SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

EDSflow™

Continuous Flow Effluent Decontamination System

The Ultra-efficient Continuous Flow BioWaste Effluent Decontamination System

Electrical heating now available throughout the range

Overview

The Suncombe EDSflow™ Continuous Flow BioWaste Decontamination Kill System has been developed to provide an Ultra-efficient continuous decontamination system.

Following numerous clients' requests to develop a continuous based biowaste decontamination system that could be validated, using Suncombe tremendous experience of Biowaste decontamination systems and critical processing systems, we have leveraged our knowledge of batch and hybrid biowaste decontamination systems.

The EDSflow™ is a pre-designed system which treats effluent continuously. It consists of a buffer tank which buffers the effluent, ensuring that there is a controlled supply to the continuous system regardless of flow peaks and troughs.

Using steam, super-heated water or a licensed electrical heating technique, the effluent is passed through a heating zone, held at temperature and then passed back through a regeneration and a cooling zone. Only on confirmation of success of all of these steps is the effluent cleared for release.

Using robust, proven design principles, the systems deal with **CL Biowaste Level 1 to 3** and take into account two main areas of concern. Firstly, the systems effectively sterilise or inactivate any harmful pathogens in the waste stream and secondly total containment must be assured at all times.

Applications

Biologics Production
Vaccine production
Animal Production
Laboratories
Research Institutions
Animal Laboratories
Research Laboratories
Pharmaceutical facilities

European Biosafety Association EBSA

ABSANZ

EDSflow™ DATASHEET

VERSION 2.5

SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

Welcome

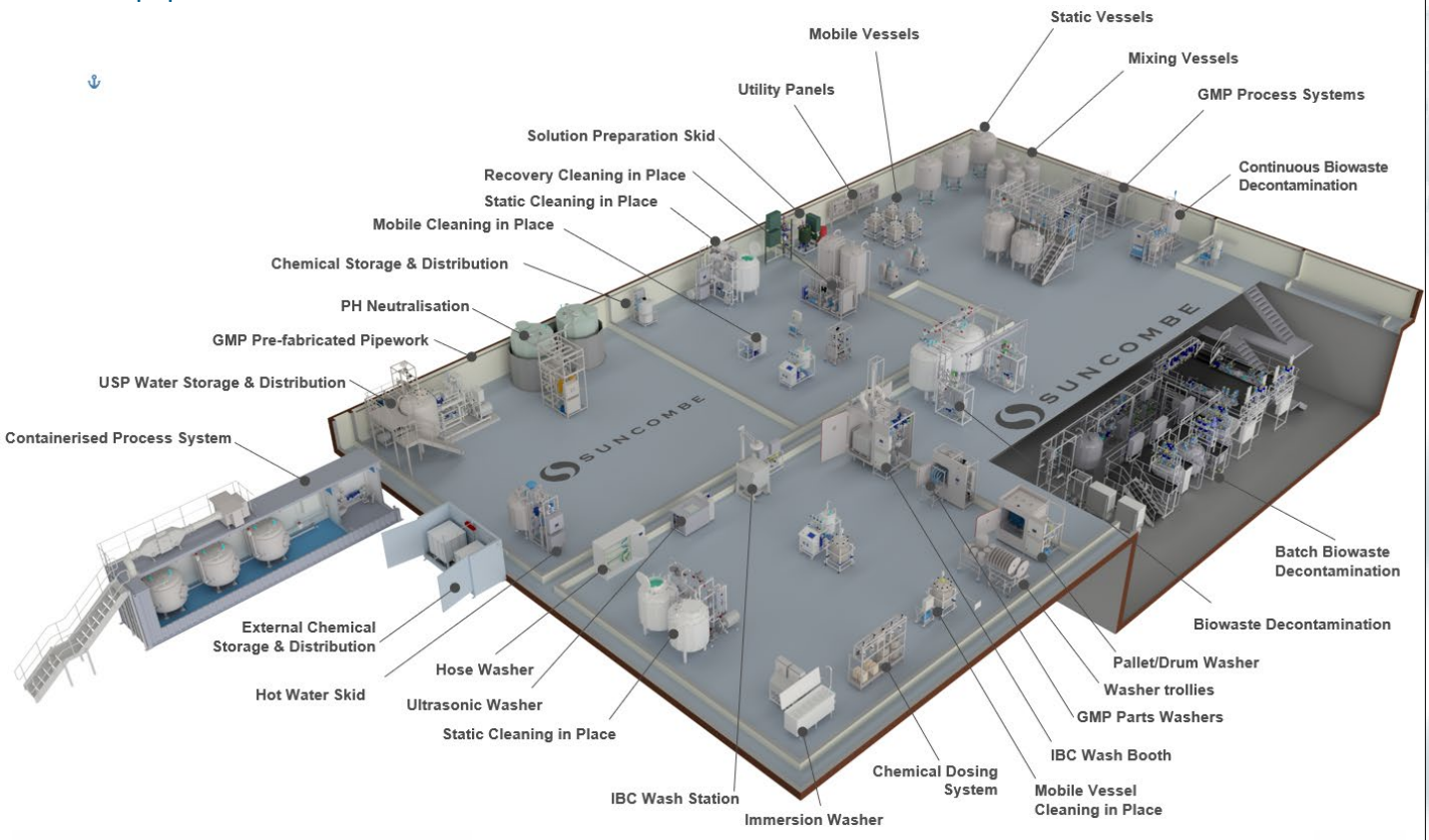
Since our foundation in 1961, Suncombe has pioneered the development of innovative solutions for cleaning in place, bio-waste decontamination, GMP Washers, sanitary skids and vessel skids. The business continues to be privately owned and managed day to day by Dave Adams and Steve Overton.

