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**Affected Publication:** API Specification 11AX, *Specification for Subsurface Sucker Rod Pump Assemblies, Components, and Fittings*, 13th Edition, May 2015

## Addendum 1

Pages 3 and 4, the following general symbols shall be added/revised in Section 3.2.1:

$D_F$  diameter, contact face, sucker rod connection  
 $L_{CBT}$  length, thread, minimum full form S15, S16

Page 15, Table B.1, the Type of Pump row shall be updated as follows:

Type of Pump	Letter Designation			
	Metal Plunger Pumps		Soft-packed Plunger Pumps	
	Heavy-wall Barrel	Thin-wall Barrel	Heavy-wall Barrel	Thin-wall Barrel

Page 16, Figure B.1, the bottom four boxes shall be replaced with the following:

Barrel length in feet: 02-40 (2 feet through 40 feet)	Header marks updated to XX
Nominal plunger length in feet: 02-26 (2 feet and longer in 1 foot increments)	Header marks updated to XX
Length of upper extension in decimal feet: 0.3-4.0 (3 in. to 48 in.)	Header marks updated to X.X
Length of lower extension in decimal feet: 0.3-4.0 (3 in. to 48 in.)	Header marks updated to X.X

Page 17, the EXAMPLE shall be updated with the following:

EXAMPLE A 1<sup>1</sup>/<sub>4</sub> in. (31.8 mm) bore rod type pump with a 10 ft (3048 mm) heavy wall barrel and 24 in. (609.6 mm) upper extension, 24 in. (609.6 mm) lower extension, a 4 ft (1219.2 mm) plunger, and a bottom cup type seating assembly for operation in 2 <sup>3</sup>/<sub>8</sub> in. (60.3 mm) tubing, would be designated as follows:

20-125 RHBC 10-04-2.0-2.0

Page 17, Section B.1.2, The first sentence shall be replaced with:

Sucker rod pump assemblies shall be constructed from components defined in Annex C. Any functional combination of these components may be used to create a pump assembly. Tables B.2 through B.9 are a few examples of pump assemblies and are not limited to these designs.

Pages 18-25, Tables B.2-B.9, note <sup>a</sup> shall read:

Specify barrel length ( $L_{PL}$ ). Standard lengths are: 2.00 ft (609.6 mm) through 40.00 ft (12192.0 mm) in 1.00 ft (304.8 mm) increments.

Pages 18-24, Tables B.2, B.3, B.6, and B.8, note <sup>b</sup>, and Tables, B.4, B.5, and B.7, note <sup>c</sup>, shall read:

Specify nominal plunger length in feet (millimeters) and clearance (fit) in thousandths of an inch (hundredths of a millimeter).

Page 23, Table B.7, the figure shall be updated as follows:

Barrel, Heavy Wall Symbol is B16

Page 24, Table B.8, note <sup>c</sup> shall read:

Specify length of extensions (extension nipples) in decimal feet. Standard lengths are 24 and 36 in. (2.0 ft and 3.0 ft).

Page 26, the fourth paragraph shall read:

In order to provide freedom of design, only those dimensional requirements affecting interchangeability are specified for component parts. Flow bores, flow ports or slots as shown in drawings are illustrative and are not meant to limit the design of the component. Wrench flats are optional, but when parts are provided with flats, the dimensions shall conform to the requirements of Table G.9, Annex G.

Page 26, Table C.1, the "Dimensions in inches" shall be updated as follows:

Dimensions in inches	X	± 0.250 in. (6.35 mm)
	X.X	± 0.100 in. (2.54 mm)
	X.XX	± 0.020 in. (0.51 mm)
	X.XXX	± 0.005 in. (0.13 mm)

Page 39, Table C.10, Column (3), Row  $L_{PL}$ , shall be updated to:

2.500 (63.50)

Page 39, Table C.11, the following NOTE shall be added to the bottom of the table:

NOTE 2  $D_H$  is optional.

Page 41, Table C.13 shall be replaced with the following:

