Date of Issue: December 2022 (*Monogram Program Effective Date: June 2023*)

Affected Publication: API Specification 17D, *Specification for Subsea Wellhead and Tree Equipment*, 3rd Edition, October 2021

Addendum 1

3.2: The following symbols shall be added:

S_{MYS} specified minimum yield strength

S_{YST} yield strength at elevated temperatures

The following symbol shall be deleted:

S_Y yield strength

5.1.2.1: The second paragraph shall be changed to the following:

Where small diameter lines [e.g. surface-controlled subsurface safety valve (SCSSV) control lines, chemical injection lines] pass through a cavity, such as the tree/tubing hanger cavity, the equipment bounding that cavity shall be designed for the maximum pressure in any of those lines unless a means is provided to monitor and relieve cavity pressure (see Table 6, 7.9.1, and 9.1.7 for additional information).

5.1.3.5: The section shall be changed to the following:

The manufacturer shall specify the bolting preload for RWP and normal operating loads.

API flange bolting shall be made-up for face-to-face flange contact and bolting shall have a minimum preload stress of 50 % of bolting S_{MYS} after flange make-up. Additional bolt preload stress may be applied to assure face-to-face flange contact and should not exceed 67 % of bolting S_{MYS}.

NOTE 1 Refer to 5.1.3.5.5 for closure bolting and 5.1.3.5.7 for critical bolting on OECs.

Critical bolting, closure bolting, and pressure-controlling bolting used on subsea completion equipment shall conform to API 6A and any additional requirements defined in this document.

NOTE 2 For bolting that has been in service, refer to API 6AR.

5.5.1: The section shall be changed to the following:

Equipment shall be marked with the following minimum information:

— "API 17D";

— part number;

— manufacturer name;

— date of manufacture;

— a unique identifier (serial number) for PSL 3 or PSL 3G equipment.

Equipment shall be marked in either metric units or U.S. customary units as applicable. The units shall be marked together with the numbers.

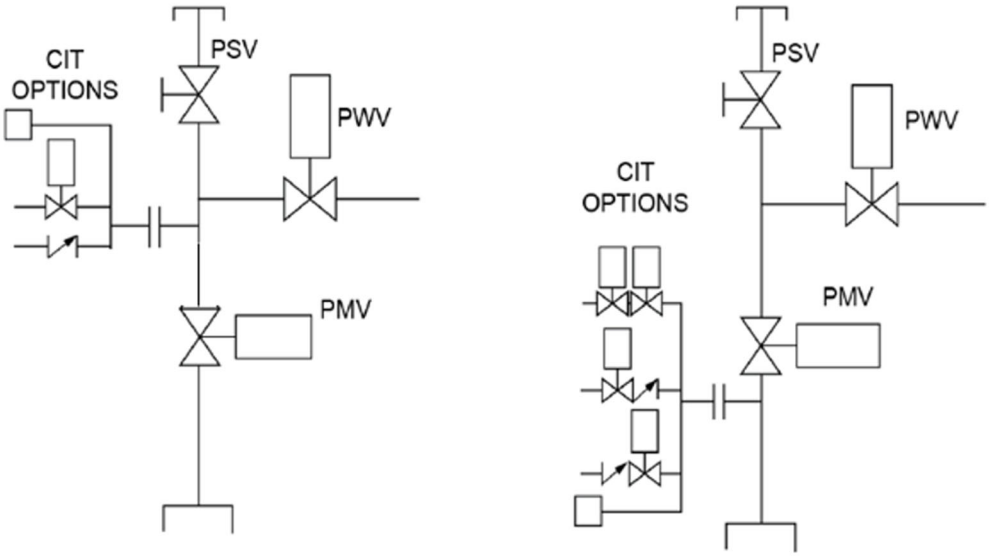
Marking on pressure-containing components shall be:

— low-stress die-stamped (dot, vibration, or rounded V);

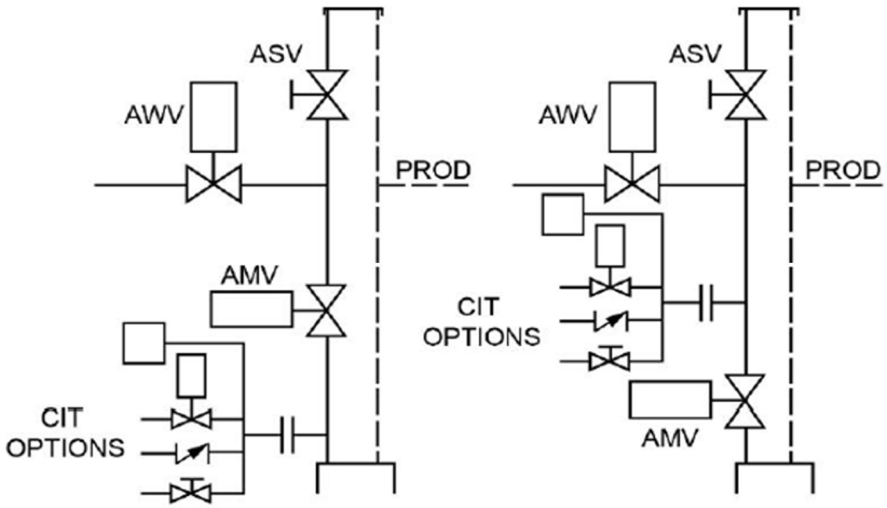
— laser engraved.

