



# Design, Build & Maintenance of Water Treatment & Water Recycling Equipment

Design | Manufacture | Installation |  
Commissioning | After Sales Care | Hires

RSE Capability Document

Find out more at

[ross-eng.com](http://ross-eng.com)

RSE (Ross-shire Engineering) offers a full service MEICA capability. From project inception and detailed 3D design, through fabrication, installation and commissioning stages, to client training and subsequent operational and maintenance support for the Water Treatment and Water Recycling Sectors.

RSE operates through 15 regional hubs strategically located across the UK. Key in-house experts are based within our Capital Maintenance, Water Technologies, Chemical Dosing and Power Distribution and Controls portfolio groups.

All work is governed under comprehensive health, safety, environmental and quality management systems, certified 45001/18001/9001. As specialists in DfMA and off-site modular build, RSE have a net-zero carbon stretch target of 2030.

Our business model results in sustainable profit to provide continued excellence in the service of our clients.

RSE is structured under four portfolio groups. Each benefit from a strong core of MEICA excellence supported by expansive design, digital engineering capabilities and solid QHSE procedures to meet exacting market requirements. Access to extensive in-house and directly employed delivery teams ensure subcontracting is kept to a minimum.

Qualification on a significant number of market sector frameworks, serviced by vertically integrated group business streams covering MEICA, Chemical Dosing and Power Distribution and Controls, brings true turn-key agility through in-house supply chain delivery.



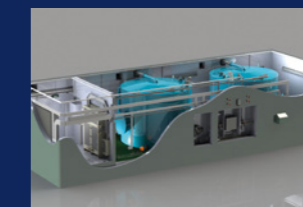
MEICA Capital Projects

- Full Turnkey Water and Water Recycling Solutions
- MEICA & Civils Integration
- Agile and Versatile Self Delivery
- Digital Engineering
- Low Carbon and Sustainable Modular Build Option
- Integrated In-House Supply Chain
- Renewable Energy – Hydro, PV, Wind & EV Charging Points



Water Technology

- RO/NF/MF/UF Ceramic Membrane Filtration
- Design for Manufacturing & Assembly DfMA
- Innovating and Award Winning Modular Build
- Clarifiers/Scrapers/DAF
- Packaged Pump Stations/Booster Sets
- Biological Solutions AD/MBBR/MABR/IFAS
- Ion-Exchange



