

SAFE AND RELIABLE ENGINE STARTING

An unparalleled range of **non-electric starting systems** and servicing packages for offshore platforms, mines, ships and barges.





SAFE AND RELIABLE ENGINE STARTING FROM SIMPLE STARTERS TO CUSTOM SOLUTIONS

IPU supply a wide range of non-electric starting solutions including:

- **Air starting systems and motors**
- **Hydraulic starting systems and motors**
- **Spring starting systems and motors**
- **Nitrogen starting systems**



The engine starting solution you need.

IPU provide non-electric starters and custom starting solutions for most makes and sizes of diesel and gas engine. They are supplied in the most convenient way to suit your business:

- Component form
- Starter motors
- Standard starting packages
- Custom starting solutions

During IPU's 40 year history in engine starting we have supported industry sectors including mining, marine, transport, military and oil and gas. Our product range spans basic starting systems for simple engines to ultra-safe ATEX and class-approved systems for use

on ships, offshore platforms and mining vehicles. Our design and engineering expertise matches the demanding space and performance requirements found on drilling rigs, oil platforms and in underground mines. IPU bring reliable starting to some of the harshest environments on earth, from sub zero temperatures off the Russian coast to the baking heat of Arabian deserts.

IPU offer starting solutions where others cannot.



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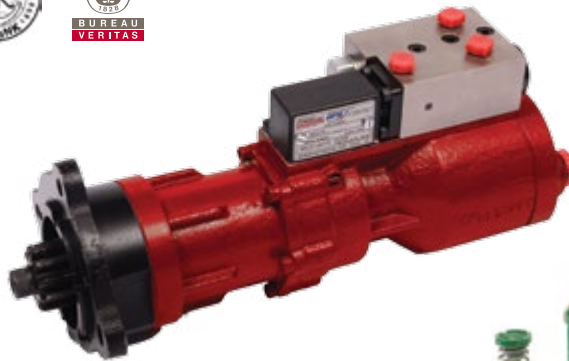
HYDRAULIC STARTING SYSTEMS ATEX-APPROVED STARTING FOR ULTIMATE SAFETY

Thermite reactions are brief bursts of extreme heat. The temperature is so intense the process is used to weld railway lines together. They happen where aluminium and iron oxide (i.e. rust) are exposed to high temperatures or sparks. To avoid the possibility of a thermite reaction in underground mines, IPU's hydraulic starters are made of cast-iron.



IPU hydraulic starting systems:

- Starting for engines up to 80 litres
- ATEX-approved models for hazardous environments
- Low maintenance
- Ideal for offshore, marine and mining applications



For convenience and safety.

When safety is important there is no better choice than IPU's hydraulic starting systems.

IPU's hydraulic starters are unique in winning ATEX approval for use in both gas and dust environments (e.g. on oil and gas platforms or in underground mines). Their accreditation stems from two technical advantages not found on other hydraulic starters:

- The cast-iron casing prevents the thermite reaction that's possible with starters using an aluminium casing
- The pre-engaged mechanism avoids sparking by letting the starter's pinion engage with the engine's ring-gear before cranking starts

In non-hazardous applications, hydraulic starters with an inertia mechanism deliver ultra-reliable starting no matter how challenging or unpredictable the environment. Inertia models can be supplied with a non-sparking beryllium-copper pinion as a mid-point between the safety of pre-engaged starters and the simplicity of inertia models.

IPU's hydraulic starters provide single and multiple starts for diesel and gas engines up to 80 litres.

Their low-maintenance design make them perfect for hostile environments and inaccessible areas. They are ideal for marine applications and are society-approved. As well as complete starting systems, IPU are a trusted supplier for hydraulic starting system components such as accumulators, hand pumps, filters and valves.

For more details please visit:
www.ipu.co.uk/hydraulic
www.ipu.co.uk/atex



SPRING STARTING SYSTEMS SIMPLE, RELIABLE AND ECONOMICAL STARTING

IPU spring starters:

- Starting for engines up to 12 litres
- Simple installation and reliable operation
- Safety from waterway pollution
- Suitable for extreme environments





SureStart

SPRING STARTER RANGE



Keep it simple, keep it clean.

The simplicity of IPU's spring starter range gives you unbeatable flexibility and reliability.

This truly independent starting system requires no hydraulic, pneumatic or electric infrastructure – and there's no cabling either.

The simplicity and size of a spring starter makes it perfect for barges and small ships. With no hydraulic fluid to worry about, there's no risk of polluting protected waterways or exposing yourself to the regulatory penalties that follow.

Manual spring starters ensure reliable starting time and time and time again. They're best suited to engine capacities up to 12 litres. Their resistance to damp and extremes of temperature make them an ideal choice for marine applications. They're also ideal for hazardous zones where electric starting is prohibited.

IPU's spring starters represent a robust and extremely economical starting option for customers who need the simplest possible way to add a backup starting system to supplement their electric starter.

For more details please visit:
www.ipu.co.uk/spring



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AIR STARTER MOTORS AND STARTING SYSTEMS ATEX-APPROVED

The Jetstream 4 and 5's pre-engaged mechanism avoids sparking by letting the starter's pinion engage with the engine's ring-gear before cranking starts.





