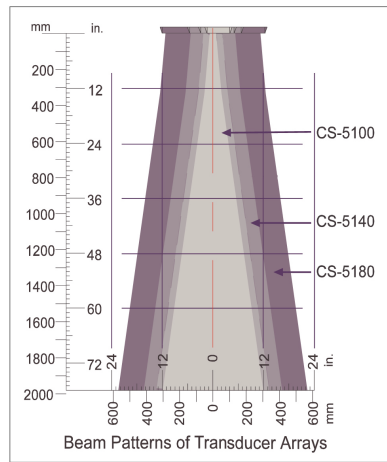


Coiltek® Ultrasonic Arrays

Coiltek has always been in the business of providing slack loop monitoring devices for the purpose of controlling ancillary feed or collection equipment. The most common application of our ultrasonic loop control is for the speed control of a straightener or a decoiler that feeds coilstock to a punch press. The height of the loop dictates the output speed of the coil-feeding device. If the loop is low, the feed stops, As it rises, the feed device speeds up accordingly.

Over the years, we've built specialty sensors with arrays of sensors. These were built to solve issues that came up with standard systems. There are applications where the loop shifts over time. When this happens, the loop valley – the relatively perpendicular segment of the loop upon which echolocation depends – is no longer under the sensor. The ultrasonic echo is lost, or spotty and the control doesn't work. An example of this situation is the control of a powered reel stand. As the coil depletes, the point from which the loop drapes shifts from high and close to the machinery being fed to low and farther away from the process. If the loop control is set-up for monitoring the valley of the loop when the coil is full, the sensor beam may be bouncing off at an angle by the coil is nearing depletion. The echo return won't be detected, and the control system will have failed to keep stock flowing to the process.



A multiple transducer array sensor can solve this problem. As the loop shifts, the echo may be picked up by any of the transducers in the array. In the example above, a simple three sensor array is located over the valley of the loop when the coil is about half depleted. Sensors 7 inches (178mm) to both right and left assure monitoring of the loop valley regardless of coil build. We call this system the Hammerhead (second from top, at right).

Coiltek now builds several standard sensor array systems. We have the four transducer CS-5140 (third from top, at right), CS-5140SQ (second to last, at right) and the CS-5180 (bottom, right). The CS-5140 has four transducers in line on 3" (76mm) centers. The CS-5140SQ has four transducers laid out on a square on 3" centers. The CS-5180 has a linear array of 8 transducers on 3" centers.

If you have an application for an arrayed sensing system that we don't already build, we would be interested in hearing about it.