(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)	
Dimensional Symbol		Part Number															
		C12-106 C12M106		C12-125 C12M125		C12-150-20 C12M150-20		C12-150-25 C12M150-25		C12-175 C12M175		C12-200 C12M200		C12-225 C12M225		C12-250 C12M250	
F22		0.875-14		1.0000-14		1.2500-14		1.2500-14		1.4704-14		1.5604-14		1.8024-14		2.1095-11/2	
$L_{nom}^a$		3/8		3/8		3/8		1/2		1/2		1/2		3/4		3/4	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
$D_o$	Maximum	0.693	17.60	0.693	17.60	0.693	17.60	0.880	22.35	0.880	22.35	0.880	22.35	1.068	27.13	1.068	27.13
	minimum	0.690	17.53	0.690	17.53	0.690	17.53	0.877	22.28	0.877	22.28	0.877	22.28	1.065	27.05	1.065	27.05
$L_q$	Maximum	0.781	19.84	0.781	19.84	0.781	19.84	0.781	19.84	0.781	19.84	0.781	19.84	0.781	19.84	0.781	19.84
	minimum	0.719	18.26	0.719	18.26	0.719	18.26	0.719	18.26	0.719	18.26	0.719	18.26	0.719	18.26	0.719	18.26
$L_{qm}^b$	Maximum	1.531	38.89	1.531	38.89	1.531	38.89	1.531	38.89	1.531	38.89	1.531	38.89	1.531	38.89	1.531	38.89
	minimum	1.469	37.31	1.469	37.31	1.469	37.31	1.469	37.31	1.469	37.31	1.469	37.31	1.469	37.31	1.469	37.31
$L_{PL}$	Maximum	4.531	115.09	4.531	115.09	5.031	127.79	5.031	127.79	5.406	137.31	5.406	137.31	6.156	156.36	6.406	162.71
	minimum	4.469	113.51	4.469	113.51	4.969	126.21	4.969	126.21	5.344	135.74	5.344	135.74	6.094	154.79	6.344	161.14
$L_{PLM}^b$	Maximum	5.281	134.14	5.281	134.14	5.781	146.84	5.781	146.84	6.156	156.36	6.156	156.36	6.906	175.41	7.156	181.76
	minimum	5.219	132.56	5.219	132.56	5.719	145.26	5.719	145.26	6.094	154.79	6.094	154.79	6.844	173.84	7.094	180.19
OD	Maximum	1.041	26.44	1.231	31.27	1.481	37.62	1.481	37.62	1.731	43.97	1.981	50.32	2.231	56.67	2.481	63.02
	minimum	1.031	26.19	1.169	29.69	1.419	36.04	1.419	36.04	1.669	42.39	1.919	48.74	2.169	55.09	2.419	61.46
<p>NOTE 1 Dimensions and configuration of ball chamber shall be such as to provide adequate ball clearance and fluid passage, in accordance with manufacturer's specifications.</p> <p><sup>a</sup> Modified line pipe thread. See Table G.5 for details.</p> <p><sup>b</sup> C12M is an optional substitution for C12 with <math>L_{qm}</math> dimension being used in place of <math>L_q</math> dimension and <math>L_{PLM}</math> in place of <math>L_{PL}</math>.</p>																	

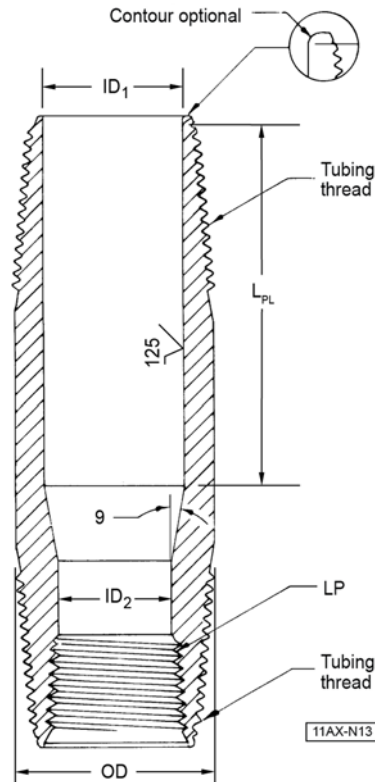
Page 53, Table C.28, new part numbers shall be added to columns (2), (3), (4) and (5):

(2)	(3)	(4)	(5)
<b>Part Number</b>			
<b>G11-15</b> <b>G11A15</b>	<b>G11-20</b> <b>G11A20</b>	<b>G11-25</b> <b>G11A25</b>	<b>G11-30</b> <b>G11A30</b>

Page 54, Table C.29, the  $L_{PL}$  row shall be updated as follows:

$L_{PL} \text{ } ^\circ \pm 0.125$ (3.18)	6.00 (154.2)	12.00 (304.8)	18.00 (457.2)	24.00 (609.6)
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Page 56, Table C.31, the figure shall be updated as follows:



Page 59, Table C.34, NOTE 2 shall be added as follows:

NOTE 2 Reduced diameters are no longer allowed.

Page 61, table C.36, Column (1), row  $D_{ANG}$  shall be updated as follows:

$D_{ANG} +0.031/-0.062$   
(+0.79/-1.57)

Page 62. Table C.37, the figure shall be updated as follows:

Remove the F1B bubble.