IPU air starters:

- Starting for engines up to 150 litres
- ATEX-approved models for hazardous environments
- Integrated relay valve
- Maintenance-free

For approved safety and simple installation.

IPU's air starter range combines the reassurance of ATEX-approved safety with the convenience of using your existing pressurised air supply.

IPU provide complete air starting systems including starter motors, compressors, receivers and control panels. We even offer a full installation and commissioning service.

Models

IPU's Jetstream air turbine starters are the most rugged starters for diesel engines in marine, offshore and land-based environments. Developed as an easy-to-install, fit-and-forget solution, Jetstream starters are guaranteed to start any make of diesel engine up to 150 litres. By operating at pressures from 3 to 30 bar they are flexible enough to suit any application.

The ATEX-approved versions of the Jetstream 4 and 5 are ideal for offshore platforms, underground mines and other environments where safety is critical. Their cast-iron casing precludes the thermite reaction that is possible with an aluminium-cased starter and the pre-engaged mechanism prevents sparking during the cranking process.

The inertia versions of the Jetstream 4 and 5 are ideal for non-hazardous environments. Beryllium-copper pinions can be used to reduce the spark risk when the starter engages the engine's ring-gear.

Customised and compact

As well as standard starting systems IPU specialise in the design and manufacture of bespoke air starting packages. A custom package can be sized to provide the correct cranking time for your engine and designed to fit the physical constraints of your location.

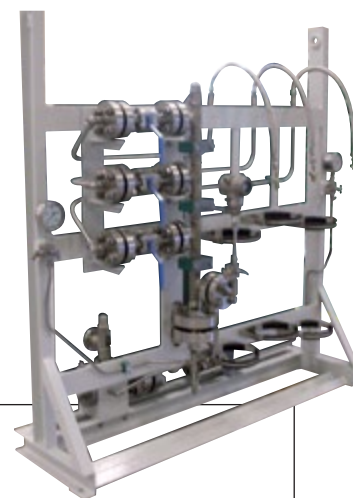
For more details please visit:

www.ipu.co.uk/air

www.ipu.co.uk/atex

NITROGEN STARTING PACKAGES

POWERFUL STARTING FOR HAZARDOUS ENVIRONMENTS



IPU nitrogen starting systems:

- Starting for engines up to 320 litres
- Long cranking period from a compact system
- Easily-exchanged gas cylinders
- Ideal for hazardous environments

Nitrogen

IPU's nitrogen starting systems provide powerful starting for large engines up to 320 litres. Using nitrogen as the energy source for a standard Jetstream air starter, these systems provide flexibility and capabilities not found with other starting technologies.

Nitrogen is stored at pressures up to 350 bar. This pressure is reduced before entering the starter motor, supporting the long cranking cycle demanded by critical applications such as fire pumps.

IPU's nitrogen starting systems are easy to deploy and maintain. They use retail gas cylinders resulting in a system that's as compact as it is powerful. Once a starting cycle is complete the cylinders can easily be replaced by numerous suppliers.

Being an inert gas, nitrogen brings an added level of safety to starting in dangerous environments. It is the ideal solution for emergency back up to the primary starting system on applications such as fire pumps or generators in offshore and hazardous areas.

**For more details please visit:
www.ipu.co.uk/nitrogen**

SERVICING MAINTAINING THE RELIABILITY OF CRITICAL SYSTEMS

Regular inspection and servicing of starting systems is essential to the reliability of your critical safety equipment.

Servicing

IPU starters are rugged and tough. They are designed to operate in the most hostile extremes of temperature and in the world's roughest seas.

But environmental conditions always take their toll. Regular inspection and servicing are essential to ensure that starting systems can operate to specification.

It is common to overlook secondary start systems during a typical inspection. If an engine starts under electrical power it is easy to assume that it is functioning correctly. But in an emergency – when electrical power has failed – your fire pumps and emergency systems depend on their secondary start systems. A rigorous service regime ensures that emergency starting systems operate exactly as designed, exactly when you need them. Your safety depends on them.

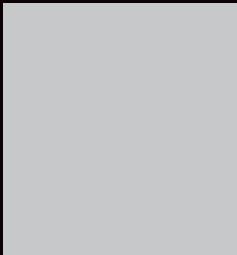
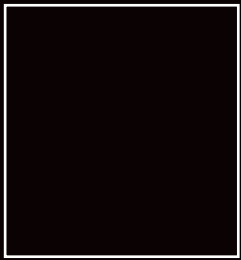
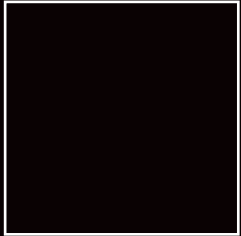
A range of service options

IPU has supplemented its own servicing capabilities by establishing partnerships with several experienced service companies. This simplifies the maintenance and inspection process for many of our customers. Companies that currently maintain your lifeboats, fire pumps, generators

or other power equipment have been exhaustively trained by IPU to assess, repair and, where necessary, replace starting systems.

This gives you the choice of having your starting systems maintained by IPU's own offshore-qualified service staff or by a service partner you already use on a regular basis.

**For more details please visit:
www.ipu.co.uk/starting-service**



IPU GROUP Engine Starting

www.ipu.co.uk/starting

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