Supporting Dave and Steve is a close-knit, dedicated, highly motivated and long-standing team encompassing a wealth of technical experience and knowledge in all relevant disciplines, including design, manufacture, testing, installation, validation, documentation and after-sales support. All of our work is carried out across our own facilities, just off the M25 in north London.

The team employ the very latest techniques, standards and best in class solutions. Having such a strong team allows us to offer the ability to carry out all of our work in-house, under our direct control and quality management system. It also ensures that we own and preserve all the knowledge and experience gained with every project and allows us to offer continued support for all our installed systems throughout their lifetime.

Our Clientele

Our Equipment



Suncombe Ltd

Jade House, Lockfield Avenue, Brimsdown, Enfield, Middlesex, EN37JY, United Kingdom

T +44(0)20-8443-3454 F +44(0)20-8443-3969

E info@suncombe.com W www.suncombe.com

EDSflow™ DATASHEET

VERSION 2.5

Key Features

- Robust and reliable
- Pre-tested at Suncombe
- Plug n Play after delivery
- Steam utility required, integral steam generator or electrical heating
- Adjustable kill temperature and time
- Pumped discharge to sewers

Containment Level	BSL1, BSL2, BSL3
Treatment Vessels	None – continuous
Collection Vessels	Any Number
System Capacity (litres)	Up to 180,000L per day
Treatment Parameters	Variable f0 values and temperatures up to 140°C
System Cooling	>42C
Material of Construction	316 Stainless Steel
Operating Voltage	400 VAC
Automation	BioSuite Level 2000 standalone control system with touch panel display.

EDSflow™ Image

Range

Part #	Capacity (litres per hour/Litres per day)
EDSflow300	300/5400
EDSflow500	500/9000
EDSflow1000	1000/18000
EDSflow2000	2000/36000
EDSflow3000	3000/54000
EDSflow5000	5000/90000
EDSflow10000	10000/180000

Standard Capacity

- 75°C to 136°C Treatment Temperature
- 1 minute Treatment Time
- F0 up to 32

Options

Material of Construction	SAF 2205 duplex or Hastelloy for chlorine resistance
Operating Voltage	Various
Automation	BioSuite Level 3000 with 21CFR 11 reports, records and networking
Safety	Failsafe versions available for SIL 2 and SIL 3
Covers	Thermoplastic or stainless steel covers
CIP	Chemical CIP for system cleaning
Pump Feed	Discharge pump to transfer waste
Transfer Method	Pumped, vacuum, eductor, differential pressure
Remote Control	Remote start and remote HMIs

Suncombe Ltd, Jade House, Lockfield Avenue, Brimsdown, Enfield, Middlesex, EN3 7JY, United Kingdom
Tel +44(0) 208-443-3454 Fax +44(0) 208-443-3969 E-Mail: mail@suncombe.com Web: www.suncombe.com
Designers, manufacturers & installers of quality, hygienic processing and cleaning systems and Equipment