NOTE Marking information for pad eyes and lift points are identified in 5.5.2.

Figure 4: The figure shall be changed to the following:



a) Production Bore Penetrations



b) Annulus Bore Penetrations

6.2.9: The NOTE at the end of the section shall be changed to the following:

NOTE Figure 4 illustrates typical configurations that meet the requirements of this section.

6.5: The section shall be changed to the following:

The subsea tree assembly shall be marked in accordance with 5.5.1.

Table 9: The Basic Flange Dimensions section (Maximum Bore column) shall be changed as indicated by the red boxes.:

Basic Flange Dimensions											
Nominal Size and Bore of Flange		Maximum Bore		Outside Diameter of Flange		Tolerance on OD		Maximum Chamfer		Diameter of Raised Face	
		B		*OD*				*C*		*K*	
in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
2 1/16	(52)	2.09	(53.1)	8.50	(215)	±0.06	(±2)	0.12	(3)	5.03	(128)
2 9/16	(65)	2.59	(65.8)	9.62	(245)	±0.06	(±2)	0.12	(3)	5.78	(147)
3 1/8	(78)	3.15	(80.0)	10.50	(265)	±0.06	(±2)	0.12	(3)	6.31	(160)
4 1/16	(103)	4.09	(103.9)	12.25	(310)	±0.06	(±2)	0.12	(3)	7.63	(194)
5 1/8	(130)	5.16	(131.1)	14.75	(375)	±0.06	(±2)	0.12	(3)	9.38	(238)
7 1/16	(179)	7.09	(180.1)	15.50	(395)	±0.12	(±3)	0.25	(6)	10.70	(272)
9	(228)	9.03	(229.4)	19.00	(485)	±0.12	(±3)	0.25	(6)	13.25	(337)
11	(279)	11.03	(280.2)	23.00	(585)	±0.12	(±3)	0.25	(6)	16.25	(418)
13 5/8	(346)	13.66	(347.0)	26.50	(673)	±0.12	(±3)	0.25	(6)	18.00	(457)

7.1.2.2: The following content shall be added to the bottom of the section:

Marking of ring gaskets shall be on the outside diameter of the gasket and include the following information:

— date of manufacture;

— manufacturer’s name or trademark;

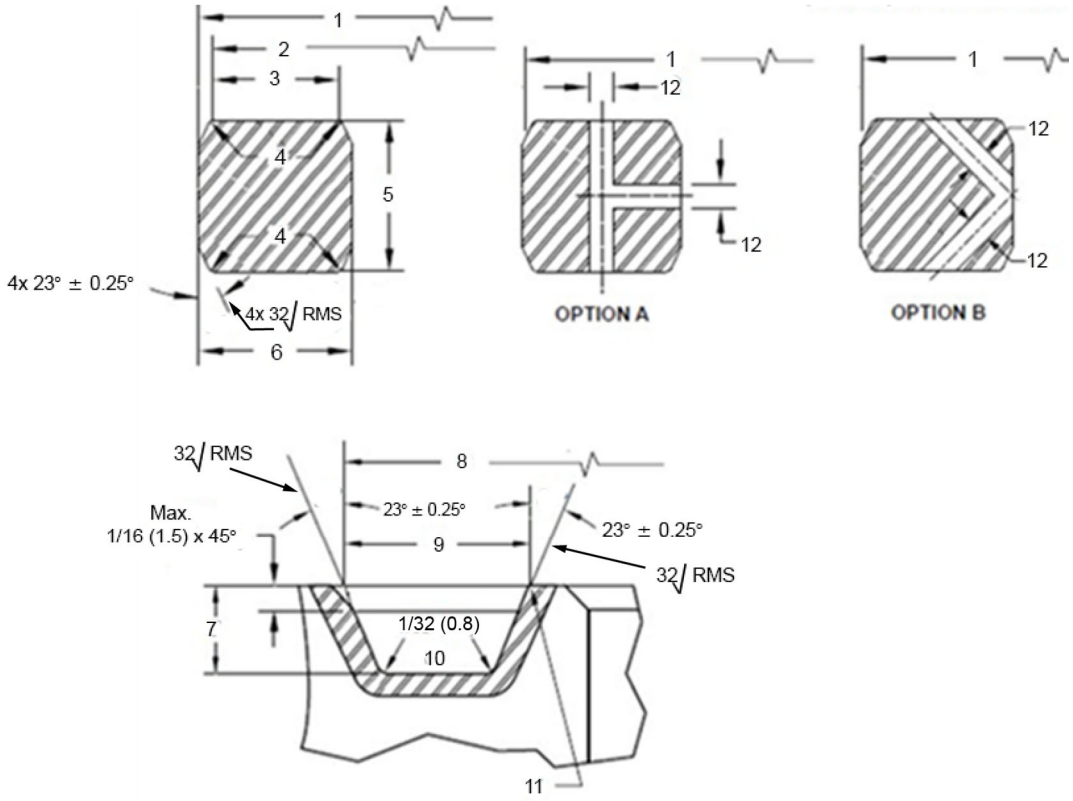
— ring gasket type (BX, SBX) and number;

