



WATER FLOW CONTROL SYSTEMS

Water & Environmental Infrastructure

Design, Fabrication, CNC Manufacturing & Installation

Zedaxis Engineering Solutions Pvt. Ltd.

At Zedaxis, we deliver practical, reliable engineering solutions for real world infrastructure.

We are a global engineering partner supporting water control and environmental projects across the UK and beyond, providing end-to-end delivery from design through to installation.

Our focus is simple: build systems that perform reliably, install efficiently, and last in demanding conditions.

Our strength lies in providing end-to-end delivery from concept and detailed design through to precision manufacturing and installation support. Whether developing new systems or enhancing existing assets, we focus on solutions that perform reliably, install efficiently, and operate in demanding conditions.



100+

PROJECTS DELIVERED



END-TO-END

SOLUTIONS

WHO WE WORK WITH

We work alongside Tier 1 contractors, infrastructure owners, and delivery partners across regulated water and environmental projects.

Our role is to provide reliable, installation-ready solutions that reduce risk and ensure smooth project delivery.

AMCO
GIFFEN

Environment
Agency

cpccivils

A&EY

CHC
Civil Engineering
& Plant Hire

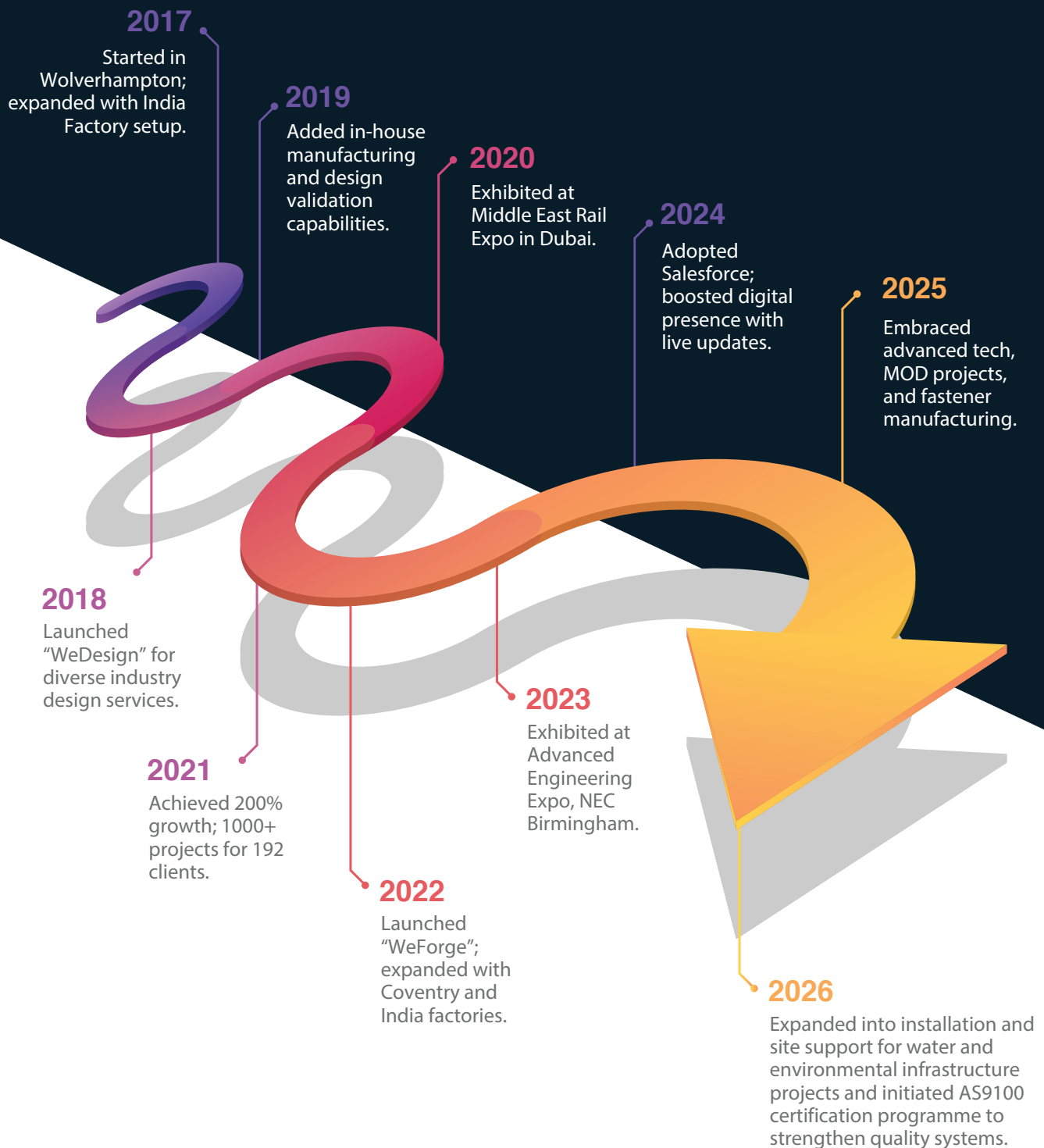
HAYLEY 247
DEXIS

Ministry
of Defence

Supporting systems including penstocks, flap valves, weed screens, and actuation assemblies.



OUR JOURNEY



ENGINEERED WATER CONTROL SYSTEMS

We design, manufacture, and deliver systems that enable safe and reliable control of water across critical infrastructure.

Our solutions support both new installations and upgrades to existing assets, ensuring long-term performance in demanding environments.

CORE SYSTEMS WE SUPPORT

- Penstocks and sluice gates
- Flap valves and non-return systems
- Weed screens and debris management systems
- Jib arms and lifting assemblies
- Structural mounting and support systems

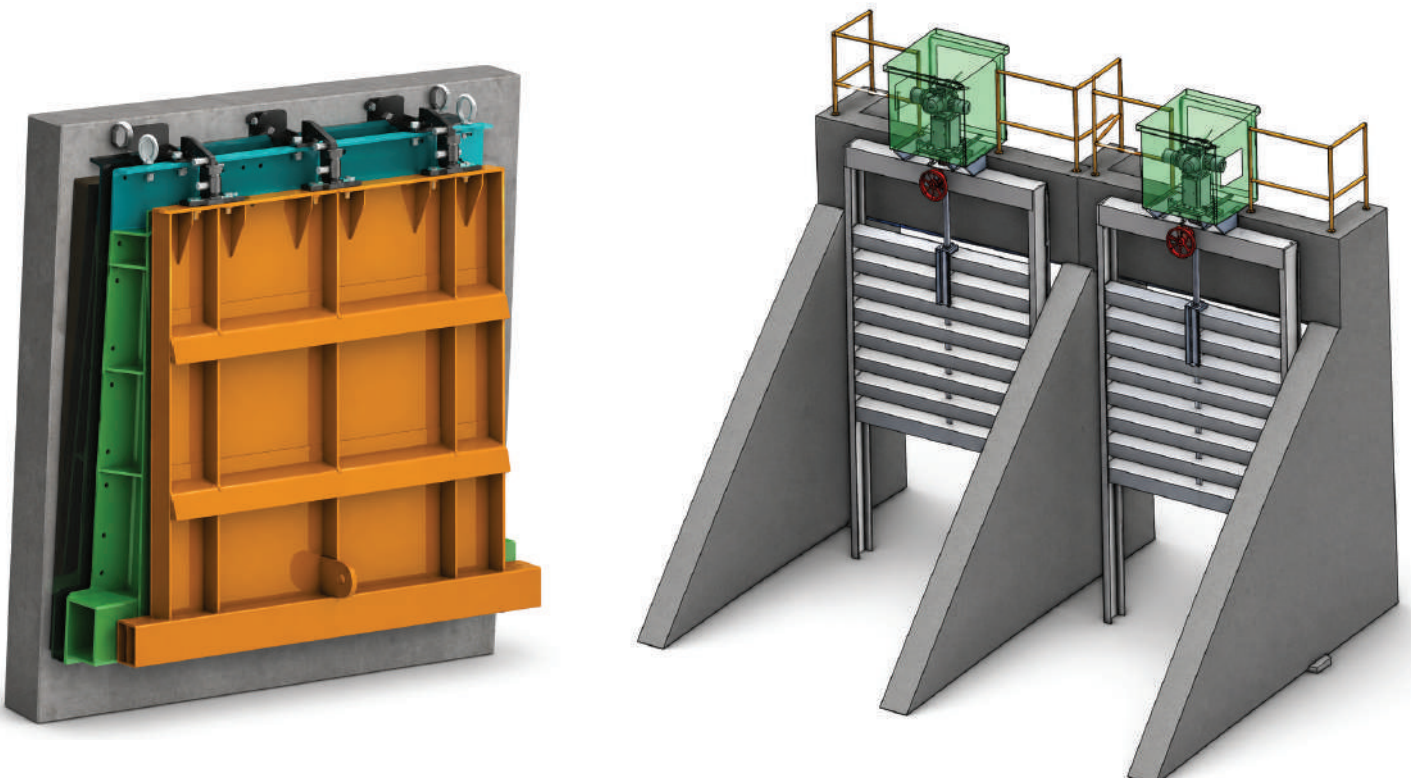
ACTUATION & MOVEMENT CONTROL

In addition to core systems, we provide actuation solutions that enable controlled movement and safe operation of assets.

