Design E NPS 8 & EW NPS 10X8 Valve Bodies, Class 125-600

ECX8 - A B C D E F G H J K L 9A 9B 9D 9E
C-SEAL TRIM SELECTION STRING = ECX8 - A E F J K L 9D & CSEALX1-A B C D E 9A 9B

Item	Parts contained in Item	Find Number
A	Valve Body	1
B	Cage	3
C	Valve Plug	2
	Groove Pin	8
	Seat Ring	9
	Disc Retainer	21
	Disc Seat	22
D	Disc	23
E	Cap Screw or Stud Bolt	15
	Hex Nut	16
F	Bonnet Gasket	10
	Seat Ring Gasket or Seal Ring	13
	Flow Arrow	18
	Drive Screw	19
G	Piston Ring	6
	Seal Ring, Valve Plug	28
	Anti-Extrusion Ring	63
H	Stem	7
J	Load Ring	26
K	Drive Screw	19
	Nameplate	53
	Wire	54
	Nameplate Warning Tag	65
L	Bonnet Spacer	32
9A	Design, Action & Flow Direction	
9B	Travel	
9D	Class/Hydro	
9E	Seat Leak per FGS 4L5	

ITEM A – VALVE BODY

DESIGN	SIZE	SERVICE	BODY	TEMP ° F	CLASS	CWP (PSI)	END CONNECTION		DRAIN	**A**
E	8	STD	CI	-100+450	125	200	FF		N/TAP	1
									TAP	83
					250	500	RF		N/TAP	269
			WCC	-20+800	150	290	RF		N/TAP	17
									TAP	99
					300	750	RF		N/TAP	24
									TAP	106
							RTJ		N/TAP	45
					600	1500	RF		N/TAP	31
									TAP	113
							RTJ		N/TAP	52
							BWE	SCH 40	N/TAP	3
									TAP	85
								SCH 80	N/TAP	10
			C5	-20+1200	300	750	RF		N/TAP	27
					600	1500	RF		N/TAP	34
							BWE	SCH 40	N/TAP	6
			LCC	-50+650	150	150	RF		N/TAP	292
					300	750	RF		N/TAP	293
					600	1500	RF		N/TAP	294
			WC6	-20+1000	300	750	RF		N/TAP	28
			CF8M	-326+1000	150	275	RF		N/TAP	22
					300	720	RF		N/TAP	29
									TAP	111
					600	1440	RF		N/TAP	36
									TAP	118
							RTJ		N/TAP	57
							BWE	SCH 40	N/TAP	8
			WC9	-20+1100	600	1500	BWE	SCH 40	N/TAP	61
								SCH 80	N/TAP	64
		NACE	CF8M	-325+1000	150	275	RF		N/TAP	22
					300	720	RF		N/TAP	29
					600	1440	RF		N/TAP	36

ITEM A – VALVE BODY (CONT)

DESIGN	SIZE	SERVICE	BODY	TEMP ° F	CLASS	CWP (PSI)	END CONN		DRAIN	**A**
EW	10 X 8	STD	WCC	-20+800	150	290	RF		N/TAP	295
					300	750	RF		N/TAP	280
					600	1500	RF		N/TAP	284
							BWE	SCH 40	N/TAP	272
								SCH 80	N/TAP	276
			C5	-20+1200	300	750	RF		N/TAP	281
					600	1500	RF		N/TAP	285
							BWE	SCH 40	N/TAP	273
								SCH 80	N/TAP	277
			WC9	-20+1100	300	750	RF		N/TAP	283
					600	1500	RF		N/TAP	287
							BWE	SCH 40	N/TAP	275
								SCH 80	N/TAP	279
			CF8M	-325+1000	150	275	RF		N/TAP	296
					300	720	RF		N/TAP	282
					600	1440	RF		N/TAP	286
							BWE	SCH 40	N/TAP	274
								SCH 80	N/TAP	278
		NACE MR0175-2002 & MR0175-2003 ONLY	WCC	-20+800	300	750	RF		N/TAP	288
					600	1500	RF		N/TAP	290
			LCC	-50+650	300	750	RF		N/TAP	289
					600	1500	RF		N/TAP	291

ITEM A – VALVE BODY (CONT)

DESIGN E DN 200, DESIGN EW DN 250 X 200

BODY	TEMP ° F	TEMP°C	RATING	CWP(BAR)
CI	-100+450	-73+232	PN10	10
			PN16	16
WCC	-20+800	-29+425	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100
LCC	-50+650	-46+343	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100
CF8M	-325+1000	-198+538	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100
C5	-20+1100	-29+593	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100
WC1	-20+850	-29+454	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100
WC6	-20+1000	-29+538	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100
WC9	-20+1100	-29+593	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100
347SST	-325+1100	-198+593	PN10	10
			PN16	16
			PN25	25
			PN40	40
			PN63	63
			PN100	100