— ring gasket material code per API 6A.

Table 8: The table shall be changed to the following:

Table 8 —API-type SBX Pressure-energized Ring Gaskets

Dimensions in inches (millimeters) unless otherwise indicated



Key			**Tolerances**, expressed in inches (millimeters)
1	OD, outer diameter of ring		$^{+0}_{-0.006}$ ($^{+0}_{-0.15}$)
2	ODT, outside diameter T		±0.002 (±0.05)
3	C	width of flat	$^{+0.006}_{0}$ ($^{+0.15}_{0}$)
4	R_1	radius in ring	See NOTE 1
5	H^a	height of ring	$^{+0.008}_{0}$ ($^{+0.2}_{0}$)
6	A^a	width of ring	$^{+0.008}_{0}$ ($^{+0.2}_{0}$)
7	E	depth of groove	+0.02, -0 (+0.5, -0)
8	G	outside diameter of groove	+0.004, -0 (+0.1, -0)
9	N	width of groove	+0.004, -0 (+0.1, -0)
10	R_2	radius in groove	max.
11	Break sharp corner		
12	D	hole diameter	±0.02 (±0.05)

NOTE 1 Radius R shall be 8 % to 12 % of the gasket height, H.

NOTE 2 Two pressure passage holes in the SBX ring cross section prevent pressure lock when connections are made up underwater. Two options are provided for drilling the pressure passage holes.

Table 8—API-type SBX Pressure-energized Ring Gaskets (*continued*)

