



Ecoprocess units were designed for Icelandic conditions, so should be able to handle anything the UK climate can offer

Not only is this the first article to cover the operation of the new Ecoprocess electrically powered binlifter, but it is the first time V&PT has reported on a piece of kit designed in Iceland. Malcolm Bates slips a Bjork CD into his i-Pod and heads for Reykjavik

# Electric Avenue

The Isbjorn and Thorbjorn lifts, single and double, are designed to be quiet in operation and shut off instantly if fingers get in the way. The first unit has been in service with Iceland's largest waste collection and disposal contractor, Gamathjonustan HF, for 12 months and the company has recently added a third unit to a two-axle Scania/Heil RCV, replacing a conventional hydraulic binlifter.

V&PT first reported on the clever and potentially revolutionary Ecoprocess units in the Pollutec report last year. Like with many good ideas, it's often something of an uphill struggle to get the conservative elements of an industry interested enough to allow things to move on. And essentially, that's the position Ecoprocess was in earlier this year.

Understandably, few potential customers would be prepared to go out on a limb and specify something marketed by a new company based in Iceland, selling a product assembled in France – at least without a lot more information and some sort of idea of how the system operated.

But imagine how frustrating it is to have invented a product that is so breathtakingly

simple it could revolutionise the whole operation of domestic and trade waste collection throughout Europe, then have to slog it out against shed-loads of apathy, while at the same time putting together a national sales and service operation in each of the major European markets? Hard work? I should say so.

Top marks, then, to Thorvaldur Tryggvason and his team at Ecoprocess. With an office in Reykjavik and a manufacturing facility and European office in Nantes, France, a great deal of work has been going on behind the scenes since we first broke the story.

The two models, the Isbjorn and Thorbjorn, are now in production and a third unit designed especially for side loaders is undergoing pre-production tests. A double-pronged campaign aimed at wooing both new customers and getting support from manufacturers of RCV bodies has been gathering pace. This has been backed up by one of the best – and most amusing – advertising campaigns in French and German public sector magazines.

In order to sign up some of the large waste



**Above: Rush hour in downtown Reykjavik. Increased commuter traffic is making 5am start/double-shift RCV working a distinct possibility**

contractors such as Onyx, the French market, and others where there is specific anti-noise legislation already in train, are the top priority. But the UK is also one of the key markets on the Ecoprocess must-have list. Heading up the UK operation is Spaniard, José Diaz, who recently set up the UK operation in Crayford, Kent. The facility should be ready to mount units

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in the UK by the time you read this.

Seeing the Ecoprocess system in operation and trying to understand what all the fuss is about sounds like a pretty useful next step to me. For my part, it was a difficult choice: should I go to Nantes and drag a factory demo unit around the locale for the day? Or should I spend a few days in lovely and geologically unique Iceland? Tough choice, huh?

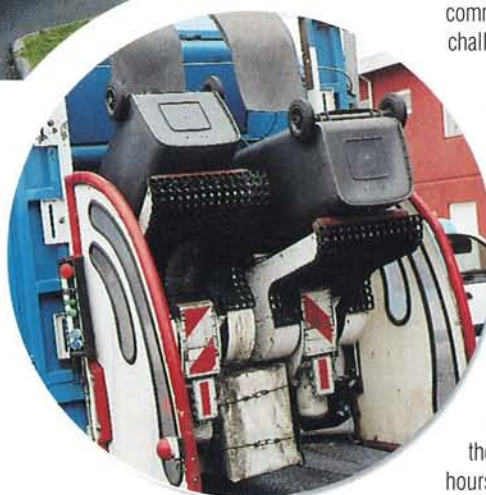
I should add some hard facts into the equation. First, the units were originally designed to overcome a national Icelandic law that prevents any machinery over a certain decibel level (-45dB (A)) from being used before 7am. It has to be said that while most heavy truck chassis have got much quieter since Euro-3 came in, and one or two compaction systems such as those used by Heil and Ros Roca have added quietness to their operational virtues, most RCVs are a major source of annoyance to sleeping residents. And shrieking binlifts make the problem even worse.

As Iceland's largest commercial operator, Gamathjonustan HF (meaning 'Container Service') had already got to a point where harsh operation conditions, slow travel speeds and natural health and safety issues – mixed with a high standard of living and very high operating costs – made the whole notion of double shifting its fleet of industrial skip and hooklift waste trucks an everyday fact.