Page 62, Table C.37, the Part Numbers in columns (2)–(10) shall be updated as follows:

(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>Part Number</b>								
<b>P21-106</b>	<b>P21-125</b>	<b>P21-150</b>	<b>P21-175</b>	<b>P21-200</b>	<b>P21-225</b>	<b>P21-250</b>	<b>P21-275</b>	<b>P21-375</b>
<b>P21A106</b>	<b>P21A125</b>	<b>P21A150</b>	<b>P21A175</b>	<b>P21A200</b>	<b>P21A225</b>	<b>P21A250</b>	<b>P21A275</b>	<b>P21A375</b>

Page 62, Table C.37, Row  $L_{SL}$  shall be updated as follows:

Specify seal length ( $L_{SL}$ ) in whole feet increments [2 ft (609.6 mm) min seal length].  $L_{SL}$  to be centrally located within  $L_{PL}$ .

Page 62, Table C.37, NOTE 2 shall be updated as follows:

Straightness shall be 0.001 in. (0.03 mm) TIR or less per foot of length measured over the seal length, up to a maximum of 0.007 in. (0.18 mm) TIR for plungers 7 ft (2134 mm) and longer in length.

Page 63, Table C.38, the Part Numbers in columns (2) – (8) shall be updated as follows:

(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Part Number</b>						
<b>P22-125</b> <b>P22A125</b>	<b>P22-150</b> <b>P22A150</b>	<b>P22-175</b> <b>P22A175</b>	<b>P22-200</b> <b>P22A200</b>	<b>P22-225</b> <b>P22A225</b>	<b>P22-250</b> <b>P22A250</b>	<b>P22-275</b> <b>P22A275</b>

Page 63, Table C.38, Row  $L_{SL}$  shall be updated as follows:

Specify seal length ( $L_{SL}$ ) in whole feet increments  $\pm 0.250$  (6.35 mm).

Page 63, Table C.38, Note 3 shall be updated as follows:

Straightness shall be 0.001 in. (0.03 mm) TIR or less per foot of length measured over the seal length, up to a maximum of 0.007 in. (0.18 mm) TIR for plungers 7 ft (2134 mm) and longer in length.

Page 65, Table C.40, the Part Numbers in columns (2) – (8) shall be updated as follows:

(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Part Number</b>						
<b>P24-125</b> <b>P24A125</b>	<b>P24-150</b> <b>P24A150</b>	<b>P24-178</b> <b>P24A178</b>	<b>P24-200</b> <b>P24A200</b>	<b>P24-225</b> <b>P24A225</b>	<b>P24-250</b> <b>P24A250</b>	<b>P24-275</b> <b>P24A275</b>

Page 66, Table C.41, the title shall be updated as follows:

**Table C.41—P31—Puller, Standing Valve (Assembly) (See Note)**

Page 68, Table C.43 shall be replaced with the following:

(1)		(2)		(3)		(4)		(5)	
Nominal Barrel Length <sup>a</sup> Minus Nominal Plunger Length		For Pumps Run in 1.900, 2 <sup>3</sup> / <sub>8</sub> , and 2 <sup>7</sup> / <sub>8</sub> in. (48.3, 60.3, and 73.0 mm) OD Tubing				For Pumps Run in 3 <sup>1</sup> / <sub>2</sub> in. (88.9 mm) OD Tubing			
		Top Anchor		Bottom Anchor		Top Anchor		Bottom Anchor	
Feet	mm	in.	mm	in.	mm	in.	mm	in.	mm
1	304.8	13	330.2	7	177.8	12	304.8	6	152.4
2	609.6	25	635.0	19	482.6	24	609.6	18	457.2
3	914.4	37	939.8	31	787.4	36	914.4	30	762.0
4	1219.2	49	1244.6	43	1092.2	48	1219.2	42	1066.8
5	1524	61	1549.4	55	1397.0	60	1524.0	54	1371.6
6	1828.8	73	1854.2	67	1701.8	72	1828.8	66	1676.4
7	2133.6	85	2159.0	79	2006.6	84	2133.6	78	1981.2
8	2438.4	97	2463.8	91	2311.4	96	2438.4	90	2286.0
9	2743.2	109	2768.6	103	2616.2	108	2743.2	102	2590.8
10	3048	121	3073.4	115	2921.0	120	3048.0	114	2895.6
11	3352.8	133	3378.2	127	3225.8	132	3352.8	126	3200.4
12	3657.6	145	3683.0	139	3530.6	144	3657.6	138	3505.2
13	3962.4	157	3987.8	151	3835.4	156	3962.4	150	3810.0
14	4267.2	169	4292.6	163	4140.2	168	4267.2	162	4114.8
15	4572	181	4597.4	175	4445.0	180	4572.0	174	4419.6
16	4876.8	193	4902.2	187	4749.8	192	4876.8	186	4724.4
17	5181.6	205	5207.0	199	5054.6	204	5181.6	198	5029.2
18	5486.4	217	5511.8	211	5359.4	216	5486.4	210	5334.0
19	5791.2	229	5816.6	223	5664.2	228	5791.2	222	5638.8
20	6096	241	6121.4	235	5969.0	240	6096.0	234	5943.6
21	6400.8	253	6426.2	247	6273.8	252	6400.8	246	6248.4
22	6705.6	265	6731.0	259	6578.6	264	6705.6	258	6553.2
23	7010.4	277	7035.8	271	6883.4	276	7010.4	270	6858.0
24	7315.2	289	7340.6	283	7188.2	288	7315.2	282	7162.8
25	7620	301	7645.4	295	7493.0	300	7620.0	294	7467.6
26	7924.8	313	7950.2	307	7797.8	312	7924.8	306	7772.4
27	8229.6	325	8255.0	319	8102.6	324	8229.6	318	8077.2
28	8534.4	337	8559.8	331	8407.4	336	8534.4	330	8382.0
29	8839.2	349	8864.6	343	8712.2	348	8839.2	342	8686.8
30	9144	361	9169.4	355	9017.0	360	9144.0	354	8991.6