Ring Number	Size	Outside Diameter of Ring		Height of Ring [a]		Width of Ring [a]		Diameter of Flat		Width of Flat		Hole Size		Depth of Groove		Outside Diameter of Groove		Width of Groove	
		OD		*H*		*A*		*ODT*		*C*		*D*		*E*		*G*		*N*	
	in.	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
SBX 149	3/4	1.679	(42.647)	0.379	(9.627)	0.296	(7.518)	1.627	(41.326)	0.241	(6.121)	0.06	(1.5)	0.23 0.21	(5.842) (5.334)	1.741 1.735	(44.221) (44.069)	0.381 0.377	(9.677) (9.576)
SBX 150	1	2.842	(72.19)	0.366	(9.30)	0.366	(9.30)	2.790	(70.87)	0.314	(7.98)	0.06	(1.5)	0.22	(5.59)	2.893	(73.48)	0.450	(11.43)
SBX 151	1 13/16	3.008	(76.40)	0.379	(9.63)	0.379	(9.63)	2.954	(75.03)	0.325	(8.26)	0.06	(1.5)	0.22	(5.59)	3.062	(77.77)	0.466	(11.84)
SBX 152	2 1/16	3.334	(84.68)	0.403	(10.24)	0.403	(10.24)	3.277	(83.24)	0.346	(8.79)	0.06	(1.5)	0.23	(5.95)	30395	(86.23)	0.498	(12.65)
SBX 153	2 9/16	3.974	(100.94)	0.448	(11.38)	0.448	(11.38)	3.910	(99.31)	0.385	(9.78)	0.06	(1.5)	0.27	(6.75)	4.046	(102.77)	0.554	(14.07)
SBX 154	3 1/16	4.600	(116.84)	0.488	(12.40)	0.488	(12.40)	4.531	(115.09)	0.419	(10.64)	0.06	(1.5)	0.30	(7.54)	4.685	(119.00)	0.606	(15.39)
SBX 155	4 1/16	5.825	(147.96)	0.560	(14.22)	0.560	(14.22)	5.746	(145.95)	0.481	(12.22)	0.06	(1.5)	0.33	(8.33)	5.930	(150.62)	0.698	(17.73)
SBX 156	7 1/16	9.367	(237.92)	0.733	(18.62)	0.733	(18.62)	9.263	(235.28)	0.629	(15.98)	0.12	(3.0)	0.44	(11.11)	9.521	(241.83)	0.921	(23.39)
SBX 157	9	11.593	(294.46)	0.826	(20.98)	0.826	(20.98)	11.476	(291.49)	0.709	(18.01)	0.12	(3.0)	0.50	(12.70)	11.774	(299.06)	1.039	(26.39)
SBX 158	11	13.860	(352.04)	0.911	(23.14)	0.911	(23.14)	13.731	(348.77)	0.782	(19.86)	0.12	(3.0)	0.56	(14.29)	14.064	(357.23)	1.149	(29.18)
SBX 159	13 5/8	16.800	(426.72)	1.012	(25.70)	1.012	(25.70)	16.657	(423.09)	0.869	(22.07)	0.12	(3.0)	0.62	(15.88)	17.033	(432.64)	1.279	(32.49)
SBX 160	13 5/8	15.850	(402.59)	0.938	(23.83)	0.541	(13.74)	15.717	(399.21)	0.408	(10.36)	0.12	(3.0)	0.56	(14.29)	16.063	(408.00)	0.786	(19.96)
SBX 161	16 3/4	19.347	(491.41)	1.105	(28.07)	0.638	(16.21)	19.191	(487.45)	0.482	(12.24)	0.12	(3.0)	0.67	(17.07)	19.604	(497.94)	0.930	(23.62)
SBX 162	16 3/4	18.720	(475.49)	0.560	(14.22)	0.560	(14.22)	18.641	(473.48)	0.481	(12.22)	0.06	(1.5)	0.33	(8.33)	18.832	(487.33)	0.705	(17.91)
SBX 163	18 3/4	21.896	(556.16)	1.185	(30.10)	0.684	(17.37)	21.728	(551.89)	0.516	(13.11)	0.12	(3.0)	0.72	(18.26)	22.185	(563.50)	1.006	(25.55)
SBX 164	18 3/4	22.463	(570.56)	1.185	(30.10)	0.968	(24.59)	22.295	(566.29)	0.800	(20.32)	0.12	(3.0)	0.72	(18.26)	22.752	(577.90)	1.290	(32.77)
SBX 165	21 1/4	24.595	(624.71)	1.261	(32.03)	0.728	(18.49)	24.417	(620.19)	0.550	(13.97)	0.12	(3.0)	0.75	(19.05)	24.904	(632.56)	1.071	(27.20)
SBX 166	21 1/4	25.198	(640.03)	1.261	(32.03)	1.029	(26.14)	25.020	(635.51)	0.851	(21.62)	0.12	(3.0)	0.75	(19.05)	25.507	(647.88)	1.373	(34.87)
SBX 169	5 1/8	6.831	(173.51)	0.624	(15.85)	0.509	(12.93)	6.743	(171.27)	0.421	(10.69)	0.06	(1.5)	0.38	(9.62)	6.955	(176.66)	0.666	(16.92)

[a] A plus tolerance of 0.008 in. (0.2 mm) for width, *A*, and height, *H*, is permitted, provided the variation in width or height of any ring does not exceed 0.004 in. (0.1 mm) throughout its entire circumference.

7.1.3: The following section shall be added:

7.1.3 Marking

Marking of flanged end and outlet connections shall be in accordance with 5.5.1, including the following additional information:

— nominal bore size (if applicable);

— end and outlet connection sizes;

— RWP;

— ring groove type (BX, SBX) and number.

Table 12: The table shall be changed as indicated in the red box:

Ring Number	Outside Diameter of Groove *A*		Inside Diameter of Groove *B*		Depth of Groove *C*	
	in.	(mm)	in.	(mm)	in.	(mm)
BX-149	2.100	(53.34)	1.140	(28.96)	0.350	(8.89)
BX-150	3.326	(84.48)	1.644	(41.76)	0.485	(12.32)
BX-151	3.496	(88.80)	1.774	(45.06)	0.485	(12.32)
BX-152	3.826	(97.18)	2.044	(51.92)	0.505	(12.83)
BX-153	4.486	(113.94)	2.604	(66.14)	0.535	(13.59)
BX-154	5.116	(129.95)	3.114	(79.10)	0.565	(14.35)
BX-155	6.366	(161.70)	4.184	(106.27)	0.595	(15.11)
BX-156	9.956	(252.88)	7.314	(185.78)	0.705	(17.91)
BX-157	12.206	(310.03)	9.324	(236.83)	0.765	(19.43)
BX-158	14.496	(368.20)	11.414	(289.92)	0.825	(20.96)

7.4: The following shall be added to the bottom of the section:

Marking of other end connections shall be in accordance with 5.5.1, including the following additional information:

— end connection size;

— RWP;

— OEC.