Chemical Dosing

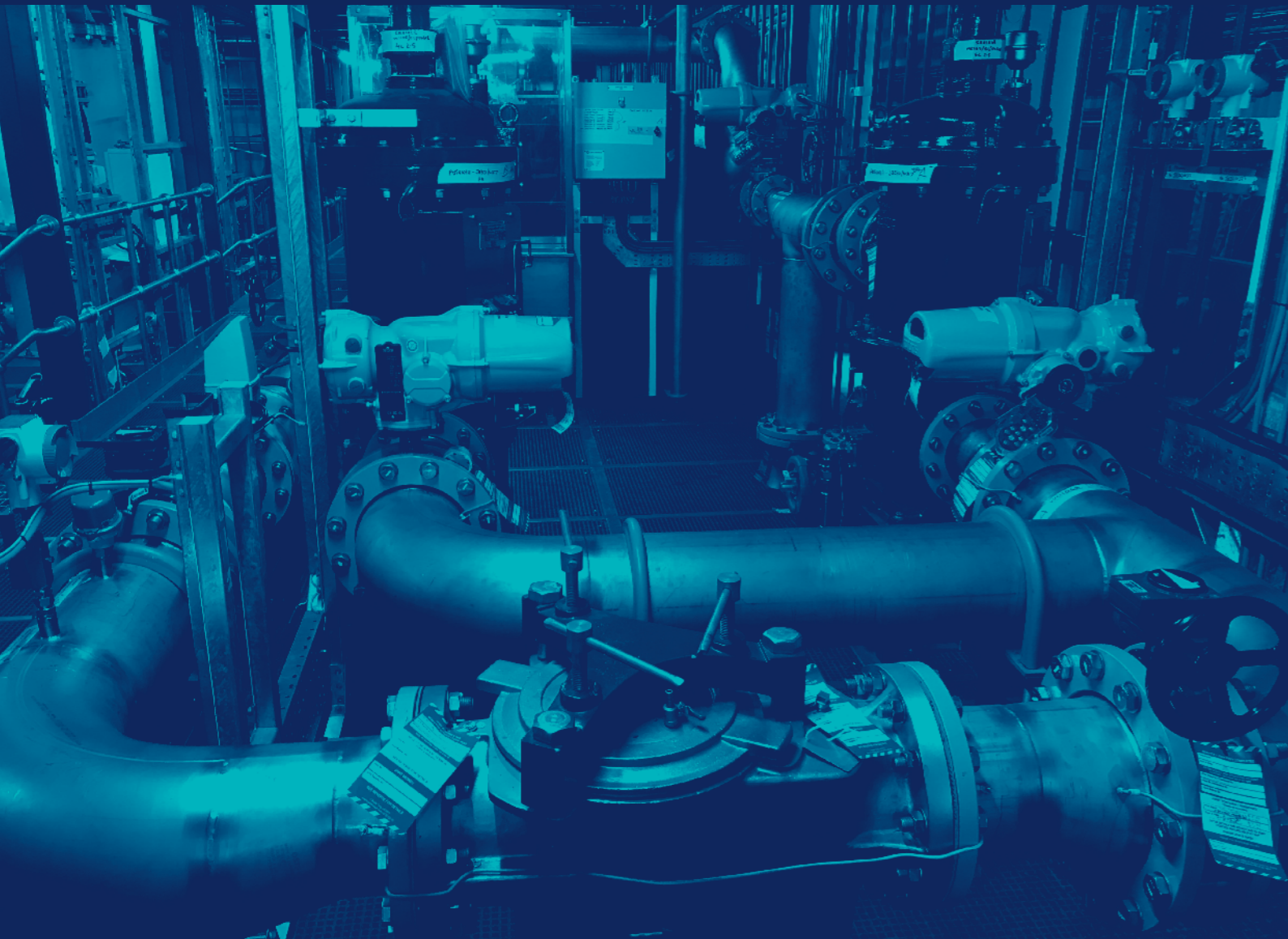
- Multiple Manufacturing Sites for Enhanced Capacity
- Water & Water Recycling Treatment
- Walk-in/Non Walk-in Kiosks
- Standard Products
- Full Portfolio of Chemical Applications
- Low Carbon Modular Build Option
- Unique Hire Service



Power Distribution and Controls

- Integrated Controls Group
- Multiple Manufacturing Sites for Enhanced Capacity
- Design & Manufacture MCC/Panels & Automation
- Switchboards
- Digital Systems PLC/HMI/SCADA
- Compliant BS EN 61439-1/2
- RSE MCC Configurator App

RSE has a long-established track record of successfully delivering MEICA Capital Investment projects for the municipal and industrial water sectors. Our specialist MEICA capability and expertise, delivered through in-house resources, provides an end-to-end service, with innovative and carbon conscious turnkey solutions in alignment with our Contractor of Choice strategic goal.



# MEICA Capital Projects

## Key Details

- Full turnkey self-delivery.
- Digital engineering.
- Low carbon modular build options.
- Integrated key technologies supply chain.
- DfMA Modular Off-site Build.

## Key Benefits

- Reduced costs.
- Reduced carbon.
- Reduced overall programme.
- Reduced environmental impact.
- Improved quality.

- Improved health, safety and wellbeing.
- Improved communications between the design and manufacture and assembly teams.
- Increased innovation.

- Full factory acceptance testing (FAT).
- Build can be carried out at the same time as the advance works.
- Cost and programme surety (reduced risks).



## Full In-House Turnkey Solutions

RSE is a specialist MEICA contractor with capability to self-deliver municipal and industrial water treatment and water recycling projects through fully integrated Design, Manufacture, Construction, Installation, System Integration, Commissioning and Operator Training, along with Operational Support and Maintenance.