ITEM A – VALVE BODY (CONT)

DESIGN E DN 200, EN1092-1

RF (TYPE B)

	PN 10	PN 16	PN 25	PN 40	PN 63	PN 100
	A	**A**	**A**	**A**	**A**	**A**
CAST IRON	165	166	--	--	--	--
WCC	297	167	177	187	197	207
C5	--	170	180	190	200	210
LCC	298	168	178	188	198	208
WC1	--	169	179	189	199	209
WC6	--	171	181	191	201	211
316	299	172	182	192	202	212
347	--	173	183	193	203	213
WC9	--	176	186	196	206	216

RECESS (TYPE F)

	PN 10	PN 16	PN 25	PN 40	PN 63	PN 100
	A	**A**	**A**	**A**	**A**	**A**
WCC	300	303	306	309	312	315
LCC	301	304	307	310	313	316
CF8M	302	305	308	311	314	317

DESIGN EW DN 250 X 200, EN1092-1

RF (TYPE B)

	PN 10	PN 16	PN 25	PN 40	PN 63	PN 100
	A	**A**	**A**	**A**	**A**	**A**
WCC	318	321	324	327	330	333
LCC	319	322	325	328	331	334
CF8M	320	323	326	329	332	335

RECESS (TYPE F)

	PN 10	PN 16	PN 25	PN 40	PN 63	PN 100
	A	**A**	**A**	**A**	**A**	**A**
WCC	336	339	342	345	348	351
LCC	337	340	343	346	349	352
CF8M	338	341	344	347	350	353

ITEM B – CAGE
ITEM C – VALVE PLUG/SEAT RING

8 PORT

	MAXIMUM SEAT LOAD (LBS.)	
PLUG	METAL/SOFT SEAT PLUG	COMPOSITION
316 SST	41000	1600
410 SST	41000	3200
416 SST	41000	3200
ALLOY 6	41000	4800

Quick Opening, Linear, Equal Percent Trim

CAGE	PLUG	SEAT RING		TEMP ° F	BODY	TEMP ° F
17-4 PH	17-4 PH	410 SST		-20+800	CF8M, 347 SST	-20+350
	416 SST	410 SST		-20+800	CF8M, 347 SST	-20+350
		316 SST		-20+800	CF8M, 347 SST	-20+360
	316 SST	316 SST		-20+800	CF8M, 347 SST	-150+360
	316 SST/COCR-A SEAT	COCR-A		-150+300		
	316 SST/COCR-A S/G	COCR-A	STANDARD	-150+410	CF8M, 347 SST	-20+350
			HI-TEMP	+410+800	CF8M, 347 SST	(M)
17-4 PH ENC	316 SST/COCR-A S/G	COCR-A		-150+650		
316 SST ENC	416 SST	410 SST		-20+410		
	316 SST	316 SST		-425+600	C5	-20+450
					HAST C	-130+450
	316 SST/COCR-A SEAT	COCR-A		-425+300		
	316 SST/COCR-A S/G	COCR-A		-425+650	WCC, WC1, WC6, WC9	-20+650
					HAST C	-130+460
COCR-A	316 SST/COCR-A SEAT	COCR-A		-425+300		
	316 SST/COCR-A S/G	COCR-A	STANDARD	-425+800	CF8M, 347 SST	-325+770
					HAST C	-140+800
			HI-TEMP	+800+1100	C5	+800+1100
					347 SST	(M)

ITEM B – CAGE (CONTINUED)
ITEM C – VALVE PLUG, SEAT RING, GROOVE PIN (CONTINUED)

