

materials with vibrational damping characteristics higher than metal are rubber, carbon fiber, fiberglass, graphite, glass, wood, etc. This list is not exhaustive and those skilled in the art will readily recognize other suitable materials that exhibit higher vibrational damping characteristics that can be used for the case 200.

5 According to an embodiment of the invention, when the case 200 is formed from plastic, welding that is typically required with metal cases can be substantially eliminated. In the embodiment shown, a second portion 200b of the case 200 (See FIG. 5) can be coupled to the first portion 200a of the case 200 that is shown in FIG. 2 using an adhesive, epoxy, mechanical fasteners, snap-fit, etc. By avoiding the need to weld
10 the case portions together as well as weld the case to a base, for example, the cost and complexity associated with assembling the case 200 around the remainder of the sensor assembly 10 is substantially reduced.

According to an embodiment of the invention, the second material used to form the case 200 may not be as strong as metal, which is typically used in the prior art.
15 Therefore, the present invention implements a number of additional features in the case 200 in order to overcome various drawbacks typically associated with weaker materials, such as plastic. In the embodiment shown in FIG. 2, the case 200 includes a plurality of ribs 201. The ribs 201 may be provided to strengthen the case 200 while maintaining a reduced weight. The ribs 201 may be added to the case 200 by coupling the ribs 201 to
20 an existing shell 202. Alternatively, the case 200 may be molded as is generally known in the art and the ribs 201 may be formed at the same time as forming the shell 202 during the molding process. In some embodiments, the ribs 201 may be provided to adjust the frequencies required to induce a vibrational mode in the case 200. For example, by increasing the number of ribs 201 in the case 200 and/or the spacing
25 between the ribs 201, the rigidity of the case 200 may increase, thereby increasing the damping of the case 200 to further reduce the frequencies required to induce a mode of vibration in the case 200.

According to an embodiment of the invention, the case 200 can further include a conduit opening 203. According to an embodiment of the invention, the conduit
30 opening 203 is defined by the plurality of ribs 201. The conduit opening 203 may be sized and shaped to accept the conduits 103A, 103B, for example. According to an embodiment of the invention, the conduit opening 203 may comprise an area

substantially equal to the area required by the conduits 103A, 103B while vibrating at maximum vibrational amplitude in order to minimize pressure piling that is possible in prior art cases that provide a much larger open volume around the conduits than necessary. In contrast, with the conduit opening 203 substantially surrounding the conduits 103A, 103B, the case 200 may substantially reduce the risk of the case 200 exploding in the event of a conduit failure.

In addition to the conduit opening 203, the case 200 may include first and second manifold openings 203, 203' adapted to receive the first and second manifolds 102, 102' of the sensor assembly 10. The manifold openings 203, 203' may further include grooves 204, 204' adapted to receive a sealing member 304, 304', such as an O-ring, for example (See FIG. 3).

According to an embodiment of the invention, the case 200 further includes a feed thru opening 205. The feed thru opening 205 can be provided for the leads 100 communicating between the driver 104, the pick-offs 105, 105', and the meter electronics 20. Although the feed thru opening 205 is shown as exiting the case 200 near the bottom portion, it should be appreciated that the feed thru opening 205 could exit the case 200 at any desired location and the particular location shown should in no way limit the scope of the present invention.

According to an embodiment of the invention, the case 200 may further include a driver mount 224, and pick-off mounts 225, 225'. The driver 224 and pick-off mounts 225, 225' may be provided in embodiments where the case 200 is used with a single-conduit vibrating meter. Therefore, the case 200 can provide the substantially stationary mount against which the single conduit vibrates. Advantageously, a separate stationary plate or mount is not required.

The case 200 may provide an explosion-proof barrier. According to an embodiment of the invention, the case 200 may include an explosion rupture point 215, which is designed to fail at a predetermined pressure in order to safely exhaust the case 200 in a specific direction. The predetermined pressure at which the explosion rupture point 215 is designed to fail may be lower than the pressure the remainder of the case 200 can safely contain. The explosion rupture point 215 may comprise an area of the case 200 with reduced thickness, for example. The explosion rupture point 215 may be formed during a molding process or may be cut out after the case 200 is formed. While

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