

# Calling in the heavies

Rent Helicopters, based in Turda, Romania, receives requests for heavy lifting from all over the world and employs AS350 B2s, Mi-8s, Mi-171s and Mi-26s. (Photo: Rent Helicopters)

**Helicopters are not typically the first port of call for heavy-lifting tasks. However there is still demand, with operators frequently called upon for a vast array of services, as Jim Winchester discovers.**

**H**elicopter lift and aerial crane operations are a specialised business, with only a limited number of companies capable of supplying the equipment, skills and experience required to safely conduct precision jobs and compete with outwardly cheaper and less disruptive land cranes.

Among the different operators, there is a variety of methods and equipment used, depending on various factors – mainly load weight and the available manoeuvring space. Heavy lifting is usually regarded as over 5t in weight, and long-line lifting is considered as anything greater than 20m in Europe, and more than 30-45m in North America.

The latter type of work is more the norm in continental Europe than the UK, but is the method of choice for aerial crane operations in enclosed spaces. Some of the most experienced long-line pilots are in Austria and Germany, who are in high demand outside their home countries for specialist jobs.

## Skill requirements

Two quite different skill sets are needed for single-pilot lifting operations. Sling-line loading more commonly uses a line of around 7m in length. The load is manoeuvred using mirrors attached to the skids, and can be likened to trying to drive a car backwards using only its rear-view mirror.

More challenging is vertical reference flying, where the pilot looks directly down on the →



load, which is normally on a long line. It is not a natural way to fly – the pilot usually has to sit in the left-hand seat, where he can reach the collective easily while leaning out – in the right seat, particularly in larger helicopters, the distance is too far for effective operation.

For smaller aircraft such as Squirrels, cutaway floor panels, bubble windows or simply taking the door off helps greatly, as does a radio-equipped crewman on the ground. For large helicopter operations, use of a crewman on the cabin floor or in an observation bubble watching the load and passing instructions to the pilots is more common.

Steel lifting lines have less drag than synthetic ones, meaning they can ‘fly’ faster, which translates to greater movement of the load. Initial training is often conducted with steel lines because they are less forgiving and need more care.

Proudly claiming to be the UK’s longest-established and largest aerial crane specialist, PDG Helicopters is largely Scottish-based, but with an outpost in Wolverhampton in England and a wholly-owned subsidiary, Irish Helicopters, based outside of Dublin.

About ten to twelve years ago, the majority of PDG’s work comprised sling lifting, particularly for the fish farming industry. The company has since diversified into many areas, including charter, sightseeing, powerline inspection and aerial filming. Its burgundy-coloured helicopters are a common sight over Scotland and northern England, from the fish farms of the Hebrides to the moors of the Peak District.

### Squirrel power

As part of its fleet, PDG has five Eurocopter AS350 B2 Squirrels equipped for lifting, mainly using a 7m sling, although Rob Hill, head of operations at the company, said: ‘We are slowly moving towards more longer line work, particularly with power-line builds.’

For many years, the company operated a 1973-built Aérospatiale SA 315B Lama, and with its 1,135kg lifting capacity, it was a true workhorse, but was sold to Pakistan in 2008 and replaced by another B2 Squirrel.

PDG also operates three Dauphins – two AS365 N2s and one SA 365C, which is the only one on the UK register – mainly for passenger use, but also for utility and lifting work as required. A memorable Dauphin job involved carrying a caged Fiat Panda over much of Britain for a TV commercial. One of the platforms is often based at Kyle of Lochalsh on a contract with Qinetiq for such duties as dropping sonobuoys and the net recovery of torpedoes used on military trials.



**UK aerial crane specialists PDG Helicopters’ main work is sling lifting, particularly for the fish farming industry. (Photo: PDG Helicopters)**

When needed for heavy lifting up to 5t, PDG sources larger aircraft, including Pumas from Aberdeen in Scotland and Kamovs from Europe. The company has also used Irish Helicopters’ EC135 for tree excavation in areas where flying over urban terrain requires a twin-engined machine.

A particular speciality of PDG is fish transport, a mission that it pioneered over 25 years ago. As part of Scotland’s important salmon farming industry, baby salmon or smolts are transferred from freshwater hatcheries to saltwater breeding grounds. Helicopters are used to replicate nature by making these moves with oxygenated flexible buckets. A 950kg bucket contains around 30kg of smolts, and lifts can be from one to 50 minutes in duration.