<sup>a</sup> Including extensions on heavy wall barrels.

Page 71, Table C.46, Column (1), row OD shall be updated as follows:

OD +0.010/-0.031  
(+0.25/-0.79)

Page 72, Table C.47, Column (1), row OD shall be updated as follows:

OD +0.010/-0.031  
(+0.25/-0.79)

Page 73, Table C.48, shall be replaced with:

(1)		(2)		(3)		(4)		(5)	
Dimensional Symbol		Part Number							
		S15-20-125		S15-20		S15-25		S15-30	
C11		1.3330-16		1.5730-16		2.0870-16		2.5730-16	
S		1.1894-14		1.1894-14		1.5604-14		2.0035-11 <sup>1</sup> / <sub>2</sub>	
		inch	mm	inch	mm	inch	mm	inch	mm
L <sub>CBT</sub>	Minimum	1.125	28.58	1.125	28.58	1.250	31.75	1.250	31.75
ID	Maximum	1.063	27.00	1.063	27.00	1.313	33.35	1.563	39.70
	Minimum	0.937	23.80	0.937	23.80	1.187	30.15	1.437	36.50
OD	Maximum	1.760	44.70	1.760	44.70	2.260	57.40	2.760	70.10
	Minimum	1.740	44.20	1.740	44.20	2.240	56.90	2.740	69.60
L <sub>PL</sub>	Maximum	1.906	48.41	1.906	48.41	2.031	51.59	2.031	51.59
	Minimum	1.844	46.84	1.844	46.84	1.969	50.01	1.969	50.01

Page 74, Table C.49, shall be replaced with the following:

(1)		(2)		(3)		(4)		(5)	
Dimensional Symbol		Part Number							
		S16-15		S16-20		S16-25		S16-30	
S		1.1894-14		1.1894-14		1.5604-14		2.0035-11 <sup>1</sup> / <sub>2</sub>	
LP nom		<sup>3</sup> / <sub>4</sub>		1		1 <sup>1</sup> / <sub>4</sub>		1 <sup>1</sup> / <sub>2</sub>	
		inch	mm	inch	mm	inch	mm	inch	mm
L <sub>CBT</sub>	Minimum	1.125	28.58	1.125	28.58	1.250	31.75	1.250	31.75
OD	Maximum	1.448	36.78	1.698	43.13	2.198	55.83	2.635	66.93
	Minimum	1.407	35.74	1.657	42.09	2.157	54.79	2.594	65.89
L <sub>PL</sub>	Maximum	1.812	46.02	2.250	57.15	2.312	58.72	2.000	50.80
	Minimum	1.688	42.88	2.126	54.00	2.188	55.58	1.876	47.65

NOTE Line pipe thread (LP). See API 5B for details.

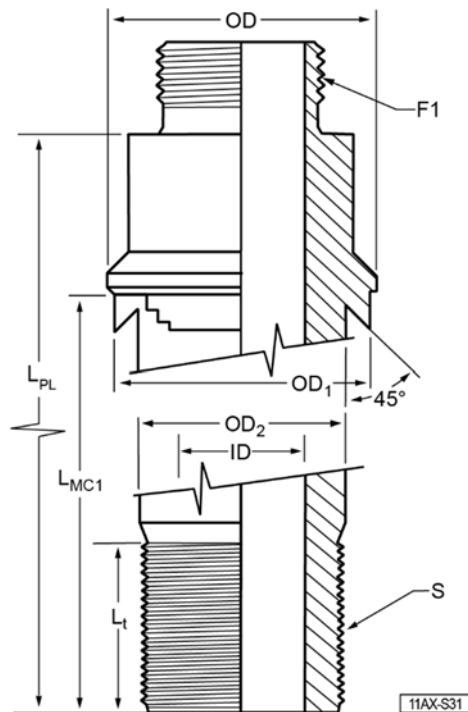
Page 76, Table C.51, shall be replaced with:

