Anaerobic Digestion

AD & Pollution Solutions

Profile

Heat Exchangers

▲ Head Office in Bough Beech, Kent

Turnkey Heat Exchanger with integral temperature and flow control installed for ▲ United Utilities

Company Profile:

CSO Technik was formed in 1995 and has been designing and supplying equipment to the AD sector since 2004.

CSO can provide a complete turnkey service from equipment design and supply to after sales support.

Design and Project Management Capabilities:

We have our own CAD facility that boasts the latest AutoCAD MEP 3D package with AutoDesk Volt software.

Our project managers all hold CSCS Project Manager's Cards and have over 75 years combined experience in managing contracts within municipal waste water and industrial schemes.

Quality and Environmental:

CSO operates an ISO9001 Quality Management System (QMS) and an ISO14001 Environmental
Management System (EMS). In addition, as members of the Achilles UVDB Verify Scheme our QMS, EMS and Health and Safety procedures are audited on an annual basis.

Product Description:

CSO Technik are the sole UK distributor and installer of the Läckeby Water range of heat exchangers.
There are two types of heat exchangers available:

- Sludge/Sludge
- Sludge/Water

Both are based on a modular principal and the patented turning chambers ensure excellent heat transfer and low running costs.
The turning chambers provide higher temperature transfer by equalising the sludge temperature profile.

Process Benefits:

- Enhances efficiency of digestion and hygienisation
- Eliminates problems with multiple flanges and loose connections
- Equalises temperature profile of sludge
- Eliminates risk of sludge contamination
- Reduces pressure losses
- Minimises risk of clogging
- Ensures easy and simple maintenance procedures.
- Small footprint

Technical Features:

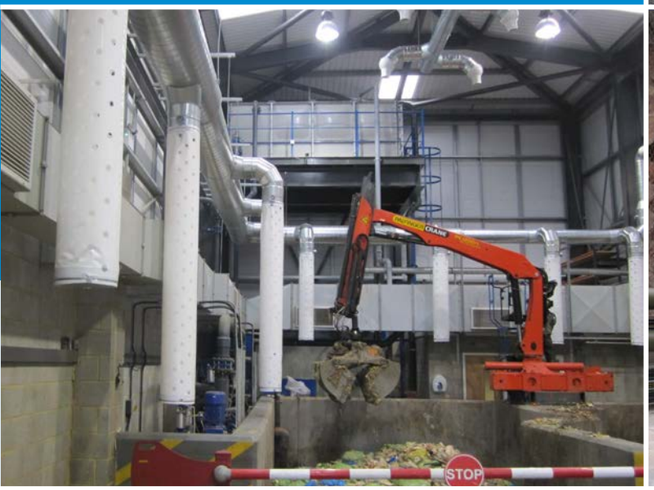
- Unique design specifically for sludge
- Patented turning chamber
- Compact unit that is easy to install
- Simple inspection and maintenance process
- High heat transfer
- Large throughput area
- Closed water circuit

▲ Terminodour™ installation at Fleetwood WwTW for United Utilities

Sludge/Water heat exchanger installation at Kings Lynn for Anglian Water ▲

Odour Control

▼ Terminodour™ treatment on a food waste AD plant , England



Odour Control:

We provide a wide range of odour control systems to cover all of the variable odour types and sources that can be found on anaerobic digestion plants. We use our experience to determine the most appropriate solution to suit your application.

Additional odour services:

- Odour monitoring
- Monitoring equipment hire
- Performance testing
- Odour modelling
- Odour and ventilation systems investigation and reporting
- Spares and service.

