Air pollution control

Environmental Technology

Solutions for multiple pollutants
Let us manage your environmental compliance, so you can stay focused on your business.

**Leveraging sustainable production**

Clean air to protect human health and the environment

With 50+ years’ industry experience and more than 10,000 systems installed worldwide, Dürr is a long-recognized, world-class supplier of environmental solutions for virtually any application where air pollution control is required. We supply high-quality, complete solutions from design, engineering and manufacturing through installation, commissioning and servicing.

**Prepared to master every challenge**

Multi-pollutant emissions control

We combine our technical expertise with global availability to support our customers throughout the world, offering solutions for multiple pollutants — from a single-source. For our customers, this means single-point accountability and a seamless, integrated air pollution control project to achieve lowest emissions.

SUSTAINABLE PRODUCTS AND PRACTICES: OUR GUIDING PRINCIPLE

We reconcile economic activity with ecology and fair working conditions. As a technology leader, we reduce the consumption of resources with our sustainable products and actively assume our social responsibility. We maintain fair and respectful dealing with employees, suppliers and business partners.
Industry experts for clean air
At home in all industrial sectors

PROCESS KNOWLEDGE ALONG THE VALUE CHAIN
A strong heritage of technical development and innovative solutions enables Dürr to provide consistently reliable and energy-saving systems for new or upgrade, simple or complex, large or small projects covering a wide spectrum of applications.

ODOR CONTROL
- Ethanol and biofuels
- Food and beverage: roasting, frying, rendering, fermentation
- Rubber production

AUTOMOTIVE
- Paint booth
- Oven
- Color mixing room
- Electro-dipping oven vapor

SURFACE TREATMENT
- Flexible packaging printing
- Film coating
- Metal packaging
- Wallpaper, flooring, decorative paper
- Textile coating and drying
- Styrofoam manufacturing
- Metal, plastics, and wood painting

CHEMICAL
- Chemical processing
- Petrochemical and refining
- Pharmaceutical

ENGINEERED WOOD PRODUCTS
- Oriented strand board (OSB)
- Medium density fiberboard (MDF)
- High density fiberboard (HDF)
- Plywood, particleboard, and other composite wood products
- Wood pellets

FURTHER APPLICATIONS
- Metallurgical applications
- Building materials (cement, lime and insulation)
- Waste handling and recycling
- Production of glass products
- High temperature ovens for ceramic goods
- Semiconductors

Lowest emissions thanks to in-depth process knowledge
Product portfolio

All sizes, all pollutants, all industries

Particulate Control

Particulate control technologies function by physical separation of the pollutants from the exhaust gas stream.

Catalytic processes

Catalysts reduce the energy required to achieve a chemical reaction. Dürr uses catalysts for oxidation and reduction processes.

YOUR BENEFIT

Environmental compliance for multiple pollutants
Comprehensive product portfolio using state-of-the-art technology
Industry-specific expertise
Lifetime service and support
Global availability

Part.X

Thermal oxidation
Oxidizers use thermal processes to eliminate pollutants and are applicable for various industries and different types of pollutants.

Sorpt.X

Adsorption, Absorption
Proven emissions control solutions utilizing both adsorption and absorption technologies.

Catalytics

Catalytic processes
Catalysts reduce the energy required to achieve a chemical reaction. Dürr uses catalysts for oxidation and reduction processes.

Oxi.X

Oxidizer
Thermal oxidation
Oxidizers use thermal processes to eliminate pollutants and are applicable for various industries and different types of pollutants.

REGENERATIVE (RTO)

RA
Regenerative Thermal Oxidizer
RC
Regenerative Thermal Oxidizer
RE
Regenerative Thermal Oxidizer
RK
Regenerative Thermal Oxidizer

RECUPERATIVE

TM
Modular Recuperative Thermal Oxidizer
TR
Recuperative Thermal Oxidizer

DIRECT FIRED

DF
Direct-Fired Thermal Oxidizer

Adsorption, Absorption, Solvent Recovery

AC
Evaporative Gas Cooling
CA
Carbon Adsorption
CC
Carousel Concentrator
CD
Disc Concentrator

Sorpt.X

LC
Liquid Condensation
LD
Liquid Distillation
NT
Atomizing Nozzles
SB
Biogas Purification

