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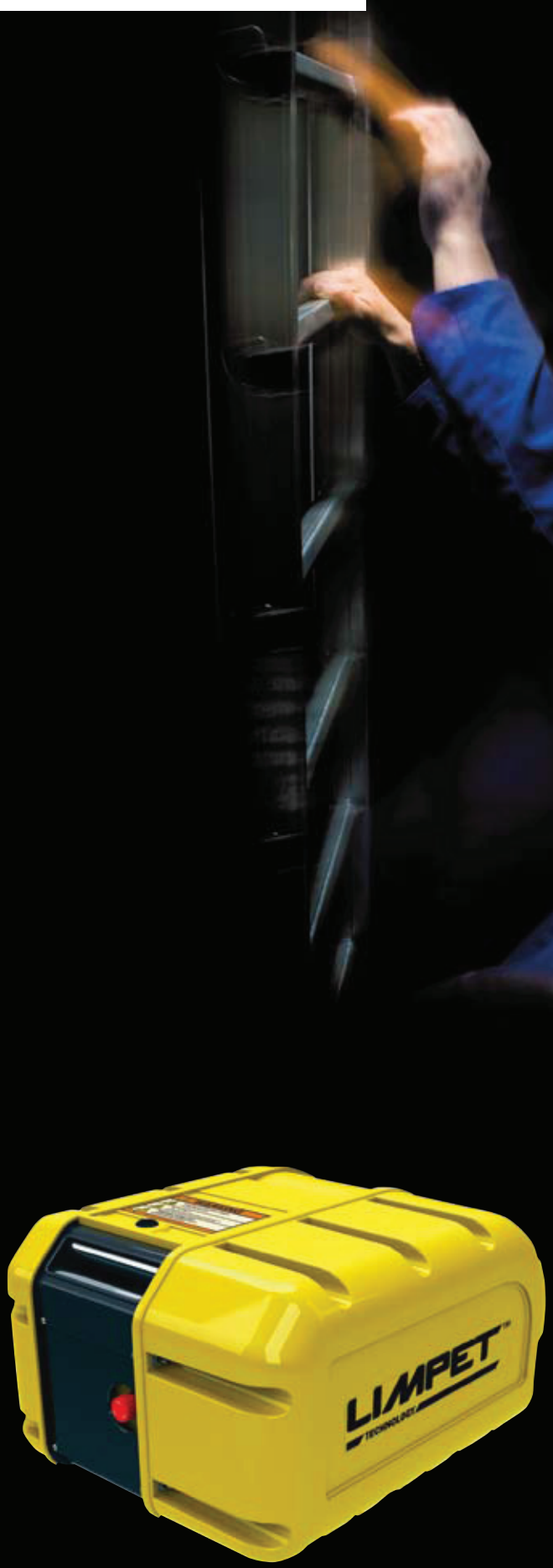



LIMPET™ TECHNOLOGY

Pioneering Total Height Safety

# BEST IN THE WORLD FOR HEIGHT SAFETY. FACT.


**The world's first integrated, multi-functional height safety system.**
**FACT.**

# A height safety revolution

**Around the world, work-at-height accidents are still far too common, despite increased awareness and improvements in height safety legislation.**

Ensuring height safety is often difficult to achieve as it requires complex, multiple systems and extensive user training. In response to this, in 2003, we began a development that would revolutionise height safety technology. The result is the Limpet™.

Today, the Limpet™ is the world's only fully integrated multi-functional height safety system, providing five key work-at-height safety functions in one total solution. Not only does it provide 'always-on' proactive fall prevention, it also features reactive climb assist, rapid remote rescue, clip & go evacuation and precise work positioning functionality.

## Total height safety

The Limpet™ has been created to fill an obvious 'safety gap' – no other system includes all functions in one product. Most significantly, it has been developed in response to specific user requirements, particularly from the wind energy sector but also from those involved in telecoms, oil & gas and construction. Indeed, any operators of tall structures who demand work-at-height solutions that are flexible, cost effective and, above all, safe.

## Benefits

**Safe** – Integrated safety factor of x15. CE marked under the Machinery Directive 2006/42/EC and the PPE Directive 89/686/EEC.