WHISPER I Trim

CAGE	PLUG	SEAT RING		TEMP ° F	BODY	TEMP ° F
17-4 PH	17-4 PH	410 SST		-20+800	CF8M, 347 SST	-20+350
	416 SST	410 SST 316 SST		-20+800 -20+800	CF8M, 347 SST CF8M, 347 SST	-20+350 -20+360
	316 SST/COCR-A SEAT	COCR-A		-150+300		
	316 SST/COCR-A S/G	COCR-A	STANDARD HI-TEMP	-150+410 +410+800	CF8M, 347 SST CF8M, 347 SST	-20+350 (M)
17-4 PH ENC	316 SST/COCR-A S/G	COCR-A		-150+650		
316 SST ENC	416 SST	410 SST		-20+410		
	316 SST	316 SST		-425+300	C5 HAST C	-20+450 -130+450
	316 SST/COCR-A SEAT	COCR-A		-425+300		
	316 SST/COCR-A S/G	COCR-A		-425+650	WCC, WC1, WC6, WC9 HAST C	-20+650 -130+460
COCR-A	316 SST/COCR-A SEAT	COCR-A		-425+300		
	316 SST/COCR-A S/G	COCR-A	STANDARD	-425+600		
			HI-TEMP	+600+1100		
R31233	316 SST/COCR-A S/G	COCR-A	STANDARD	-425+600		
			HI-TEMP	+600+1100		
316L CR PL	316 SST/COCR-A S/G	COCR-A		-425+600		

ITEM B – CAGE (CONTINUED)
ITEM C – VALVE PLUG, SEAT RING, GROOVE PIN (CONTINUED)

MAXIMUM Δ P (PSI) CANNOT EXCEED CWP, SEAT LOAD NOT CONSIDERED
FLOWING = 1500
SHUTOFF

			METAL				COMPOSITION			
				ES W/STEM				ES W/STEM		
CAGE	PLUG	SEAT RING	ED/ET	3/4	1	1 1/4	ET	3/4	1	1 1/4
17-4 PH	17-4 PH	410 SST	1500	228	300	300	1500	228	327	418
	416 SST	410 SST	1500	228	327	418	1500	228	327	418
		316 SST	300	228	300	300	1500	228	327	418
	316 SST	316 SST	1500	228	300	300	1500	228	327	418
	316 SST/COCR-A SEAT	COCR-A	1500	228	327	418	1500	228	327	418
	316 SST/COCR-A S/G	COCR-A	1500	228	327	418	1500	228	327	418
17-4 PH ENC	316 SST/COCR-A S/G	COCR-A	1500	228	300	300	1500	228	327	418
316 SST ENC	416 SST	410 SST	1500	228	327	418	1500	228	327	418
	316 SST	316 SST	300	228	300	300	1500	228	327	418
	316 SST/COCR-A SEAT	COCR-A	1500	228	327	418	1500	228	327	418
	316 SST/COCR-A S/G	COCR-A	1500	228	327	418	1500	228	327	418
COCR-A	316 SST/COCR-A SEAT	COCR-A	1500	228	327	418	1500	228	327	418
	316 SST/COCR-A S/G	COCR-A	1500	228	327	418	1500	228	327	418
R31233	316 SST/COCR-A S/G	COCR-A	1500	228	327	418	1500	228	327	418
316L CR PL	316 SST/COCR-A S/G	COCR-A	1500	228	327	418	1500	228	327	418

DESIGN ES SOFT SEAT PLUG, 7 7/8 PORT, 1 1/4 STEM, SHUTOFF = 1500

ITEM B – CAGE (CONTINUED)
ITEM C – VALVE PLUG, SEAT RING, GROOVE PIN (CONTINUED)

ET/EWT, 8 PORT
SPRING LOADED SEAL RING WITHOUT ANTI-EXTRUSION RING

						2-3 TRAVEL				
					VSC	1L7500		1L1000		1L1250
		DISC SEAT/RETAINER	EQ %	LINEAR	Q OPEN	METAL	COMP	METAL	COMP	METAL
CAGE	PLUG	OR SEAT RING	**B**	**B**	**B**	**C**	**C**	**C**	**C**	**C**
17-4 PH	416 SST	410/316 SST	1	10	19	166	160	171	161	--
	316 SST	316 SST	1	10	19	167	100	172	--	--
	316/HF SEAT	COCR-A	1	10	19	168	101	173	--	--
	316/HF S/G	COCR-A	1	10	19	169	102	174	--	179
316 ENC	316 SST	316 SST	*64	*66	*68	*167	*100	*172	--	--
	316/HF SEAT	COCR-A	64	66	68	168	101	173	--	--
	316/HF SEAT	COCR-A	*64	*66	*68	*168	--	*173	--	--
	316/HF S/G	COCR-A	*64	*66	*68	*169	*102	*174	--	*179
	316/HF S/G	COCR-A	64	66	68	169	102	174	--	179
COCR-A	316/HF SEAT	COCR-A	31	37	43	168	101	173	--	--
	316/HF S/G	COCR-A	31	37	43	169	102	174	--	179

*NACE

WHISPER I, METAL SEAT, 1L7500 VSC
4 TRAVEL REQUIRES BONNET SPACER (ITEM L) AND SPECIAL BOLTING (ITEM E)

