Date of Issue: October 2017
Affected Publication: API Specification 16A, *Specification for Drill-through Equipment*, Fourth Edition, April 2017

Addendum 1

Section 4.3.13, replace:

Sealing and porting of flanges, hubs, and OECs shall conform to the requirements of API 6A and is only permitted in blind flanges and test stumps.

With:

Sealing and porting of flanges, hubs, and OECs shall conform to the requirements of API 6A.

Section 4.7.3.1.3, replace:

Documentation for PR1 sealing characteristics shall include:

— Record of equipment used (e.g. BOP model, operator size and type, ram assembly)

— Record of wellbore pressure and operator closing pressure throughout the tests.

— Closing pressure required to maintain a wellbore pressure seal for each test step closing against zero initial wellbore pressure.

— Closing or opening pressure required to break a wellbore pressure seal for each test step closing against zero initial wellbore pressure.

— Closing pressure to effect a wellbore pressure seal for each test step closing against elevated wellbore pressure.

— Closing pressure at which a leak developed for each test step closing against elevated wellbore pressure.

With:

Documentation for PR1 sealing characteristics shall include:

— Record of equipment used (e.g. BOP model, operator size and type, ram assembly, and packer(s) traceability);

— Record of wellbore pressure and operator closing pressure throughout the tests;

For validation testing per 4.7.3.1.1:

— Closing pressure required to maintain a wellbore pressure seal for each test step closing against zero initial wellbore pressure;

— Closing pressure at which a leak develops for each test step closing against zero initial wellbore pressure;

For validation testing per 4.7.3.1.2:

— Closing pressure to effect a wellbore pressure seal for each test step closing against elevated wellbore pressure;

— Closing pressure at which a leak develops for each test step closing against elevated wellbore pressure.

Section 4.7.3.19.1.1, replace:

NOTE This test determines the operator closing pressure required to maintain a wellbore pressure seal on a specified test mandrel as a function of wellbore pressures up to full rated working pressure of the blowout preventer.

With:

NOTE This test determines the operator closing pressure required to maintain a wellbore pressure seal on test mandrels (either one size or two, as specified) as a function of wellbore pressures up to full rated working pressure of the blowout preventer.

Section 4.7.3.19.1.2, replace:

The test shall be conducted on the designated drill pipe sizes; see Table 26.

With:

The test shall be conducted on the designated pipe sizes; see Table 26.

Section 4.7.3.19.2.1, replace:

NOTE This test determines the maximum wellbore pressure obtainable, up to the rated working pressure, for a given operator closing pressure on a test mandrel.

With:

NOTE This test determines the maximum wellbore pressure obtainable, up to the rated working pressure, for a given operator closing pressure on test mandrels (either one size or two, as specified).

Section 4.7.3.19.2.2, replace:

The test shall be conducted on the designated drill pipe sizes; see Table 26.

With:

The test shall be conducted on the designated pipe sizes; see Table 26.

Section 4.7.3.19.3.2, replace:

This test shall be conducted without drill pipe in the wellbore.

With:

This test shall be conducted without pipe in the wellbore.

Section 4.7.3.19.4, replace:

Documentation shall include:

— Record of equipment used (e.g. BOP model, annular packer assembly, test mandrel);

With:

Documentation shall include:

— Record of equipment used (e.g. BOP model, annular packer assembly, test mandrel [one or two mandrels as specified]);

Section 4.7.3.22.3, replace:

Fatigue test documentation shall include:

— Record of equipment used (e.g. BOP size/pressure rating/model).

With:

Fatigue test documentation shall include:

— Record of equipment used (e.g. BOP size/pressure rating/model, mandrels [either one size or two as specified]).

Section 4.7.3.25.2, replace:

Annular packing units designed for larger drill pipe sizes than specified in Table 26 shall be tested for the largest drill pipe/tool-joint OD size for which the unit was designed.

With:

For annular packing units designed to strip larger tool-joint profile OD sizes than specified above, the packer shall be tested using the largest tool-joint profile OD size for which the unit was designed.

Section 4.7.3.25.3, replace:

Documentation shall include:

— Record of equipment used (e.g. BOP size/pressure rating/model);

With:

Documentation shall include:

— Record of equipment used (e.g. BOP size/pressure rating/model, mandrel description);

Section 4.7.3.31.3, replace:

Documentation shall include:

— Record of equipment used (e.g. hydraulic connector model, size and type, and gasket type)

— Record of locking pressure and corresponding unlocking pressures

With:

Documentation shall include:

— Record of equipment used (e.g. hydraulic connector model, size and type, and gasket type);

— Record of locking pressure and corresponding unlocking pressures;

— Record of locking mechanism wear noted in 4.7.3.31.2 h).

