



Spectrum



## DOES YOUR CHECKWEIGHER MEASURE UP?

*As one of only two other countries in the rapidly expanding European Union with a deregulated checkweighing market, Alan Johnson, Product Manager for the Loma and Cintex ranges of checkweighers, asks UK checkweigher users if their machinery really does come up to scratch, especially in light of the new European Measuring Instruments Directive (MID).*

"In the fiercely competitive environment of the food industry, increasingly stringent regulations, extremely high customer expectations, and greater pressures on bottom lines, food manufacturers must now be more demanding when choosing inspection equipment for their production lines.

"At the moment, the UK does not require checkweigher manufacturers to guarantee the accuracy, functionality and reliability of their machinery by any standardised benchmark. This means that almost anyone can build a machine, call it a checkweigher and sell it to unsuspecting food manufacturers who think they are getting weighing accuracy at a bargain price. Machinery such as this can suffer from a number of costly faults such as inaccuracy, weight drift and intermittent 'freezing' all resulting in incorrect machine statistics. In addition, machinery not built to withstand the harsh conditions of manufacturing environments can be susceptible to producing false readings according to external influences.

"Instead of investing in technology that will save money, make production more efficient and ensure supermarkets and customers are never 'short-changed', potentially unregulated checkweighers can end up costing food processors dearly.

"In light of these potential issues, Europe introduced the stringent OIML (International Organization of Legal Metrology) R51 approval programme a few years ago. This metrological standard is the certificate of conformity recognised across Europe and measures equipment in terms of accuracy, readability of display, technical functionality, electronics, controls and test methods. The assessment process also ensures that the checkweighers cannot be used fraudulently.

“Before accreditation is attained the checkweigher undergoes rigorous testing in an environmental chamber designed to simulate extreme production conditions. From the machine’s performance accuracy class (X) and verification scale interval (e) are established, and together these measurements guarantee the checkweigher’s level of accuracy and scope of application. In addition, to ensure manufacturers with R51 approval continue to build machinery that complies with the accreditation’s standards, they are required to put each machine through a well-documented test process when installing on customers’ sites. If a machine is found to have incorrect markings or deviates from the submitted specification, verification will not be granted and the machine cannot be used.

“Although sometimes arduous, R51 has been an extremely important step for the industry in Europe, helping to guarantee high levels of accuracy and performance with strict metrological and functional standards. And if UK checkweigher manufacturers intend to sell their products without restriction in the European market, they must comply.

“However, with Europe generally moving towards a ‘single market’, a more harmonised system for measuring instruments is on the horizon. A conclusive step towards these common European requirements on measuring instruments for trade and communication was taken when the Measuring Instruments Directive (MID), DIRECTIVE 2004/22/EC, was recently adopted in parliament and also published in EU’s Official Journal.

“Supported by WELMEC, whose principal aim is to establish a harmonised and consistent approach to European legal metrology, the 30 member countries are now gearing up for this important change. These changes are facilitated by the International Recommendations set out by the OIML which provide members with an internationally agreed-upon basis for the establishment of national legislation on various categories of measuring instruments. And, given the increasing national implementation of OIML guidelines, more and more manufacturers are referring to OIML International Recommendations to ensure that their products meet international specifications for metrological performance and testing.

“The new regulations for checkweighing instruments complement the Weights and Measures (Packaged Goods) Regulations which set out three main rules with which packers must comply for the correct labelling of packaged products. These are:

- The actual contents of the packaged goods should not be less than the nominal quantity;
- The proportion of packages which are short of the stated quantity by a defined amount, or TNE (tolerable negative error) should be less than a specified level;
- No package should be short by more than twice the TNE.

This means that manufacturers of all goods which are pre-packed in predetermined quantities by weight or volume between 5 grams or millilitres and 25 kilograms or litres, must implement a sufficiently rigorous weighing and marking regime. To comply with these three packers' rules, the weighing system should, in effect, be efficient in controlling the average quantity and proportion of packaging with a deficiency of more than the TNE.

“More thorough than the OIML R51 approval, the MID demands that for all packing lines controlled by checkweighers, the set points are appropriate for the application and will continuously ensure compliance with all three packer's rules. In addition, this equipment must take into account accuracy or the 'zone of indecision' (Zol) and variability of the weight of the packaging (tare). For instance, where the Zol is greater than 0.25 TNE then the set point should be increased by  $0.5Zol - 0.125 \text{ TNE}$ . And, where the tare variability exceeds 0.1 TNE and allowance of 0.85s can be added onto the set point.

“Other requirements include that the checkweigher is properly maintained and checked, the system is formalised and reviewed regularly for its appropriateness, and it includes corrective actions and records of performance. Standards for appropriate staff training should be set so that the checkweigher is adequately implemented, and as with R51, external influences from operating conditions, like the climatic and electromagnetic environment and power supply, must also be taken into account.

“Furthermore, the MID stipulates that checkweighers must be designed to maintain satisfactory stability of its metrological characteristics over the period of time as guaranteed by the manufacturer, provided it is properly installed, maintained and used according to the application for which it is intended. Ease-of-use, appropriate reject systems, robust machine build, and protection against corruption or fraudulent use are also important factors. As are the Software systems, electronics, controls and test methods.

“Unlike R51 which has to be gained in each country where approval is sought, this new directive means that one approval by one notified body will give manufacturers access to the entire EU market for a wide variety of measuring instruments. However, although the MID replaces R51 on 31<sup>st</sup> October 2006, machinery already with R51 approval will still be lawful until the expiry date on the certificate.

“The upcoming Measuring Instruments Directive has been put in place to protect manufacturers, food processors and consumers and will have far-reaching consequences in the checkweighing industry. Although the UK is currently a deregulated market, it would be foolhardy for checkweigher manufacturers to ignore the MID, and for food suppliers to invest in machinery

without the assurances of the highest levels of accuracy, reliability and functionality guaranteed by the EU regulations.

Not only can this prove costly in the food industry in general, but it also means that UK checkweighing companies could begin to lag behind European technology, and above all, they could be missing out on great sales opportunities in upcoming growth areas! Accept it or not, we are moving towards single market conditions and national markets can no longer be protected by national rules. So, UK users of checkweighers should be asking themselves if their checkweighers measure up to the high standards demanded by the Measuring Instruments Directive.”