



Engineering Master

ECX3

Page 1 of 20

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

CONFIDENTIAL, This document, including the information it bears, is the property of Fisher Controls and must be held in strict confidence and properly safeguarded at all times by the recipient. It may not be copied, reproduced or provided or revealed to any other party, except with the prior written authorization of Fisher Controls, any authorized copy or reproduction must include this legend. This document may be used only for the purpose for which Fisher Controls has provided it to the recipient and must be returned to Fisher Controls, along with all copies and reproductions, upon request. By accepting this document, the recipient agrees to the forgoing. This document's original controlled version resides in the Engineering Document Control System (EDOCS), accessible on the Fisher FishWeb. Copies of this document are uncontrolled. Engineering Standard DS40 controls the creation and maintenance of this document.

ECX3 - A B C D E F G H J K L 9A 9B 9D 9E 9F

Design ES w/Micro-Flat Cavitation Trim Selection String: ECX3- A F H K L 9D & MICROX1- A B 9A 9B

Item	Parts contained in Item	Find Number
A	Valve Body	1
	Pipe Plug	17
B	Cage Adaptor	4
	Seat Ring Adaptor	5
C	Cage	3
D	Valve Plug	2
	Groove Pin	8
	Seat Ring	9
	Disc Retainer	21
	Disc Seat	22
	Disc	24
	Tip	25
	Ring, Retaining, Ext.	27
	Back Up Ring	29
E	Disc	23
F	Cap Screw or Stud Bolt	15
	Hex Nut	16
G	Piston Ring	6
	Seal Ring	28
	Back-up Ring	29
	Rings, Anti-Extrusion	63
H	Bonnet Gasket	10
	Spiral Gasket	12
	Seat Ring Gasket	13
	Adaptor Gasket	14
	Shim	51
J	Stem	7
K	Flow Arrow	18
	Drive Screw	19
L	Drive Screw	19
	Nameplate	53
	Wire	54
9A	Design, Action & Flow Direction	
9B	Flow Characteristic	
9D	Class/Hydro	
9E	Seat Leak per FGS 4L5	
9F	Nameplate Data When Item J Not Used	



Engineering Master

ECX3

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Page 2 of 20

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM A - VALVE BODY

BODY	TEMP ° F	RATING		CWP (PSI/100° F)
CI	-100+450	CLASS 125		200
		CLASS 250	NPT	400
			FLG	500
WCC	-20+800	CLASS 150		290
		CLASS 300		750
		CLASS 600		1500
WC1	-20+850	CLASS 150		265
		CLASS 300		695
		CLASS 600		1390
LCC	-50+650	CLASS 150		290
		CLASS 300		750
		CLASS 600		1500
WC6	-20+1000	CLASS 150		290
		CLASS 300		750
		CLASS 600		1500
WC9	-20+1050	CLASS 150		290
		CLASS 300		750
		CLASS 600		1500
C5	-20+1100	CLASS 150		290
		CLASS 300		750
		CLASS 600		1500
CF8M	-325+1000	CLASS 150		275
		CLASS 300		720
		CLASS 600		1440
CF3M	-325+1000	CLASS 150		275
		CLASS 300		720
		CLASS 600		1440
347SST	-325+1100	CLASS 150		275
		CLASS 300		720
		CLASS 600		1440
ALY 20	-325+800	CLASS 150		230
		CLASS 300		600
		CLASS 600		1200
HASTC	-325+1000	CLASS 150		290
		CLASS 300		750
		CLASS 600		1500



Engineering Master

ECX3

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Page 3 of 20

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM A - VALVE BODY

BODY	TEMP ° F	TEMP°C	RATING	CWP (BAR/38° F)
CI	-100+450	-73+232	PN 10/16 PN 25	16.0 25.0
WCC	-20+800	-29+425	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
WC1	-20+850	-29+454	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
LCC	-50+650	-46+343	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
WC6	-20+1000	-29+538	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
WC9	-20+1050	-29+566	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
C5	-20+1100	-29+593	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
CF8M	-325+1000	-198+538	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
CF3M	-325+1000	-198+538	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0
347SST	-325+1100	-198+593	PN10/16/25/40 PN63 PN100	40.0 63.0 100.0



