[0004A] According to a first aspect, there is provided a system for mobile testing of flows of fluid, comprising: a modular flow meter system for testing flows of fluid, the modular flow meter system having a plurality of flow test modules releasably coupled to each other, each flow test module including: a portable skid; and a flow circuit mounted on the portable skid, the flow circuit including: a multiphase flow meter coupled into the flow circuit, an inlet through which the flow of fluid enters the flow circuit; an outlet through which the flow of fluid exits the flow circuit; a plurality of isolation valves on the portable skid operable to selectively allow the flow through the multiphase flow meter to measure the fluid or prevent flow through the multiphase flow meter to at least redirect the flow, or prevent the flow from entering the flow circuit; and a plurality of flow connector ends by which the flow circuit may be coupled with at least one adjacent flow circuit of an adjacent flow test module.

[0004B] According to a second aspect, there is provided a system, comprising: a modular flow meter system transportable between well sites, the modular flow meter system comprising a plurality of flow test modules which each has a portable skid, and a multiphase flow meter and a flow circuit mounted on the portable skid, the flow circuit of corresponding flow test modules of the plurality of modules being selectively connectable via flow connectors, the flow circuits further comprising valves which may be actuated to allow flow through selected multiphase flow meters to measure fluid flow, prevent fluid flow through the selected multiphase flow meters to at least redirect the fluid flow, or prevent the fluid flow from entering one or more of the flow circuits.

[0004C] According to a third aspect, there is provided a method, comprising: preparing a plurality of flow test modules such that each flow test module includes a portable skid, a flow circuit mounted on the portable skid, the flow circuit including a flow meter, and a plurality of isolation valves on the portable skid; combining a desired number of flow test modules to create a mobile, modular flowmeter system; joining the flow circuits of the desired number of flow test modules; and adjusting at least one of the flow circuits to change a flow route and to direct a flow of fluid through at least one of the flow meters for analysis, or redirect the flow route to prevent the flow from entering at least one of the flow meters.

[0004D] According to a fourth aspect, there is provided an apparatus, comprising: a module mounted on a portable skid, the module including: a flow circuit including: an inlet through which a flow of fluid enters the flow circuit; an outlet through which the flow exits the flow circuit; a flow meter to measure the flow; a first isolation valve and a second isolation valve to at least facilitate the flow through the flow meter, or prevent the flow from

entering the flow meter; and a bypass manifold including a third isolation valve to at least accept the flow when the first and second isolation valves are closed, or facilitate the flow through the flow meter when the first and second isolation valves are open.

[0004E] According to a fifth aspect, there is provided a system, comprising: a first module coupled to a first portable skid, the first module including: a first flow circuit including: an inlet through which a flow of fluid enters the flow circuit; an outlet through which the flow exits the flow circuit; and a first flow meter having a first flow-range rating to measure the flow; and a second module coupled to a second portable skid, the second portable skid coupled to the first portable skid, the second module including: a second flow circuit coupled to the first flow circuit through at least one of a first flow connector or a second flow connector, the second flow circuit including a second flow meter having a second flow-range rating different from the first flow-range rating to measure the flow.

[0004F] According to a sixth aspect, there is provided a method, comprising: preparing a first module and a second module such that each module includes a portable skid, a flow circuit mounted on the portable skid, the flow circuit including a flow meter, and a plurality of isolation valves on the portable skid; configuring the plurality of isolation valves to: direct a flow of fluid through a first flow meter of the first module to measure the fluid; and prevent the flow through a second flow meter of the second module, the first flow meter having a first throat size different from a second throat size of the second flow meter; determining, with a control system, to divert the flow from the first flow meter to the second flow meter based on a pressure of the flow; and adjusting at least one of the flow circuits based on the determination.

CLAIMS

1. A system for mobile testing of flows of fluid, comprising:

a modular flow meter system for testing flows of fluid, the modular flow meter system having a plurality of flow test modules releasably coupled to each other, each flow test module including:

a portable skid; and

a flow circuit mounted on the portable skid, the flow circuit including:

a multiphase flow meter coupled into the flow circuit

an inlet through which the flow of fluid enters the flow circuit;

an outlet through which the flow of fluid exits the flow circuit;

a plurality of isolation valves on the portable skid operable to selectively allow the flow through the multiphase flow meter to measure the fluid or prevent flow through the multiphase flow meter to at least redirect the flow, or prevent the flow from entering the flow circuit; and

a plurality of flow connector ends by which the flow circuit may be coupled with at least one adjacent flow circuit of an adjacent flow test module.

2. The system as recited in claim 1, further comprising a plurality of adjustable connectors by which the flow connector ends of adjacent flow circuits are coupled to enable fluid flow between adjacent flow test modules.

