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What a load of legislation!

In recent years, loader crane manufacturers and installers have had to endure more than their fair share of red tape – primarily Machinery Directive 2006/42/EC, product standard EN12999 and BS7121. The latest version of EN12999: 2010 has recently been finalised by CEN - European Committee for Standardisation - and can now be considered as the harmonised standard for the Machinery Directive 2006/42/EC entering onto the EU Official Journal in the next few weeks. While many may complain, the legislation has been introduced to improve safety and reduce accidents, with the industry heavily involved in formulating the standard.

Fassi F1100AXP

The Machinery Directive 2006/42/EC has been law in the EU since late December 2009. It prescribes how manufacturers design and construct equipment so that it is safe and fit for purpose. However, to make the requirements of the Machinery Directive more accessible and comprehensible, product standards for particular products - for loader cranes this is EN12999 - are written.

Such product standards are also called harmonised standards and they describe in detail how the requirements of the Machinery Directive are 'translated' into specifics for each product type. The EN standards describe, amongst other things, requirements for safety, design, equipment and technical solutions on machinery so that it conforms to the essential health and safety requirements (EHSR's) of the directive. The implementation of the new Directive meant that all European standards also had to be revised/updated to conform, including EN12999.

For various reasons, UNI - the Italian organisation for standardisation - lodged an appeal against the ratification of EN12999:2009 in January this year delaying its publication. This has now been sorted and approved and so it is just a matter of weeks before the latest version - EN12999:2010 - will be adopted.

The problems in ratifying the latest revision of EN12999 in 2009 did not exempt manufacturers and crane installers from complying with the Machinery Directive and any national rules from the start of the year. The original version of EN12999 was adopted in March 2003 and has been 'updated' every two years or so adding more and more 'safety' requirements each time. Slew restriction/limitation systems (added in 2002), shrouded hoses, acoustic warnings on outreaches greater than 12 metres (2004), manual stabiliser 'not locked' visual warning; manually operated stabiliser extensions not having a stroke of more than 0.75 metres and a system that prevents mixing up hydraulic hoses on interchangeable devices (2006) were the main updates which kept manufacturers and distributors busy.

The latest (2010) amendment requires the position of stabiliser legs to be monitored by the Rated Capacity Limiter (RCL); noise testing of the completed installation; visual and audible 'boom not stowed' and 'manual stabilisers not locked' warnings as well as manufacturers ensuring the pressure through the stabiliser foot does not exceed four Mpa.

HMF has its EVS and RCL systems to ensure machine stability

Palfinger's ISC Integrated Stability Control in action

The standard has evolved primarily as a result of improved safety, driven by the fact that the incorrect deployment of stabilisers is a significant cause of accidents and fatalities. From a legislation point of view, failure to address this issue was not an option. But what will this new requirement mean for operators in terms of how loader cranes are used and how they perform?

"It is nearly always the case that most new safety devices meet with some market resistance, both in terms of cost and user-friendliness," says Alan Johnson from loader crane association ALLMI. "In terms of user friendliness, any operator using their loader crane correctly - as it is designed and in accordance with the manufacturer's instructions - should experience little or no difference in operation. However, operators who fail to use the crane stabilisers properly, either deliberately or otherwise, may experience some issues and of course the standard has been developed to this level to protect them."

ALLMI says that from feedback it has received, there are many operators who welcome any device which helps improve safety. However, there are those which will regard it as burdensome and an unnecessary additional cost and complexity.

Stability and stabiliser interlocks

The main concern for most manufacturers in the latest legislation is the requirement for what are commonly called 'stabiliser interlocks'. These are required on loader cranes with a maximum rated capacity of 1,000kg or more, or a maximum net load moment of typically greater than four tonne/metres. The stability of the vehicle must be included in the safety function of the Rated Capacity Limiter which now monitors each stabiliser. The system should then either lock-out or reduce the capacity in areas where stabilisers have not been fully deployed. This requirement does not apply to timber handling cranes.

There are many different systems (both in terms of cost, complexity and user friendliness) that are now available to satisfy the new requirements. The RCL needs to know the respective positions of the stabilisers and either lock-out or reduce the capacity accordingly in the event of partial or non-deployment. The more technically sophisticated versions allow the operator to work with either fully variable leg positions or with several pre-defined positions, such as fully in, half extended and fully extended.