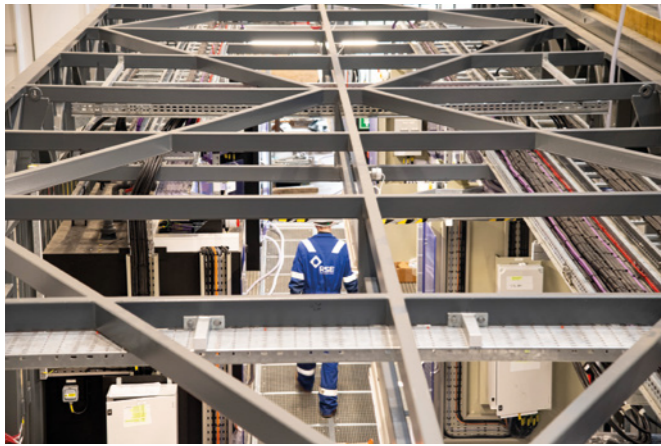
We have extensive experience in delivering large, medium and small value capital works projects and frameworks. We have the full multidisciplinary range of capabilities required to successfully deliver MEICA projects, utilising all relevant disciplines in mechanical, electrical and process design, 3D modelling and innovative engineering, alongside standard design for manufacture and off-site assembly (DfMA) solutions.

We work closely and collaboratively with key technologies suppliers to ensure that they are integrated into our service and that process guarantees and warranties are robust, ensuring that we are able to provide solutions that are at the leading edge of technology, yet acceptable to our clients.

We have developed innovative, cost effective and low-emission products and solutions, based around standardised asset component design. This allows us to reduce usage of raw materials and waste while increasing the design life of solutions, maximising the reusability of products and the recyclability of materials used.



# MEICA Capital Projects



## Off-site Modular Build

A key aspect to our MEICA Capital Projects strategy is to add value through the early identification of the opportunity to adopt off-site innovative, efficient and sustainable modular build techniques, using our in-house capabilities through the full design, manufacture and assembly, testing, installation and commissioning.

## On-site Capabilities

We are experienced in the installation and commissioning of Capital Investment MEICA projects to a wide range of scales and complexities, and seek opportunities to reduce costs and carbon through the appraisal of the opportunity to repair or refurbish, as well as full replacement or a hybrid. We also have full Systems Integration capabilities in-house.

## Certifications and Accreditations

We are SSIP certification body (DNV) certified, and experienced in the CDM 2015 roles of Principal Designer, Designer, Principal Contractor and Contractor. Our works are DWI approved for stainless steel pipeworks and tanks, and we have been awarded a number of awards for innovations. We have additionally been commended for our Health and Safety Record.

We hold multiple other relevant certifications and accreditations including ISO's 9001, 14001 and 45001 and Achilles UVDB, NICEIC AND SELECT, BS EN 1090 Factory Production Certificate CE-UKCA, Welding Certificates, TickIT Plus and Cyber Essentials.



RSE has a proven reputation to deliver capital investment projects, bringing a wealth of experience in water treatment and water recycling for the municipal and industrial sectors.

Through our self-delivery model, skills and geographic coverage, RSE presents as a best-in-class delivery partner with the capability to meet and exceed your capital delivery requirements.



# Clean Water Technology

RSE is a market leader in 3D BIM design, fabrication, manufacturing, clean factory assembly, pre-commissioning, delivery, installation, final commissioning and handover of a complete range of modular transportable water treatment plants.

RSE specialise in process solutions working with varying raw water qualities to deliver award-winning water treatment solutions. Our technologies include nanofiltration, ultrafiltration, reverse osmosis, ceramic and other specialist processes for the supply of top quality water from poor raw water quality envelopes.



## Industry Leaders

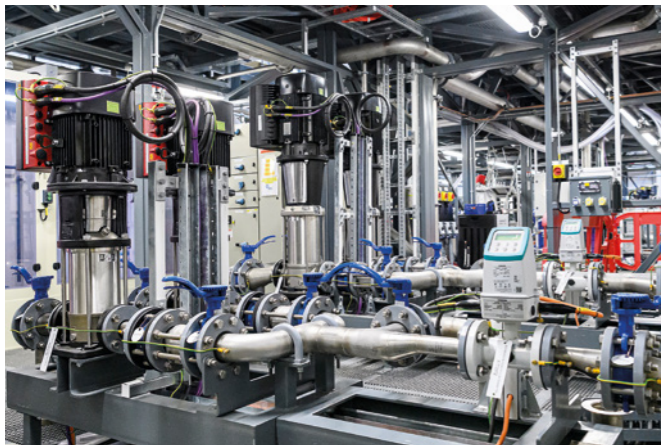
Our industry-leading off-site manufacture and modular assembly delivers embedded carbon reduction, cost savings and programme, alongside exceptional HSEQ (Health and Safety, Quality and Environmental) benefits.

