

Text of the abstract

A vibratory meter (5) including a multi-channel flow tube (130) is provided. The vibratory meter (5) includes a meter electronics (20) and a meter assembly (10) communicatively coupled to the meter electronics (20). The meter assembly (10) includes the multi-channel flow tube (130, 330, 430, 530) comprising two or more fluid channels (132, 332, 432, 532) surrounded by a tube wall (134, 334, 434, 534). The two or more fluid channels (132, 332, 432, 532) and tube wall (134, 334, 434, 534) comprise a single integral structure. A driver (180) is coupled to the multi-channel flow tube (130, 330, 430, 530). The driver (180) is configured to vibrate the multi-channel flow tube (130, 330, 430, 530). The two or more fluid channels (132, 332, 432, 532) and tube wall (134, 334, 434, 534) are configured to deform in the same direction as the single integral structure in response to a drive signal applied to the driver (180). The meter electronics (20) is configured to: measure a density of the fluid with the multi-channel flow tube (130, 330, 430, 530) based on a frequency of the vibration of the multi-channel flow tube (130, 330, 430, 530); determine a gas void fraction using the measured density; and compensate a flow rate measurement using the gas void fraction.