(1)		(2)		(3)		(4)	
Dimensional Symbol		Part Number					
		S18-20		S18-25		S18-30	
Seating nipple reference		N13-20		N13-25		N13-30	
		inch	mm	inch	mm	inch	mm
ID <sub>1</sub>	Maximum	1.427	36.25	1.866	47.40	2.366	60.10
	Minimum	1.411	35.84	1.850	46.99	2.350	59.69
ID <sub>2</sub>	Maximum	1.192	30.28	1.567	39.80	2.005	50.93
	Minimum	1.187	30.15	1.562	39.67	2.000	50.80
OD <sup>a b</sup>	Maximum	1.735	44.07	2.235	56.77	2.735	69.47
	Minimum	1.725	43.82	2.225	56.52	2.725	69.22
L <sub>4</sub>	Maximum	0.195	4.95	0.215	5.46	0.215	5.46
	Minimum	0.150	3.81	0.170	4.32	0.170	4.32
L <sub>5</sub>	Maximum	0.656	16.66	0.688	17.48	0.688	17.48
	Minimum	0.640	16.26	0.672	17.07	0.672	17.07

<sup>a</sup> Unless otherwise specified outside diameter of cups furnished to this specification shall be as shown, for -0.010 in. (-0.25 mm) cups (traditional nomenclature).

<sup>b</sup> Manufacturer's mold draft angle on OD shall not exceed 8 degrees per side.

Page 80, Table C.55, the figure shall be replaced with the following:





Page 83, Table C.60 shall be replaced with the following:

(1)		(2)		(3)		(4)	
Nominal Barrel Length <sup>a</sup> Minus Nominal Plunger Length		Actual Length					
		For 1 <sup>1</sup> / <sub>4</sub> in. (31.8 mm) Bore Pumps		For 1 <sup>1</sup> / <sub>2</sub> , 1 <sup>3</sup> / <sub>4</sub> , and 2 in. (38.1, 44.5, and 50.8 mm) Bore Pumps		For 2 <sup>1</sup> / <sub>4</sub> and 2 <sup>1</sup> / <sub>2</sub> in. (57.2 and 63.5 mm) Bore Pumps	
ft	mm	in.	mm	in.	mm	in.	mm
1	305	—	—	—	—	—	—
2	610	15	381	14	356	12	305
3	914	27	686	26	660	24	610
4	1219	39	991	38	965	36	914
5	1524	51	1295	50	1270	48	1219
6	1829	63	1600	62	1575	60	1524
7	2134	75	1905	74	1880	72	1829
8	2438	87	2210	86	2184	84	2134
9	2743	99	2515	98	2489	96	2438
10	3048	111	2819	110	2794	108	2743
11	3353	123	3124	122	3099	120	3048
12	3658	135	3429	134	3404	132	3353
13	3962	147	3734	146	3708	144	3658
14	4267	159	4039	158	4013	156	3962
15	4572	171	4343	170	4318	168	4267
16	4877	183	4648	182	4623	180	4572
17	5182	195	4953	194	4928	192	4877
18	5486	207	5258	206	5232	204	5182
19	5791	219	5563	218	5537	216	5486
20	6096	231	5867	230	5842	228	5791
21	6401	243	6172	242	6147	240	6096
22	6706	255	6477	254	6452	252	6401
23	7010	267	6782	266	6756	264	6706
24	7315	279	7087	278	7061	276	7010
25	7620	291	7391	290	7366	288	7315

(1)		(2)		(3)		(4)	
Nominal Barrel Length <sup>a</sup> Minus Nominal Plunger Length		Actual Length					
		For 1 <sup>1</sup> / <sub>4</sub> in. (31.8 mm) Bore Pumps		For 1 <sup>1</sup> / <sub>2</sub> , 1 <sup>3</sup> / <sub>4</sub> , and 2 in. (38.1, 44.5, and 50.8 mm) Bore Pumps		For 2 <sup>1</sup> / <sub>4</sub> and 2 <sup>1</sup> / <sub>2</sub> in. (57.2 and 63.5 mm) Bore Pumps	
26	7925	303	7696	302	7671	300	7620
27	8230	315	8001	314	7976	312	7925
28	8534	327	8306	326	8280	324	8230
29	8839	339	8611	338	8585	336	8534
30	9144	351	8915	350	8890	348	8839

<sup>a</sup> Including extensions on heavy wall barrels.  
NOTE All the above pull tube lengths PL are recommended but for better performance of the pump these lengths can be modified with 1in (25.4 mm) increment.