SEAT	SERVICE	CAGE	PLUG	RING/DISC RET	TRAVEL	**B**	**C**
METAL	STD	17-4 PH H1075	17-4 PH H900	416 SST/316 SST	3	71	241
					4	69	241
	NACE (MR0175 2002)	17-4 PH ENC	316 SST/HF	COCR-A	3	72	236
					4	70	236
	NACE (UNIVERSIAL)	R31233	316 SST/COCR-A	COCR-A	3	73	245
					4	74	245
		ALLOY 6	316 SST/COCR-A	COCR-A	3	75	245
					4	76	245
		316L CR PL	316 SST/COCR-A	COCR-A	3	77	245
					4	78	245
COMPOSITION	STARDARD	17-4 PH H1075	17-4 PH H900	416 SST/316 SST	3	71	243
					4	69	243
	NACE (UNIVERSIAL)	R31233	316 SST/COCR-A	COCR-A/COCR-A	3	73	247
					4	74	247
		316L CR PL	316 SST/COCR-A	COCR-A/COCR-A	3	77	247
					4	78	247

ITEM B – CAGE (CONTINUED)
ITEM C – VALVE PLUG, SEAT RING, GROOVE PIN (CONTINUED)

SPRING LOADED SEAL RING W/ANTI-EXTRUSION RING, 2-3 INCH TRAVEL

						VSC		
				EQ%	LINEAR	1L7500	1L1000	1L1250
CAGE	PLUG	SEAT RING		**B**	**B**	**C**	**C**	**C**
17-4 PH	416 SST	410 SST		1	10	238	239	240
	316 SST/HF SEAT/GUIDE	COCR-A	STANDARD	1	10	230	231	232
			HI TEMP	1	10	227	228	229
316 SST ENC	316 SST/HF SEAT/GUIDE	COCR-A		64	66	233	234	235

WHISPER I, METAL SEAT, 1L7500 VSC, W/ANTI-EXTRUSION RING
3 3/4 TRAVEL REQUIRES BONNET SPACER (ITEM L) AND SPECIAL BOLTING (ITEM E)

SEAT	SERVICE	CAGE	PLUG	RING/DISC RET	TRAVEL	**B**	**C**
METAL	STD	17-4 PH H1075	17-4 PH H900	416 SST/316 SST	2 1/2	71	242
					3 3/4	69	242
		R31233	316 SST/COCR-A	COCR-A	2 1/2	73	237
					3 3/4	74	237
		ALLOY 6	316 SST/COCR-A	COCR-A	2 1/2	75	237
					3 3/4	76	237
		316L CR PL	316 SST/COCR-A	COCR-A	2 1/2	77	237
					3 3/4	78	237
	NACE (MR0175 2002)	17-4 PH ENC	316 SST/HF	COCR-A	2 1/2	72	237
					3 3/4	70	237

ITEM B – CAGE (CONTINUED)
ITEM C – VALVE PLUG, SEAT RING, GROOVE PIN (CONTINUED)

ED/EWD, METAL SEAT, 8 PORT, 2–3 TRAVEL

						STD SHUT-OFF			CL IV SHUT-OFF		
			EQ%	LIN	Q.O.	1L7500	IL1000	1L1250	1L7500	1L1000	
CAGE	PLUG	RING	**B**	**B**	**B**	**C**	**C**	**C**	**C**	**C**	TEMP °F LIMIT
17-4 PH	416 SST	410/416	1	10	19	166	171	--	196	201	
	316 SST	316 SST	1	10	19	167	172	--	197	202	=<+410
316 ENC	416 SST	410/416	64	66	68	166	171	--	196	201	
316 ENC	316 SST	316 SST	*64	*66	*68	*167	*172	--	*197	*202	
HARD FACED PLUG SEAT AND RING											
17-4 PH	316 SST	COCR-A	1	10	19	168	173	--	198	203	=<+410
			31	37	43	168	173	--	--	--	=<+800
			64	66	68	168	173	--	198	203	
HARD FACED PLUG SEAT/GUIDE AND RING											
17-4 PH	316 SST	COCR-A	1	10	19	169	174	179	199	204	=<+410
			1	10	19	170	175	--	200	205	+410<>+800
COCR-A	316 SST	COCR-A	31	37	43	169	174	179	199	204	=<800
			31	37	43	170	175	--	200	205	>800
316 ENC	316 SST	COCR-A	*64	*66	*68	*169	*174	*179	*199	*204	

ITEM B – CAGE (CONTINUED)
ITEM C – VALVE PLUG, SEAT RING, GROOVE PIN (CONTINUED)