This includes both manual and assisted systems designed to integrate with new or existing infrastructure.

BUILT FOR REAL-WORLD CONDITIONS

- Designed for outdoor and corrosive environments
- Engineered for load, durability, and longevity
- Installation-ready to reduce site modifications
- Safe and practical for operation and maintenance



ENGINEERING DESIGN FOR WATER FLOW SYSTEMS

At Zedaxis, every solution begins with engineering design.

We develop robust, site-specific systems for water control, environmental infrastructure, and flow management — ensuring reliability, durability, and long-term performance in demanding conditions.

From concept development to detailed engineering, our designs are tailored for real-world installation, maintenance access, and operational efficiency.

2D & 3D CAD DESIGN

We create accurate and detailed 2D drawings and 3D models using:



AutoCAD



SOLIDWORKS



ptc

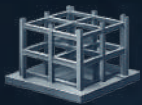


AUTODESK
INVENTOR

Whether you need a complete design from scratch or modifications to existing drawings, our team ensures it meets manufacturability and compliance standards.

SIMULATION & STRENGTH ANALYSIS

We validate design performance using industry-standard tools like SolidWorks Simulation and Ansys for:



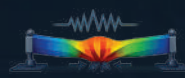
Structural



Thermal



Fluid
dynamics

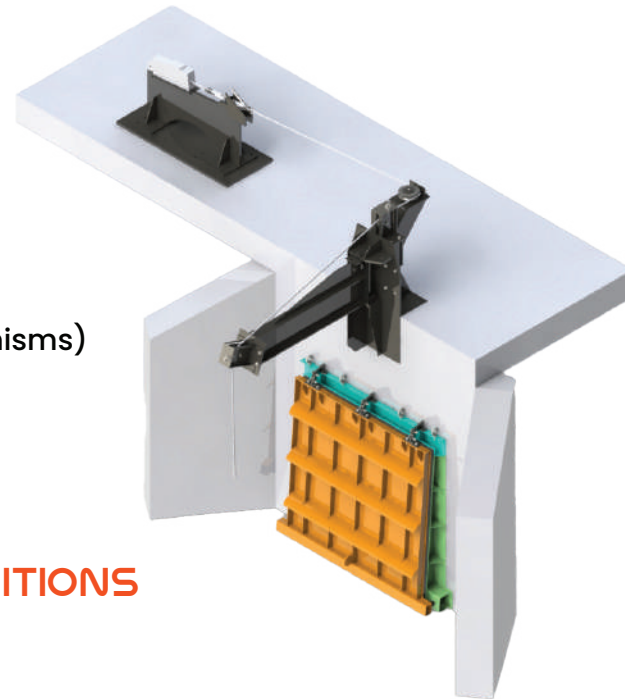


Modal, buckling, and
fatigue analyses

This helps ensure your product functions reliably under real-world conditions before production.

