



## Hydrostatic scales keep platforms electronic-free !



For plants whose weigh scales are susceptible to power surges, lightning and weather extremes, hydrostatic load cell scales may prove a welcome option.

Hydrostatic load cells, manufactured by Emery Winslow Scale Co., Seymour, Conn., are constructed of 304 stainless steel, and operate on a very thin film of oil - 0.030 in. thick. The term "hydrostatic" reflects that there are no pumps, no reservoirs, and there is no movement of oil. A weight applied to the cell creates a pressure signal, which is transferred through the oil, through capillary tubing, which the company says is very strong compared to electronic cable. This pressure signal is sent to the scale house where it is converted to a millivolt signal by a summing totalizer. This device produces millivolt signals for operation of standard digital indicators, printers and computers. A truck scale, with eight of these 75,000 lb capacity load cells uses about a pint of oil. The oil acts as a "liquid lever." There are no electronic components in the scale platform. With this design, Emery Winslow provides a lifetime warranty on their load cells against water and electrical damage.

### Performance in the Field

Redland Stone Products Co. in San Antonio, Texas, started using Emery Winslow scales in 1985. The operation, which produces more than five million tons of crushed stone per year, uses a highly automated crushing plant capable of producing 6,000 tons of product per hour. According to the company, its biggest single day brought more than 1,200 trucks through their plant.

The operations use three 10 ft x 70 ft steel deck aboveground scales, and four 116 ft scales all sitting on the quarry floor. Two 116 ft scales are under 600 ton asphalt silos. The scales are tied into the computer system, which allows trucks to get in, get loaded, and get out in about 7 minutes, according to the company. Hundreds of trucks are weighed daily.

Back in 1985, the primary reason Redland went with the hydrostatic scales was to counteract the numerous lightning storms that played havoc with electronic load cells. While slightly more expensive than average, the hydrostatic scales have proven to be a cost effective investment for the company.

Redland still uses two scales with electronic load cells at its Asphalt plant #4. Robert McGloin, plant operator, comments: ***"I have replaced the electronic load cells more often than I care to say, as many as six or more per year at a substantial cost. Not only do I have to pay for the load cell, installation and recalibration, but the downtime kills us. These cells fail due to lightning, water, diesel oil from trucks eats up the load cell boots, and the wiring goes bad. The hydrostatic load cells have had none of those problems."***

Some years ago, a flood submerged one hydrostatic scale and one electronic scale. When the water receded, the hydrostatic scale was undamaged, while eight load cells were replaced in the electronic scale.

Rogers Group in Indiana also has had good results with hydrostatic scales, which it purchased from Roger Sladek of Norris Scale Co., Sullivan, Ind., for many of its operations in the area.

According to Ted Powell, southern Indiana aggregate manager for Rogers: ***"These scales couldn't work better, in the coldest winter or the hottest summer. We push hundreds of trucks over the scales every day, with practically no problems."***

***"We had lots of mechanical scales before, and we would need to replace the single load cell at least three times per year from lightning strikes. If we had scales with full electronic load cells, we would be in big trouble. I figure we are saving \$4,000 per year, per scale in maintenance costs compared to even the mechanicals."***

Rogers Group's Sandusky, Ohio, facility produces close to five million tons per year, which all goes over two scales.

Says Powell, ***"Weights and measures people come out and check these scales, and in seven years I am not aware of any adjustments needed."***