WHISPER I, 1L7500 VSC, STD SHUT-OFF, 4" TVL AND CLASS IV SHUT-OFF 3" & 4" TVL REQUIRES BONNET SPACER (ITEM L) AND SPECIAL BOLTING (ITEM E)

SERVICE	CAGE	PLUG	SEAT RING	TVL	**B**	STD SHUT-OFF **C**	CLASS IV SHUT-OFF **C**	TEMP °F LIMIT
STD	17-4 PH H1075	17-4 PH H900	410 SST	2 3/4	71	M	-	
				3	69	M	-	
				3	71	241	M	
				4	69	241	-	
		316 SST/COCR-A	COCR-A	2 3/4	71	M	-	=<+450
						M	246	+450<>+800
				3	69	M	-	=<+450
						M	246	+450<>+800
				3	71	236	M	=<+450
						244	M	+450<>+800
				4	69	236	-	=<+450
						244	246	+450<>+800
NACE (MR0175 2002)	17-4 PH ENC	316 SST/COCR-A	COCR-A	2 3/4	72	M	-	=<+410
				3	70	M	-	=<+410
				3	72	236	M	=<+410
				4	70	236	-	=<+410
NACE (UNIVERSIAL)	R31233	316 SST/COCR-A	COCR-A	2 3/4	73	M	-	=<+525
						M	246	+525<>+950
				3	74	M	-	=<+525
						M	246	+525<>+950
				3	73	245	M	=<+525
						244	M	+525<>+950
				4	74	245	-	=<+525
						244	246	+525<>+950
	ALLOY 6	316 SST/COCR-A	COCR-A	2 3/4	75	M	-	=<+525
						M	246	+525<>+950
				3	76	M	-	=<+525
						M	246	+525<>+950
				3	75	245	M	=<+525
						244	M	+525<>+950
				4	76	245	-	=<+525
						244	246	+525<>+950
	316L CR PL	316 SST/COCR-A	COCR-A	2 3/4	77	M	-	=<+600
				3	78	M	-	=<+600
				3	77	245	M	=<+600
				4	78	245	-	=<+600

ITEM B – CAGE (CONTINUED)
ITEM C – VALVE PLUG ASSEMBLY, SEAT RING (CONTINUED)

ES/EWS, 2-3 TRAVEL
8 PORT

					SEAT	METAL			COMP	
			EQ%	LIN	Q.O.	1L7500	1L1000	1L1250	1L7500	
CAGE	PLUG	RING	**B**	**B**	**B**	**C**	**C**	**C**	**C**	TEMP °F LIMIT
17-4 PH	416	410/416	1	10	19	181	186	191	--	
		316	1	10	19	--	--	--	163	
	316	316	1	10	19	182	--	--	127	=<+410
316 ENC	416	416	*64	*66	*68	*181	*186	*191	--	
	316	316	*64	*66	*68	*182	--	--	*127	
HARD FACED PLUG SEAT AND RING										
17-4 PH	316	COCR-A	1	10	19	183	--	--	--	=<+410
COCR-A	316	COCR-A	31	37	43	183	--	--	--	=<+800
316 ENC	316	COCR-A	*64	*66	*68	*183	--	--	--	
HARD FACED PLUG SEAT/GUIDE AND RING										
17-4 PH	316	COCR-A	1	10	19	--	--	194	--	=<+410
			1	10	19	185	--	195	--	+410<>+800
COCR-A	316	COCR-A	31	37	43	--	--	194	--	=<800
			31	37	43	185	--	195	--	>800
316 ENC	316	COCR-A	*64	*66	*68	--	--	*194	--	
			*64	*66	*68	--	--	*194	*208	

ES/EWS, SOFT SEAT PLUG, FULL CAPACITY, 7 7/8 PORT, VSC 1L1250

			EQ PCT	LINEAR	Q-OPEN	
CAGE	PLUG	RETAINER	**B**	**B**	**B**	**C**
17-4 PH	416/HT	416/HT	1	10	19	209
316 ENC	416/HT	416/HT	64	66	68	209
CI ENC	416/HT	416/HT	--	M	--	209

ITEM D – DISC

SEAT	SERVICE	DISC	TEMPERATURE °F	**D**
COMPOSITION	STANDARD	PTFE FMS 17F3	-100+400	1
		NYLON FMS 17F6	-50+200	2
	NACE	PTFE FMS 17F3	-100+400	1
METAL	ALL	ALL	N/A	N

