

# POWERJACKS

## Lifting & Positioning Solutions for the Defence Industry

Land



Sea



Air





# Capability

OUR EXPERTISE HAS BEEN BUILT ON A HISTORY OF MORE THAN 100 YEARS OF ENGINEERING, CRAFTSMANSHIP, VISIONARY DESIGN, QUALITY MANUFACTURE AND CUSTOMER CARE.

Power Jacks is a manufacturing/engineering company specialising in the design and manufacture of lifting & positioning solutions for applications in Industrial Automation, Energy, Defence, Transport and the Civil Engineering sectors.

Headquartered near Aberdeen in the UK, the company is the UK's largest screw jack manufacturing facility, that uses the latest engineering technologies to deliver quality products (BS EN ISO 9001:2008) that offer reliability, performance and economy.

Power Jacks deliver this high quality service in a safe (OHSAS 18001:2007) and environmentally friendly (ISO 14001:2004) working environment thanks to the highly trained, flexible and motivated teams that work throughout the business driving the company to higher levels of performance.

We know our customers demand our engineering expertise to help find a solution for their applications. We take pride in designing and delivering the best solution using standard or special designs that help improve your business.

Our Vision is to become the partner of choice for our products globally

Our Mission is to provide high quality lifting & positioning solutions.

# Global Reach

POWER JACKS HAS LOCAL REPRESENTATION IN 27 COUNTRIES AND SUPPLIES ITS PRODUCTS TO MORE THAN 80 COUNTRIES WORLDWIDE.



A global reach with a local service as we work closely with our customers to ensure the best solution for all their Electro-Mechanical solutions for land, sea and air defence applications.

- Headquarters & Factory
- Local Power Jacks Sales Offices
- Local Representative

# Engineered Solutions

WHEN THERE CAN BE NO COMPROMISE ON PERFORMANCE, QUALITY, RELIABILITY AND DURABILITY. TRUST POWER JACKS ENGINEERED SOLUTIONS FOR THE MOST DEMANDING DEFENCE APPLICATIONS.



Our linear motion and gearbox solutions are used in land, sea and air roles with each design engineered for specific operational applications. Our bespoke design service allows Power Jacks to provide standard product, customised product or start from scratch. Design features can include requirements such as light weight housings, auxiliary drives, high corrosion resistance, non-magnetic material, special gear ratios, low noise products, tailored interface & mounting arrangements and submersible options. Whatever the application, our innovative and experienced team of engineers will work with you to meet the challenge.

Typical applications for our products are found on minesweepers, howitzers, tanks, armoured personnel carriers, submarines, ships, mobile & static communications, shelters, trucks, aircraft hangers, aircraft transportation vehicles and many more.



# In Action

## Aircraft Carrier

Highly Mechanised Weapons Handling System (HMWHS) using specialised electric linear actuators and screw jacks.

## RAS Mast Positioning

Roller screws integrated into the RAS mast mechanism provide accurate and reliable positioning for replenishment at sea.

## Steam Turbine Control

For submarines or aircraft carriers our electric linear actuators allow precise control of turbine valves.

## Helicopter Radar

Precise and reliable elevation position achieved with our linear actuators.

## Aero Engine Transportation Lifts

For the easy transportation of aero engines within factories, air bases or globally our screw jacks provide the lift and lower mechanism on the transport cradle, trailer or vehicle.

## Undercarriage Lifts

Screw jack systems provide the ideal solution for quick and easy removal and installation of aircraft undercarriage.

## Helicopter Transportation Lifts

Screw jack systems provide the lifting mechanism to allow the quick & easy loading and unloading of helicopters into cargo transporters.

## Nose Cone Assembly

Screw jacks position the nose cone accurately during assembly at manufacture or maintenance.

## Fighter Wing Assembly

Accurately align the wing assembly to fuselage during manufacture using our precision screw jacks.

## Missile Test Simulator

High speed, precision linear actuators provide the actuation for missile simulator test rigs.

## Aircraft Maintenance Platforms

Screw jack systems provide reliable and flexible solutions to alter platform configurations to suit a multitude of military aircraft from fighters to transporters.