We have a depth of engineering skills in-house, enabling us to extend our comprehensive service and support to a range of cross-sector corporate clients throughout the Water Treatment and Clean Energy sectors. Whether designing and building smaller scale plants or large multi-million pound capital projects, RSE maintains an ongoing focus upon delivery and customer satisfaction. RSE is a performance driven company, where every project is reputational.



- The first choice partner for design and build membrane treatment solutions in the UK.
- Over 50 membrane projects designed, built and commissioned in the UK.
- Complete package solution, encompassing hardware and software for all treatment requirements including disinfection and remineralisation.
- Early involvement in the project cycle to aid in the selection of the most appropriate process.
- In-house Innovations team developing new process technologies.
- Use of existing, proven and repeatable designs, ensuring that each project does not carry bespoke engineering costs.

# Clean Water Technology



## Modular Offsite Build

RSE's Water Technologies division specialises in the design and fabrication of modular offsite treatment works. Complete treatment works can be fabricated off-site, requiring only a structural slab or modular units to be housed inside a new or existing building. Considerable programme, CAPEX and carbon savings are achieved with offsite fabrication, coupled with excellent safety and quality performance. Units are tested and partially commissioned offsite, reducing site commissioning periods and the reliance for commissioning water onsite.

### Benefits

- Financial Benefits
- Programme Benefits
- Factory Quality
- Low Carbon Footprint
- Reduced Impact on Customers
- Health and Safety Benefits

## Process and Technology

Water Technologies have particular expertise in membrane filtration technologies and designing process solutions, working with varying raw water qualities to deliver award-winning water treatment solutions. Our proven track record of delivering membrane technologies include nanofiltration, ultrafiltration, reverse osmosis, ceramic and associated support processes for the supply of top-quality water from poor raw water quality envelopes.

### Key Details

- Nanofiltration / Ultrafiltration / Ceramic Membrane Treatment
- UV Disinfection
- Media Filtration
- Multi Technology Integration
- DfMA Sub-assemblies

# Water Recycling Technology

Our unique 3D Design Configuration system allows RSE to produce tender stage design to client specification, with BIM compliant output for review.

## Primary/Tertiary Solutions

### Rotational Bridge Scraper Systems

RSE design, manufacture and install Standard and Bespoke Rotating Half Bridge Scraper / Clarifiers, ranging from 5M to 30M diameter. Standard and Bespoke Rotating Full Bridge Scraper / Clarifiers ranging from 30M to 50M diameter, and rotating Three-Quarter / Hybrid clarifier designs from 15M to 40M diameters. RSE also specialise in the design and manufacture of Fixed Half and Full Bridge Scraper Systems, ranging from 10M to 40M diameter.