EDSflow™ DATASHEET

VERSION 2.5

SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

Key Features	Benefits
Fully automated continuous processing	Provides ultra-efficient biowaste effluent Decontamination, enabling fully automated treatment of waste and safe release to drain.
Sustainable Design	The EDS incorporates facilities to recover up to 75% of the input energy.
Utilities	Steam utility required or integral steam generator or electrical heating + electrical supply, water and compressed air
Sanitary 316L stainless steel construction and components	Systems are constructed to the highest sanitary standards with 3.1/2.2 material traceability and welding dossier. This ensures a fully validatable and cleanable treatment environment.
Treatment Parameters	Variable configuration to provide Temperature/Time, f0 or log kill requirements. Temperatures up to 140°C.
Collection and Discharge Buffer Options	For large inlet flows, Integral Collection Tanks can be provided and for outlet flow limitations, integral discharge tanks can also be provided.
Vent Filter	Sterile, HEPA Vent Filter included, single, dual and duplex parallel arrangements available
Continuous monitoring of key parameters	Decontamination process is highly repeatable and validatable.
Containment Level	Systems suitable for the treatment of BSL 1, 2 and 3 Waste.
Safety	Alarms, interlocks and fail-safe design prevent waste discharge in the event of an unsuccessful treatment. This encompasses scenarios such as power loss and under-temperature events.
Siemens PLC and 12” colour HMI with options for larger HMIs	Control hardware is industry standard and supported worldwide by Siemens. Ethernet interface included for transfer of critical operating variables to other systems. Designed to enable integration to third party equipment or higher level control system.
Suncombe BioSuite software	Control software has been developed and proven over many years for EDS applications and includes a wide range of user or administrator configurable parameters to enable customised decontamination profiles. User passwords, Active Directory, Audit Trails, Electronic batch reports for local or network storage are possible. User interface screens and process visualisation is simple, intuitive, clear and comprehensive. Remote access options are possible if required. Software complies with FDA 21CFR and EU GMP regulations.
Fully automated report	Electronic pdf reporting included – printed report optional
Automatic Operation	Automatic Waste Inlet, treatment and Discharge Automatic Alarms and Warnings
Coolant Utility	Water or glycol Coolant.
Drainage Temperature	<42°C
Configurable	Based on standard modules, we can supply individual units custom designed for your specific requirement.
Cleaning In Place	Prepared for CIP with optional Automatic or Manual Cleaning In Place System
Waste Distribution	Optional sump pumps and discharge Stations
Redundancy	System configurations available for N+1 Dual redundancy

Suncombe Ltd, Jade House, Lockfield Avenue, Brimsdown, Enfield, Middlesex, EN3 7JY, United Kingdom
Tel +44(0) 208-443-3454 Fax +44(0) 208-443-3969 E-Mail: mail@suncombe.com Web: www.suncombe.com
Designers, manufacturers & installers of quality, hygienic processing and cleaning systems and Equipment

SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

Our Sustainability Operations

Sustainability of Suncombe Equipment

As a company, we recognise the importance of sustainability and the need to minimise our environmental impact. All Suncombe equipment has been re-developed for sustainability purposes and incorporates techniques and methodologies to minimise impact on the environment, including technologies that reduce energy consumption, emissions, and waste, as well as adopting practices that promote sustainability and reduce the environmental impact of operations.

Social Responsibility

Our company philosophy is one of Social Responsibility and under this banner we are fully committed to the need to balance economic growth with environmental stewardship and social responsibility.

Overall, Suncombe demonstrates a commitment to sustainability and environmental responsibility in our operations and products. For further details Suncombe have produced Sustainability and Lifecycle White Papers available **on request**

Here are some of the ways we achieve this:

- ✓ Efficient use of resources: Suncombe uses energy-efficient technologies in our equipment, which helps to reduce energy consumption and carbon emissions.
- ✓ Waste reduction: Suncombe strives to reduce waste throughout our operations, from manufacturing to product disposal. We use sustainable materials and designs that minimise waste and maximise product lifespan.
- ✓ Recycling: Suncombe promotes recycling and reusing of materials to reduce waste. We also recycle our own equipment where possible.
- ✓ Compliance with regulations: Suncombe adheres to environmental regulations and standards set by governing bodies, ensuring that our operations do not harm the environment.
- ✓ Green initiatives: Suncombe invests in research and development of new, sustainable technologies and processes to further reduce our environmental impact.
- ✓ Lifecycle Considerations: The company emphasizes the entire lifecycle of our equipment, from design and manufacturing to use and disposal. We strive to select materials and components that are environmentally friendly and can be recycled or disposed of responsibly. Featuring design with margin, upgrading and future-proofing extends the equipment lifecycle.