Page 85, Table C.61, the following rows shall be added below the Alternate Assembly Number part rows:

<b>Dual Pattern Assembly Number</b>	V11D106	V11D125	V11D150	V11D175	V11D200	V11D225	V11D250	V11D375
Standard Ball Number <sup>b</sup>	V12-106	V12-125	V12-150	V12-175 <sup>a</sup>	V12-200 <sup>a</sup>	V12-225	V12-250	V12-375
Alternate Ball Number <sup>b</sup>	V12A106	V12A125	V12A150	V12A175	V12-175 <sup>a</sup>	V12-200 <sup>a</sup>	V12A250	V12A375

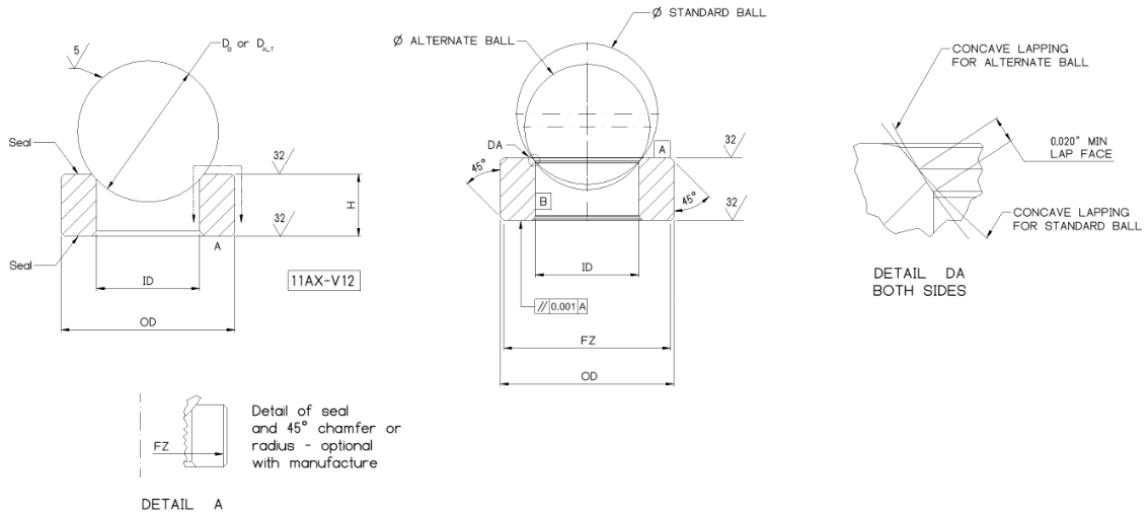
Page 85, Table C.61, the NOTES shall be updated with the following:

NOTE 1 Ball and seat valves are designed to operate in F22 boxes.

NOTE 2 Each assembly consists of one ball and one seat as shown above.

NOTE 3 The use of alternate (smaller) size balls can damage standard cages during pumping due to the increased ball to ball guide clearance. Alternate ball use requires a seat with a matching alternate seat contact area. Standard ball use requires a seat with a matching standard seat contact area.

Page 86, Table C.62, the figure shall be replaced with the following:



Page 87, Table C.63 shall be replaced with the following:

(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)	
Dimensional Symbol		Part Number															
Standard Pattern Seat Number <sup>a,b,c</sup>		V13-106		V13-125		V13-150		V13-175		V13-200		V13-225		V13-250		V13-375	
Alternate Pattern Seat Number <sup>a,b,c</sup>		V13A106		V13A125		V13A150		V13A175		V13A200		V13A225		V13A250		V13A375	
Dual Pattern Seat Number <sup>a,b,c</sup>		V13D106		V13D125		V13D150		V13D175		V13D200		V13D225		V13D250		V13D375	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
H	Maximum	0.520	13.21	0.520	13.21	0.520	13.21	0.520	13.21	0.520	13.21	0.520	13.21	0.520	13.21	0.770	19.56
	Minimum	0.490	12.45	0.490	12.45	0.490	12.45	0.490	12.45	0.490	12.45	0.490	12.45	0.490	12.45	0.740	19.05
FZ	Maximum	0.767	19.48	0.892	22.66	1.110	28.19	1.331	33.81	1.421	36.09	1.631	41.43	1.921	48.79	2.950	74.93
	Minimum	0.736	18.69	0.861	21.87	1.079	27.41	1.300	33.02	1.390	35.31	1.600	40.64	1.890	48.01	2.919	74.14
OD	Maximum	0.793	20.14	0.918	23.32	1.168	29.67	1.388	35.26	1.478	37.54	1.720	43.69	2.010	51.05	3.072	78.03
	Minimum	0.788	20.02	0.913	23.19	1.163	29.54	1.383	35.13	1.473	37.41	1.715	43.56	2.005	50.93	3.067	77.90
ID	Maximum	0.510	12.95	0.600	15.24	0.720	18.29	0.875	22.23	1.010	25.65	1.110	28.19	1.360	34.54	1.880	47.75
	Minimum	0.410	10.41	0.500	12.70	0.620	15.75	0.775	19.69	0.910	23.11	1.010	25.65	1.260	32.00	1.700	43.18
<p><sup>a</sup> Ball and seat valves are designed to operate in F22 boxes.</p> <p><sup>b</sup> Standard pattern seats shall be lapped for standard size balls, alternate pattern seats shall be lapped for alternate size balls, and dual pattern seats shall be lapped with two seat contact areas that will match either ball size; refer to Table C.62 for ball sizes.</p> <p><sup>c</sup> Both sides of the seat shall be lapped with the same pattern.</p>																	