7.6: The section shall be changed to the following:

Nominal sizes, pressure ratings, temperature class, flange studded outlet connection, and ring groove dimensional requirements shall be in accordance with API 6A, as well as Section 5 and 7.1 through 7.5 of this specification.

NOTE 1 Only those pressure ratings in API 6A that are also permitted by API 17D may be used (see 5.1.2.1).

NOTE 2 The API 6A requirements applicable to crosses and tees also apply to elbows.

Body dimensions and center-to-face dimensions shall be specified by the manufacturer, with minimum body and flange clearance dimensions conforming to API 6A.

The pressure rating for a cross, tee, or elbow shall be to the lowest outlet pressure rating of that connector.

Marking of crosses, tees, and elbows shall be in accordance with 5.5.1, including the following additional information:

— nominal bore size (if applicable);

— end and outlet connection sizes;

— RWP;

— ring groove type (BX, SBX) and number.

7.8.1.1: The following shall be added to the bottom of the section:

Marking of tree and tubing head connectors shall be per 5.5.1, including performance requirement (PR1, PR2).

7.8.1.2.3: The following section shall be added:

7.8.1.2.3 Factory Acceptance Testing

Tubing head shall be tested per 5.4.5.1 for PSL 2 or PSL 3.

Tubing head shall be tested per 5.4.6 for PSL 3G.

7.12.6: The following section shall be added:

7.12.6 Marking

The subsea tree cap shall be marked in accordance with 5.5.1. Pressure-containing tree caps shall include the additional marking information:

— PSL;

— RWP;

— temperature rating;

— material class of production bore;

— material class of annulus bore.

7.13.3: The following section shall be added:

7.13.3 Marking

The subsea tree cap running tool shall be marked in accordance with 5.5.1. Pressure-containing tree cap running tools shall include the additional marking information:

— RWP;

— temperature rating;

— material class.

7.15.7: The following section shall be added:

7.15.7 Marking

The subsea tree running tool shall be marked in accordance with 5.5.1. Pressure-containing subsea tree running tools shall include the additional marking information:

— RWP.

7.21.4: The section shall be changed to the following:

Marking shall be in accordance with 5.5.1.

8.5.6: The following section shall be added:

8.5.6 Marking

Marking shall be in accordance with 5.5.1, including the following additional marking information:

— PSL;

— RWP;

— temperature rating;

— material class.

8.6.4: The following section shall be added:

8.6.4 Marking

Marking shall be in accordance with 5.5.1, including the following additional marking information:

— PSL;

— RWP, including casing thread;

— temperature rating;

— material class;

— minimum vertical bore;

— casing thread size and type.

8.7.4.2: The section shall be changed to the following:

Annulus seal assembly shall be dimensionally inspected per manufacturer specification.

8.8.4: The following section shall be added:

8.8.4 Marking

Marking shall be in accordance with 5.5.1, including the following additional marking information:

— PSL;

— RWP (if pressure containing);

— temperature rating;

— material class;

— minimum vertical bore.

8.9.5: The following section shall be added:

8.9.5 Marking

Marking shall be in accordance with 5.5.1, including the minimum vertical bore.

8.14.2: The following shall be added to the bottom of the section:

The following loads may apply to submudline casing hangers:

— casing loads;

— overpull;

— pressure, internal and external;

— thermal;

— torsional;

— radial.

The following may apply to submudline annulus seals, submudline annulus seal assemblies, and backup submudline annulus seal assemblies:

— setting loads;

— thermal loads;

— pressure loads;

— releasing and/or retrieval loads.

8.14.4: The following section shall be added:

8.14.4 Factory Acceptance Testing

A dimensional check or drift test shall be performed on the submudline hanger to confirm that the minimum vertical bore (see Table 33) conforms to the manufacturer's specification.

8.14.5: The following section shall be added:

8.14.5 Marking

Marking for submudline casing hangers shall be per 8.6.4.

Marking for submudline annulus seal assemblies shall be per 5.5.1.

9.4: The following section shall be added:

9.4 Marking

The subsea tubing hanger shall be marked in accordance with 5.5.1, with the additional marking information:

— PSL;

— RWP;

— temperature rating;

— material class of production bore;

— material class of annulus bore;

— minimum vertical bore;

— tubing thread size and type.

10.1.2.2: The first paragraph shall be changed to the following:

For each piece of mudline equipment, a RWP shall be determined in accordance with Table 34 and Annex E.