Engineering Master

ECX3

Page 4 of 20

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM A - VALVE BODY

BODY	DRAIN	NPT	125 FF	250 RF
CI CLB	WITHOUT	—	4	—
	WITH	—	213	—
CI CLC	WITHOUT	2	—	8
	WITH	211	—	217

SERV	BODY	DRAIN	NPT	SWE	BWE		FF		RF		RTJ		
					SCH40	SCH80	150	150	300	400/600	150	300	400/600
STD	WCC	WITHOUT	10	30	50	70	509	90	110	130	150	170	190
		WITH	219	239	-	-	-	299	319	339	-	379	399
	C5	WITHOUT	14	34	54	74	-	94	114	134	-	174	194
		WITH	-	243	-	-	-	303	323	343	-	-	-
	LCC	WITHOUT	-	-	-	-	-	91	111	131	-	-	191
	WC1	WITHOUT	-	-	-	-	-	-	-	133	-	-	-
	WC6	WITHOUT	-	36	56	-	-	-	116	-	-	-	-
	CF8M	WITHOUT	21	41	61	81	510	101	121	141	161	181	201
		WITH	-	-	-	-	-	310	330	350	-	-	-
	CF3M	WITHOUT	539	540	541	-	-	542	543	544	-	545	546
	ALY 20	WITHOUT	-	R	R	R	-	-	127	147	-	-	-
		WITH	-	R	R	R	-	-	-	-	-	-	-
	WC9	WITHOUT	523	420	524	525	-	526	424	425	527	528	529

STEAM JACKETED BODY, WITHOUT DRAIN

BODY	RF	
	CL150	CL300
	A	A
WCC	R	R
CF8M	R	R



Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM A - VALVE BODY

DN50, EN1092-1, WITHOUT DRAIN

RF (Type B)

	PN10/16	PN25	PN10/16/25/40	PN63	PN100
BODY	A	A	A	A	A
CI	439	440	—	—	—
WCC	—	—	441	451	461
C5	—	—	444	454	464
LCC	—	—	442	452	462
WC1	—	—	443	453	463
WC6	—	—	445	455	465
CF8M	—	—	446	456	466
347SST	—	—	447	457	467
ALY 20	—	—	448	458	468
HAST C	—	—	449	459	469
WC9	—	—	450	460	470

Spigot (Type E)

	PN10/16/25/40	PN63	PN100
BODY	A	A	A
LCC	471	472	473
CF8M	522	—	—

Recess (Type F)

	PN10/16/25/40	PN63	PN100
BODY	A	A	A
LCC	530	533	536
WCC	531	534	537
CF8M	532	535	538

ITEM B - CAGE ADAPTOR

PORT	SERVICE	BODY	B
2 5/16	ALL	ALL	N
1 5/16	STD	CI	1
		WCC	1
		C5	35
		LCC	1
		WC1	3
		WC6	35
		CF8M	4
		CF3M	38
		347SST	6
		ALY 20	7
		WC9	35
1 7/8	ALL	ALL	R

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM C - CAGE
ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN
DESIGN EC, M-FLUTE/M-FLOW

SEAT	CAGE	VALVE PLUG	RING	TEMP ° F	TRIM/BODY TEMP LIMIT	
					BODY	TEMP ° F
METAL	ALY 20	ALY 20	ALY 20	-325+300		
	17-4PH	416SST	416SST	-20+600	CF8M/347SST	-20+600
		316SST/HF TIP/SEAT	316SST COCR-A	-150+300 -150+800	CF8M/347SST	-150+570
	316SST ENC	416SST	416SST	-20+600		
		316SST/HF TIP/SEAT	316SST COCR-A	-425+300 -425+1100		
COMP	316L SST COCR-A	316L SST/HF TIP/SEAT 316SST/HF TIP/SEAT	316L SST COCR-A	-425+300 -425+1100	347SST	-325+940
	17-4PH	316SST/HF TIP	PTFE DISC NYLON DISC	-100+300 -50+200		
	316SST	316SST/HF TIP	PTFE DISC NYLON DISC	-100+300 -50+200		