The lifts might be direct or into well boats, which take the fish as far away as the Shetland Islands. PDG’s Inverness-based Squirrels are used for this work, which is mainly seasonal, taking place in the spring and late autumn.

Power-line work is a growing part of the company’s portfolio. Network Rail and eight of the 12 UK regional power companies use PDG for inspections, and several also for line stringing. New Scottish power-line projects in the offing will see more work of this kind.

Other specialist lifting jobs have included supporting path repair in the Lake District National Park, carrying bags of stone to Helvellyn, the third highest mountain in England at 3,117ft, and lifting stones in a bathtub skip to block gullies on the Yorkshire moors as part of a project to reduce run-off and erosion.

### Tree of life

An operation in 2011 involved lifting a \$155,000 bronze ‘tree of life’ sculpture into the grounds of Cawdor Castle near Nairn. Measuring 4.27x3.66m and weighing 800kg, it had to be positioned accurately inside a historic walled garden among fruit trees. This was a delicate job, and involved a 49m line, but was accomplished

without damage to either the sculpture or any live trees.

Hill explained that the aerial crane market has been fairly steady over the past seven or eight years. ‘We as a company have the largest and longest experience of underslung work in the UK,’ he said. ‘Whether it’s been a live horse, live fish or concrete, whatever it might be, we have lifted it and are happy to look at any project whatsoever.’

PDG’s subsidiary Irish Helicopters (IHL) also does fish transfer work, as well as the more common filming, survey, scenic flight and charter missions. The Bö 105 is the IHL workhorse, but the company also operates an EC135 T2i as the primary lighthouse support aircraft. Since 1986, it has held the contract for replenishing Ireland’s lighthouses in partnership with Irish Lights, the



**Construction and rooftop work makes up the majority of Rent’s aerial work, although ski-lift construction is a growing business. (Photo: Rent Helicopters)**

national body responsible for maintaining maritime navigation aids.

Initially using an Alouette III before settling down with the Bø 105, since 2008 IHL has supplied an EC135, which offers greatly enhanced capabilities – not least in external load carrying.

There are nearly 70 lighthouses around the Irish coast, which are now all automatically operated, but many of which have a resident attendant. Initially, the helicopter service was mainly for the relief of keepers and the lifting of supplies, but support of building work as lights are modernised became more important because keepers were replaced. The change of the dome on the Inishtrahull island light near Malin Head in mid-2010 was a recent task for the EC135.

### Spreading the work

Other moors regeneration work has recently been undertaken by the Bell 204s of Austria's Heli Tirol, which are able to lift 1.5t underslung and carry bags of fertiliser, lime or seeds to spread over a wide area for regeneration of the moorland. A 204 can also lift up to 18 bags of lighter material, such as heather brash, at a time spread over six hooks on a harness.

A spreading machine has also been tested on the 204, reducing the manpower needed to disperse 400-500 bags of brash from 20-24-person days to one.

Based in Newbury, England, Helirig is an outfit with no aircraft of its own, but is able to source helicopters for heavy-lifting tasks in the UK from European operators. These have included the Kamov Ka-32 and the Eurocopter Super Puma. A Swiss-owned example of the latter was used to lift 29 heating, ventilation and air conditioning (HVAC) units in one afternoon onto the Westfield Stratford shopping centre in late 2010. Having 1t more external lifting capacity, the Ka-32 has been used for such tasks as transmission mast replacement.

Helirig has no plans to purchase its own helicopters due to the limited market. 'We expect and hope that the market for heavy-lifters will expand in the UK once the possibilities of this method of lifting becomes better known in the marketplace,' said Michael Newman, director of Helirig. 'As things stand today, it is not generally considered until there is no crane access.'

In the case of the Westfield job, three mobile cranes would have been needed on site over several weeks in order to achieve what the helicopter could do in a day.

In Scotland, there is relatively little urban lifting work, a recent exception being PDG's installation

of air conditioning units on the Scottish Exhibition Centre in Glasgow. Again, fixed or mobile land cranes are the main competition.

### Up for rent

On the other side of Europe, dealing with different challenges is Rent Helicopters, based in Turda, Romania. The company is an air charter broker, and claims to be the only one specialised in hiring out helicopters, both western types and CIS-built equipment.