Unfortunately, the local noise laws make that impossible to achieve in residential areas using conventional hydraulic binlifters, although the Heil 'by demand' compaction hydraulics had solved part of that problem.

Ecoprocess thought it could provide a solution by going down the route of a full electric motor and direct drive chain-action vertical lift. With a virtually noise-free binlift, domestic collections could, if required, change

**Above and right: Back in the suburbs, Hannes and his crew are hard at work, to the sounds of the Rolling Stones!**



**Above: Twin lift Isbjorn has fully automatic cycle facility with features offering full safety protection. Note position of drive motors, padding and shielding**

to double shifting. That was where the idea started. But since the total annual Icelandic market for binlifts could be counted on the fingers of one hand, it was obvious that Ecoprocess had to look for wider markets.

My mission was to take a look at the Ecoprocess units in action, look at cycle times, the good points and the bad and try to put it all into a UK context.

My test vehicle was the second Heil unit fitted with an Ecoprocess bin lifter. Mounted on to a Volvo FM9 two-axle RCV chassis and in the care of driver Hannes Stephansson, the

Volvo was working out in the southern suburbs of Reykjavik, close to the famous, naturally heated Blue Lagoon.

One of the things that will hit you about Iceland is that although it is one of the most beautiful and unspoilt countries on earth, the first thing Icelanders do when they see a hill is build something on it.

This makes for a visually harsh urban environment and even though there are only 360,00 Icelanders in a country the size of the UK, more than 70% of the population now lives in the greater Reykjavik area. This means Hannes' crew of three were kept pretty fit pulling out wheeled bins from hillside communities with some striking views but challenging topography.

Although there is a great deal of countryside inland, most Icelanders live around the south west coast, and that links us neatly into the next aspect of the Ecoprocess binlifter design.

As I said earlier, it was designed in Iceland for Icelandic conditions. Check out your faded school atlas: Iceland is halfway across the Atlantic Ocean and far enough north (it's just under the Arctic circle) to get lots of weather. It's dark and cold all winter yet can be surprisingly hot during the summer when there is practically 24 hours of sunshine.

Why the geography lesson? Stay with me on this one. What don't hydraulics like? Massive changes in temperature, salt-laden water to rust hydraulic rams and dust. Iceland has lots and lots of dust – outside of the main suburbs and the single carriageway ring road around Iceland, most roads are still unsealed, graded gravel. So any piece of kit designed for use in Iceland is going to be reliable under extreme conditions, wouldn't you say?

**Need for speed**

As for speed, Ecoprocess gives a cycle time of 10 seconds for the single binlifter unit, but that only tells half the story. For a start, the units are able to work automatically. The loader slots the comb of the bin on to the lifter and up it goes.

Hannes' crew were all in their early 20s and were very fit, but they didn't seem to have any one system of working. Sometimes one of the crew would stay with the wagon while the others fetched and carried bins. Sometimes they'd each fetch and load their own. It didn't seem to matter which way they did it, the two Ecoprocess lifts were seldom beaten. When they were, it was only when the bins had become clogged and wouldn't empty cleanly.

But hadn't I been briefed that the design included an automatic 'shake' setting that gave

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the bin a double or treble action replay to free up clogged bins? Indeed I had, so while I rode with Hannes, I asked why the blockages were still happening. "Oh, it's no problem," he explained in a characteristically laid-back Icelandic fashion. "The guys have switched it off today because, overall, it's faster without a programmed shake, but the option does work."

Watching the guys at work, it was obvious that they were on a mission, or rather, on a work and finish regime. Each round lifts between 1,600 and 1,800 bins a day, and while the normal working week is five days in Iceland, each round has four solid days and some time on the fifth day to tidy up jobs missed earlier in the week and to allow for essential vehicle cleaning and maintenance.

But there's another important aspect to consider. They don't have many people in Iceland, so they tend to be careful with the people they do have and that includes children. Part of the design brief was to ensure safety was improved over conventional systems.

As a result, Ecoprocess units have what I can best describe as an electronic force field around them. If anyone enters inside this safety zone, the unit stops dead. The side panels outline the extent of the zone. But even if a youngster crawled under the RCV hopper and popped up just as the binlift was returning to ground level, it would still shut down without physical contact.

