



Earthing & lightning protection

Total solution: Designed to perform



Company overview

Our reach and expertise

Furse a world leader in Earthing, Lightning & Electronic Systems Protection provides innovative, high quality products and technical expertise to the following industry sectors:

Infrastructure & transportation

Rail, metro and transit systems, airports and airport terminal expansions, subsea tunnels

High tech & industrial

Pharmaceutical factories, high tech manufacturing & semi-conductor plants, telecoms stations, exchanges, and transmission towers, IT Parks & Technoparks, heavy industry

Commercial construction

Landmark commercial projects (Burj Khalifa, Petronas Towers etc), financial services institutions, convention & exhibition centres, office blocks and commercial centres, showrooms & retail units

Sports & recreation

Hotels & resorts, sports facilities & training grounds, theatres & opera houses, shopping malls

Government & public sector

Central government buildings, embassies and official residences, local authority premises, police stations, hospitals & healthcare facilities, technical colleges & universities

Residential

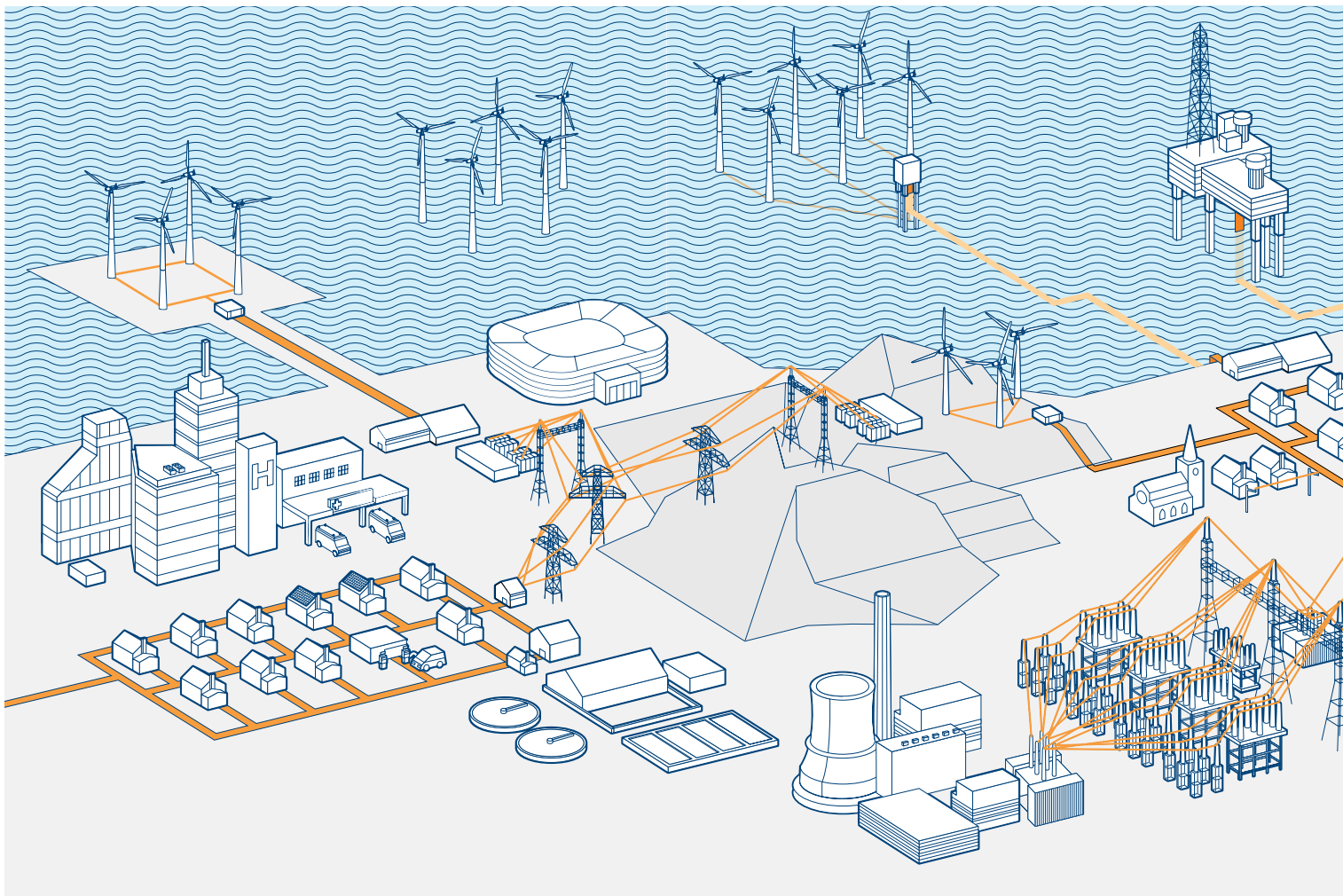
High-rise residential towers and apartment blocks, condominiums, housing development projects, multiple use residential and commercial towers