Rent is part of the Transylvania Live group, and offers a wide range of services, including passenger charter, tourist flying, heli-skiing, aerial filming, spraying, SAR, banner towing, skywriting and aerial work – almost all the civil helicopter roles that can be imagined.

The travel side of the company understandably gains revenue from the Dracula connection and other 'dark legends' of the region. The aerial work side happily supports film crews and supplies action helicopters for productions in the region, from *Top Gear* in Albania, to an Mi-26 for the upcoming Russian-set *A Good Day to Die Hard*.

For lifting up to 1,400kg, the AS350 B2 is again the machine of choice, but Mi-8s, M-171s and Mi-26s can be sourced for lifts up to 20t.

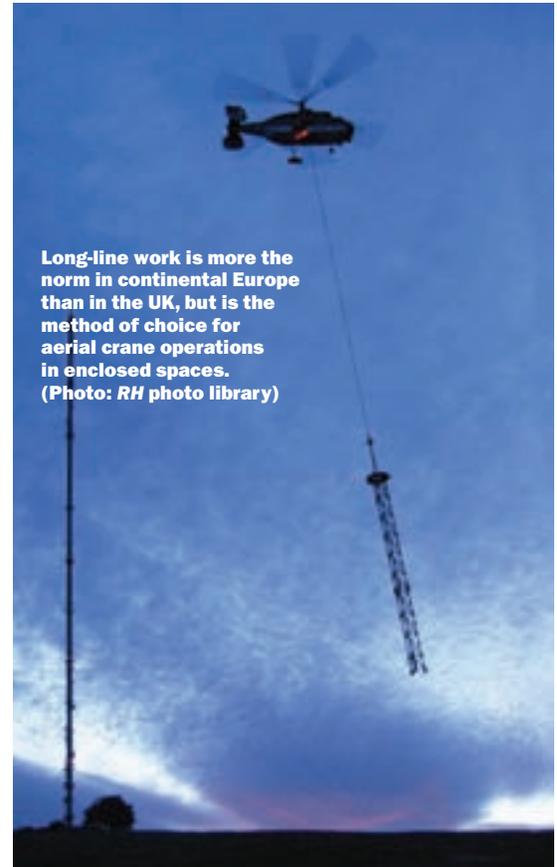
The latter has been in particular demand for wind farm construction, with jobs completed or requested in Bulgaria, Greece and Italy. With wind turbine blades measuring up to 60m in length and weighing up to 13.5t each, more than just a good helicopter and crew is needed.

Rent will send its engineers to the site to design and build a lifting frame and rig appropriate to the component dimensions long before the lift itself is conducted. According to Alin Todea, business development manager at the company: 'We receive requests for heavy lifting from all over the world, and we use the services of the local operators to position their helicopters where the clients request.'

'When we create a solution for our clients, we keep in mind the weight that a helicopter can lift, the place where the helicopter is based and the experience that the crew has in similar jobs. We are continually searching for new collaborators and are open to receive information from them regarding their fleet and position of their helicopter in order to place them for heavy lifting jobs.'

### Staying cool

Rooftop tasks, mainly installation of HVAC units, makes up the majority of Rent's aerial work, although ski-lift construction is a growing business. In one of its biggest recent jobs, the company used an Mi-8T to lift 50 air conditioning



**Long-line work is more the norm in continental Europe than in the UK, but is the method of choice for aerial crane operations in enclosed spaces. (Photo: RH photo library)**

units and chillers during construction of the recently completed Maritimo shopping centre in Constanta, Romania. The lifts were made using a 7m sling and a 4m harness, with unit weights ranging between 920 and 2,650kg.

When construction restarted after a financially enforced break, the job had to be done quickly, and a helicopter was the best solution, completing the initial lift in about six hours' flying time in December 2010. Another 50 units were installed in October 2011.

There is a paperwork burden for any aerial work in this part of the world, particularly for foreign companies. Rent will handle the paperwork demanded by the Romanian CAA for a month's work on behalf of the customer for \$5,300. In Greece or Hungary, this would be \$2,000. Rent does not just work in eastern Europe, but has done business in Guatemala, Mexico, Peru, the UK, the US and Venezuela, among other places.

One job for a UK customer, involving positioning a 20m tower with solar panels and wind gauges off Great Yarmouth, illustrates the international nature of the aerial crane market and how customers are increasingly looking beyond local operators and western European collaborators in order to meet their specific needs. **RH**