DESIGN CAPABILITIES

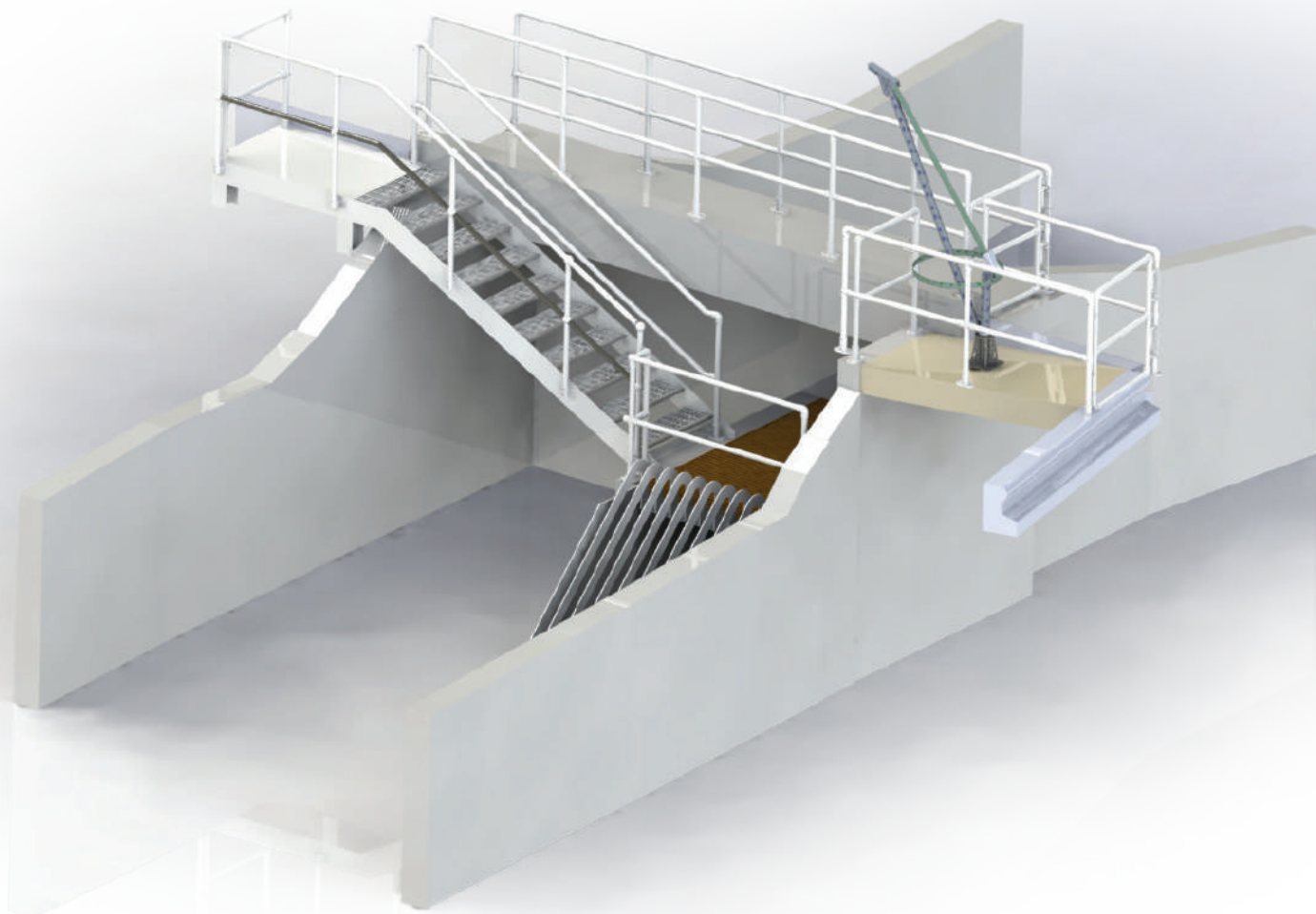
- Concept development & system layout
- Design-for-Manufacture (DFM)
- Structural & load-based design
- Flow control system design (gates, arms, mechanisms)
- Assembly & installation-focused design
- Reverse engineering of existing systems
- Manufacturing drawings with revision control



ENGINEERED FOR REAL-WORLD CONDITIONS

Our designs consider:

- Corrosion and outdoor exposure
- Continuous operation and wear
- Ease of installation and alignment
- Maintenance access and safety



PRECISION MANUFACTURING FOR INFRASTRUCTURE SYSTEMS

We manufacture precision-engineered components that support water and environmental infrastructure systems, ensuring accuracy, durability, and consistency across every project.

From individual machined parts to components integrated into larger fabricated assemblies, our manufacturing capability supports reliable system performance and efficient installation.

CNC TURNING & MILLING :

- Maximum Turning Diameter: Ø 1000mm
- Maximum Turning Length: 1600 mm
- Maximum Machining Travel: 1270 x 508 x 635 mm
- 3-axis and 4-axis capabilities
- Complex profiles, pocketing, slotting, drilling, and tapping
- Ideal for precision components, mold bases, and custom fixtures

MATERIALS:

Ferrous and non-ferrous alloys including:

Mild Steel, Stainless steel, Alloy Steels, Aluminium, Brass, Copper, CuCrZr, Phosphor Bronze.