10.1.2.2: The following shall be added to the bottom of the section:

The test pressure shall be that which is required to cause any of the allowable stresses to occur in the critical cross section of the component when pressure and end loads due to test end caps or plugs are included.

The RWP of mudline suspension equipment shall be that which is required to cause these stresses to occur in the critical cross section of the component.

The RWP of mudline conversion equipment shall be that which is required to cause these stresses to occur in the critical cross section of the component.

Table 34: The table shall be changed to the following:

Table 1—Maximum Allowable Stress Due to Pressure [a]
(for Mudline Equipment Only)

Allowable Stress	At Rated Working Pressure		At Test Pressure
	Suspension Equipment	Conversion Equipment	Suspension and Conversion Equipment
Membrane	*Membrane stress* = S_m		
	0.8 × S_{YST}	0.67 × S_{YST}	0.9 × S_{YST}
Membrane + Bending	Membrane + bending = $S_m + S_b$ (where $S_m \leq 0.67 \times S_{YST}$)		
	1.2 × S_{YST}	1.0 × S_{YST}	1.35 × S_{YST}
	Membrane + bending = $S_m + S_b$ (where $0.67 \times S_{YST} \leq S_m \leq 0.9 \times S_{YST}$)		
	2.2 × S_{YST} – 1.5 × S_m	N/A	2.35 × S_{YST} – 1.5 × S_m
Key: S_m is the calculated membrane stress. S_b is the calculated bending stress.			
[a] Stresses given in this table shall be determined in accordance with the definitions and methods presented in Annex E.			

10.1.3.1: The section shall be changed to the following:

Subsea mudline completion equipment shall follow material classes listed in Table 1.

10.1.4.2.1: The second sentence shall be changed to the following:

When included in the manufacturer's written specification, the test pressures shall not exceed the requirements of Table 34.

10.1.5: The section shall be changed to the following:

Mudline suspension and conversion equipment shall be marked in accordance with 5.5.1, including the additional marking information.

— size;

— material class.

The following information shall be provided in system documentation as applicable:

— RWP;

— rated running capacity;

— rated hanging capacity;

— minimum flow by area;

— maximum particle size;

— drift diameter;

— maximum allowable test pressure;

— maximum make-up and breakout torque;

— maximum wash port flow rate.

11.1: The following shall be added to the bottom of the section:

Drill-through mudline suspension equipment shall be marked in accordance with 10.1.5.

D.8.1: The section shall be changed to the following:

PSL 4S for HPHT equipment within the scope of API 17D shall conform to API 6A PSL 4 product standards with the following additions, modifications, or exceptions as outlined in D.8.2 through D.8.6.

PSL 4S equipment shall be marked with a unique identifier (serial number).

E.2.3: Equation (E.1) shall be changed to the following:

$$S_e = \left[S_x{}^2 + S_y{}^2 + S_z{}^2 - S_x S_y - S_x S_z - S_y S_z + 3\left(S_{xy}{}^2 + S_{xz}{}^2 + S_{yz}{}^2 \right) \right]^{\frac{1}{2}} \qquad \text{(E.1)}$$

where

S_x, S_y, S_z are the component normal stresses at a point;

