CLAIMS:

1. A robotic system for operation in an explosive environment, the robotic system comprising:

an enclosure, with the robotic system configured to be safely operated within an explosive environment when the enclosure is sealed, the enclosure comprising:

a panel with a panel flange adjacent an edge of the panel;

multiple first holes spaced along the panel flange;

a housing with a housing flange around a perimeter of an opening in the housing; and

a seal element configured to sealingly engage the panel flange and the housing flange when the panel is attached to the housing, with the seal element spaced away from the multiple first holes;

wherein multiple second holes are spaced along the housing flange, wherein one of multiple fasteners is installed in a respective one of the multiple first holes in the panel flange and engages a respective one of the second holes in the housing flange when the panel is attached to the housing, wherein the multiple second holes are blind holes, and wherein the respective one of the second holes comprise a closed volume below the one of the multiple fasteners;

wherein the panel is removably attached to the housing and is configured to cover the opening when the panel is attached to the housing, wherein a groove is formed in the panel flange with the seal element disposed in the groove, and wherein the panel flange is electrically coupled to the housing flange when the panel is attached to the housing; and

wherein the panel is aluminum with a top surface and edge of the panel painted with a corrosion resistant paint, while a bottom surface, at least at the panel flange, of the aluminum is an exposed aluminum, wherein the housing includes a metallized layer of aluminum that covers the edge of the housing, the housing flange, and a portion of a top surface of the housing that is adjacent to the housing flange, wherein a bottom surface of the housing and a portion of the top surface of the housing, excluding the housing flange, is painted with a corrosion resistant paint, wherein the corrosion resistant paint overlaps the portion of the top surface of the housing, and wherein when the panel is attached to the housing, the exposed aluminum of the panel flange is electrically coupled to the metallized layer of the aluminum on the housing flange.

2. The system of claim 1, wherein the enclosure contains electrical components within an interior of the enclosure and the enclosure is integral with the robot.

3. The system of claim 2, wherein the enclosure contains one or more controllers that control some of the robotic system, and one of the controllers is an electronic controller.

4. The system of claim 1, wherein the housing, when the panel is attached, maintains an internal positive pressure relative to an exterior of the housing.

5. The system of claim 1, wherein bushings are installed in each of the multiple first holes in the panel flange, and wherein the multiple fasteners are held captive by the bushings when the fasteners are installed in the bushings.

6. The system of claim 1, wherein the blind holes comprise internal threads, wherein the fasteners are configured to be screwed into the internal threads, and wherein the blind holes contain a lubricant and the closed volume collects excess lubricant.

7. The system of claim 1, wherein the panel flange is a same thickness as the panel and the housing flange is a same thickness as the housing, or alternatively the panel flange is a reduced thickness compared to the panel and the housing flange is a reduced thickness compared to the housing.

8. A robotic system for operation in an explosive environment, the robotic system comprising:

an enclosure, with the robotic system configured to be safely operated within an explosive environment when the enclosure is sealed, the enclosure comprising:

a panel with a panel flange adjacent an edge of the panel;

multiple first holes spaced along the panel flange;

a housing with a housing flange around a perimeter of an opening in the housing;

multiple second holes spaced along the housing flange, with the multiple second holes are blind holes, and wherein the blind holes comprise a closed volume below an installed fastener; and

a pattern of the multiple first holes match a pattern of the multiple second holes;

wherein the panel is aluminum, with a top surface and edge of the panel painted with a corrosion resistant paint, while a bottom surface, at least at the panel flange, of the aluminum is an exposed aluminum,

wherein the housing includes a metallized layer of aluminum that covers the edge of the housing, the housing flange, and a portion of a top surface of the housing that is adjacent to the housing flange,

wherein a bottom surface of the housing and a portion of the top surface of the housing, excluding the housing flange, is painted with a corrosion resistant paint,

wherein the corrosion resistant paint overlaps the portion of the top surface of the housing, and

wherein when the panel is attached to the housing, the exposed aluminum of the panel flange is electrically coupled to the metallized layer of the aluminum on the housing flange.

9. The system of claim 8, wherein the panel is removably attached to the housing and is configured to cover the opening when the panel is attached to the housing, and wherein a groove is formed in the panel flange with a seal element disposed in the groove.

10. The system of claim 8, wherein one of the installed fasteners is installed in each of the multiple first holes in the panel flange and engages respective ones of the second holes in the housing flange when the panel is attached to the housing.

11. The system of claim 10, wherein bushings are installed in each of the multiple first holes in the panel flange, and wherein each of the installed fasteners is held captive by a respective one of the bushings when the installed fasteners are installed in the bushings, wherein the blind holes have internal threads and the installed fasteners are configured to be screwed into the internal threads.