

restrict the upward pressures of a kick a blowout results, potentially shooting tubing, oil and gas up the wellbore, damaging the rig, and leaving well integrity in question.

SUMMARY OF THE INVENTION

[0009] In accordance with the teachings provided herein for a blowout preventer, one embodiment provides an aspect, there is provided a blowout preventer assembly comprising a containment structure, wherein the containment structure comprises a unitary lower housing with a plurality of lower housing bifurcated retainer lugs disposed circumferentially about an attachment end of the lower housing, wherein the lower housing further includes a plurality of internal fluidly interconnected cylinders; a plurality of annular pistons and glands engaging the plurality of fluidly interconnected cylinders in the lower housing; a one piece energizing ring having a bowl in one end portion, wherein the energizing ring is operationally disposed circumferentially about a portion of the lower housing and in engagement with the plurality of annular pistons; an upper housing having an integral structure with a plurality of upper housing bifurcated retainer lugs for interlace quarter turn engagement with the lower housing plurality of bifurcated retainer lugs, wherein the upper housing further includes an inner ceiling with a spherical, concave shaped main bore for accommodating a main seal positioned over the bowl portion, wherein the lower housing and upper housing operationally enclose the one piece energizing ring, annular pistons, glands and seal; and a plurality of bottom plates for sealing the lower housing from an outside environment.

[00010] In another embodiment aspect, there is provided a blowout preventer is provided comprising a lower housing having a unitary generally cylindrical shaped structure with a plurality of bifurcated retainer lugs; a plurality of internal fluidly interconnected cylinders configured in a plane surface of the integral structure, wherein each internal fluidly interconnected cylinder includes a dedicated cylinder fluid channel disposed therein a portion of a cylinder wall; a center column defining a center bore for accommodating a well pipe, wherein the center column comprises a plurality of seals; and a flange mounting portion disposed at a distal end of the center column.

[00011] In yet another embodiment aspect, there is provided a blowout preventer is provided comprising an energizing ring having a generally cylindrical, one-piece integral structure having a bowl shaped surface