EDSflow™ DATASHEET

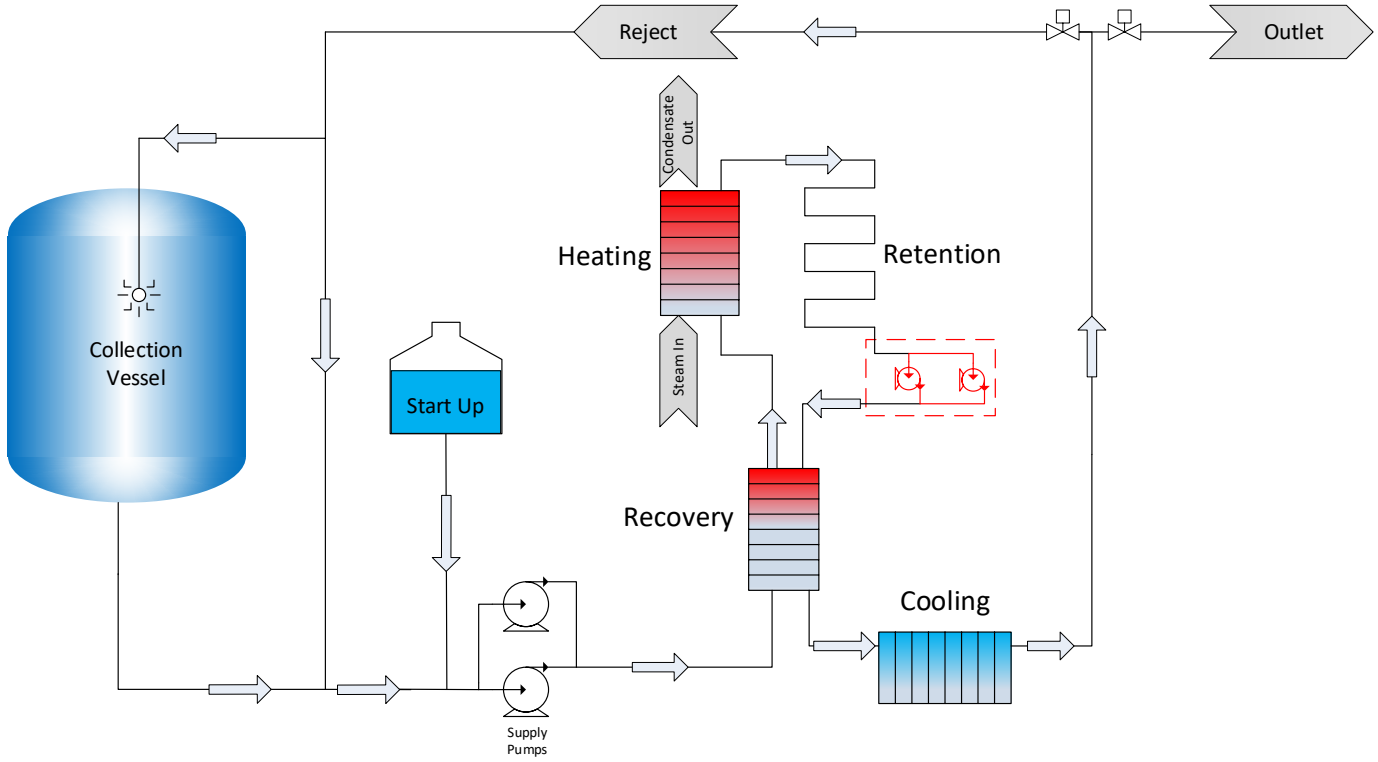
VERSION 2.5

SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

EDSflow™ Configuration

The process flow diagram below depicts the typical EDSflow configuration and include; a) Single or dual start-up/CIP tanks b) One, two, three or four chemicals, c) Single or duty/standby transfer pumps and strainers d) Sump pump transfer from local sump. Using robust, proven design principles, the system uses a combination of thermal, elevated pressure processes designed to deactivate and sterilise waste, while ensuring absolute containment and protection of the external environment, ensuring that the target microbiological agents in the effluent are inactive before release.