**Reliable** – 25-year minimum life for critical core components. Five-year warranty. One-year service intervals.

**Easy to use** – Intuitive 'clip and go' functionality requires minimal operator training.

**Cost-effective** – Five height safety functions in one integrated system, coupled with long service intervals and simple maintenance schedules, means that the lifetime cost of owning and maintaining a Limpet™ is very low.

**Increases productivity** – With up to 90% climb assist, the Limpet™ significantly reduces climbing and descending effort, enabling people of all ages, shapes and sizes to work at height with minimum fatigue.

# PROACTIVE FALL PREVENTION

**The Limpet's proactive fall prevention technology automatically senses and reacts to any movement the user makes – and starts working from the moment the safety line is clipped on.**

As a result, the Limpet's continuously adjusting height safety system prevents falls before they happen.

While some products arrest falls within a few metres, the Limpet's natural state is 'locked', so there is no appreciable downward movement at all. That makes it ideal in confined spaces, such as inside wind turbines or within hooped ladders, where even the smallest fall or slip can cause injury.

## Total freedom

While clipped on, users are hardly aware of the device – there's no resistance and no drag. The Limpet's sensors pay out or draw in the safety line in direct proportion to the user's movements, providing total freedom of movement – and total peace of mind.

## Key features

- Permanently enabled fall prevention
- 'Locked' default position
- Provides total freedom to move
- Ideal for confined spaces

# 10mm maximum

**The Limpet's 'always-on' fall prevention technology can arrest a fall in less than 10mm. FACT.**

**With other systems, you could fall up to 2 metres.**

# REACTIVE CLIMB ASSIST

**The Limpet™ is the only height safety product that offers reactive climb assist, the world's safest and most effective climb assist system.**

Our patented technology takes the strain – up to 90% of total body weight – reducing climber fatigue and making ascents safer.

Reactive climb assist calibrates itself when it first senses weight at the end of the safety line – then recalibrates when the user stops climbing. That means it automatically compensates for the weight of tools and equipment and, crucially, prevents a second user taking over the system with the wrong level of assistance.

## User specific

With the Limpet,™ users get a level of assistance that's based on their total body weight at any given time, not limited to a single (and often low) setting to suit all. It's ideal for wind turbine access and maintenance, but has additional applications across many industries. Simple, intuitive, reliable – and safe.

## Key features

- User assistance up to 126kg
- Patented technology matches assistance to user weight
- Permanently enabled fall prevention
- Automatic multiple user calibration
- Fast and simple system initiation
- Anti-hoist safeguards

# 90% assist

**The Limpet™ is the only system in the world that weighs the climber to deliver climb assistance of up to 90% of total body weight. FACT.**

# RAPID REMOTE RESCUE

**In all industries – and especially at height – rescue must be conducted quickly to minimise risk to casualty and rescuer.**

The Limpet™ rescue feature delivers this. It is fast, safe and simple to operate. And it's built in – unlike other fall arrest and climb assist products, which require a separate rescue system.

In automatic mode, the Limpet™ brings the casualty down after a slip or fall – at a safe rate to a safe place. However, good safety management also requires a method of third-party rescue, so the Limpet™ includes remote control units (incorporating one-second lift and measured descent functions) that enable a rescuer on the ground to re-orientate and recover the casualty.

## Take control

Alternatively, in normal set-up, a rescuer will use a second Limpet™ to climb to the casualty and take control using each unit's dedicated RF remote – vital if immediate first aid is required. It's safe for casualty, and safe for rescuer.

## Key features

- Quick – rescue in a fraction of the time of conventional systems
- Easy to use
- Integrated within overall system
- Allows safe, remote rescue by third parties
- Separate rescuer access for casualty assessment and first aid
- RF and wired remote controls

# 4 minutes

**With the Limpet,™ a casualty can be rescued from 40 metres in less than 4 minutes. FACT.**

**Conventional devices can take more than 40 minutes.**

# CLIP & GO EVACUATION

**When emergencies happen at height, the key to safe, effective evacuation is simplicity – time and complexity cost lives.**

The Limpet's integrated evacuation function has been developed with that in mind. It is an 'always-on' feature that allows users to simply clip on to the safety line and be lowered at a safe speed (evacuation time from the top of today's tallest wind turbines is usually less than 3 minutes). There's no need to set up a secondary system.