MACHINED COMPONENTS

- Shafts, spindles, and rotating elements
- Bushes, sleeves, and precision interfaces
- Custom-machined components for assemblies



SYSTEMS & COMPONENTS WE MANUFACTURE

FLOW CONTROL SYSTEM

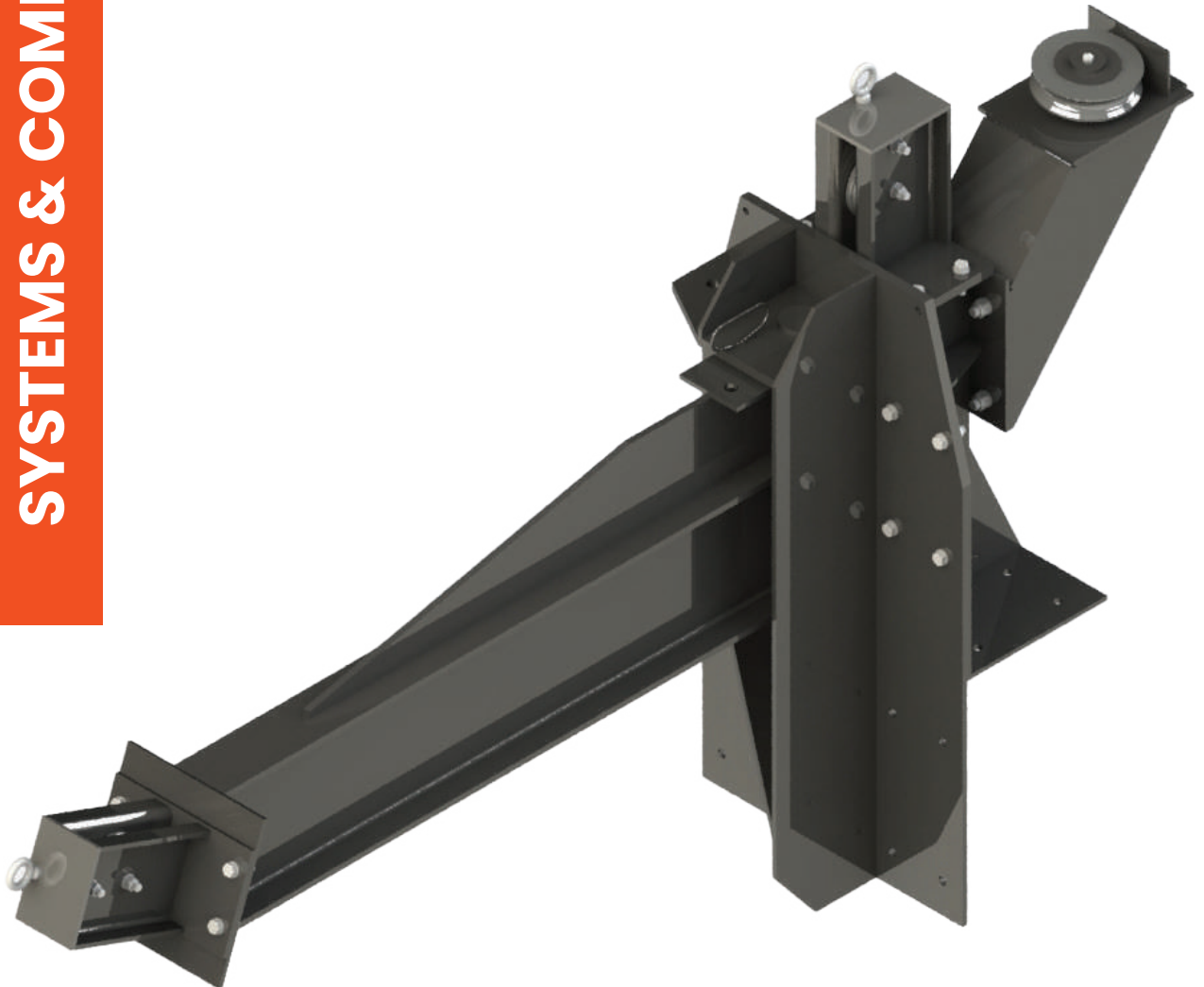
- Actuation systems (Davit Arms)
- Gate and flap mechanisms
- Structural assemblies and mounting interfaces
- Custom components for flow control systems

STRUCTURAL & FABRICATED ASSEMBLIES

- Heavy-duty frames and support structures
- Gate assemblies and mounting structures
- Fabricated steel components for infrastructure

BUILT FOR INSTALLATION & PERFORMANCE

- Accurate fit during assembly
- Reduced site modifications
- Consistent alignment with fabricated structures
- Long-term operational reliability



STRUCTURAL FABRICATION & WELDING

(CERTIFIED BS EN1090)

Zedaxis delivers heavy-duty fabrication solutions for water and environmental infrastructure, manufacturing structural assemblies designed for strength, durability, and long-term performance in demanding outdoor conditions.