### Duty of care

Of course it is hard to make anything entirely idiot-proof, but the whole soft design of the binlift, the fact that all moving parts are contained within the unit and that the lift action is more vertical than many, suggest the units are just about as safe as it's possible to get. Not to be sneezed at when looking at duty of care issues.

There is one other aspect of the design that is compelling. Both types of binlifter can literally be unplugged and replaced without the need for complex lifting gear or workshop facilities.

In Iceland, an RCV might be a whole day's drive away from the workshop, so the idea is that should a unit go down or get damaged in-service, it can be replaced by a spare delivered by a engineer's van and the



**Above: Elais Olafsson (right), chairman of Gamathjonustan HF, and fleet manager Arn Grimur have already gained positive experience of electric binlifters**

**Below: Safety features are a priority with Icelandic operators. Ecoprocess has manual and automatic safety systems**



failed unit being returned the same way.

All it takes is something that looks like a hydraulic warehouse pallet truck, a few minutes and virtually no manual effort or need for spanners.

Arn Grimur, who runs Gamathjonustan's RCV fleet, explains that the company was intending to buy a further unit and hang it on the wall as a spare to keep downtime at a minimum.

On a hire fleet or where damage is an everyday occurrence in a large urban RCV fleet in the UK, that could save a fortune.

After a busy day working with Hannes and his crew and a really interesting chat with company chairman Elías Olafsson, who told me the 100-employee, 50-vehicle business is now grossing some €13 million-a-year turnover, it was time for me to see some of the rest of Iceland before rushing home.

Luckily, you don't have to go to quite that much trouble as working with Dennis Eagle, the London Borough of Bexley and, by the time you read this, hopefully a hire company, Ecoprocess should have at least a couple of electric binlifters in everyday service.

And while the company just managed to get into the CIWM event this year with a static demonstration rig, the proper launch of the system – and a chance to see at least one working vehicle-mounted unit – takes place at RWM05 at the NEC next month.

What happens after that is very much down

**Left: Control box is simple and compact and is also duplicated on both sides of unit. The next step: This Scania/Heil RCV awaits fitment of third Ecoprocess unit to be ordered by Gamathjonustan**

### ECOPROCESS BINLIFTER SPECIFICATIONS

**Types:** Isbjorn double or Thorbjorn single comb lift

**Lift capacity:** Containers up to 1,100 litres (Isbjorn) 1,700 litres (Thorbjorn)

**Min cycle time:** Two-wheeled bins: 10 seconds. Four-wheeled: 14 seconds

**Function modes:** Automatic (Isbjorn only), semi-automatic, manual

**Compatibility with on-board weighing and pay-by-weight systems?** Yes

**Unit replacement time:** 10 minutes

**Power supply:** Electrical 24V DC via power inverter to 230V AC

**Noise levels:** 45dB (A)

**Safety:** Padding, manual emergency stops, optical start sensor, lowering sensor systems

**Available from: Ecoprocess UK, Crayford, Kent.**

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to you. The increased safety is clearly a bonus, and the quick changeover could easily more than make up for the added price of the units. But there is one more advantage of going electric – a considerable weight saving over hydraulic systems. The amount will vary but could be 500-700kg and perhaps up to a tonne with a reduced hydraulic oil capacity, as the company claims.

That is well worth having, but it gets better. Most hydraulic systems put all the weight right where you don't want it – at the very back of the hopper. So, because they are heavy, they will often need a heavy subframe and that can play havoc with your rear axle loadings and vehicle handling.

Switching to the Ecoprocess system could also work wonders when it comes to selecting a reliable on-board weighing system, too, according to Diaz, because the system is smoother and more progressive than a typical hydraulic unit.

But there is something else, although I'm sure it wasn't what the designers of the Ecoprocess unit intended. Hannes Stefansson's crew love the unit for an entirely different reason. With virtually no noise being created by the Volvo's engine, the Heil on-demand packing system or the Ecoprocess binlift, it created the perfect 'environment' for the mother of all stereo systems in the Heil's hopper.

Perhaps it's just my sense of humour, but I found the Rolling Stones classic *Street Fighting Man* played at full blast the perfect anthem for picking up bins on a wet Reykjavik morning. Which means, you can probably put 'increased productivity' on your list too. **V&PT**