## Nuclear Reactor Tunnel Plug Lid Lift

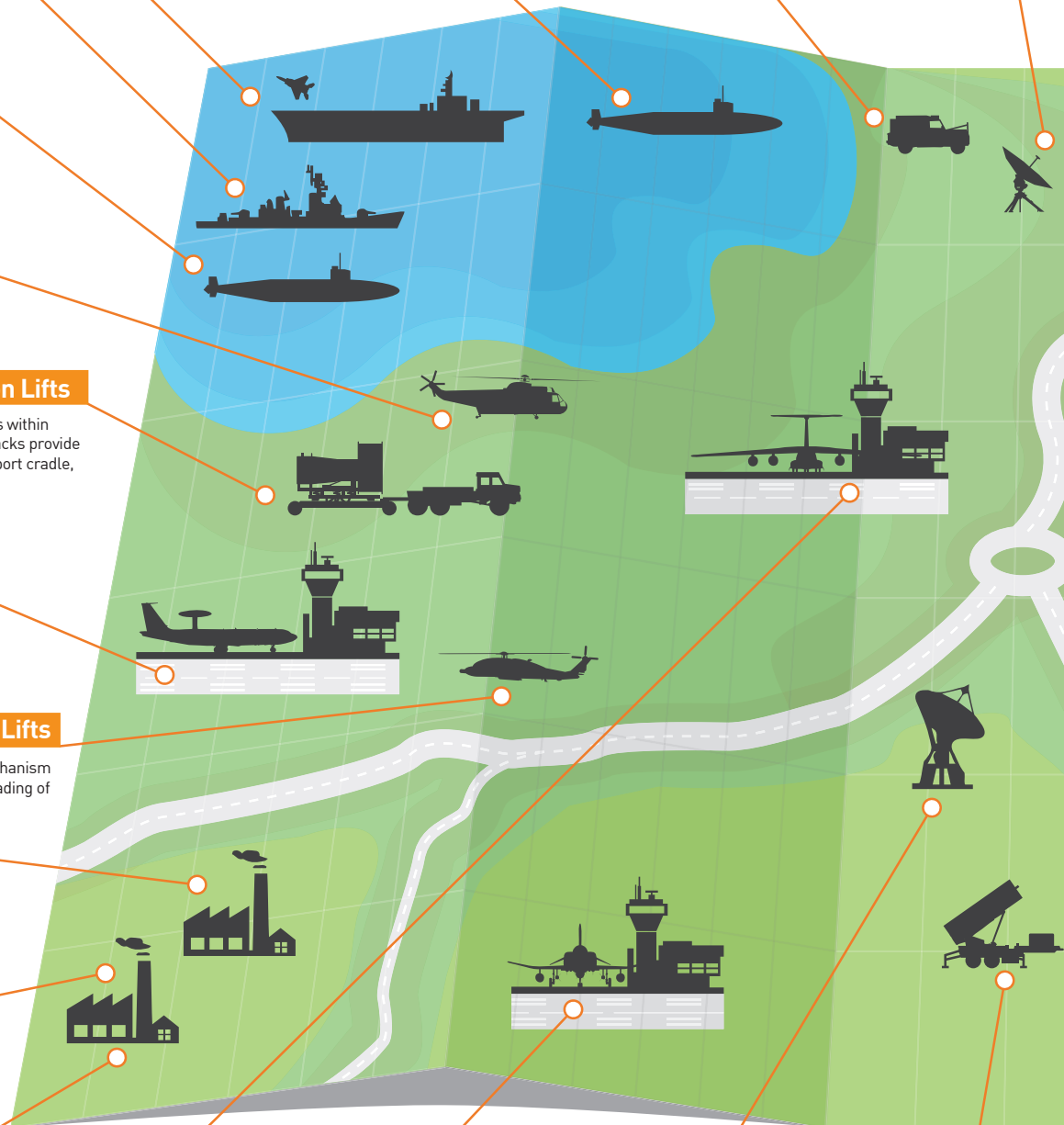
Automation of reactor tunnel plug lift using advanced screw jack systems on submarines or other vessels.

## Protective Patrol Vehicle

Configurable pod changing mechanism using bespoke screw jacks.

## Portable Satcom Equipment

Raise and lower the antenna for portable satcom equipment using our integrated screw jack or lead screw technology.