From individual fabricated components to complete system assemblies, our fabrication capability ensures every structure is built to meet engineering specifications and site requirements.

CORE CAPABILITIES

- Structural fabrication for gates, frames, and support systems
- Manufacturing of actuation systems (Davit Arms)
- Fabrication of mounting structures and base assemblies
- MIG & Laser welding

STANDARDS & MATERIALS

- Fabrication aligned with BS EN 1090 standards
- Mild steel, stainless steel, and Aluminium

From fabricated components to complete actuation systems, we deliver ready-to-install engineering solutions.



QUALITY & INSPECTION

Quality is embedded at every stage of our process — from manufacturing to final assembly.

We ensure all components and fabricated systems meet defined specifications, tolerances, and performance requirements before delivery and installation.

Our inspection approach focuses on accuracy, consistency, and full traceability across every project.

INSPECTION CAPABILITIES

- Dimensional inspection using calibrated instruments (Vernier, micrometers, height gauges)
- Visual and surface finish inspection
- Alignment and fit-up verification for assemblies
- In-process and final inspection checks

EXPERT METROLOGY

PORTABLE CMM INSPECTION

We utilize advanced portable metrology systems (Keyence XM-5000) for:

- High-accuracy dimensional verification
- Alignment and positional checks
- Inspection of large fabricated structures
- On-site measurement capability

QUALITY WE DELIVER

- Consistent compliance with engineering drawings
- Inspection reports and documentation provided
- Reduced installation issues due to accurate fit
- Reliable performance in real-world conditions



INSTALLATION & COMMISSIONING

Zedaxis delivers installation and commissioning for water and environmental infrastructure systems, including flow control and actuation assemblies, ensuring every component is correctly positioned, aligned, and fully operational.

Building on our engineering and manufacturing capability, we provide a seamless transition from fabrication to on-site delivery. Our approach combines strong project planning, competent execution, and a clear focus on safety, efficiency, and programme delivery.

Our installation teams are trained, competent, and experienced in delivering works safely within regulated infrastructure environments.

CORE INSTALLATION CAPABILITY

- Installation of flow control systems (gates, flap valves, davit arms, penstocks)
- Installation and integration of actuation systems (manual and assisted)
- Positioning and alignment of fabricated structures
- Mechanical assembly, system integration, and commissioning
- Lifting, mounting, and anchoring operations
- Coordination with site teams, contractors, and project stakeholders



COMPLIANCE, SAFETY & WORKFORCE COMPETENCY

Installation delivered by trained, competent, and site-certified personnel
Teams experienced in working within regulated and high-compliance environments

Full supporting documentation including RAMS, installation procedures, and permits

Structured project planning aligned with site programmes and delivery milestones

Planned execution to minimise disruption to ongoing site operations

Focus on meeting programme requirements and ensuring on-time completion

BUILT FOR REAL SITE CONDITIONS

Accurate alignment for smooth and reliable operation of both structural and actuation systems