ITEM E – BONNET BOLTING

BOLTING	NUT	TEMP ° F	BODY	TEMP ° F	CWP (100° F)	HYDRO (PSI/MIN)
SAE GR 5	-	-20+650			BODY RATING	BODY RATING
B7	2H	-50+800			BODY RATING	BODY RATING
	GR 7	-50+1000			BODY RATING	BODY RATING
B7M	2HM	-50+800			BODY RATING	BODY RATING
B16	GR 7	-20+1100			BODY RATING	BODY RATING
B8M CL 1	8M LUBR	-325+1200			1390	2100/3
B8M CL 2	8M	-325+450	HAST C	-325+250	1390	2100/3
	8M LUBR	-325+800	HAST C	-325+250	1390	2100/3

					TRAVEL	2–3	4 W/BONNET SPACER
SERVICE	BODY	BONNET STYLE	TEMP ° F	BOLT	NUT	**E**	**E**
STD	CI	ALL	-20+410	SAE GR 5	--	1	--
			-50+410	B7	2H	2	--
	WCC	ALL	-20+800	B7	2H	2	18
	LCC	ALL	-50+650	B7	2H	2	18
	WC1	ALL	-20+800	B7	2H	2	18
			+801+850	B7	GR 7	10	--
	WC6	ALL	-20+800	B7	2H	2	18
			+801+850	B7	GR 7	10	--
	WC9	ALL	-20+800	B7	2H	2	18
			+801+1000	B7	GR 7	10	--
			+1001+1050	B16	GR 7 LUBR	12	--
	C5	ALL	-20+800	B7	2H	2	18
			+801+1000	B7	GR 7	10	--
			+1001+1050	B16	GR 7 LUBR	12	--
	HAST C	ALL	-50+800	B7	2H	2	18
	316/347	ALL	-325+450	B8M CL 2	8M	5	20
			+450+800	B8M CL 2	8M LUBR	14	23
			-50+800	B7	2H	2	18
			+801+1000	B8M CL1	8M LUBR	13	--
	ALY 20	ALL	-50+800	B7	2H	2	18
			-325+400	B8M CL 2	8M	5	20
NACE	WCC	ALL	-20+800	B7M	2HM	9	--
	LCC	ALL	-50+650	B7M	2HM	9	--
	316	ALL	-50+800	B7M	2HM	9	--

ITEM F – GASKETS, ARROW, DRIVE SCREW

SPIRAL WOUND	FLAT SHEET	TEMPERATURE °F	CHARACTERISTIC	**F**
NONE	GRAPHITE/SST	-325+1100	FULL	2
			WHISPER 4 TRAVEL WITH BONNET SPACER	5
NONE	MONEL/PTFE	-100+300	FULL	4
			WHISPER 4 TRAVEL WITH BONNET SPACER	6

ITEM G – SEAL RING OR PISTON RING

DESIGN	ANTI-EXTRUSION RING	SPRING LOADED SEAL RING	SERVICE	TEMPERATURE °F	**G**
ET	WITHOUT	N10276/PTFE GLASS/MOS2		-100+450	4
	PEEK	R30003/PTFEPPVE	OXIDIZING	-100+500	13
			NON-OXIDIZING	-100+600	13

			TEMPERATURE °F		STD	CLASS IV PLUGS
DESIGN	SERVICE	PISTON RING	MIN/MAX	GUIDE	**G**	**G**
ED	STEAM OR NON-OXIDIZING	GRAPH FMS 17F19	-425+600	+450+600	5	M
		GRAPH FMS 17F27	-425+900	+601+900	6	9
		GRAPH FMS 17F39	-425+1100	+901+1100	8	10
	AIR OR OXIDIZING	GRAPH FMS 17F27	-425+800	+450+800	6	9
		GRAPH FMS 17F39	-425+1000	+801+1000	8	10
	NACE	GRAPH FMS 17F19	-425+600	+450+600	5	M
		GRAPH FMS 17F27	-425+800	+450+800	6	M
		GRAPH FMS 17F39	-425+1000	+901+1100	8	10