## Aircraft Cockpit Access Platforms

Integrated screw jack technology provides easy access platforms for aircraft cockpits with adjustable height and landing legs.

## Fixed Radar Systems

Azimuth and elevation drives for dish sizes up to 20m diameter using either precision screw jack or linear actuator technology.

## Trailer Stabilising/Landing Legs

Deploy landing / stabiliser legs for any trailer based system using integrated linear actuators for each leg.

# All Arenas

## Automated Self-Propelled Artillery System

Automated artillery systems gain the advantage using our advanced electric linear actuators for elevation positioning, munitions handling and loading.

## Land Mine Clearance System

Drive between engine and flail provided by shock load rated bevel gearbox.

## Self-Propelled Artillery

Gun turret traverse drives using bevel gearbox technology.

## Turret Stabilising and Pointing Systems

For small armoured land vehicles up to main battle tanks (MBT) our bespoke electro-mechanical actuators provide the precision and reliability required for turret stabilising and pointing systems.

## Armoured Personnel Carrier

Door and hatch actuation mechanisms use special electro-mechanical linear actuators.

## Light Armoured Vehicles

Gun elevation provided by electric linear actuator.

## Explosive Ordnance Disposal (EOD) Vehicles

Arm and joint actuation provided by precision linear actuators.

## Infantry Fighting Vehicle (IFV)

Door and hatch actuation mechanisms use special linear actuators.

## Missile Launch Systems (MLS)

MLS elevation drive provided by precision linear actuators using roller screw technology. Ideal for track, truck or trailer based systems.

## Expandable Shelter

Expand an ISO or bespoke shelter for height or width using screw jacks to ensure the functionality, efficiency and deployment of your command, control, communication or hospital facilities.

## Air Transportable Military Radar

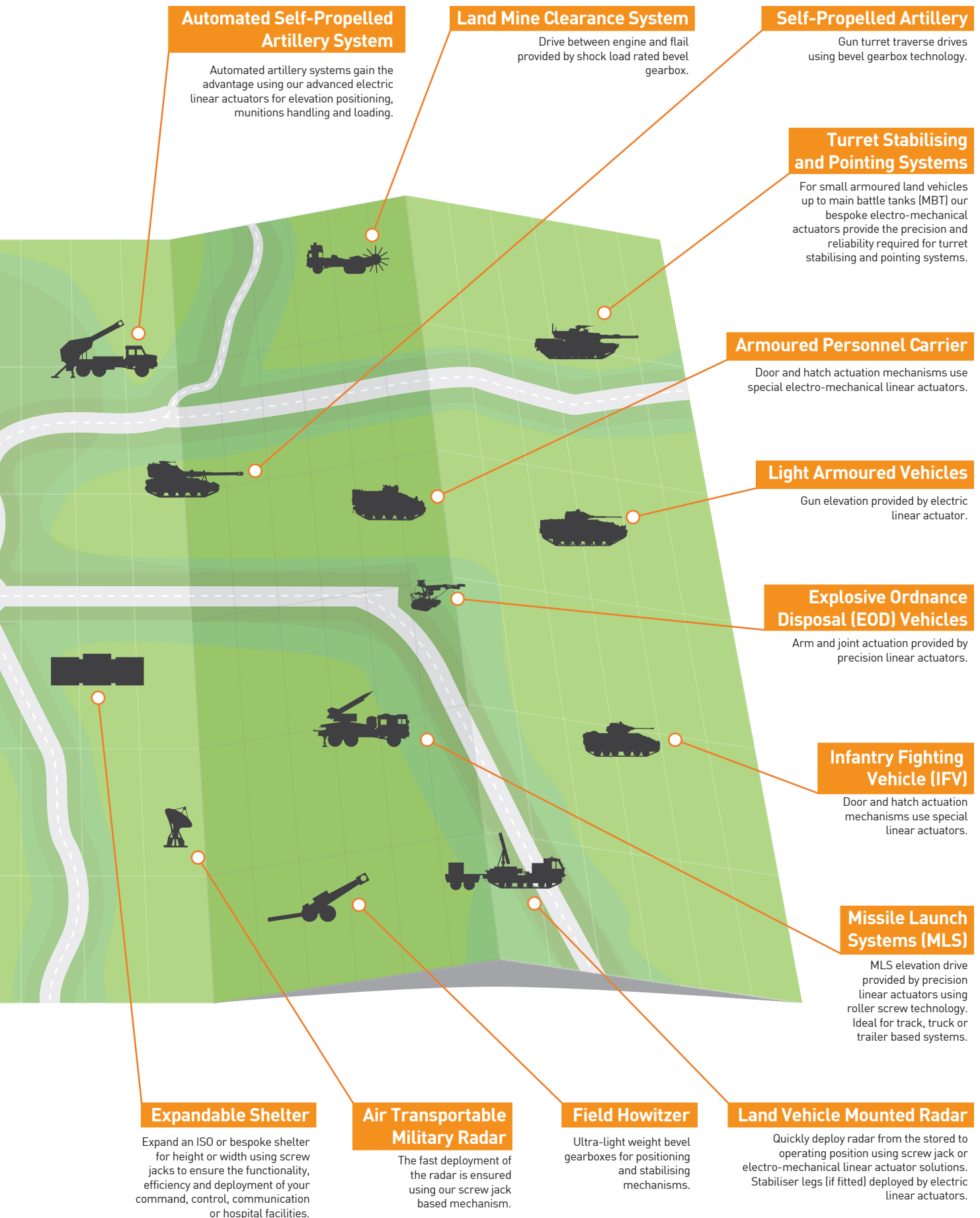
The fast deployment of the radar is ensured using our screw jack based mechanism.