A basic system – which will not allow the crane to operate unless the stabilisers are fully out and set– will almost certainly reduce the usability of the crane. There will be times when the loader crane may not work at all or (depending of the system) only offer capacities available with fully retracted outriggers.

This also raises the issue of calibration and testing of loader cranes in these areas. (For more details on the calibrating of Loaders in any reduced capacity areas, ALLMI Technical Standards Committee has produced Guidance Note 015.)

HMF's latest RCL5300

Ground Pressure

The latest EN12999 amendment also requires manufacturers to ensure that the stabiliser foot diameter is such that the maximum ground pressure is no more than four MPa, providing additional mats if and where necessary. The benefit of this is to reduce the chances of the legs punching through a week surface or sinking into soft ground.

Stability control systems

All the major loader crane manufacturers now have their own 'stability control' systems which comply with the latest legislation. It could be said that Danish manufacturer HMF has been ahead of the game when it comes to machine stability having had its EVS (Electronic Vehicle Stability) system in place for many years. The system - coupled with its RCL – uses electronic sensors to monitor front to back and side to side inclination of the truck chassis, which can also take the truck body and load into account as additional counterweight, allowing the crane's capacity to be improved in the stability part of the load chart when a heavy load remains on the truck bed.

Palfinger and Fassi both have three levels of sophistication – and price - in their stability system offerings.

Fassi's FSC

The Fassi FSC system includes:- The FSC-L, the basic, most cost-effective solution for the Micro range and cranes fitted with the HO

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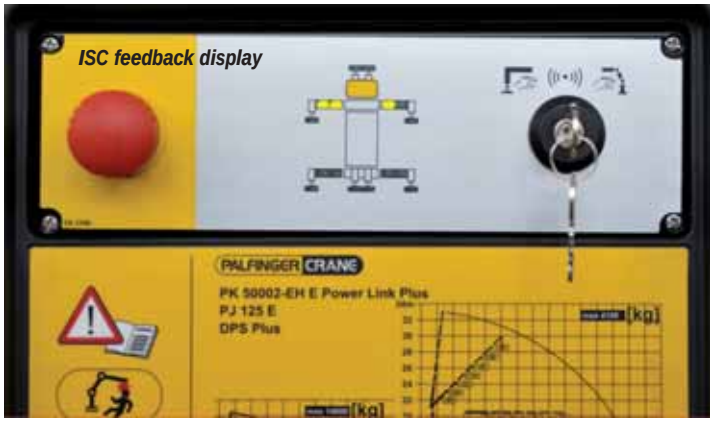


ISC feedback display

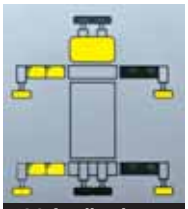
hydraulic rated capacity limiting device. The system allows crane operation in a single configuration i.e. when all four outriggers are fully extended and in contact with the ground. The FSC-M is a mid-range solution for cranes ranging from the F22A to F260DXP used in conjunction with the FX500 RCL device. In this case, the system allows the crane to operate in two working configurations firstly, beams fully retracted with jacks down and secondly with outriggers fully
extended and down.The position of the outriggers is monitored by encoders on the outrigger beam and the crane rotation is monitored to allow outrigger deployment on one side only.

Fassi's highest specification solution - FSC-S - offers the maximum possible operational flexibility and is standard on the F245A to F1500AXP when used in conjunction with the FX800 RCL device and optional on the F22A to F260DXP with the FX500.
The system monitors all possible outrigger deployment positions and adjusts the cranes lifting capacity and operating speed in line with outrigger positions and vehicle stability. FSC-S incorporates encoders to fully monitor the position of the outriggers and an inclination sensor to monitor the horizontal position of the crane. Like the HMF system, it can therefore incorporate the payload of the truck as a counterweight and crane rotation is monitored to allow outrigger deployment on one side only.

Palfinger's ISC

Market leader Palfinger's Integrated Stability Control (ISC) also has three versions (ISC-S, ISC-L and ISC) similar in principle to those described above. The ISC system adjusts the crane's lifting force depending on the stability and the position of the crane boom, to ensure the vehicle's stability over the entire working range. The ISC monitors all of the crane's stabilisers in three different outrigger positions (retracted, semi-deployed, fully deployed) and the stabiliser jacks – extended and loaded or unloaded (not extended). The operator can see the current status at any time on the clearly laid out display on the operator's console or on the display of the radio remote controller.
Safety related limit switches are protected by being mounted inside the boom system.