### Rotational DAF Chain and Flight Scrapers and Skimmer Systems

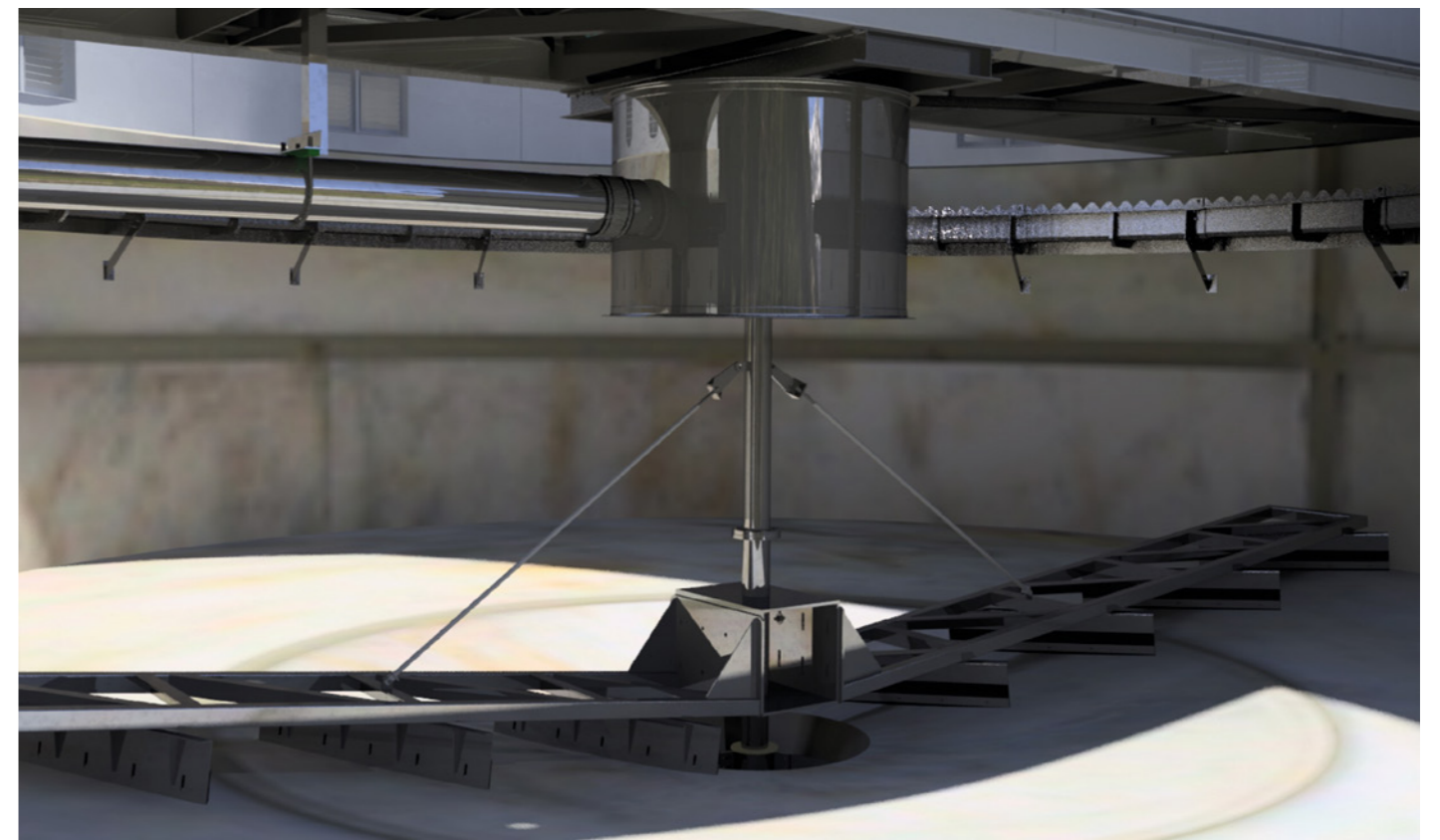
RSE design, manufacture and install Rectangular, Rotary and Chain and Flight DAF scrapers to client requirements in a range of materials – carbon steel painted to WiMES 4.01, various grades of stainless steel including 304L, 316L, Duplex, Super Duplex.

### Rotational Picket Fence Thickener and Tank Systems

Standard and Bespoke Picket Fence Thickener systems ranging from 5M to 40M diameter.

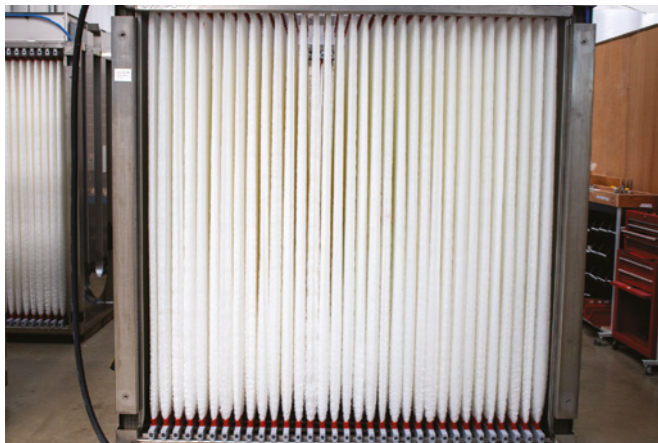
### Rotational Centre Drive Thickener Systems

Standard and Bespoke Centre Drive Sludge Thickeners 5M to 40M diameter.