EDSflow™ Process Flow Diagram



EDSflow™ DATASHEET

VERSION 2.5

Collection and Discharge Vessel Configurations

The Suncombe Continuous effluent decontamination systems can be configured with custom Collection Vessel and Discharge Vessel Combinations to reflect any BioWaste capacity Requirement.

Capacity: Vessels are available from 200 litre capacity to 20,000 litre capacity or larger.

Number: Vessels can be supplied as single vessel to hold the entire waste storage capacity or in quantities of 2, 3 or more vessels to provide different processing waste storage requirements and/or dual redundancy.

Decontamination In Place: Vessels can be supplied with specific requirements for Sterilisation and Decontamination In Place (DIP), which can alter the design of the Vessels from simple atmospheric sealed vessels to full pressure vessels suitable for thermal sterilisation. Configurations can also include full Cleaning In Place (CIP) and chemical treatment, as well as pH control.

Materials of Construction: Vessels are manufactured from 316L Stainless Steel, varied duplex stainless steels, Hastelloy and thermo-plastic are also available for extended corrosion resistance. The Vessels typically are fully sanitary design to ensure all parts can be CIP'ed and DIP'ed.

Geometry: The geometry of Collection or Reception Vessels depends somewhat on the available location and available envelope. Typically, most smaller capacities (up to 1,000 litre) are vertical cylindrical vessels, medium capacities (1,000 - 6,000 litre) are typically either vertical or horizontal and most vessels over 6,000 litre capacity are horizontal.

EDSflow™ DATASHEET

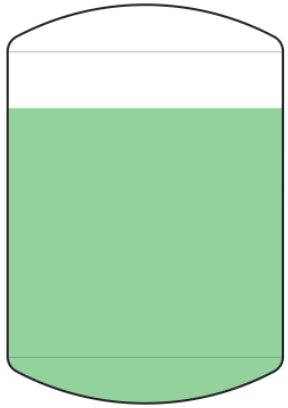
VERSION 2.5

SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

Typical Collection and Discharge Vessel Dimensions

Suncombe Collection and Discharge Vessels are available in any capacity. Typical dimensions are detailed below for some common capacity vessels.

Vertical Configuration



Horizontal Configuration

Capacity (litres)	Orientation	Diameter (mm)	Length (mm)	Height (mm)
200	Vertical	500	-	1000
200	Horizontal	500	1000	-
500	Vertical	750	-	1250
500	Horizontal	750	1250	-
1000	Vertical	950	-	1350
1000	Horizontal	950	1500	-
2000	Vertical	1200	-	1600
2000	Horizontal	1200	2000	-
3000	Vertical	1400	-	1800
3000	Horizontal	1400	2200	-
5000	Vertical	1700	-	2200
5000	Horizontal	1600	2400	-
10000	Vertical	2000	-	2700
10000	Horizontal	2000	3200	-
20000	Vertical	2700	-	3300
20000	Horizontal	2500	3700	-

- Dimensions noted are typical only and actual dimensions should be confirmed by Suncombe engineers before use
- Alternative length/height/diameter ratios are available with dimensions to suit available space, enquire with Suncombe engineers for more details
- Collection Vessels are available in 316 stainless steel, Hastelloy, duplex alloys and thermoplastics depending on application