Oil & Gas/Petrochemical

Offshore platforms, oil fields, refineries for oil & gas, pipelines, petrochemical processing facilities

Utilities

Power stations (coal, gas, hydro-power, nuclear), electricity substations, overhead transmission lines, waste water treatment facilities, desalination plants



Expertise

Specialist advice from our fully competent engineers - focusing on your earthing & lightning protection needs in line with standards

Experience

Experience to provide the optimum design - one that doesn't use more material than is necessary, saving you money.

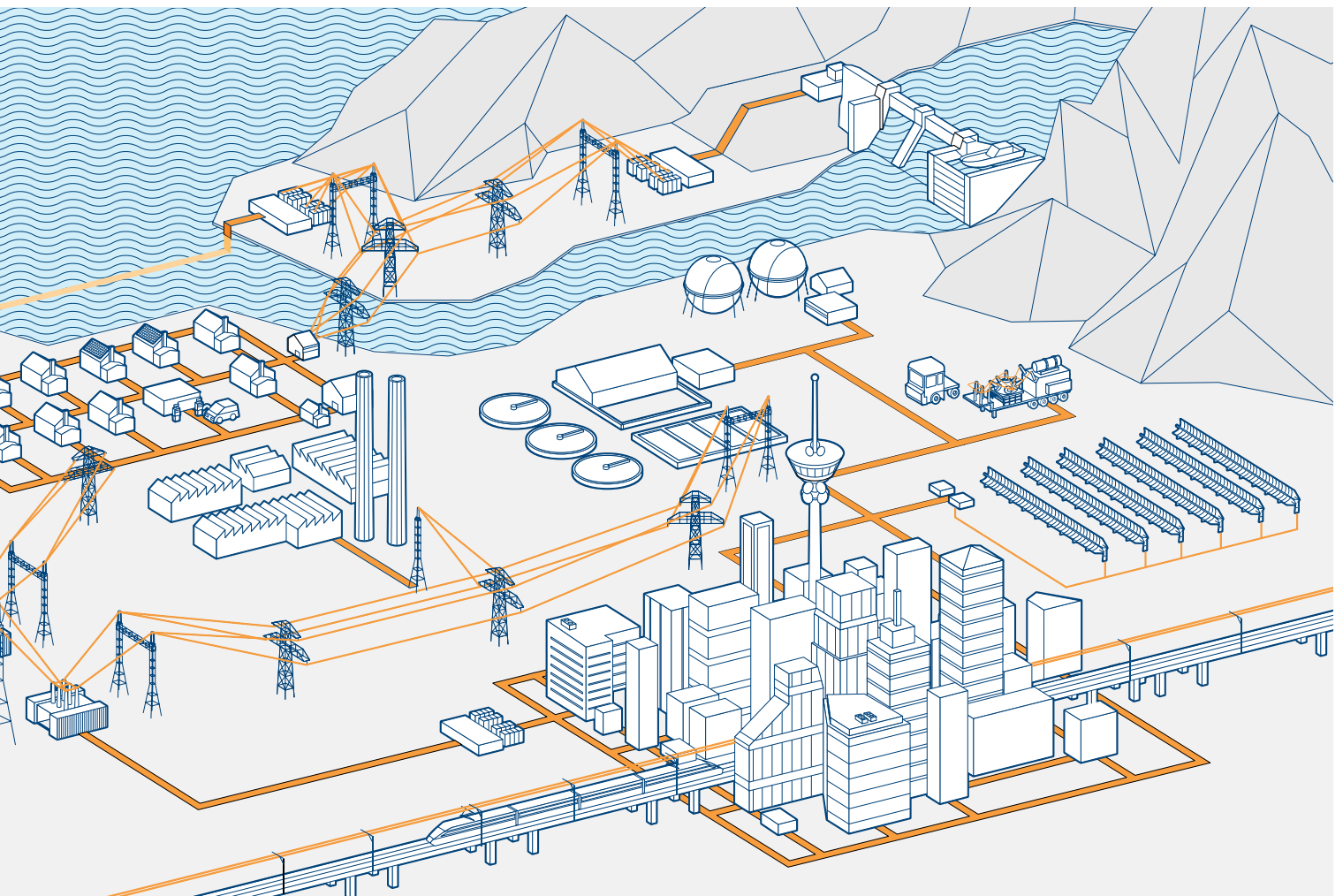
Knowledge

Our knowledge of the latest products ensures a tailored design that can be installed using the most appropriate and up-to-date products.

Compliance, now & in the future

Furse designs comply with all recognised standards.

- BS EN/IEC 62305 Protection against lightning
- NFPA 780 Standard for the installation of lightning protection systems
- IEEE Std 80:2000 IEEE Guide for safety in AC substation grounding
- BS7430:2011 Earthing of Electrical installation
- ENA TS 41-24 Guidelines for the design, installation, testing & maintenance of main earthing systems in substations
- BS EN 50522:2010 - Earthing of power installations exceeding 1.k Vac
- S34 - Assessment of the rise of earth potential at substation site



Technical solutions

Advise, support and design

Furse have been providing design solutions for over 120 years and believe the fundamental ingredient to our success has been sharing our expertise with clients to allow informed decision making.



1. Lightning protection solutions

- Team of experienced engineers
- Engineered designs to meet client specifications