Page 95, Table F.5, the Hardness for Identification Symbols A6, B6, C6, and D6 shall be updated as follows:

HRB 74 to HRC 23

Page 95, Table F.6, the Hardness for Identification Symbols A6, B6, C6, and D6 shall be updated as follows:

HRB 74 to HRC 23

Page 97, Table F.9, the identification symbols for Double chrome plated shall be updated as follows:

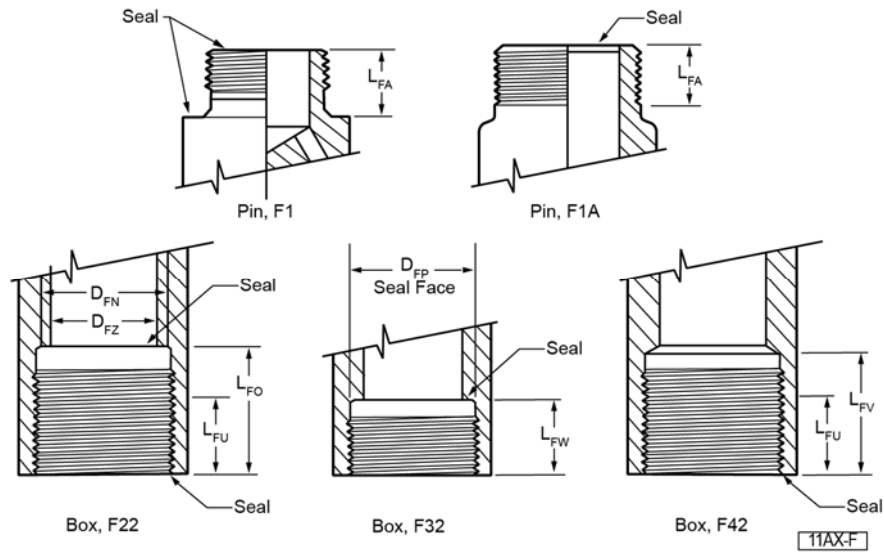
- G1
- G2
- G3

Page 100, Table G.2, shall be updated with the following:

(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)	
Dimensional Symbol		Thread Size <sup>a</sup>																			
Thread Size		1.3125-16		1.3330-16		1.5730-16		1.8750-16		2.0870-16		2.2380-11 <sup>1</sup> / <sub>2</sub>		2.5730-16		2.7380-11 <sup>1</sup> / <sub>2</sub>		3.2380-11 <sup>1</sup> / <sub>2</sub>		4.2380-11 <sup>1</sup> / <sub>2</sub>	
in./mm		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<i>L<sub>CA</sub></i> min.	Min.	1.125	28.58	1.250	31.75	1.500	38.10	1.500	38.10	1.500	38.10	1.500	38.10	1.500	38.10	1.500	38.10	1.500	38.10	1.500	38.10
<i>L<sub>CBM</sub></i> min.	Min.	1.000	25.40	1.000	25.40	1.250	31.75	1.250	31.75	1.250	31.75	1.250	31.75	1.250	31.75	1.250	31.75	1.250	31.75	—	—
<i>L<sub>CE</sub></i>	Max.	1.091	27.71	1.219	30.96	1.469	37.31	1.469	37.31	1.469	37.31	1.906	48.41	1.469	37.31	1.906	48.41	1.906	48.41	1.937	49.20
	Min.	1.029	26.14	1.157	29.39	1.407	35.74	1.407	35.74	1.407	35.74	1.844	46.84	1.407	35.74	1.844	46.84	1.844	46.84	<b>1.875</b>	47.63
<i>D<sub>CF</sub></i>	Max.	1.336	33.93	1.356	34.44	1.599	40.61	1.901	48.29	2.104	53.44	2.268	57.61	2.601	66.07	2.768	70.31	3.268	83.01	4.268	108.41
	Min.	1.326	33.68	1.346	34.19	1.589	40.36	1.891	48.03	2.094	53.19	2.258	57.35	2.591	65.81	2.758	70.05	3.258	82.75	4.258	108.15
<i>D<sub>CJ</sub></i>	Max.	1.227	31.17	1.247	31.67	1.485	37.72	1.787	45.39	1.999	50.77	2.118	53.80	2.483	63.07	2.618	66.50	3.118	79.20	4.118	104.60
	Min.	1.217	30.91	1.237	31.42	1.475	37.47	1.777	45.14	1.989	50.52	2.108	53.54	2.473	62.81	2.608	66.24	3.108	78.94	4.108	104.34

<sup>a</sup> See Table G.8 for thread dimensions.