ITEM H – VALVE STEM

ACTUATOR GROUP	TRAVEL	VSC	BONNET STYLE	STEM	**H**
1	2–3	1L7500	PLAIN	316 SST	1
				NIT 50	*121
				K-MONEL	12
			EXT STYLE 1	316 SST	99
				NIT 50	*120
				HAST B	107
				K-MONEL	110
			STYLE NS	316 SST	117
100	2	1L1000	PLAIN/EXT STYLE 1	316 SST	15
	3	1L1000	PLAIN/EXT STYLE 1	316 SST	43
		1L1250	PLAIN/EXT STYLE 1	316 SST	57
				NIT 50	*122
101	2–3	1L1000	PLAIN/EXT STYLE 1	316 SST	71
				NIT 50	*123
		1L1250	PLAIN/EXT STYLE 1	INCONEL	98
104	ALL	ALL	ALL	N/A	N
350-3 9/16 BOSS	2	1L7500	PLAIN	316 SST	115
	2 1/2	1L7500	PLAIN	316 SST	125
		1L7500	EXT STYLE 1	316 SST	126
	3	1L7500	PLAIN	316 SST	113
		1L7500	EXT STYLE 1	316 SST	114
401	4	1L7500	PLAIN-WHISPER	316 SST	124
			EXT STYLE 1-WHISP	316 SST	129
402	2–3	1L7500	PLAIN	316 SST	1
				NIT 50	*121
				K-MONEL	12
			EXT STYLE 1	316 SST	99
				NIT 50	*120
				HAST B	107
				K-MONEL	110
			STYLE NS	316 SST	117
403	3	1L7500	PLAIN	316 SST	130
406	3–3 3/8	1L1000	PLAIN/EXT STYLE 1	316 SST	127
		1L1250	PLAIN/EXT STYLE 1	316 SST	128
410	2–3	1L7500	PLAIN	316 SST	131

ITEM J – LOAD RING

SERVICE	TRIM	TEMPERATURE °F	**J**
STANDARD	17-4 PH	-150+600	1
	INCONEL 718	-425+1100	2
CORROSIVE/NACE	K-MONEL	-400+500	3

ITEM K – NAMEPLATE

K
1

ITEM L – BONNET SPACER

CHARACTERISTIC	TRAVEL	SERVICE	BODY	**L**
WHISPER	4	STD	WCC	1
			CF8M	2
			WC9	3
		NACE	WCC	4
			LCC	5
OTHER	ALL	ALL	ALL	N

ITEM 9A – ACTION, FLOW, DESIGN

ACTION	FLOW	DESIGN	**9A**
PDTC	UP	ED	1
		ES	2
		ET	3
		EWD	7
		EWS	8
		EWT	9
	DOWN	ED	4
		ES	5
		ET	6
		EWD	10
		EWS	11
		EWT	12

ITEM 9B – TRAVEL

TRAVEL	**9B**
2	1
3	2
4	3

ITEM 9D – CLASS/HYDRO

STYLE	SIZE	BODY	RATING	HYDRO PSI/MIN	**9D**
ASME	8	CI	CLASS 125	300/2	1
			CLASS 250	750/3	2
		WCC, LCC, C5, LCC, WC9, CF8M, 347 & HAST C	CLASS 150	450/2	3
			CLASS 300	1125/3	4
			CLASS 600	2250/3	5
		ALY 20	CLASS 150	400/2	6
			CLASS 300	1025/3	7
			CLASS 600	2025/3	8
	10X8	WCC, LCC, C5, WC9 & CF8M	CLASS 150	450/3	23
			CLASS 300	1125/5	12
			CLASS 600	2250/5	13
EN	DN 200 & DN 250X200	ALL	PN10	225 PSI (15 BAR)/2 MIN	17
			PN16	350 PSI (24 BAR)/2 MIN	18
			PN25	550 PSI (38 BAR)/2 MIN	19
			PN40	875 PSI (60 BAR)/2 MIN	20
			PN63	1375 PSI (95 BAR)/3 MIN	21
			PN100	2175 PSI (150 BAR)/3 MIN	22

ITEM 9E – SEAT LEAK TEST PER FGS 4L5

					TRAVEL					
DESIGN	FLOW	SEAT	CLASS	CHARACTERISTIC	2	**9E**	3	**9E**	4	**9E**
ES	UP	METAL	IV (SCFH)	EQ PERCENT	123	1	190	4	--	--
				LINEAR	158	2	193	5	--	--
				Q OPEN	184	3	199	6	--	--
				WHISPER I	--	--	151	21	164	22
		COMP	VI (BUBBLES/MIN)	ALL	45	7	45	7	45	7
EWS	UP	METAL	IV (SCFH)	EQ PERCENT	112	23	210	26	--	--
				LINEAR	161	24	225	27	--	--
				Q OPEN	205	25	237	28	--	--
				WHISPER I	--	--	167	29	203	30
		COMP	VI (BUBBLES/MIN)	ALL	45	7	45	7	45	7
ED	DOWN	METAL	II (SCFH)	EQ PERCENT	6244	8	9511	11	--	--
				LINEAR	8152	9	9834	12	--	--
				Q OPEN	8961	10	10158	13	--	--
			IV (SCFH)	EQ PERCENT	125	14	190	4	--	--
				LINEAR	163	15	197	17	--	--
				Q OPEN	179	16	203	18	--	--
	UP	METAL	II (SCFH)	WHISPER I	--	--	7376	31	7958	33
			IV (SCFH)		--	--	148	32	159	34
EWD	DOWN	METAL	II (SCFH)	EQ PERCENT	5758	35	10708	41	--	--
				LINEAR	8314	37	11581	43	--	--
				Q OPEN	9737	39	11937	45	--	--
			IV (SCFH)	EQ PERCENT	115	36	214	42	--	--
				LINEAR	116	38	232	44	--	--
				Q OPEN	195	40	239	46	--	--
	UP	METAL	II (SCFH)	WHISPER I	--	--	8217	47	10190	49
			IV (SCFH)		--	--	164	48	204	50