# Water Recycling Technology



## Biological Solutions

### MABR

RSE offer a range of packaged MABR plants, including a steel tank with MABR modules and kiosk, complete with blowers and local control panel.

### Rethinking Aeration

- Increase Biological Treatment Capacity and Effluent Quality with MABR.
- Unique gas permeable membrane fibres.
- Patented bubbleless oxygen transfer up to 95% transfer.
- Oxygen transfer rate 12g O<sub>2</sub> per m.

### MBBR/IFAS

#### RSE Packaged Plant

- PnP – O Organics, Ammonia & TSS removal
- PnP – N Organics, TN & Solids removal
- Epoxy coated steel open top HC container (40' x 8' x 9.5')
- Separate MBBR cells
- Carriers (ABC5)
- Anoxic cell (PnP-N)
- AGAR® Media Clarifier (MC)
- Dry room



In an increasingly circular economy, clients strive to close their process through recycle for re-use, resource recovery, energy efficiencies or at least minimising waste discharge concentrations and volume. RSE supports core treatment technologies with integrated solutions.





# Chemical Dosing

With almost 100 years of expertise across the three business units (RSE, WES & Sheers) that make up the RSE Chemical Dosing group, we are perfectly placed to provide professional solutions to any Chemical Dosing requirement.

## Engineered and Standard Chemical Dosing Solutions UK Wide for Capital Projects and Hire.



### Key Details

- Walk-in / Non Walk-in
- Portal Frame and kiosk based modules
- Built in chemical bulk storage bund
- Wet / dry / fill point segregations
- Full portfolio of chemical application

### Understanding Needs

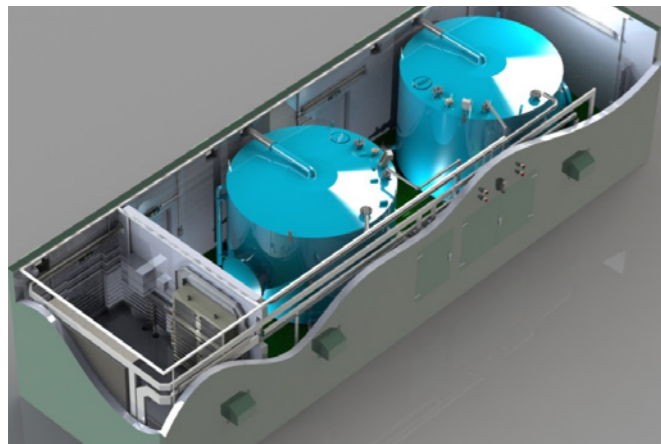
We understand that your Chemical Dosing requirements could involve only a simple digital dosing pump, capable of delivering chemical in an accurately metered flow, or a more bespoke packaged system, with a combination of Duty/ Standby pumps with integrated tanks and control panels, including SCADA tie ins and full Systems Integration. Large "Single Lift" packages, which are DfMA designed and built entirely off site, can be delivered, and offer "plug & play" installation, minimising work needed on site. When you need high flexibility with different size and weight considerations, the RSE Chemical Dosing group can provide economical turnkey solutions, with any combination of chemical storage capacity, pump configuration, walk-in or external access security rated kiosks and control systems that can meet national and international standards, as well as the customer's own asset standards.



# Chemical Dosing

The RSE Chemical Dosing Group work with businesses from a wide range of industries including:

- Water Utilities
- Water Treatment
- Sewage Treatment
- Power
- Process
- Nuclear
- Energy
- Biomass
- Defence



## Chemical Dosing Equipment Hire

RSE Chemical Dosing group also operates a dedicated rental fleet of chemical dosing products to meet a wide range of temporary, emergency, trial, and long-term hire requirements.

The hire fleet is highly geared towards fast deployment. The group's hire business is a key service to our customers to meet both emergency chemical dosing requirements and provide continued process operation during main plant maintenance, asset replacement or chemical trials.

## Dosing Products

The RSE Chemical Dosing group is able to supply, often from stock, an extensive portfolio of Chemical Dosing components, accessories and spare parts.

This service will help to ensure that our clients' dosing equipment remains up and running, delivering effective, accurate and safe chemical delivery.

