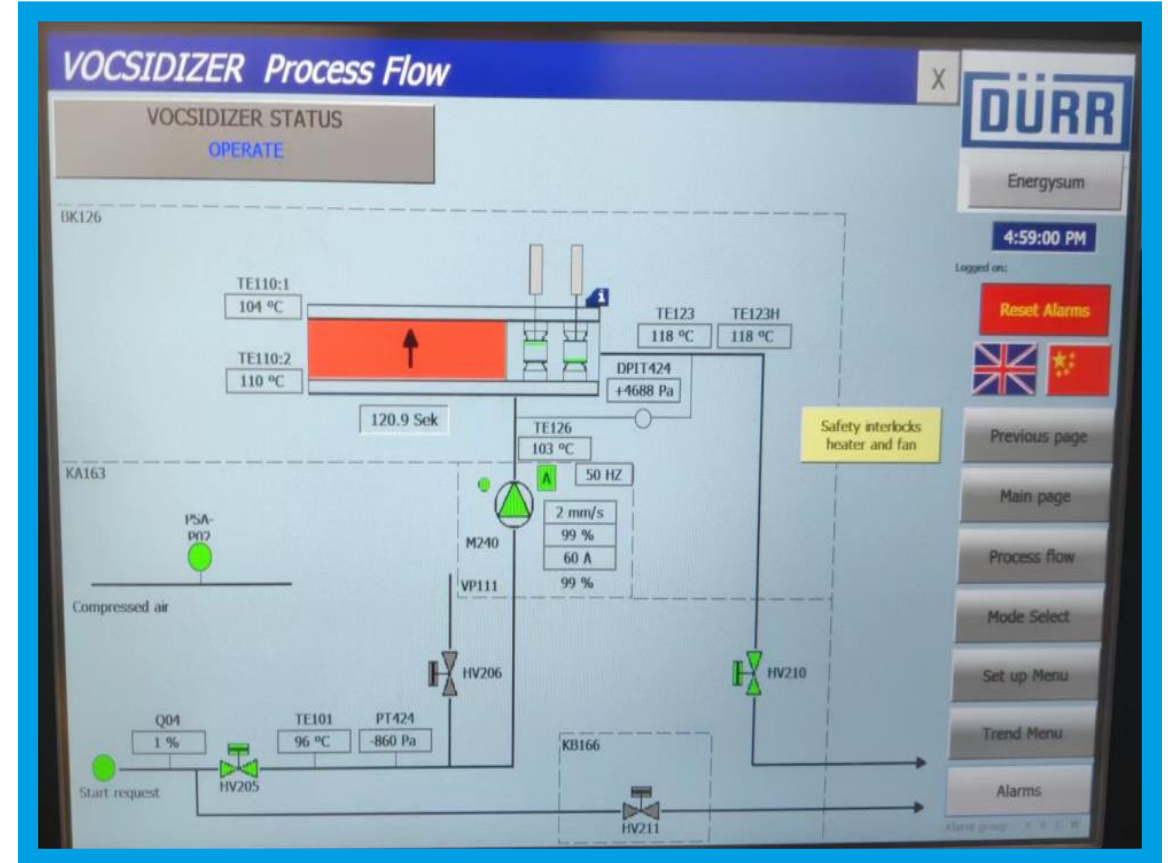


# Oxi.X RV Project reference

Contitech Changshu Oxi.X-RV 0813



Oxi.X-RV 0813, flow rate 8000m<sup>3</sup>/h



Inlet 103°C, outlet 118°C, temperature difference less than 20°C

# Oxi.X RV Project reference

Contitech Changshu Oxi.X-RV 0813



Oxi.X-RV 0813 front and side

Table1-5 Process Waste Gas Measurement Result (20<sup>th</sup>, Oct)

Sample point		7-6# Stack		
Test case		Normal production	Stack section area at measurement point	0.1257 m2
Treatment Facility		FRT0	Stack Height	15m
Test parameter		No.1	No.2	No.3
Flue gas temperature		124 °C	124 °C	124 °C
Measured flowrate		9,725 m3/h	9,761 m3/h	9,572 m3/h
Standard flowrate		6,212 Nm3/h	6,221 Nm3/h	6,113 Nm3/h
NMHC	Emission concentration	1.13 mg/m3	1.18 mg/m3	1.05 mg/m3
SO2	Emission concentration	7 mg/m3	5 mg/m3	3 mg/m3
NOx	Emission concentration	ND	ND	ND
Note		ND means no detected, the detection limit of NOx is 3mg/m3.		

Oxi.X-RV 0813 emission test report



# Conclusion

## Benefits

142 tons of CO2 reduced = 6,500 trees



19 million THB saved over five years





**Thank you  
for your  
attention!**