Section 5.3.2.2, replace:

All heat-treatment operations shall be performed using equipment qualified in accordance with the requirements specified by the manufacturer and the requirements as specified in Annex B.

Temperature and times for heat treatment shall be determined in accordance with the manufacturer's approved written specification. The number and location of both part and environmental thermocouples (with controlling and monitoring designations) shall be clearly identified. Thermocouples attached to the parts shall be used as controlling thermocouples. A minimum of two part thermocouples are required per heat treat batch. The soak time shall begin once all controlling thermocouples are within +/- 14°C (+/- 25 °F) of the qualified temperature set point. Temperature ramp rates and temperature tolerances shall be defined for the heat treat cycle.

With:

All heat-treatment operations shall be performed using equipment qualified in accordance with the requirements specified by the manufacturer and the requirements as specified in Annex B.

Heat-treatment processes shall be in accordance with the manufacturer's approved written specification. For batch heat treatment, the number and location of contact thermocouples (attached to a part, or heat sink as defined by the manufacturer) shall be recorded. A minimum of two contact thermocouples are required per heat-treat batch. The soak time shall begin once all contact thermocouples are within

+/- 14 °C (+/- 25 °F) of the qualified temperature set point. Temperature ramp rates and temperature tolerances shall be defined for the heat-treat cycle.

NOTE For continuous heat treatment, contact thermocouples are not required.

Section 5.3.5.1, replace:

The properties exhibited by the QTC shall represent the properties of the material comprising the equipment it qualifies. A single QTC may be used to represent the impact and/or tensile properties of components produced from the same heat, provided it satisfies the requirements of this specification.

When the QTC is a trepanned core or a prolongation removed from a production part, the QTC shall only qualify parts having the same or smaller equivalent round (ER).

NOTE A QTC may only qualify material and parts produced from the same heat. (Remelt heat may be qualified on a master heat basis.)

With:

The properties exhibited by the QTC shall represent the properties of the material comprising the equipment it qualifies.

NOTE 1 The QTC may be a sacrificial part, prolongation, trepanned core, or separately forged test piece.

A single QTC may be used to represent the impact and/or tensile properties of components produced from the same heat, provided it satisfies the requirements of this specification.

When the QTC is a trepanned core or a prolongation removed from a production part, the QTC shall only qualify parts having the same or smaller equivalent round (ER).

NOTE 2 A QTC may only qualify material and parts produced from the same heat. (Remelt heat may be qualified on a master heat basis.)

Section 5.3.5.2, title, replace:

5.3.5.2 Equivalent Round (ER)

With:

5.3.5.2 QTC Dimensions

Section 5.3.5.2.3, replace:

The ER of the QTC shall be equal to or greater than the dimensions of the part it qualifies.

With:

The ER of the QTC shall be equal to, or greater than, the heat-treated maximum critical wall thickness of the part it qualifies as defined by the manufacturer, except the QTC is not required to exceed 254 mm (10 in) ER.

Figure 9a, add the following note under the title:

NOTE 1 Area inside dashed lines is $^{1}/_{4}$ T envelope for test specimen removal. When L is less than T, treat section as a plate of L thickness. When L is less than D, treat section as a plate of T thickness

Figure 9b, add the following note and footnote under the title:

NOTE 2 When all internal and external surfaces during heat treatment are within 13 mm ($^1/_2$ in) of the final surfaces, then ER = 1.25 T. When all internal and external surfaces during heat treatment are not within 13 mm ($^1/_2$ in) of the final surfaces, then ER = 2 T

[a] On multi-flanged components, T shall be the thickness of the thickest flange.

Figure 9c, replace:

NOTES
a. When L is less than T, consider section as a plate of L thickness. Area inside dashed lines is 1/4 T envelope for test specimen removal.
b. When L is less than D, consider as a plate of T thickness
c. On multi-flanged components, T shall be the thickness of the thickest flange
d. Where T is the thickness when the component is heat-treated as in t2, use the larger of the two indicated dimensions.
e. Bodies with screwed and open ends.
f. Envelope for test specimen removal

When all internal and external surfaces during heat treatment are within 13 mm ($^1/_2$ in.) of the final surfaces, then ER = 1 – 1/4 T. When all internal and external surfaces during heat treatment are not within 13 mm ($^1/_2$ in.) of the final surfaces, then ER = 2 T.

With:

[b] Envelope for test specimen removal.

Section 7.1, at end of the first clause, add:

NOTE For the purpose of this document, API Q2 and ISO 9001 are considered equivalent quality management systems to API Q1.

Section E.2.6, delete the following:

If an API monogram is included, the API standard number and facility license number shall be provided.