

Comments and Corrections

Corrections to “Transducer Design for Clamp-On Guided Wave Flow Measurement in Thin-Walled Pipes”

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UNFORTUNATELY, in the above article [1], a minor mathematical error needs to be corrected. Equation (1) corresponds to the flow velocity in a Z-configuration meter, whereas the meter shown schematically in Fig. 1 is a V-configuration meter. The difference between the two equations is that the equation for the V-configuration meter has an extra factor of two in the denominator. This correction does not affect the remainder of the article, as the correct equation was used during data processing.

The original equation (1) in the above article [1] was displayed as

$$v_l = \frac{kc_l^2 \Delta t}{2D \tan(\theta_i)}, \quad (1)$$

where v_l is the velocity of the flow, c_l is the speed of sound in the fluid, Δt is the transit time difference between the two received signals, D is the interior diameter of the pipe, θ_i is the refraction angle into the water, and k is a correction factor

that depends on the flow velocity profile. Equation (1) corresponds to the flow velocity in a Z-configuration meter, where the transducers are mounted on opposite sides of the pipe. The discussion in the article is focused on a V-configuration meter, which instead has its flow velocity given by

$$v_l = \frac{kc_l^2 \Delta t}{\mathbf{4}D \tan(\theta_i)}, \quad (2)$$

where the difference in the denominator is shown in bold font. The extra factor of two arises because the path length in the fluid for the V-configuration meter is twice as long as that in the Z-configuration meter.

REFERENCES

- [1] L. Smith, Z. Li, and S. Dixon, “Transducer design for clamp-on guided wave flow measurement in thin-walled pipes,” *IEEE Sensors J.*, vol. 22, no. 11, pp. 10613–10619, Jun. 2022, doi: [10.1109/JSEN.2022.3169283](https://doi.org/10.1109/JSEN.2022.3169283).

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