## Field Howitzer

Ultra-light weight bevel gearboxes for positioning and stabilising mechanisms.

## Land Vehicle Mounted Radar

Quickly deploy radar from the stored to operating position using screw jack or electro-mechanical linear actuator solutions. Stabiliser legs (if fitted) deployed by electric linear actuators.



# Get The Best

Our products have the advantage over hydraulics of improved performance, effectiveness, survivability and safety while at the same time lowering costs. Simple to install and easy to control our products allow the move to complete electro-mechanical systems.

## KEY DESIGN FEATURES AVAILABLE FOR ALL LINEAR & ROTARY PRODUCTS

- Full range of anti-corrosion options.
- Marine rated units.
- Arctic rated units.
- Submersible units for depths down to 3000m.
- Desert environment rated units.
- Tropicalised Units.
- Low (-65°C) to High (+250°C) temperature solutions.
- Ultra Low weight variants.
- Shock load resistant designs.
- Full range of feedback devices for speed, position and load monitoring control.
- Bespoke engineered designs available.

### SCREW JACKS

Ideal for use as a single jack or in multiples as a jacking system to push, pull, tension, lock, unlock, tilt, pivot, roll, slide and lift or lower loads, anything from a few kilos to thousands of tonnes.



- Capacities up to 2000 kN (200Te) as standard.
- Capacities up to 35000 kN (3500Te) on request.
- Machine Screw, Ball Screw and Roller Screw Jacks.
- Translating & Rotating screw configurations
- Standard material or full stainless steel screw jacks.
- Self-Locking (only use power when moving).
- Anti-rotation mechanism for unconstrained loads.
- Anti-Backlash or Zero-Backlash mechanism for axial positioning.
- Dual Nut (safety nut) fail safe load holding option.
- Electric and hand powered drives.

### LINEAR ACTUATORS

Based on our lead screw and screw jack technology these fully enclosed electro-mechanical linear actuators can be supplied with or without integrated electric motors and feedback devices. Ideal for elevation drive mechanisms and automated handling systems.



- Capacities up to 400 kN (40Te) as standard.
- Capacities up to 1000 kN (100Te) on request.
- Machine Screw, Ball Screw and Roller Screw actuators.
- Standard material or full stainless steel actuators.
- Self-Locking versions available.
- Anti-rotation mechanism in ram for unconstrained loads.
- Zero-Backlash mechanism for axial positioning.
- Dual Nut (safety nut) fail safe load holding option.
- Auxiliary electric and hand powered drives.