The most important technical components of the ISC are a rotary transducer to monitor slew, the stabiliser support sensor system and the well proven Paltronic
50 which handles the evaluation electronics. The new system is available for all Palfinger cranes with hydraulically extendable outriggers.



ISC feedback display detail

With Palfinger's top of the range ISC system – aimed primarily at its larger cranes - the crane's lifting power is adjusted from the driver's cab in line with the vehicle's stability. There is also an option that allows the system to deal with specifically defined load conditions which may improve stability, for example, an attached semi-trailer.

There is a choice between the low-cost ISC-L system and the ISC-S as the standard-compliant basic version. When the crane is handed over, the ISC system is set up on site using the in-house Paldiag software, adjusted specifically to the vehicle body and installation. In addition to integrated stability control, Palfinger adds the crane's transport position in the control system which identifies whether the crane has been folded when travelling and whether the outrigger interlock is activated. If this is not the case, a warning is

Hiab aalso has three levels of stability control systems

emitted in the driver's cab.

Another feature is the radio-controlled stabilisers which can only be operated on the side of the truck where the operator is situated so he can always see any movements he is making.

Hiab's VSL

To optimise the lift capacity in relation to stability, Hiab's VSL function uses information provided by in-built sensors. As with the other two systems we have covered, three different levels of sensor are available - the most sophisticated features progressive analogue sensors which provide the maximum permissible lifting capacity in all outrigger positions. The other two systems are more basic solutions featuring on/off sensors - the first uses one sensor and obliges the crane to always be set up with its stabilisers extended all the way out, while the second features two sensors, which provides lifting charts with the stabilisers two-thirds out or when fully extended. Italian manufacturer Effer has launched its new Progress system – a full crane control system for monitoring stability and lifting moments. Progress optimises truck stability in any working condition and gives to operator a visual feed-back (both numerical and graphical) about the crane's performance.

Effer says that in case of aerial work platform applications, the new system complies with 'Performance Level D' of the Machinery Directive 2006/42/EN. Thanks to the CAN-bus system, Progress continuously transmits relevant data to the radio controller and at the same to the main control bank modules. The data is used to maximise operational speeds, while controlling and smoothing movements for additional safety.

While there are some within the industry that think that none of these systems should be mandatory, the fact is that legislation has been passed to reduce accidents and save lives. Like anything in life you 'get what you pay for' and the more sophisticated systems will be the easiest to live with and will provide the most versatility along with the optimum lifting capacity for the stability of the vehicle. Basic systems however may satisfy the legislative requirements, and improve safety, but restrict the machine's versatility. As the saying goes 'you pays your money and you takes your choice'.

Effer was showing its latest Progress control system at SAIE

Monte Carlo or bust

Lifting and transporting works of art can be a particularly challenging test for any company. Gloucester, UK-based Charles Russell Transport Group specialises in dealing with very delicate and difficult loads and has built up a considerable international reputation for moving items such as statues, sculptures and works of art, as well as other valuables including aircraft and boats.

The company was recently brought in to transport and position a number of items by the artist Damien Hirst, being moved from the UK to the Principality of Monaco's Oceanographic Museum in Monte Carlo for a special exhibition entitled Cornucopia, part of the museums 100th anniversary celebrations.

The job involved several vehicles because of the size and considerable weight of some of the items, which included two of Hirst's 'sharks suspended in formaldehyde'. The company utilised two of its low loader mounted Fassi heavy-duty loader cranes, an 80.1 tonne/metre F950AXP and 90.2 metre F1100AXP to unload and place the larger exhibits.

Some of the exhibits had to lift the multimillion dollar exhibits out of their packing cases and carefully place them onto the front balcony of the famous museum so that they could be moved in through the opening in the windowed façade.

Charles Russell provided all specialist personnel involved in the lifting procedures and to position the works of art in the various rooms of the museum.

"When you are dealing with an irreplaceable and unique work of art it requires a level of attention that goes far beyond what would be required for other loads," says Charles Russell. "It is necessary to take into account the requirements in the field, for example how to position the works of art exactly in the place where they must be displayed outside and also inside museums and art galleries. When working indoors this can sometimes mean passing through doors or other openings that are less than a metre wide."

To cope with the varying lifting and transportation requirements, the company runs a fleet of vehicles

with load capacities of up to 80 tonnes, which have been carefully selected for their low environmental impact. Many of these vehicles are fitted with Fassi cranes.