Designed to meet the rigorous demands of chemical dosing throughout its range of core industry sectors, all of our dosing products are developed using the latest technology and industry best practice.



## Planned Preventative Maintenance

Chemical dosing lies at the heart of many industrial and utility processes. The health, suitability and reliability of your chemical dosing equipment is vital to your business operation. It is critical to safety to ensure well-maintained chemical dosing equipment is not overlooked.

The RSE Chemical Dosing group can take care of your chemical dosing equipment maintenance. We can offer condition surveys, technical advice, and planned maintenance packages for all chemical dosing systems. We can also assist with breakdown repairs, emergency hire, replacement components, upgrades, relocations, re-purposing, controls modifications and operator training, fulfilling all dosing maintenance requirements.

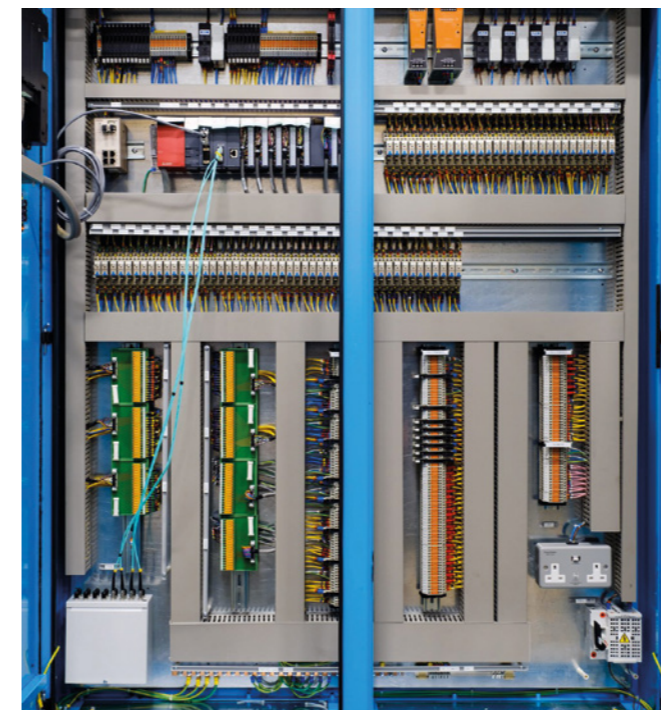
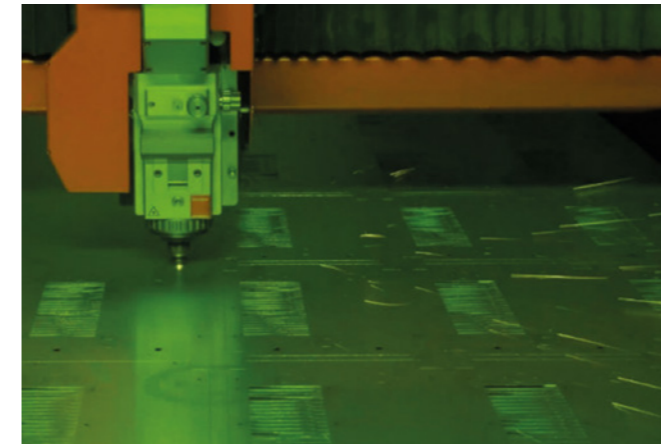
### Typical Chemicals that RSE Chemical Dosing systems regularly handle:

- Ferric Chloride
- Sodium Bisulphite
- Ferric Sulphate
- Chlorine Gas Disinfection
- Sodium Hydroxide (Caustic)
- Electro Chlorination
- Hypochlorite Dosing & Control
- Fluoridation
- Sulphur Dioxide
- Chlorine Dioxide
- UV Disinfection
- Phosphoric Acid
- Slaked Lime
- Ammonia Gas
- Ammonium Sulphate
- Chloramination
- Activated Carbon
- pH Correction
- Hydrated Lime

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# Power Distribution & Controls

Industry-Leading Modular Design for Manufacture of MCCs, Panels and Automation Systems



## About RSE Power Distribution & Controls

The RSE Power Distribution & Controls Group (consisting of RSE, Safronics, TCS and Blackburn Starling) has the largest in-house MCC & Systems Integration capability in the UK. Our industry-leading modular MCC construction, in-house fabrication and electrostatic powder coating plant, provides multiple benefits to clients, including:

### Key Details

- Stock holding, leading to early manufacture and improved timescales.
- Client user interface – an enabler for E-Purchase.
- Maximise utilisation of existing assets.
- Improved waste management and carbon footprint.
- Supply chain opportunities.