Reduced rework and minimal site modifications

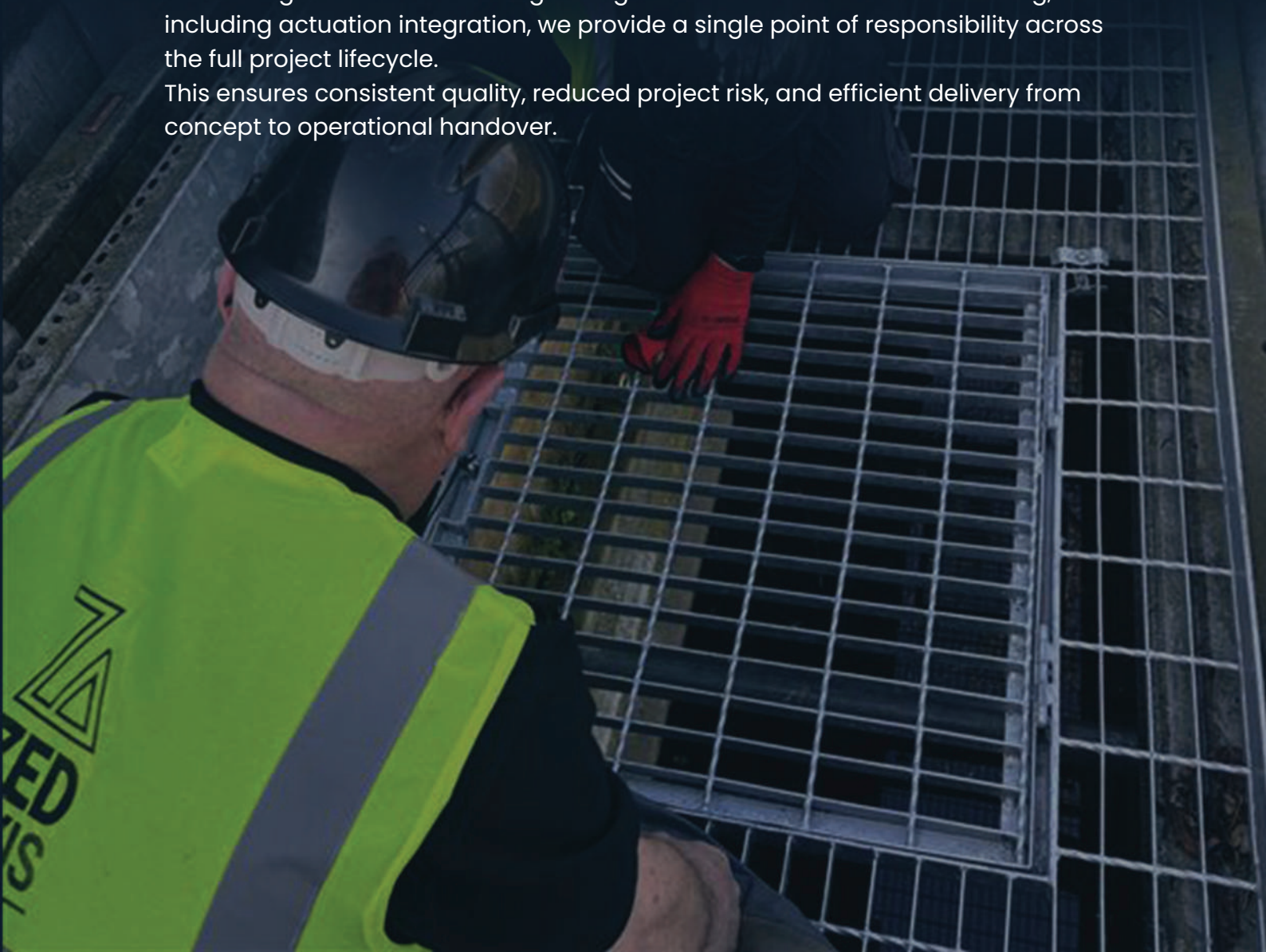
Safe and controlled installation practices

Systems delivered ready for operation from day one

END-TO-END PROJECT DELIVERY

From design and manufacturing through to installation and commissioning, including actuation integration, we provide a single point of responsibility across the full project lifecycle.

This ensures consistent quality, reduced project risk, and efficient delivery from concept to operational handover.



QUALITY & COMPLIANCE

Zedaxis operates under internationally recognized quality and fabrication standards, ensuring every project meets strict engineering, manufacturing, and compliance requirements.

Our systems are designed to support high-reliability infrastructure projects, with a strong focus on consistency, traceability, and continuous improvement.

CERTIFICATIONS

ISO 9001:2015

Quality Management System

Ensuring consistent processes, controlled documentation, and continuous improvement across all operations.



BS EN 1090

Structural Fabrication Compliance

Certified fabrication processes for load-bearing steel structures used in infrastructure and industrial applications.



AS9100 (In Progress)

Advanced Quality Standard

Currently implementing AS9100 quality systems to further strengthen process control, traceability, and high-reliability engineering standards.



COMPLIANCE YOU CAN TRUST

- Controlled manufacturing and fabrication processes
- Full traceability of materials and production
- Inspection and quality documentation provided
- Adherence to international engineering standards

SUPPORTING DOCUMENTATION

All projects are supported with required technical and quality documentation as per client and regulatory requirements

PROJECT DOCUMENTATION & SUPPORT

Zedaxis provides structured project documentation to support safe execution, installation, and long-term system performance.