▼ Catalytic iron filter with carbon odour control system at Dunoon WwTW for Scottish Water

- Terminodour™ is ideal for food waste reception areas and large buildings as it treats all organic odours at source and provides a clean and safe working environment for operators
- Kombi-Skrub™ activated carbon or ion oxide dry media system for low volume mixed odour loads including VOC's - an ideal polishing filter for other odour abatement technologies
- Kombi-Skrub™ Biological systems for high volume Hydrogen Sulphide removal
- Wet chemical scrubbing systems suitable for high volume/high concentrations and variable loads of both acidic (e.g. Hydrogen Sulphide) and alkaline (e.g. Ammonia) odour sources
- Catalytic Iron Filters (CIF) roughing filter for removal of Hydrogen Sulphide prior to an activated carbon filter to reduce operational costs
- Kombi-Skrub™ Combination systems - multi systems required to treat complex odour cocktails in sensitive environments

▼ Two stage wet chemical scrubber with carbon polishing filter at Kirkcaldy

▼ Biotrickling filter with polishing carbon for Welsh Water

Biogas Desulphurisation & Siloxane Removal

Dry scrubbing system for desulphurisation and Siloxane removal ▼

Desulphurisation solutions:

Biogas from AD process will contain Hydrogen Sulphide (H_2S) in variable concentrations (100-10,000ppm) depending on the feedstock. If biogas is being fed to a CHP plant and the H_2S load exceeds the engine manufacturer's permissible levels, than the H_2S will need to be removed.

The same applies for Biogas to grid applications where H_2S must be removed to very low levels.

When selecting the right process for the application careful consideration should be given to the long term operational costs of the system. For anything other than low volume applications, the S & H Classic and SulphPur® biological systems generally offer the lowest operational cost.

Classic :

High performance low OPEX biological system:

- Converts H_2S mainly to sulphate
- Small footprint
- Auto backwashing system
- Low operational costs

Classic system with control centre ▼

SulphPur® Biogas Desulphurisation and VOC removal ▼

SulphPur®:

High performance, very low OPEX biological system that requires no process water and produces no process effluent, ideally suited for gas to grid applications

- Converts H_2S to valuable elemental sulphur
- No process water required
- No discharge effluent
- Low oxygen requirement

Waste Gas Flares

The Ennox range of waste gas flares provide solutions for most applications and flow rates from 20m^3/hr - 3000m^3/hr.

The common benefits are the robust and effective designs that offer low capital and operational costs. The product range includes:

- Manual gas flare
- Automatic gas flare
- High temperature flares
- CDM gas flares
- Mobile gas flares
- Landfill gas flares
- Biomethane gas flares

Flares are available with integral booster sets where required.

We offer a complete turnkey installation and service package.

Benefits:

- Built and designed specifically for burning Biomethane
- Allows safe burning of Biomethane ensuring safety on site
- Prevents release of methane to atmosphere
- Auto ignition
- Manufactured entirely from stainless steel

Solids Separation and Materials Handling

Roto-sieve Drum Screen and screenings handling equipment for liquid/solids separation ▲

Shaftless Screw Conveyors and Screwpress:

Shaftless screw conveyors are suitable for a wide variety of applications and are ideal for the movement of solids.

The screw press comprises a shaftless screw conveyor with a compressing zone for dewatering heavy duty sludge typically found in:

- Pulp and paper
- Waste water
- Breweries
- Food and vegetable wastes.

Roto-sieve Drum Screens:

The Läckeby Water Roto-sieve drum screen is ideal for fine screening.
The drum screen is capable of handling solids and fibres greater than 600 microns and due to its internal feed and circular perforations, Roto-Sieve offers the best separation that can be achieved mechanically.

Benefits:

- Handles flows up to 435l/s/unit
- 0.6mm to 3mm screen perforations
- Suitable for fibrous material
- Low power consumption
- Removes plastics from sludge

MSW Reception Systems:

Fabricated or built in systems for the reception and homogenization of a wide variety of waste streams.

Benefits:

- Customized designs
- Robust shafted screw conveyors
- Suitable for large solids
- Reversible screws.

Shaftless screw conveyor installed at Buxton STW for Severn Trent Water ▼

Ancillary equipment

Ceramic filters

Condensate pots

Condensate accumulators

Gas dryers

Gravel filters

Sediment traps

Low pressure gas storage

Digester windows

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