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# Power Distribution & Controls



## MCCs (Motor Control Centres)

Our MCCs provide both conventional and intelligent solutions that offer outstanding reliability and functionality. Our WS MCC range has been designed with WIMES standards in mind, fully compliant with BS EN 61439-1/2 and can be configured with the RSE INSITE APP.

## Control Panels

RSE design, build and maintain a range of standard and bespoke control panels for a wide range of industry applications. Our modular build approach saves time, cost and reduces project lead times.

## Switchboards

RSE develop and construct fully customised low voltage Switchboards and LV Switchgear that will adhere to all the required industry standards. Switchboards and LV Switchgear are fully modular, allowing for future extensions and easy installation.

## Digital Systems

We are able to offer a full spectrum of PLC, HMI and SCADA systems, ranging from small stand-alone solutions up to full, site-wide and multi-process installations.

Industry-leading modular MCC construction with fabrication and electrostatic powder coating plant in-house. Our standardised modular approach, unrivalled capacity and client-facing MCC configurator ensure we have the largest systems integration capability across the UK.



# National Strength Local Supply

Self-delivery is RSE's standard business model and we bring a wealth of experience in the water industry.

Our skills and pan-UK geographic coverage offers our clients a best-in-class delivery partner with the capability for self-delivering your MEICA and Capital Delivery programme.

We have a breadth and depth of capability across 1200+ directly employed resources throughout the UK, with strategically placed Engineering and Manufacturing Hubs across the country. Our suggested approach includes co-location where appropriate, through virtual and collaborative hubs; this will maximise collaboration while minimising carbon emissions and inefficiencies.



# Extensive Manufacturing Facilities

Over 330,000 ft<sup>2</sup> of covered fabrication, manufacturing and assembly facilities.

RSE operate a number of suitably equipped workshops across different locations with varying capabilities and unit sizes, with overhead crane capacities ranging from 2 - 20 tonnes. Machinery includes a wealth of machines, not limited to mills, borers, ironworkers, rollers, presses, saws, CNC routers, lathes and profilers.

Location	ft <sup>2</sup>
Muir of Ord	120304.00
Cumbernauld	16193.00
Dalgety Bay	7392.00
Dewsbury	29248.00
Leeds	7900.00
Basingstoke	14000.00
Southampton	1576.00
Nottingham	78500.00
London	9041.00
Basingstoke (1)	11864.00
Darlington	9284.00
Leeds (1)	29288.00
<b>Total</b>	<b>334590.00</b>



# Our Locations

Self-delivery is RSE's standard business model and we bring a wealth of experience in the water industry.

Our skills and pan-UK geographic coverage offer our clients a best-in-class delivery partner with the capability for self-delivering your MEICA and Capital Delivery programme.

**Inverness**  
HQ  
Engineering/Project Management

**Glasgow (Cumbernauld x2)**  
Water Treatment  
Engineering/project management  
Operational Maintenance

**Leeds (Batley)**  
Engineering/Project Management

**Dewsbury**  
Mechanical Solutions

**Basingstoke**  
Engineering/Project Management

**Basingstoke**  
WES Chemical Dosing/Hires

**Bath**  
Engineering/Project Management  
Modular Solutions



**Inverness (Muir of Ord)**  
Water Treatment  
Off-site fabrication  
Operational Maintenance

**Fife (Glenrothes)**  
DPS/MEICA/MCC/SI

**Edinburgh (Dalgety Bay)**  
Chemical Dosing/Hires

**Darlington**  
Sheers Chemical Dosing

**Leeds**  
Saftronics MCC/ICA  
TCS/MCC/SI

**Nottingham**  
BSE MCC/ICA

**London (Grays)**  
Engineering/  
Project Management

**Southampton**  
M-TECH



For more information and contact details visit  
[ross-eng.com](http://ross-eng.com)