- Risk assessment complying to latest standards

2. Soil resistivity surveys

- Experienced surveyors
- Key to creating effective earthing system
- Multiple readings taken to ensure safe and accurate designs

3. Earthing design

- Detailed design to meet the desired resistance to earth value in line with the standards

4. Testing & Certification

- Verification of earthing design through measurement
- Experienced team of engineers with full understanding of electrode testing



Earthing and lightning protection

Design services, site surveys and analysis

Earthing & lightning protection solutions

There are many benefits of coming to Furse for earthing and lightning analysis:

- Specialist advice from our fully qualified technical team, which focuses on earthing and lightning protection
- Designs that comply with all relevant standards - national and international
- Our responsibility for providing a design that is safe
- Experience and the software to provide an 'optimum' design - one that doesn't use more material than is necessary - saving you money
- Manufacturing experience and expertise utilising our knowledge of the products available to provide a tailored design that can be installed using the most appropriate and up-to-date products

Soil resistivity surveys

A comprehensive soil resistivity survey is key to creating an effective earthing system, as inadequate or erroneous soil resistivity readings are likely to result in a flawed design.

Furse site surveys take multiple accurate soil resistivity readings at various depths across the site. As these results form the basis of the whole earthing design, the experience of our engineers is critical in ensuring correct implementation of the test data.