## Safe and stress-free

Evacuation using the Limpet™ is designed to be quick, safe and stress-free – especially when fire, fumes or smoke are involved. The system's remote control is always attached to the safety line, reducing the risk of potentially fatal delays in activation, and the rescue line is designed to survive extreme temperatures.

Most importantly, while rescue and evacuation is traditionally the domain of highly trained specialists, the Limpet's clip & go feature means it can be employed easily and safely by any user.

## Key features

- Simple 'clip & go' operation
- High temperature resistant lines
- Permanently installed
- Variable speed settings
- Increased weight capability allows multiple user evacuation

# PRECISE WORK POSITIONING

**Pinpoint control over work positioning and work restraint is essential in many industries where inspection and maintenance at height is a vital part of daily routine.**

All too often, it requires manual rope work or additional structures. With the Limpet™, users can work hands-free at any height.

The Limpet's precise work positioning function gives users complete control over their ascent or descent, and the ability to stop at regular intervals. In the wind industry, for example, the Limpet™ can significantly increase the efficiency of blade, cable and internal inspections.

## Fully integrated

No manual systems are required, and the Limpet's climb assist and permanently enabled fall prevention functions are never compromised. Users simply use the system's RF remote control to move – safely, effectively and precisely.

## Key features

- Hands free
- Complete climb/descent control
- Permanently enabled fall prevention

# Safer by design

**The Limpet™ has been developed and rigorously tested to ensure it meets – and exceeds – all current safety standards. Why? Because, at Limpet Technology, safety lies at the heart of everything we do.**

As part of the product development process, the Limpet™ underwent extensive field trials over a seven-year period. Today, core components are engineered for a minimum 25-year lifespan. What's more, by offering a simple, intuitive and safe method of working at height, the Limpet™ greatly reduces the likelihood of the user errors and fatigue that can lead to accidents.

## Benchmark for safety

The Limpet™ has already raised the bar in height safety. After recognising that existing standards were not stringent enough, we created a new, advanced standard under European PPE Regulations to test the increased functionality and safety tolerances of our product. It's called Limpet Test Standard 001:2009 and represents the worldwide benchmark for multi-functional height safety systems.

## Key features

- CE certification under the PPE Regulations 2002 (European Directive 89/686/EEC)
- CE certification under the Machinery Directive 2006/42/EC
- Fully compliant with HSE '08 type test
- Tested in hooped and 'backscratcher' ladder configurations
- 10km continuous descent test with 140kg test weight
- 22kN static load test
- Test machines remain serviceable after static load, ultimate strength and condition testing

**The Limpet™ represents the global benchmark in height safety equipment. FACT.**

# Saving you more

**Working at height means entering some of industry's most hostile environments, where fall prevention, climb assist and rapid rescue are essential.**

That's why we developed the Limpet™ and designed it specifically to operate in harsh and inaccessible places. And it's why every Limpet™ has a minimum IP56 rating, why core components are engineered for a 25-year lifespan, and why even the Limpet™ safety line is eight times stronger than steel, weight for weight.

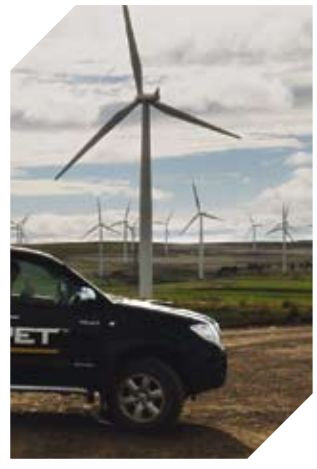
You might be forgiven for thinking that with such a high specification, the Limpet™ would be prohibitively expensive. Not so.

## Maintaining excellence

Because of the way the Limpet™ has been designed and engineered, lifetime costs are, in fact, very low. Based on medium usage (two climbs each day, 52 weeks of the year), the Limpet™ requires just one annual maintenance visit. With a designed minimum lifespan of 25 years, and with scheduled replacement of key components built into the maintenance plan, the Limpet™ can cost less to buy, install and maintain than other systems cost to inspect.

No other product offers the Limpet's versatility and multi-functional capability. A single integrated system offering fall protection, reactive climb assistance and rapid rescue represents real value for money and a revolution in safety for those working at height.

Take into account the productivity gains the Limpet™ delivers, against the expense and unreliability of more complicated lifting machinery (which may actually obstruct the most direct exit route), and there is only really one conclusion – the Limpet™ is best in the world for height safety. Fact.