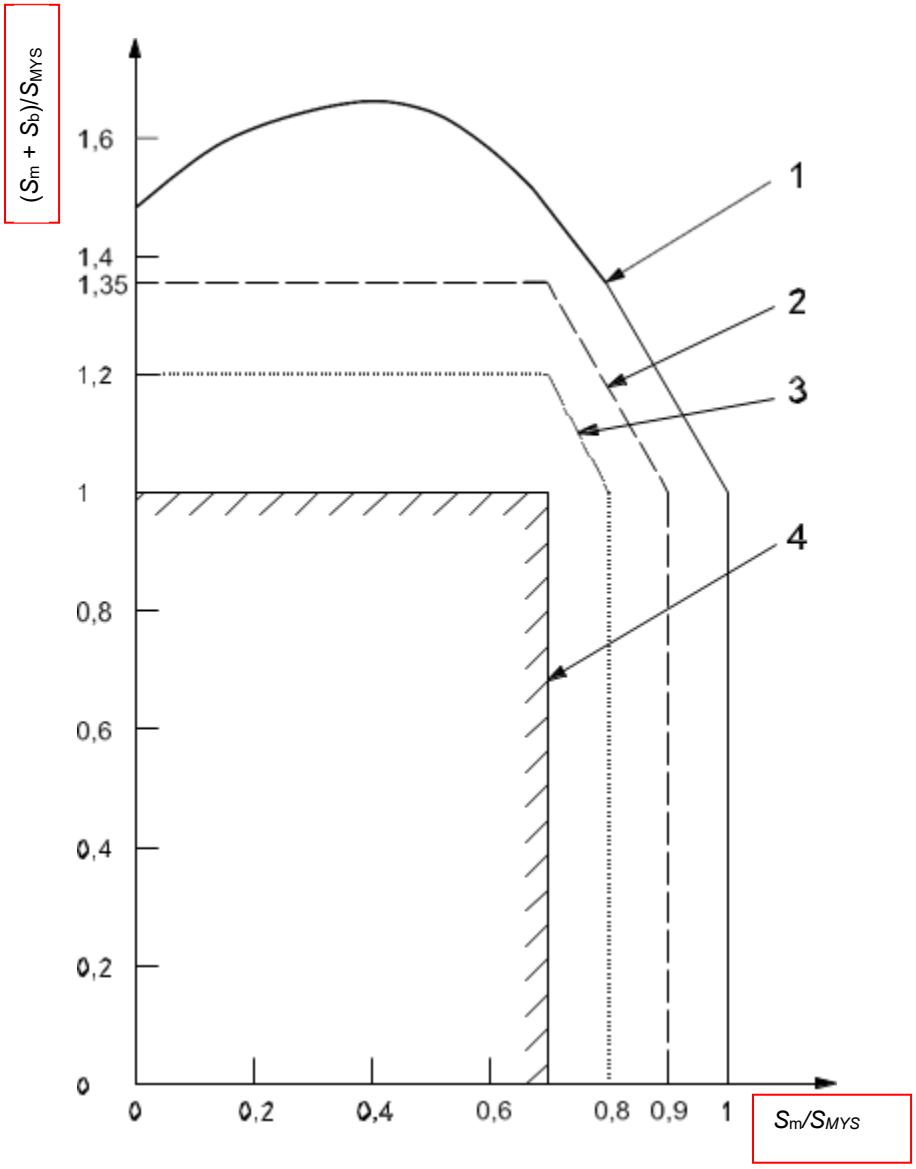
S_{xy}, S_{xz}, S_{yz} are the component shear stresses at a point;

subscripts x, y, and z refer to any orthogonal coordinate system.

E.2.4: Note 2 shall be changed to the following:

NOTE 2 Assuming the simple case of a rectangular beam and an elastic/perfectly plastic material, a plot of limiting membrane-plus-bending versus membrane-only stress can be made (see ASME BPVC Section II and ASME BPVC Section VIII). Figure E.4 shows the limiting values of various combinations of membrane-plus-bending and membrane-only stresses normalized using the minimum specified material yield strength, S_{MYS}, which is the allowable limit on local primary membrane and local primary membrane-plus-bending stress. The limit stress ratio for membrane only is 1.0, and for bending only, the limit is 1.5. If a membrane stress less than $^2/_3\ S_{MYS}$ is added to a large bending stress, the membrane-plus-bending stress ratio may exceed 1.5. This is due to the stiffening effect of the membrane stress and shifting of the beam's neutral axis. This increase in bending capacity when axial load is applied is generally ignored.

Figure E.4: The figure shall be changed as indicated in the red boxes:



Key

S_m	membrane stress	1	limit stress
S_b	bending stress	2	test pressure limit
S_{MYS}	specified minimum yield strength	3	RWP for suspension equipment
		4	RWP for conversion equipment

E.2.5: The section shall be deleted.

E.2.6: The section shall be deleted.

F.1.3: The sixth paragraph shall be changed to the following:

Flange bolting torques are calculated as given in a) through c).

a) Hexagon size (heavy hex nuts) equals 1.5D + 0.125 in. (1.5D + 3.175 mm), where D is the bolt diameter, expressed in inches (millimeters).

b) The flange bolt torque, T, expressed in SI units of newton-meters, is given by Equation (F.1):

$$T = \frac{F(P)[(1/N) + \pi(f)(P)(\sec 30°)]}{2\times 10^3[\pi(P) - (f)(1/N)(\sec 30°)]} + \frac{(h + D + 3.175)(F)(f)}{4\times 10^3} \quad \text{(F.1)}$$

where

D is the bolt thread major diameter, expressed in millimeters;

A_s is the effective stress area, expressed in square millimeters, equal to:

$$0.7854\left(D - \frac{0.9743}{n}\right)^2 \quad \text{(F.2)}$$

F is the bolt tension, expressed in newtons, equal to A_s times the bolt stress;

N, n is the number of threads per millimeter;

P is the pitch diameter, expressed in millimeters;

f is the friction factor (dimensionless);

h is the hexagon size, expressed in millimeters;

c) The flange bolt torque, T, expressed in imperial units of foot-pounds, is given by Equation (F.3):

$$T = \frac{F(P)[(1/N) + \pi(f)(P)(\sec 30°)]}{2(12)[\pi(P) - (f)(1/N)(\sec 30°)]} + \frac{(h + D + 0.125)(F)(f)}{4(12)} \quad \text{(F.3)}$$

where

D is the bolt thread major diameter, expressed in inches;