Earthing design

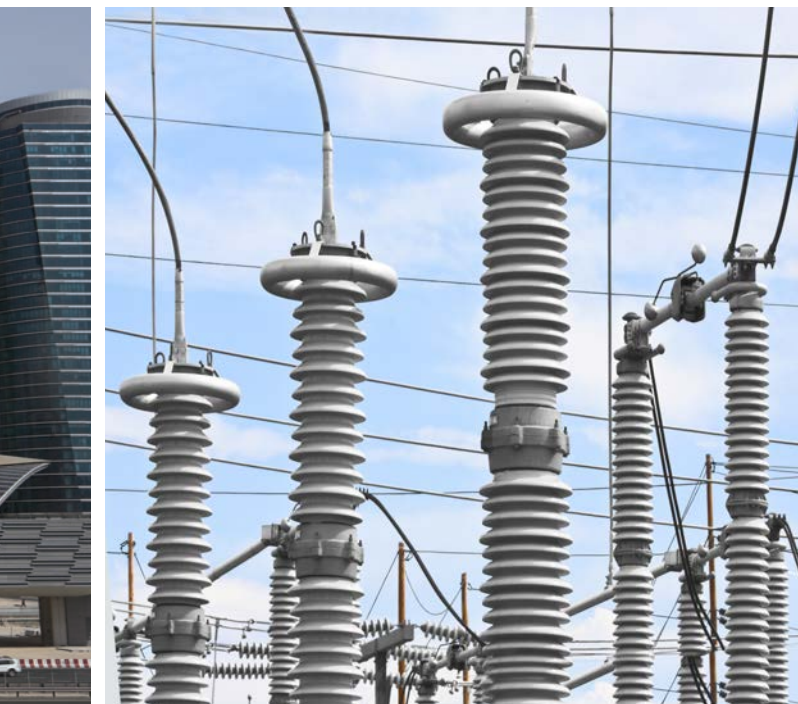
Using the relevant standards we can produce detailed or budgetary earth electrode and lightning protection system designs, in compliance with recognised standards and whatever the complexity of system required.

Full earthing analysis uses state-of-the-art software to determine the step and touch voltages, earth potential rise and fall and resistance to earth values.

Testing & Certification

Earth resistance measurement is essential to accurately determine that the installed earthing system meets the anticipated criteria laid out in the initial design, apart from checking continuity

Our technicians ensure all measurements are correctly taken and interpreted, so that the true resistance of the earthing system and electrical continuity can be accurately determined and verified.



Earthing and lightning protection

Providing a total solution



Structural lightning protection

From Furse air termination systems including air rods and strike plates to capture lightning strikes, through to our comprehensive range of down conductors and lightning protection components which channel lightning energy safely to a Furse earth termination network.

- Air terminals & accessories
- Lightning protection conductors & accessories
- Conductor clips, clamps and holdfasts



Earthing

A combination of Furse earth electrodes, soil conditioning agents conductors and equipotential bonding bars provide an effective, low resistance dissipation of the fault current to earth.

- Earth rods and conductor systems
- Mechanical earth clamps and bonds
- Soil conditioning agents
- Equipotential bonding & earth bars



Electronic systems protection

Our exhaustive range of equipotential bonding and transient overvoltage SPDs providing fully coordinated protection against transient overvoltages on all incoming and outgoing metallic service lines including power, data, signal & telecoms.

- Lightning Equipotential Bonding SPDs
- Mains power transient overvoltage SPDs
- Data, signal & telecommunication lines SPDs
- DC power & photovoltaic



