Claims

1. An assembly for clamping first and second flanged tubular components, the assembly comprising:

a segmented clamp having a recess configured to accept the flanges of the first and second tubular components, and a hole oriented substantially perpendicular to the longitudinal axes of the first and second tubular components;

a housing surrounding an outer portion of the segmented clamp and configured for attachment to at least one of the first and second tubular components; and

a drive screw that passes through the housing and is threadedly engaged with the hole of the segmented clamp, so that as the drive screw rotates it maintains a substantially fixed position relative to the housing so that it does not impede the radial clearance around the wellhead, the drive screw driving the segmented clamp perpendicularly relative to the first and second tubular components between a locked position, in which the circumferential recess engages the flanges of the first and second tubular components, and an unlocked position, in which the circumferential recess is positioned laterally out of engagement with the flanges of the first and second tubular components.

2. The assembly of claim 1, wherein the clamp comprises a plurality of clamp sections arranged to substantially surround the first and second tubular components, and wherein each clamp section has a hole in threaded engagement with a drive screw.

3. The assembly of claim 1, further comprising a wear pad between the clamp and the housing, the wear pad configured to prevent direct contact between surfaces of the clamp and the housing.

4. The assembly of claim 1, wherein the housing includes a guide bushing around the drive screw to maintain the alignment of the drive screw relative to the housing, and the guide bushing is discretely removable from the housing without removing the drive screw.

5. The assembly of claim 4, wherein the guide bushing and drive screw are discretely removable as a unit from the housing.

6. The assembly of claim 1, wherein the housing has radiused internal corners to reduce stress concentrations in the housing.

7. An adapter for clamping flanged ends of first and second tubular components, the adapter comprising:

a clamp having a plurality of dog segments that substantially surround the first and second tubular components, each dog segment having a hole extending therethrough in a direction perpendicular to the longitudinal axis of the first and second tubular components, and protrusions projecting inwardly toward the longitudinal axis of the tubular components, the protrusions spaced to engage the flanged ends of the tubular components when the clamp is positioned proximate the flanged ends, thereby restraining axial movement of the first and second tubular components relative to one another;

a housing surrounding an outer portion of the clamp and configured for removable attachment with a fastener to at least one of the first and second tubular components;

a plurality of drive screws that pass through the housing and threadedly engage the holes of the dog segments of the clamp, so that as each drive screw rotates, it drives a dog segment perpendicularly relative to the first and second tubular components between a locked position, in which the protrusions engage the flanged ends of the first and second tubular components, and an unlocked position, in which the protrusions are positioned outwardly from, and out of engagement with, the flanges of the first and second tubular components;

guide bushings around the plurality of drive screws that are discretely removable from the housing without removing the drive screws, and that maintain the alignment of the drive screws relative to the housing.

8. The adapter of claim 7, wherein the protrusions have inner flange engaging surfaces that are tapered to substantially correspond to tapered surfaces of the flanged ends of the first and second tubular components.

9. The adapter of claim 7, further comprising wear pads between the dog segments and the housing, the wear pads configured to prevent direct contact between surfaces of the dog segments and the housing.

10. The adapter of claim 7, wherein the each of the plurality of drive screws maintains a substantially fixed position relative to the housing so that it does not impede the radial clearance around the wellhead.

11. The adapter of claim 7, wherein the guide bushings and drive screws are removable from the housing as discrete units.

12. The adapter of claim 7, wherein the housing has radiused internal corners to reduce stress concentrations in the housing.

13. An adapter for clamping flanged ends of first and second tubular components, the adapter comprising:

a clamp having a plurality of dog segments that substantially surround the first and second tubular components, each dog segment having a hole extending therethrough in a direction perpendicular to the longitudinal axis of the first and second tubular components, and protrusions projecting inwardly toward the longitudinal axis of the tubular components, the protrusions spaced to engage the flanged ends of the tubular components when the clamp is positioned proximate the flanged ends, thereby restraining axial movement of the first and second tubular components relative to one another;

a housing surrounding an outer portion of the clamp and configured for threaded attachment to at least one of the first and second tubular components;

a plurality of drive screws that pass through the housing and threadedly engage the holes of the dog segments of the clamp, so that as each drive screw rotates, it drives a dog segment perpendicularly relative to the first and second tubular components between a locked position, in which the protrusions engage the flanged ends of the first and second tubular components, and an unlocked position, in which the protrusions are positioned

outwardly from, and out of engagement with, the flanges of the first and second tubular components;

guide bushings around the plurality of drive screws to maintain the alignment of the drive screws relative to the housing, the guide bushings and plurality of drive screws being removable from the housing as discrete units.

14. The adapter of claim 13, wherein the protrusions have inner flange engaging surfaces that are tapered to substantially correspond to tapered surfaces of the flanged ends of the first and second tubular components.

15. The adapter of claim 13, further comprising wear pads between the dog segments and the housing, the wear pads configured to prevent direct contact between surfaces of the dog segments and the housing.

16. The adapter of claim 13, wherein the each of the plurality of drive screw maintains a substantially fixed position relative to the housing so that it does not impede the radial clearance around the wellhead.

17. The adapter of claim 13, wherein the guide bushings are discretely removable from the housing without removing the drive screw.

18. The adapter of claim 13, wherein the housing has radiused internal corners to reduce stress concentrations in the housing.