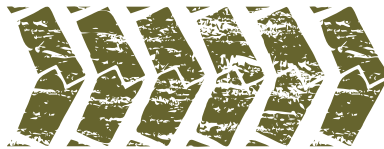
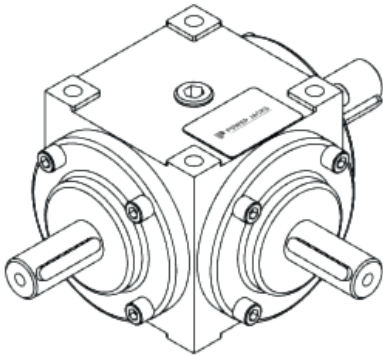
### LEAD SCREWS

We can manufacture Whirled, Rolled and Ground screw thread to your requirements whether for positioning drives, winches, winders, valves, gates, hatches to name a few.

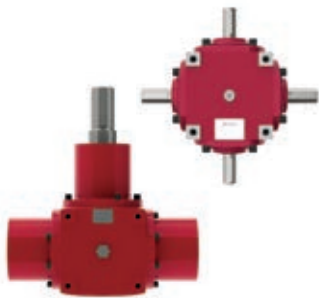


- Planetary Roller Screws & Nuts up to 1800kN capacity.
- Trapezoidal, Sharp, Butress, Knuckle, Coarse, Reverse / Diamond thread profiles.
- Multi start threads with 1, 2, 3 up to 50 threads and variable pitch threads.
- Screw lengths from 0.01m up to 20m.
- Screw diameters from 10mm to 300mm.
- Internal screw threads up to 2000mm long.
- Customer specific thread profiles.

# SCREW JACKS, LINEAR ACTUATORS, LEAD SCREWS, BEVEL GEARBOXES, JACKING SYSTEMS, LOAD MONITORING, MACHINING & DESIGN SUPPORT



“PROVEN TECHNOLOGY ENGINEERED FOR YOUR APPLICATION”



## BEVEL GEARBOXES

Providing positioning drives and power transmission for rotary systems.

- Ultra Compact Bevel Gearbox Design
- 2-way, 3-way & 4-way Configurations
- Solid Shaft & Hollow Shaft
- Gear Ratios: 1:1, 1.5:1, 2:1, 3:1 & 4:1
- Torque Ratings up to 7000 Nm
- SG Iron Housing as Standard
- Full stainless steel on request
- Special Gear Ratios and shaft angles available



## JACKING SYSTEMS

These jacking system arrangements or configurations can be built in any format to suit your exact needs with the use of screw jacks, bevel gearboxes, motors, reduction gearboxes, drive shafts, couplings, plummer blocks and motion control devices.

Four of the most popular system configurations are the ‘H’, ‘U’, ‘T’ and ‘I’ configured jacking systems.



## LOAD MONITORING

When you need to know the exact load or weight our load monitoring provides the real time answer. Load cells can be integrated into our screw jacks, linear actuators and gearboxes.

- Standard load cells and bespoke load cell designs.
- Load Cells up to 2000 Tonne
- Load Links up to 500T tensile load
- Load Shackles up to 2000 Tonne
- Line Monitors for wire rope load (line) & line (pay out)
- Telemetry displays & datalogging
- All with options for wireless, cabled and ATEX designs



## PRECISION MACHINING SERVICES

Our sub-contract machining cell was designed to support customers with specialised machining work. We have extensive state of the art machining capabilities with CNC Lathes, Manual Lathes, Milling Machines, Threading Machines and more. Take advantage of our long established experience in manufacturing. Benefit from our service with 90%+ on-time delivery.



## DESIGN SUPPORT

For product or project development Power Jacks highly experienced team of design engineers are available to help you achieve the best solution for your application. Our speciality is in designs requiring mechanical or electro-mechanical linear or rotary motion solutions whether at a component part or complete system level.

# POWERJACKS

PRECISION ACTUATION

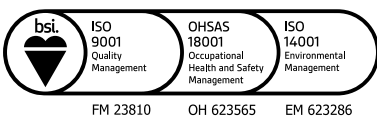
Power Jacks specialises in the design and manufacture of precision linear actuation, positioning and lifting equipment.

Our products are supplied globally across many sectors including Industrial Automation, Energy, Transport, Defence and Civil.

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