ALL EXCEPT DESIGN EC, M-FLUTE/M-FLOW

CAGE	VALVE PLUG	RING	TEMP ° F	TRIM/BODY TEMP LIMIT	
				BODY	TEMP ° F
17-4PH	416 SST	416 SST	-20+800	CF8M/347SST	-20+550
		316 SST	-20+800	CF8M/347SST	-20+570
	316 SST	316 SST	-150+410		
	316 SST/TUNG CBD TIP	303 SST/TUNG CBD	-50+300		
	316 SST/HF SEAT	COCR-A	-150+300		
316 SST	316 SST/HF S/G	STD HI-TEMP	COCR-A	-150+410	
			COCR-A	+410+800	CF8M/347SST
					+410+570
	316L SST	316L SST	-425+300		
	304L SST	304L SST	-425+300		
ALY 20	ALY 20	ALY 20	-325+300		
	MONEL	MONEL	-425+300		
316 SST ENC	416 SST	416 SST	-20+410		
	316 SST	316 SST	-425+600		
	316 SST/HF SEAT	COCR-A	-425+300		
	316 SST/HF S/G	COCR-A	-425+650		
	MONEL	MONEL	-400+500		
COCR-A	316 SST/TUNG CBD TIP	303 SST/TUNG CBD	-50+300		
	316 SST/HF SEAT	COCR-A	-425+300		
	316 SST/HF S/G	STD HI-TEMP	COCR-A	-425+800	
			COCR-A	+800+1100	347SST
					+800+940

MAX DELTA P (PSI), MUST=<CWP, NO SEAT LOAD CONSIDERED

DESIGN EC, M-FLUTE/M-FLOW

VALVE PLUG	RING	SHUT	FLOWIN
ALY 20	ALY 20	300	1500
416SST	416SST	1500	1500
316SST/HF TIP/SEAT	316SST COCR-A	300 1500	1500 1500
316L SST/HF	316L SST	300	1500
316SST/HF TIP	PTFE DISC NYLON DISC	1000 1500	1500 1500



Engineering Master

ECX3

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Page 7 of 20

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM C - CAGE (CONT)

ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN (CONT)

MAX DELTA P(PSI), MUST=<CWP, NO SEAT LOAD CONSIDERED

DESIGN ED/ES/ET, SHUT OFF

		SEAT	METAL			COMP			
		DESIGN	ES		OTHER	ES			OTHER
		PORT	2 5/16	OTHER	ALL	1 5/16	2 5/16		
VALVE PLUG	RING	STEM	1/2	ALL	ALL	1/2	1/2	3/4	ALL
416SST	416SST		1212	1500	1500	150	1212	1500	1500
	316SST		300	300	300	15	1212	300	1500
316SST	316SST		300	300	300	1500	1212	300	1500
316SST/TUNG CBD TIP	303SST/TUNG CBD		1212	1500	1500	1500	1212	1500	1500
316SST/HF SEAT	COCR-A		1212	1500	1500	1500	1212	1500	1500
316SST/HF S/G	COCR-A		1212	1500	1500	1500	1212	1500	1500
316L SST	316L SST		300	300	300	1386	447	300	1500
304L SST	304L SST		300	300	300	1386	447	300	1500
ALY 20	ALY 20		300	300	300	1500	797	300	1500
MONEL	MONEL		300	300	300	1386	447	300	1500

FLOWING

DESIGN

ES M-FORM 500

OTHER 1500

CHARACTERISTIC	PORT	TRAVEL	CAGE	C
M-FORM/M-FLOW/M-FLUTE	ALL	3/4	17-4PH H900	212
			17-4PH H1100	227
			316SST ENC	231
			316L SST	214
			ALY 20	221
			COCR-A	223
EQ PERCENT	1 5/16	3/4	17-4PH H900	73
			316SST ENC	92
			COCR-A	84
			MONEL	R
	1 7/8	3/4	17-4PH H900	145
			316SST ENC	164
			COCR-A	156
			MONEL	R
	2 5/16	1 1/8	17-4PH H900	1
			17-4PH H1100	16
			304L SST	18
			316SST	2
			316SST ENC	20
			316L SST	3
			COCR-A	12
			MONEL	R



Engineering Master

ECX3

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Page 8 of 20

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM C - CAGE (CONT)

CHARACTERISTIC	PORT	TRAVEL	CAGE	C
LINEAR	1 5/16	3/4	17-4PH H900	95
			17-4PH H1100	110
			316SST ENC	114
			COCR-A	106
			MONEL	R
	2 5/16	1 1/8	17-4PH H900	23
			17-4PH H1100	38
			316SST	24
			316SST ENC	42
			316L SST	25
			COCR-A	34
			MONEL	R
	1 5/16	3/4	17-4PH H900	117
			17-4PH H1100	132
			316SST ENC	136
			COCR-A	128
			MONEL	R
	2 5/16	1 1/8	17-4PH H900	45
			17-4PH H1100	60
			304L SST	62
			316SST ENC	64
			COCR-A	56
WHISPER	1 5/16	3/4	17-4PH H900	140
			316SST ENC	266
			COCR-A	263
			MONEL	269
	1 7/8	3/4	316SST ENC	267
			MONEL	270
	2 5/16	1 1/8	17-4PH H900	68
			316SST ENC	265
			COCR-A	262
			MONEL	268