Page 101, Table G.3, the figure shall be updated as follows:



Page 101, Table G.3 shall be replaced with the following:

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dimensional Symbol	Thread Size <sup>a</sup>							
	0.8750-14 in mm	1.0000-14 in mm	1.2500-14 in mm	1.4704-14 in mm	1.5604-14 in mm	1.8024-14 in mm	2.1095-11 <sup>1</sup> / <sub>2</sub> in mm	3.1715-11 <sup>1</sup> / <sub>2</sub> in mm
$D_{FN}$ min.	0.798 20.27	0.923 23.44	1.173 29.79	1.393 35.38	1.483 37.67	1.725 43.82	2.015 51.18	3.077 78.16
$D_{FN}$ max.	0.806 20.47	0.931 23.65	1.180 29.97	1.401 35.59	1.491 37.87	1.733 44.02	2.025 51.44	3.086 78.38
$D_{FP}$ min.	0.775 19.69	0.900 22.86	1.150 29.21	1.370 34.80	1.460 37.08	1.700 43.18	1.980 50.29	3.050 77.47
$D_{FP}$ max.	0.890 22.61	1.020 25.91	1.270 32.26	1.485 37.72	1.580 40.13	1.820 46.23	2.130 54.10	3.195 81.15
$D_{FZ}$ min.	0.768 19.51	0.892 22.66	1.111 28.22	1.331 33.81	1.421 36.09	1.631 41.43	1.921 48.79	2.950 74.93
$D_{FZ}$ max.	0.807 20.50	0.922 23.42	1.172 29.77	1.393 35.38	1.483 37.67	1.725 43.82	2.015 51.18	3.077 78.16
$L_{FA}$ min.	0.734 18.64	0.734 18.64	0.734 18.64	0.796 20.22	0.859 21.82	0.859 21.82	0.922 23.42	1.109 28.17
$L_{FA}$ max.	0.766 19.46	0.766 19.46	0.766 19.46	0.828 21.03	0.891 22.63	0.891 22.63	0.954 24.23	1.141 28.98
$L_{FO}$ min.	1.109 28.17	1.109 28.17	1.109 28.17	1.172 29.77	1.234 31.34	1.234 31.34	1.296 32.92	1.734 44.04
$L_{FO}$ max.	1.141 28.98	1.141 28.98	1.141 28.98	1.204 30.58	1.266 32.16	1.266 32.16	1.328 33.73	1.766 44.86
$L_{FU}$ min.	0.766 19.46	0.766 19.46	0.766 19.46	0.828 21.03	0.890 22.61	0.890 22.61	0.953 24.21	1.188 30.18
$L_{FU}$ max.	0.875 22.23	0.875 22.23	0.875 22.23	0.938 23.83	1.000 25.40	1.000 25.40	1.062 26.97	1.312 33.32
$L_{FV}$ min.	0.938 23.83	0.938 23.83	0.938 23.83	1.000 25.40	1.062 26.97	1.062 26.97	1.125 28.58	1.375 34.93
$L_{FV}$ max.	1.000 25.40	1.000 25.40	1.000 25.40	1.125 28.58	1.188 30.18	1.188 30.18	1.250 31.75	1.625 41.28
$L_{FW}$ min.	0.625 15.88	0.625 15.88	0.625 15.88	0.688 17.48	0.750 19.05	0.750 19.05	0.812 20.62	1.000 25.40
$L_{FW}$ max.	0.688 17.48	0.688 17.48	0.688 17.48	0.750 19.05	0.812 20.62	0.812 20.62	0.875 22.23	1.062 26.97

<sup>a</sup> See Table G.8 for thread dimensions.  
NOTE The thread start for the F1 and F1A threads are by manufacturer's design

Page 103, Table G.7, the Pin designations in the figures shall be updated as follows:

Pin, P1            Box, P2

Page 103, Table G.7, the DPF row shall be updated as follows:

DPF+0.005/-0.000 (+0.13/-0.00)	0.943 (23.95)	1.131 (28.73)	1.318 (33.48)	1.506 (38.25)	1.881 (47.78)
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