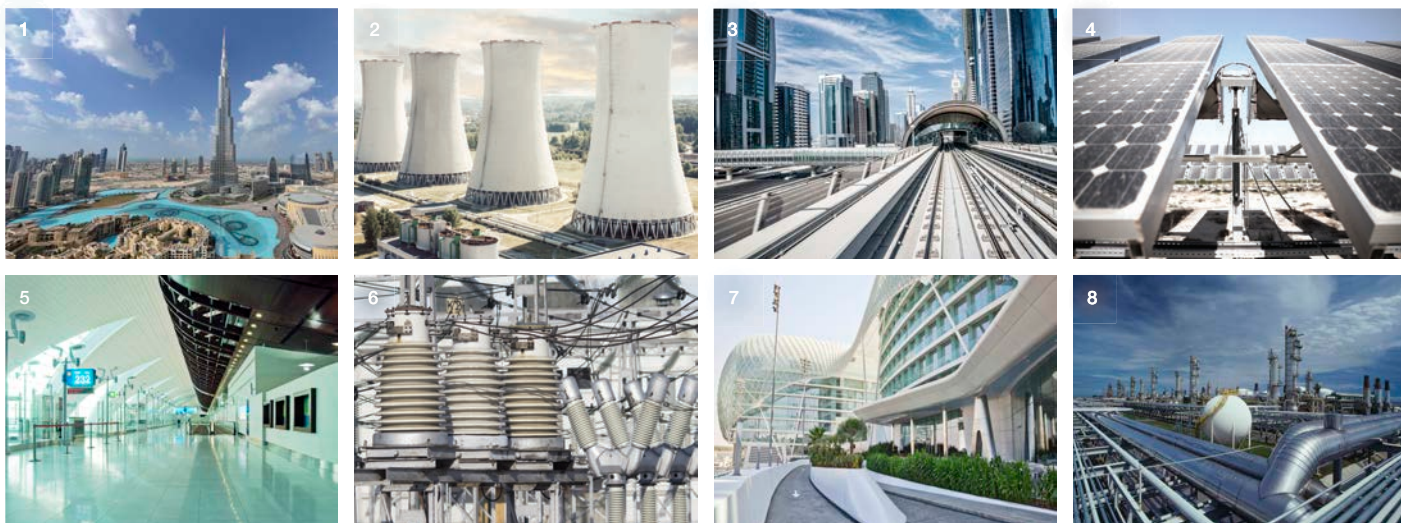
FurseWELD - Exothermic welding

FurseWELD exothermic welding is a cost efficient, self-contained system that uses the high temperature reaction of powdered copper oxide and aluminium, within a mould, to form permanent electrical connections.

- Moulds
- Powder
- Handle clamps
- Accessories

Case Studies

Sharing our expertise



1 Commercial construction | 2 Power stations | 3 Trackside substations | 4 Solar photovoltaic power stations
5 High tech & industrial | 6 Substations | 7 Sports & recreation | 8 Oil & gas

Past projects include:

Oil & gas / Petrochemical

- ADCO Bab Thamama G4, Habshan2
- Asab Full Field Development, UAE
- Dorra Gas Field Development, Saudi Arabia CHPplants
- Jubail Chevron Phillips (JCP)
- Petrochemical Plant, Saudi Arabia
- QP Gas sweetening facility at Dukkam & Messaid
- Qusaharira FFD,ADCO

Utilities

- Waste Water Treatment Plant, Shoiba, Saudi Arabia
- JAFZA Desalination Plant, UAE
- Hammam Power Station, Algeria
- Shuwaikh Desalination Plant, Kuwait
- Jebal Ali M Station, Dubai
- Mombassa Substation, Kenya
- Kapichira Hydro-Power Station, Malawi

Rail & infrastructure

- Bahrain Int'l Airport Expansion
- Dubai Metro, Dubai
- Doha Metro, Qatar
- New Terminal, Seeb Airport, Oman
- Dubai International Airport
- Haramain Rail, KSA

High tech & industrial

- Najran Cement Factory, Saudi Arabia
- Yamama Cement factory, KSA
- IWPP1&2, KSA
- Abu Dhabi Air base hanger, UAE
- 132/33KV Substation at Qurm, Oman
- Khorfakan container terminal,UAE
- Doha port, Qatar
- Light Industrial unit at Jebel Ali
- Khalifa Port, Abu Dhabi

Commercial construction

- Bahrain Financial Harbour
- Emirates Towers, Dubai
- Oman Arab Bank, Oman
- Central Market, Abu Dhabi
- Barwa Financial District, Qatar
- HQ Building, Abu Dhabi
- Eastern Mangrove Hotel, Abu Dhabi
- Viceroy Hotel, Yas Marina, Abu Dhabi
- Burj Khalifa, Dubai
- Burj Al Arab, Dubai

Sports & recreation

- Azizia Mall, Kuwait
- Dubai Sports City Complex, UAE
- Ferrari experience, UAE
- Dubai Cricket stadium, Dubai
- Yas Island water park, UAE
- Cricket stadium, Abu Dhabi
- Meydan racecourse development, UAE
- Operah house, Dubai

Government & public sector

- Royal College of Surgeons, Muharraq, Bahrain
- International Maritime College, Oman
- Al Jaber Hospital, Kuwait
- Royal Palace at Qurm, Muscat
- Central Market, UAE
- Jalalia Children specialty Hospital, UAE
- Ministry of Housing Villas, KSA
- Correctional facilities by MOI -KSA
- Civil defense building in Al Ain-UAE
- Future schools -UAE

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