DESIGN ET

					TRAVEL					
SEAT	SEAL RING	CLASS	FLOW	CHAR	2	**9E**	3	**9E**	4	**9E**
METAL	STD & SPG LOADED SEAL W/O ANTI-EXTRUSION	IV (SCFH)	DOWN	EQ PERCENT	125	14	190	4	--	--
				LINEAR	163	15	197	17	--	--
				Q OPEN	179	16	203	18	--	--
			UP	WHISPER I	--	--	148	51	159	52
	SPG LOADE SEAL W/ANTI-EXTRUSION	V WATER TEST (ML/MIN)	ALL	EQ PERCENT	CALC	20	CALC	20	--	--
				LINEAR	CALC	20	CALC	20	--	--
		V AIR TEST (ML/MIN)	ALL	ALL	37.60	61	37.60	61	37.60	61
COMP	ALL	V AIR TEST (ML/MIN)	ALL	ALL	37.60	61	37.60	61	37.60	61

DESIGN EWT

METAL	STD & SPG LOADED SEAL W/O ANTI-EXTRUSION	IV (SCFH)	DOWN	EQ PERCENT	115	53	214	56	--	--
				LINEAR	166	54	232	57	--	--
				Q OPEN	195	55	239	58	--	--
			UP	WHISPER I	--	--	164	59	204	60
	SPG LOADED SEAL W/ANTI-EXTRUSION	V WATER TEST (ML/MIN)	ALL	EQ PERCENT	CALC	20	CALC	20	--	--
				LINEAR	CALC	20	CALC	20	--	--
		V AIR TEST (ML/MIN)	ALL	ALL	37.60	61	37.60	61	37.60	61
COMP	ALL	V AIR TEST (ML/MIN)	ALL	ALL	37.60	61	37.60	61	37.60	61

ET SPRING LOADED SEAL RING W/ANTI-EXTRUSION RING ASSEMBLY DRWING 21B2120

ED FULL CAPACITY ASSEMBLY DRAWING	40A3290
ED CLASS IV ASSEMBLY DRAWING	47A3995
ET FULL CAPACITY ASSEMBLY DRAWING	43A8588
ES FULL CAPACITY ASSEMBLY DRAWING	40A3288

Revision Change Record

The date recorded on this document reflects the effective date of this revision.

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Page 12, For ITEM B – CAGE (CONTINUED) ITEM C – VALVE PLUG, SEAT RING, GROOVE PIN (CONTINUED), Update note from "WHISPER I, STD SHUT-OFF, 1L7500 VSC, 4 TVL REQUIRES BONNET SPACER (ITEM L) AND SPECIAL BOLTING (ITEM E)" to "WHISPER I, 1L7500 VSC, STD SHUT-OFF, 4" TVL AND CLASS IV SHUT-OFF 3" & 4" TVL REQUIRES BONNET SPACER (ITEM L) AND SPECIAL BOLTING (ITEM E)" above Cage & Valve Plug, Seat Ring with shut-off & temperature limit table.

Matrix Section:

Item	Module	Changes
B	69-78	Add for using with 2 piston rings plug for achieving 2 3/4 and 3 inch travel and CLIV shut-off.
C	M	Add for standard shut-off when using with cage (ECX8-B69~B78) for achieving 2 3/4 and 3 inch travel. Change "246" to "M". For meeting CLIV shut-off, 3 inch travel cage (ECX8- B73) with 2piston rings plug can't achieve 3 inch travel.
C	-	Change "-" to "M". For meeting CLIV shut-off, 3 inch travel cage (ECX8-B71, B72, B73, B75, B77) with 2 piston rings plug can't achieve 3 inch travel.
C	246	Add for using with cage (ECX8-B69, B71, B73~B76) for achieving 2 3/4 and 3 inch travel and CLIV shut-off.