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## LVDTs in Place of Variable Inductors

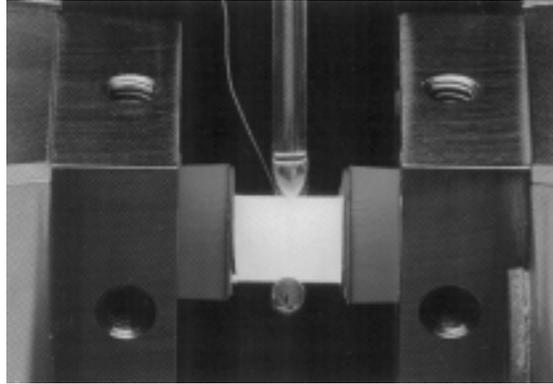
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A builder of massive material testing systems called in search of a replacement position sensor for the discontinued Data Instruments “Fastar”. We were quick to respond with our Series 210-220 AC LVDTs.

The “Fastar” transducer is actually a Precision Variable Inductor. Rather than have an LVDT’s primary winding, two secondary windings and an iron/nickel core, a Variable Inductor is constructed of a single coil of wire with an aluminum core. The unit is powered by a very high frequency AC voltage - typically 112 kHz vs. the 3 or 7 kHz we specify for our AC LVDTs. As with an LVDT, the motion of the core changes the coil inductance producing a measurable change related to displacement.

One of the biggest advantages of the Variable Inductor is its high Frequency Response (FR), typically up to 6 kHz vs. the 1 kHz we can achieve with our AC LVDTs and Series 1000 O/Ds. However, the Variable Inductor is more costly and the necessary supporting electronics can be quite complicated. With this customer not requiring a very high FR, our Models 0217, 0218 & 0219 coupled with the Model 1000-0012 O/D were perfect replacements in their material testing systems. These high-end, thermal-mechanical systems are used for the physical simulation of

materials processing. By exactly reproducing the thermal and mechanical processes in a laboratory, a lot is learned about what a material is subjected to in actual production and end use. These material testers are used by steel mills, fabricating companies and universities around the world.



The LVDTs are used to measure sample material deformation as it is subjected to intense heat. Anvils are located on two sides of the sample, directly opposite each other. Hydraulic pistons press against the anvils, causing the sample to deform. The LVDTs - installed in series with the pistons - monitor the movement of each piston. This is

part of a complete servo-loop with the output signal from each LVDT being continuously fed into sophisticated on-board electronics.

While an LVDT can be an excellent alternative to the Fastar and other Variable Inductor Transducers, this may not always be the case. Many electrical and physical specifications should be compared before making that determination. But, there’s no doubt, the demise of the “Fastar” has generated several inquiries for our AC style LVDTs. And, don’t forget, our LVDTs can sometimes be considered as replacements for other types of linear position technologies as well.