EDSflow™ DATASHEET

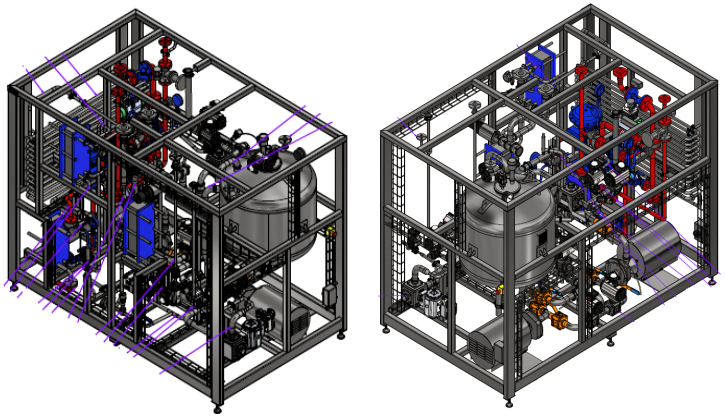
VERSION 2.5

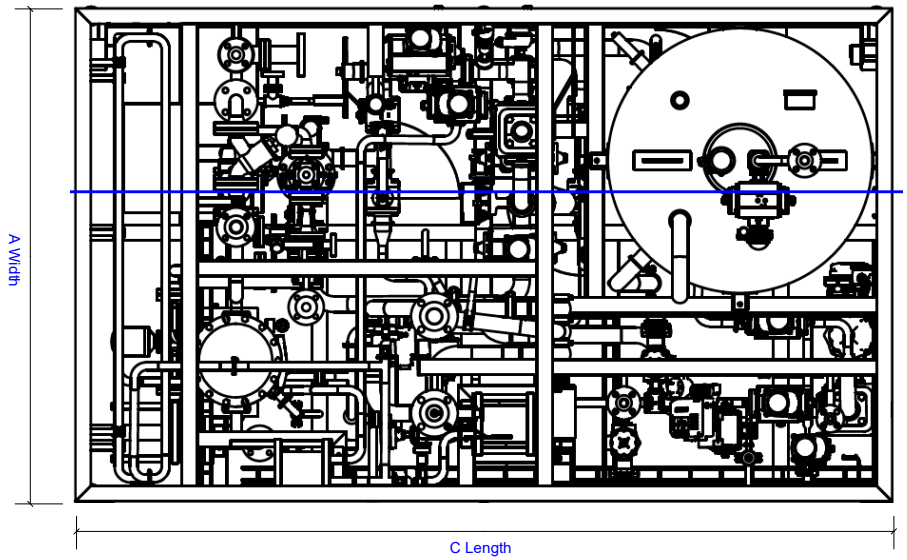
SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

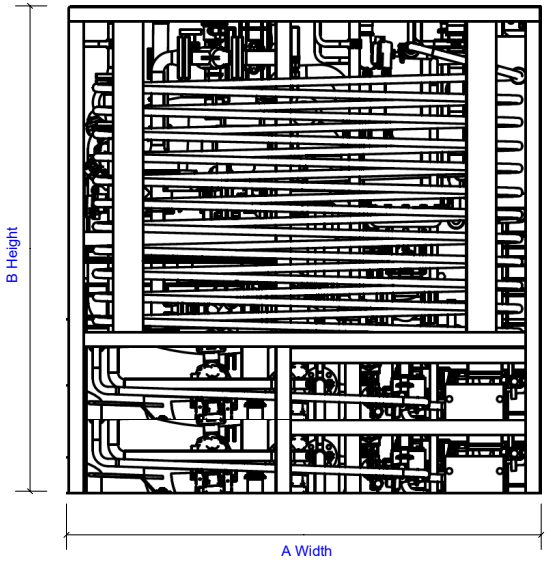
EDSflow™ Dimensions

Part #	Capacity (litres per hour/Litres per day)	A Width (mm)	B Height (mm)	C Length (mm)
EDSflow300	300/5400	1,750	2,200	2,750
EDSflow500	500/9000	1,750	2,200	2,750
EDSflow1000	1000/18000	1,750	2,200	2,750
EDSflow2000	2000/36000	1,850	2,200	2,850
EDSflow3000	3000/54000	2,000	2,200	2,950
EDSflow5000	5000/90000	On request	On request	On request
EDSflow10000	10000/180000	On request	On request	On request

Dimensions are generic, please confirm with Suncombe engineers before use







EDSflow™ DATASHEET

VERSION 2.5

SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

Control and Automation System

Renowned for their ease of operation and versatility, Suncombe systems are designed and manufactured for reliability, repeatability and longevity, whilst complying with the highest international regulatory standards. With dedicated in-house automation personnel for control design and software, Suncombe engineers have tremendous experience in incorporating a broad range of control solutions to suit your specific control requirements.

Developed to the GAMP 'V' model (Verification and Validation), system life cycle approach, which links the three main qualification activities (installation, operation and performance) back to the design process, the system software is produced in house by qualified software engineers, encompassing software development standards, quality control systems and change control during and post development.

Standards and Guidelines

- ✓ GAMP Guidelines
- ✓ FDA 21CFR11 Compliance
- ✓ ASME BPE
- ✓ EU Machinery Directive
- ✓ EU Low Voltage Directive
- ✓ EU cGMP Guidelines
- ✓ EU EMC Electromagnetic Compatibility Directive
- ✓ IEC 61131 for PLCs
- ✓ EN 60204 Safety of machinery
- ✓ EN 60439 Low Voltage Switchgear
- ✓ CE and UKCA Marks

Typical Operator Interface