A_s is the effective stress area, expressed in square inches, equal to:

$$0.7854\left(D - \frac{0.9743}{n}\right)^2 \quad \text{(F.4)}$$

F is the bolt tension, expressed in pounds, equal to A_S times the bolt stress;

N, n is the number of threads per inch;

P is the pitch diameter, expressed in inches;

f is the friction factor (dimensionless);

h is the hexagon size, expressed in inches;

Table F.1: The table shall be changed as indicated in the red box:

Table F.1—Example Flange Bolt Torques (0.07 Friction Factor) for 67 % Yield Strength Tension

Bolt Size		L7, L43, B16, B7, or gr660 Material				L7M or B7M Material			
		Bolt Tension		Make Up Torque		Bolt Tension		Make Up Torque	
in., TPI	mm	lbf	kN	ft*lbs	N m	lbf	kN	ft lbs	N m
1/2, 13 UNC	12.70	9983	44	47	64	7606	34	36	49
5/8, 11 UNC	15.88	15,899	71	91	124	12,114	54	70	94
3/4, 10 UNC	19.05	23,529	105	158	214	17,927	80	120	163
7/8, 9 UNC	22.23	32,483	144	251	340	24,749	110	191	259
1, 8 UN	25.40	42,614	190	373	505	32,468	144	284	385
1 1/8, 8 UN	28.58	55,609	247	535	726	42,368	188	408	553
1 1/4, 8 UN	31.75	70,330	313	739	1001	53,584	238	563	763
1 3/8, 8 UN	34.93	86,777	386	987	1339	66,116	294	752	1020
1 1/2, 8 UN	38.10	104,951	467	1286	1744	79,963	356	980	1329
1 5/8, 8 UN	41.28	124,852	555	1640	2223	95,126	423	1249	1694
1 3/4, 8 UN	44.45	146,480	652	2052	2782	111,604	496	1563	2120
1 7/8, 8 UN	47.63	169,834	755	2528	3428	129,397	576	1926	2612
2, 8 UN	50.80	194,915	867	3072	4166	148,506	661	2341	3174
2 1/4, 8 UN	57.15	250,256	1113	4384	5943	190,671	848	3340	4528
2 1/2, 8 UN	63.50	312,505	1390	6022	8165	238,099	1059	4588	6221
2 5/8, 8 UNa	66.68	346,218 [a]	1540 [a]	6975 [a]	9457 [a]	263,786	1173	5315	7205
2 3/4, 8 UNa	69.85	381,659 [a]	1697 [a]	8023 [a]	10,878 [a]	290,788	1293	6113	8289

[a] Calculation uses 105-ksi yield strength—only applicable for L43 or GR660 when bolt size > 2.5".

G.2.1: All instances of S_Y shall be replaced with S_{MYS}.

G.3.3.2: Equation (G.10) shall be changed to the following:

$$\sigma_c \geq 0.18\sqrt{\frac{F_P \times \left(\frac{1}{D_{pin}} - \frac{1}{D_H}\right) \times E}{t}} \qquad \text{(G.10)}$$

where

allowable stress is $\sigma_c \leq 0.85 \times S_{MYS}$.

G.3.3.3: Equation (G.11) shall be changed to the following:

$$\sigma_t \geq \frac{3 \times F_P}{\left(2 \times R - D_H\right) \times t} \quad \text{(G.11)}$$

where

allowable stress is $\sigma_t \leq 0.85 \times S_{MYS}$.

G.3.3.4: Equation (G.14) shall be changed to the following:

$$2.5 \leq \frac{S_{MYS}}{S_S} \quad \text{(G.14)}$$

where

S_{MYS} is the specified minimum yield strength of the pad eye base and weld material.

G.3.3.4: Equation (G.17) shall be changed to the following:

Allowable stress for butt welds in tension is $0.6 \times S_{MYS}$, as derived from inequality (G.17):

$$\left(S_{MYS} / S_t\right) \geq 1.67 \quad \text{(G.17)}$$

G.3.3.4: Equation (G.19) shall be changed to the following:

Design margin as given by inequality (G.19):

$$(S_{MYS}/S_b) \geq 1.52 \quad \text{(G.19)}$$

G.3.3.5: Equation (G.22) shall be changed to the following:

$$2.5 \leq \frac{S_{MYS}}{\tau_{max}} \quad \text{(G.22)}$$

where

S_{MYS} is the specified minimum yield strength of the pad eye base and weld material.