Dry Scrubber

SD
Dry Scrubber
SQ
Cross-Flow Packed Bed Filters
SW
Wet Scrubber

Part.X

Particulate Control
PV
Venturi Scrubber
PW
Wet Electrostatic Precipitator

Catalytics

CF
Catalytic Candle Filter
CR
Selective Catalytic / Non-Catalytic Reduction
PH
High-Pressure Catalytics
PL
Low-Pressure Catalytics

RO
Regenerative Catalytic Oxidizer

RM
Regenerative Thermal Oxidizer

REGENERATIVE (RTO)

Flameless RTO
Thermal processes
Oxidation technologies for VOC control

Oxidizers use thermal processes to eliminate volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and unpleasant odors from industrial exhaust air streams. Dürr offers a range of oxidation technologies and configurations enabling us to meet industry-specific or country-dependent challenges, providing the optimal solution for your application. The thermal processes are based on the separation principle and use combustion to remove pollutants from exhaust air. In all cases in which pollutants cannot be collected for potential re-use respectively recovered, these VOCs have to be destroyed. This involves converting the pollutants in exhaust air into non-hazardous substances at specific temperatures, which allows the air to be purified.

Oxi.X

Flameless regenerative thermal oxidizer Oxi.X RV powered by renewable energy sources.
Dürr offers both selective catalytic reduction (SCR) systems for high-performance NOx control as well as selective non-catalytic reduction (SNCR) technology, a cost-effective solution for certain applications. SCR systems are available as a stand-alone unit, or can be combined with direct-fired or regenerative thermal oxidizers to support a multi-pollutant control strategy.

**Low-pressure and High-pressure Catalytic systems**

Depending on the application, Dürr offers both low-pressure and high-pressure catalytic oxidation systems for VOC removal. Besides that, catalytic candle filter (CCF) technology provides simultaneous removal of particulate matter (PM), acid gases (HCl, SOx) and NOx. The lower oxidation temperatures in our catalytic systems lead to a reduction in energy consumption.

**Recuperative and Direct-fired Thermal Oxidizers**

For moderate levels of pollutants, the Ox.X TR recuperative thermal oxidizer with advanced burner technology is an economical choice for applications with secondary heat recovery systems. The Ox.X DF direct-fired thermal incinerator for critical substances is ideal for heavily-contaminated, corrosive gas streams.

**Regenerative Thermal Oxidizers**

Oxi.X regenerative thermal oxidizers (RTOs) are designed for low to high volume air flows and feature high VOC destruction efficiencies of over 99.8%. RTOs are based on a highly efficient thermal process where the exhaust air contaminated with pollutants is fed through a regenerative heat exchanger with an extremely large surface area. The process is used to purify exhaust air containing solvents and unpleasant odors.

**Catalytic processes**

Catalytic technologies for VOC and NOx control

**Different designs tailored to meet your operational and site conditions**

10,000 installations worldwide support environmental protection.

**RTO to RCO Retrofit**

While your existing RTO may have been designed for optimum thermal efficiency at the time it was manufactured, new advances in media and catalysts now give us more options for many exhaust streams that lend themselves to catalytic technology.

**Catalytic technologies**

**Catalytic candle filter**

For simultaneous reduction of pollutants.

**Your RCO benefit**

- High thermal efficiency
- Low-maintenance design
- Low operating expenditure
- Maximum heat recovery

**Your RCO benefit**

- High efficiency for low VOC concentrations
- Low operating cost compared to conventional RTOs
- Low combustion chamber temperature
- Low fuel consumption
Sorptive processes
Adsorption and absorption technologies

Sorpt.X

Adsorption

SOLVENT RECOVERY CARBON ADSORPTION & LIQUID DISTILLATION
Sorpt.X CA activated carbon solvent recovery systems provide an ideal VOC control solution in processes that use valuable solvents. When recovered, these solvents can be re-used in the process rather than destroyed. Where recovery is not feasible, we offer non-regenerable carbon adsorbers suitable for low concentration emissions. Sorpt.X LD liquid distillation systems include complete extractive and azeotropic multi-component distillation systems for the recovery, separation and purification of solvent mixtures.