# Real versatility

**The Limpet's versatility goes far beyond its impressive range of functions – it extends to a multitude of mounting options.**

That means the Limpet™ can be bolted to the ground level platform of a wind turbine, located upside down on a load-bearing beam in the yaw platform, or even fixed in the rear of a pick-up truck for blade inspection work. This variety of options is made possible by the ease with which the Limpet™ can be attached to a load bearing surface (with just four bolts) and the infinite number of angles from which the Limpet™ safety line can exit the main unit. The safety line can also be routed through any number of pulleys (if required) without affecting the Limpet's core functions, as our patented load-sensing technology automatically compensates for any additional friction.

# Perfect partners

**At Limpet Technology, we have a very clear view of our role in bringing the Limpet™ to market, and of the skills and resources required to support the Limpet™ in the field.**

We recognise that our customers are best served by people who are experts in their respective disciplines, and that we will be judged not just on the quality of the Limpet™ product, but also by the company we keep.

For this reason, we work with a small number of strategic partners, who provide class-leading support services for the Limpet,™ including training, maintenance and installation. You'll find full details on the reverse of this brochure and on our website: **www.limpettechnology.com**

# Limpet™ Technical Specification

**Introducing the Limpet,™ the world's first multi-functional height safety system.**

**Incorporating fall prevention, reactive climb assist, rescue, evacuation and work positioning all in one integrated system, the Limpet™ redefines height safety by providing the simplest, safest and most comprehensive method of ascending and descending high structures.**

| | |
|---|---|
| **Dimensions** | 337mm x 496mm x 625mm |
| **Weight of unit** | Circa 85kg in normal configuration |
| **Safety line materials** | High tech Technora® sheathed Dyneema® paraaramid fibre rope MBL 29.4kN<br>Thermal decomposition of Technora® occurs at temperatures > 550ºC |
| **Safety line capacity** | 130m (Normal specification is 7mm, high temperature Technora® paraaramid fibre safety line) |
| **Unit materials** | Corrosion resistant, engineered for marine environment |
| **Power requirements** | 230-240V, 50Hz single phase, 16A current rating. Integrated UPS backup |
| **Operating temperature** | -30ºC to +50ºC |
| **Control** | Cabled and wireless remote controls |
| **User weights (max to min)** | 40kg (88 pounds) to 140kg (308 pounds) |
| **Main features** | **Proactive fall prevention** (negligible vertical displacement in event of fall)<br>**Reactive climb assist** up to 90% of user's weight<br>**Rapid remote rescue**<br>**Clip & go evacuation**<br>**Precise work positioning**<br>Automatic function<br>Manual override<br>Fails to safe<br>In-cable messaging system ICMS (Pat. Pending)<br>Integrated UPS back-up power supply<br>Remote monitoring<br>Integral system monitoring and event log |
| **Integrated safety factor** | Static load safety factor of 15 x maximum user weight |
| **Descent speed** | 0.5m/s to 0.9m/s (Average evacuation speed: 120m in 3 minutes) |
| **Mounting** | Multiple mounting options |
| **Certification** | CE marked under the Machinery Directive 2006/42/EC<br>CE marked under the PPE Directive 89/686/EEC<br>EMC Directive 89/336/EEC<br>Software IEC 61508-3 and ISO 13849-1 |
| **Conforming test standards** | Limpet Test Standard 001:2009<br>Normative references: EN362, EN364, EN9227, EN17025<br>Compliant standards: EN360, EN341, EN364, EN1496 |
| **PPE test highlights** | 'Real life' testing to HSE '08 and in hooped/backscratcher ladders<br>10km continuous descent test with 140kg test weight<br>22kN static load test<br>Dynamic ultimate strength test – 140kg test weight and 0.6m drop<br>Arrest forces negligible in EN 364 type dynamic fall tests<br>Deceleration negligible in EN 364 type dynamic fall tests<br>Negligible vertical displacement in dynamic fall tests<br>Test machines remain serviceable after static load, ultimate strength and condition testing |
| **IP rating** | IP56 |
| **Service interval** | Subject to annual maintenance service and specific periodic checks as appropriate for application (LOLER, PUWER) |

Designed, edited & produced by Redpath www.redpath.co.uk

Liftek®

Rise above

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