Our documentation ensures clear communication between engineering, fabrication, and site teams — enabling efficient project delivery with reduced risks and improved coordination.

CORE DOCUMENTATION SUPPORT

RAMS (Risk Assessment & Method Statements)

Prepared to support safe and controlled site execution, outlining installation procedures, safety measures, and operational steps.

BUILDABILITY STATEMENTS

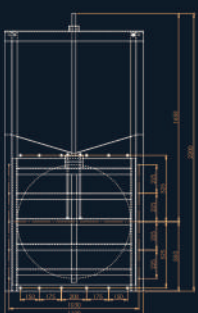
Ensuring designs are practical for fabrication, transport, and installation, minimizing site challenges and improving execution efficiency.

TECHNICAL DOCUMENTATION

- General Arrangement (GA) drawings
- Assembly and fabrication drawings
- Installation drawings and site layouts
- Inspection and quality reports
- Revision-controlled documentation

SUPPORTING PROJECT EXECUTION

- Clear installation guidelines
- Improved coordination between teams
- Reduced on-site errors and rework
- Smooth handover and long-term operation



ASE STUDY

ASE STUDY 01

Flow Control System with Davit Arm Mechanism

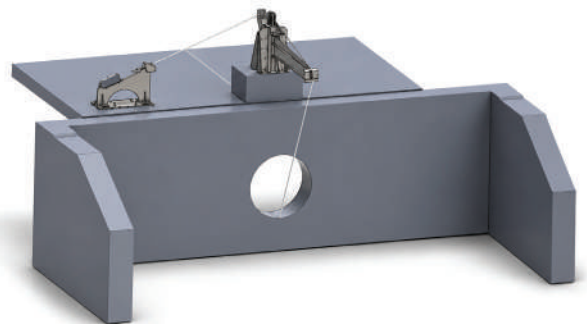
THE CHALLENGE

The client required a reliable flow control system for canal water management that could operate continuously in demanding outdoor conditions. The project involved achieving accurate alignment between the gate and Davit Arm mechanism while ensuring durability, smooth operation, and ease of maintenance. Limited installation access and environmental exposure added further complexity during both manufacturing and on-site execution.



THE SOLUTION

- Engineered complete Davit Arm actuation system
- Developed detailed 2D drawings and 3D CAD models
- Manufactured structural assemblies and machined components
- Fabricated gate assemblies and support structures
- Supported installation and on-site alignment



THE OUTCOME

- Reliable and controlled water flow operation
- Reduced installation adjustments on site
- Improved durability in outdoor environments
- Accurate assembly and smooth system operation
- Long-term operational reliability



CASE STUDY 02

Ulpha Divertor Valve System

THE CHALLENGE

The project required the development of a precision divertor valve system capable of maintaining accurate flow regulation under continuous operational conditions. Multiple fabricated and machined components needed to integrate perfectly during assembly, making dimensional accuracy and alignment critical throughout the manufacturing process. The system also had to remain durable, serviceable, and suitable for long-term industrial use.

THE SOLUTION

- Designed fabricated valve assemblies and support structures
- Produced detailed manufacturing and assembly drawings
- Manufactured precision-machined components and interfaces
- Fabricated heavy-duty welded structures
- Completed fit-up verification and assembly checks

THE OUTCOME

- Accurate integration between fabricated assemblies
- Reduced alignment issues during installation
- Improved manufacturing consistency
- Durable structure for long-term operation
- Efficient coordination between design and fabrication teams



OUR GLOBAL PRESENCE AND CLIENTS



VISION

To deliver simple design and reliable manufacturing, every time.



MISSION

Simplifying complex engineering challenges.

VALUES



Quality First

We are ISO 9001:2015 certified, ensuring every output meets international quality standards.



Integrated Workflow

Everything is synced from design to delivery, powered by Salesforce. It's how we stay fast, focused, and flawlessly connected.



People-Focused

We invest in the next generation of engineers, and we're committed to diversity, equal opportunity, and fair labour practices in both India and the UK.



Sustainability-Driven

Sustainability is a journey, and we're taking real steps to reduce our footprint and build a better future.



LET'S DISCUSS YOUR NEXT WATER INFRASTRUCTURE PROJECT

From flow control systems and fabricated structures to installation-ready engineering solutions, Zedaxis supports water and environmental infrastructure projects from concept to execution.

Design • Manufacture • Fabricate • Install

Zedaxis Engineering Solutions Pvt. Ltd.

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