VOC CONCENTRATORS
The Sorpt.X CD/CC air pollution control system is a tried-and-tested solution for continuously purifying large exhaust air volume flows containing low levels of solvents (VOCs) using sorptive concentration with a downstream purification phase.

CROSS-FLOW PACKED BED FILTERS
Sorpt.X SQ cross-flow packed bed filter systems are especially suitable for purifying hot exhaust gas flows. The adsorbent used is a bulk material which is generally limestone, which is an inexpensive but highly effective adsorbent for air pollution control.

YOUR SOLVENT RECOVERY BENEFIT
Recover up to 99+% solvents for reuse
Increase profitability by reducing solvent expense
Suitable for a wide variety of solvent types and solvent loadings

Absorption

WET SCRUBBERS
Sorpt.X SW wet scrubbers include spray, tray, and packed tower designs for the absorption of acid gases. For gas streams containing acid gases and particulate, we also offer a wet atomizing scrubber to control the contaminants in a single device. Wet scrubbers offer high removal efficiencies for a variety of acid gases, including SO₃ (SO₂ and SO₃), HF, and HCl.

BIOGAS PURIFICATION
Sorpt.X SB biogas purification systems use water scrubbing to remove CO₂, H₂S, and light siloxanes from digester, wastewater treatment, landfill, or other biogas streams. Sorpt.X SB systems are designed to capture more than 98.5% of the methane and purify it to pipeline-quality natural gas.

EVAPORATIVE GAS COOLING & CONDITIONING
Sorpt.X AC evaporative gas cooling systems provide accurate temperature and humidity control of hot process gases. Central to our evaporative gas cooling systems are Sorpt.X NT atomizing nozzles, which introduce a controlled amount of finely atomized water into the hot gas stream to reduce and/or maintain gas temperature.

YOUR WET SCRUBBER BENEFIT
Simplicity of construction and flexibility of operation
Low capital equipment and installation cost
High removal efficiencies for a variety of acid gases

VOC concentration: Low CO₂ emissions and operating expenditure as a result of the high concentration ratio.
Separation processes
Particulate control technologies

Part XI

PARTICULATE SCRUBBERS
Part XI PV venturi scrubbers offer high-efficiency performance for high particulate loading applications and can handle abrasive, sticky and difficult particulate. In applications where extremely low particulate concentrations are required, the scrubber is designed as a pre-scrubber preceding a wet electrostatic precipitator to achieve the required removal efficiency and maximize energy savings.

WET ELECTROSTATIC PRECIPITATORS
To clean industrial gases of fine particulate matter, acid mists and aerosols, we offer advanced wet electrostatic precipitator technology. The Part XI PW wet ESP offers highly efficient control of submicron particulate, heavy metals, acid mists, and condensed metal fumes and organics. It can remove up to 98% of particulate in a single stage, and depending on the characteristics of the gas stream, increased removal efficiency is possible with alternative configurations. We also offer the Part XI PW acid mist precipitator for sulfuric acid plant gas cleaning applications.

Multiple configurations are available to suit existing process layouts, including top inlet and outlet, upflow/downflow and downcomer/custom designs.

DRY ELECTROSTATIC PRECIPITATORS
Aging technology and lack of support can result in lost productivity and reduced efficiency of your electrostatic precipitator. As a trusted service partner, Dürr’s parts, service, and upgrade business can help keep your ESP running effectively.

Your partner for successful production

Dürr’s services & solutions customer service offers support around the world. Dürr is always on-site to help to reduce production costs, increase plant availability and guarantee rapid technical support. Whether you are dealing with an emergency or planning or implementing a revamp project – we are available.

Anytime and worldwide

ENVIRONMENTAL SERVICES BY DÜRR CLOSE TO YOUR PLANT

YOUR WET ESP BENEFIT
High-intensity, offline automatic cleaning
Reimagined gas flow distribution system
Optimized operating voltage requiring less surface collecting area

Our service at your demand
Ramp-up and launch management
Modifications and upgrades
Engineering with experience
Spare parts service
Inspection and maintenance
Service locations all over the world

APPLICATIONS
Application of Part XI PV venturi scrubbers, Part XI PW wet ESPs and Oxi XC RC RTDs in the engineered wood products industry.

99.9% particulate removal efficiency possible

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LEADING IN PRODUCTION EFFICIENCY