3. The system as recited in claim 1, wherein the modular flow meter system comprises at least two flow test modules.

4. The system as recited in claim 1, wherein the multiphase flow meter of the flow test module has a different flow-range rating from the multiphase flow meter of the adjacent flow test module.

5. The system as recited in claim 1, wherein the modular flow meter system further comprises a control system coupled to the multiphase flow meter and the plurality of isolation valves of each flow test module to enable selective actuation of specific isolation valves.

6. A system, comprising:

a modular flow meter system transportable between well sites, the modular flow meter system comprising a plurality of flow test modules which each has a portable skid, and a multiphase flow meter and a flow circuit mounted on the portable skid, the flow circuit of corresponding flow test modules of the plurality of modules being selectively connectable via flow connectors, the flow circuits further comprising valves which may be actuated to allow flow through selected multiphase flow meters to measure fluid flow, prevent fluid flow through the selected multiphase flow meters to at least redirect the fluid flow, or prevent the fluid flow from entering one or more of the flow circuits.

7. The system as recited in claim 6, wherein the flow connectors are extensible to accommodate connection of adjacent flow test modules.

8. The system as recited in claim 6, further comprising a control system programmable to automatically control actuation of the valves.

9. The system as recited in claim 6, wherein each one of the plurality of modules is portable via forklift pockets.

10. A method, comprising:

preparing a plurality of flow test modules such that each flow test module includes a portable skid, a flow circuit mounted on the portable skid, the flow circuit including a flow meter, and a plurality of isolation valves on the portable skid;

combining a desired number of flow test modules to create a mobile, modular flowmeter system;

joining the flow circuits of the desired number of flow test modules; and

adjusting at least one of the flow circuits to change a flow route and to direct a flow of fluid through at least one of the flow meters for analysis, or redirect the flow route to prevent the flow from entering at least one of the flow meters.

11. An apparatus, comprising:

a module mounted on a portable skid, the module including:

a flow circuit including:

an inlet through which a flow of fluid enters the flow circuit;

an outlet through which the flow exits the flow circuit;

a flow meter to measure the flow;

a first isolation valve and a second isolation valve to at least facilitate the flow through the flow meter, or prevent the flow from entering the flow meter; and

a bypass manifold including a third isolation valve to at least accept the flow when the first and second isolation valves are closed, or facilitate the flow through the flow meter when the first and second isolation valves are open.

12. The apparatus of claim 11, wherein the module is a first module and the portable skid is a first portable skid, further including:

a first flow connector coupled to the inlet to direct a portion of the flow to a

second module coupled to a second portable skid, the second portable skid coupled to the first portable skid; and

a second flow connector coupled to the outlet to receive the portion of the flow from the second module.

13. The apparatus of claim 12, wherein each of the first flow connector and the second flow connector includes a pair of flanges coupled to telescoping piping to allow linear movement of the flanges with respect to each other.

14. The apparatus of claim 12, further including a control system to determine a differential pressure across the first flow meter and direct the flow to the second flow meter based on the differential pressure.

15. The apparatus of claim 11, further including:

a framework coupled to the portable skid;

a cover coupled to the framework; and

a lifting hook coupled to the framework.

16. A system, comprising:

a first module coupled to a first portable skid, the first module including:

a first flow circuit including:

an inlet through which a flow of fluid enters the flow circuit;

an outlet through which the flow exits the flow circuit; and

a first flow meter having a first flow-range rating to measure the flow; and

a second module coupled to a second portable skid, the second portable skid coupled to the first portable skid, the second module including:

a second flow circuit coupled to the first flow circuit through at least one of a first flow connector or a second flow connector, the second flow circuit including a second flow meter having a second flow-range rating different from the first flow-range rating to measure the flow.

17. The system of claim 16, wherein the first flow circuit includes a first plurality of isolation valves operable to selectively allow the flow through the first flow meter and the

second flow circuit includes a second plurality of isolation valves operable to selectively allow the flow through the second flow meter.

18. The system of claim 16, wherein the first flow connector is coupled to the inlet to direct a portion of the flow to the second module and the second flow connector is coupled to the outlet to receive the portion of the flow from the second module.

19. The system of claim 16, further including a control system to determine a differential pressure across the first flow meter and direct the flow to the second flow meter based on the differential pressure.

20. A method, comprising:

preparing a first module and a second module such that each module includes a portable skid, a flow circuit mounted on the portable skid, the flow circuit including a flow meter, and a plurality of isolation valves on the portable skid;

configuring the plurality of isolation valves to:

direct a flow of fluid through a first flow meter of the first module to measure the fluid; and

prevent the flow through a second flow meter of the second module, the first flow meter having a first throat size different from a second throat size of the second flow meter;

determining, with a control system, to divert the flow from the first flow meter to the second flow meter based on a pressure of the flow; and

adjusting at least one of the flow circuits based on the determination.