The company offers a full range of services, including maritime transport to any destination worldwide. The largest loader crane currently in its fleet is the largest produced by Fassi – the F1500XP – although Charles Russell attended the launch of Fassi's new flagship crane the 1800, at this year's SAIE - and looked very interested!

First HMF sale for South East Cranes was to West London 'heavy side' merchant George Lines

New HMF strategy

Danish-based loader crane manufacturer HMF has implemented a new strategy in the UK market which it says is paying dividends. The company has realigned prices, reorganised of its direct sales force and appointed its first authorised sales and service dealers.

First companies to sign-up to the new dealer programme were Halesowen-based dry freight bodybuilder Bevan Group and South East Cranes of Walton on Thames, Surrey. Bevan will now offer HMF cranes to its extensive customer base, while South East Cranes – which operates its own fleet of 30 trucks with loader cranes through sister company BR Saunders Transport - will cover southern England. HMF says that the name of a dealer to cover the Midlands will be announced shortly and that it is also in negotiations with potential partners in Scotland.

The first HMF sale by South East Cranes was to West London 'heavy side' merchant George Lines. The 17 tonne/metre HMF 1720-K2 is mounted on a 32-tonne Volvo FM chassis and is the subject of a rolling contract hire deal with Saunders. Based in Colnbrook,near Heathrow airport, George Lines has been supplying civil engineering groundwork products such as kerbing, paving, gullies, manhole rings and associated castings for more than 50 years. The new truck is the company's first eight-wheeler for many years, and is being used to make deliveries to civil engineering and local authority sites.

The 1720-K2 has two hydraulic extensions with a maximum reach of 8.3 metres and is fitted with a Fielden brick and block grab.

The new crane benefits from HMF's new environmentally-friendly coating, applied in a purpose-built, £12 million plant opened last year at the company's headquarters facility in Højberg.

New models add to range

HMF has also unveiled two new loader cranes - the 38 tonne/metre 3820-K and 47 tonne/metre 4720-K – each with up to eight hydraulic extensions providing powered horizontal reach of between 8.2 and 21.4 metres depending on the number of sections specified.

Two manual extensions can reach to 26.3 metres at which radius the lift capacity is still a useful 750kg. If the FJ600 articulated jib is added maximum tip heights of up to 36 metres is possible or radius of morethan 31 metres with 340kg load.

HMF's new 4720-K

The future (like the past) is orange

It is now seven months since Atlas Maschinen GmbH – owned by Fil Filipov – acquired the Atlas crane and excavator business from Terex and four months since it completed its acquisition of Terex Atlas UK - its largest distribution outlet - changing its name to Atlas Cranes UK and adopting the old Atlas logo and orange livery to reflect its history and heritage.


Jim Smith and Jackie Kilcoyne

Atlas, once a name to rival that of Hiab on an international basis, has managed to maintain a market leadership position in the UK and as such it has been the company's strongest market for its loader cranes.

Since the acquisition there have been a number of significant developments at Atlas Cranes UK, including the appointment of Jim Smith as commercial director and Jackie Kilcoyne as financial director. Smith, who joined Atlas in 1986, was previously commercial sales manager and project manager for the company's MOD business – which he still oversees. The management changes followed the move of Lee Maynard, previously general sales manager to Terex Cranes UK where he is now general manager.

Sales coverage has also been expanded with Jon Cooper, area sales manager for the north of England and Jake McCaugherty for the south east. On the service side 14 new mobile workshop/vans have been ordered, the first of which are scheduled to be delivered this month. Four new service engineers have been recruited, bringing the number in the national service team to 34 – which Atlas claims is the largest in the business.


The new work platform reduces the risk of falls

The company has also collaborated with a leading PASMA member, to develop an innovative work platform for use by its engineers when working at height while servicing and repairing the cranes.

"We have introduced the new platform – unique in this industry sector – to help prevent falls and minimise the consequences of a fall should one occur," said Smith.

The introduction of more compact, lightweight cranes that are quick and easy to mount are proving popular for jobs such as landscaping, where they are mounted to smaller trucks. Atlas' .2 range is gradually being replaced by the new generation .3 models, typical of which is the recently launched 57.3.

Despite the still uncertain economic climate, customers are still investing in new cranes and Atlas Cranes UK has booked more than 50 orders in recent weeks. These include a 55.2 A1 for a prominent builders' merchant and two 29 tonne/metre 290.2's for the utilities sector. The company's military business also remains busy.

One of 14 new mobile service vans