Engineering Master

ECX3

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Page 9 of 20

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN (CONT)

DESIGN EC, 3/4 TRAVEL

M-FLUTE, 1/2 STEM

SEAT	VALVE PLUG	RING	PORT	1/4
			FLUTE	1
METAL	416SST 316SST/HF TIP	416SST COCR-A	DISC	D
			N/A	91
			N/A	93

DESIGN ED, METAL SEAT

PORT	TRAVEL	VSC	VALVE PLUG		SEAT RING	D
1 5/16	3/4	1L5000	416SST		416SST	846
			316SST		316SST	847
			316SST/HF SEAT		COCR-A	926
			316SST/HF S/G	STD	COCR-A	963
				HI-TEMP	COCR-A	949
2 5/16	1 1/8	1L5000	MONEL		MONEL	858
			416SST		416SST	361
			316SST		316SST	362
			316L SST		316L SST	363
			304L SST		304L SST	365
			316SST/HF SEAT		COCR-A	924
		1L7500	316SST/HF S/G	STD	COCR-A	780
				HI-TEMP	COCR-A	938
			MONEL		MONEL	376
		1L7500	416SST		416SST	378
			316SST/HF S/G	HI-TEMP	COCR-A	939

DESIGN ES

M-FORM, METAL SEAT, 3/4 TRAVEL, 1L5001 VSC

VALVE PLUG		PORT	1/4	3/8	1/2	3/4	1
		RING	D	D	D	D	D
416SST		416SST	601	619	637	655	673
316SST		316SST	602	620	638	656	674
316SST TUNG CBD TIP		303SST	—	—	—	—	799
316SST/HF SEAT		COCR-A	603	621	639	657	675
316SST/HF S/G	STD	COCR-A	—	628	648	664	667
	HI-TEMP	COCR-A	—	945	946	947	948
MONEL		MONEL	—	635	—	—	689



Engineering Master

ECX3

Page 10 of 20

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN (CONT)

DESIGN ES

ALL EXCEPT M-FORM

PORT	TRAVEL	SEAT	VSC	VALVE PLUG		DISC SEAT/RETAINER OR SEAT RING	D
1 5/16	3/4	METAL	1L5000	416 SST		416 SST	867
				316 SST		316 SST	868
				316L SST		316L SST	871
				316SST/HF SEAT		COCR-A	869
				316SST/HF S/G	STD HI-TEMP	COCR-A COCR-A	870 942
		MONEL		MONEL	883		
		COMP	1L5000	416 SST		316 SST	912
316 SST				316 SST	903		
316 SST/HF S/G				COCR-A/316 SST 316 SST	905 982		
1 7/8	3/4	METAL	1L5000	416 SST		416 SST	581
				316 SST/HF SEAT		COCR-A	961
2 5/16	1 1/8	METAL	1L5000	416 SST		416 SST	501
				316 SST		316 SST	954
				316 SST/HF SEAT		COCR-A	955
				316 SST/HF S/G	STD HI-TEMP	COCR-A COCR-A	956 940
			1L7500	416 SST		416 SST	521
				316 SST		316 SST	957
				316 SST/HF SEAT		COCR-A	958
				316 SST/HF S/G	STD HI-TEMP	COCR-A COCR-A	959 941
		COMP	1L5000	416 SST		316 SST	773
				316 SST		316 SST	692
				316 SST/HF S/G		COCR-A/316 SST 316 SST	694 980
			1L7500	416 SST		316 SST	800
316 SST		316 SST		712			
316 SST/HF S/G		316 SST		981			



Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN (CONT)

DESIGN ET, SPRING LOADED SEAL RING
WITHOUT ANTI-EXTRUSION RING

PORT	TRAVEL	SEAT	PLUG STYLE	VSC	VALVE PLUG	SEAT RING	CAGE	D
1 5/16	3/4	METAL	RADIUS SEAT FOR CLASS V SHUT OFF	1L5000	316 SST/HF S/G	COCR-A	17-4 PH 316 SST ENC	1026 1027
					416 SST	416 SST	17-4 PH	1028
			OTHER	1L5000	416 SST	416 SST	17-4 PH	1006
					316 SST	316 SST	316 SST 316 SST ENC	1007 1007
					316 SST/HF S/G	COCR-A	17-4 PH 316 SST ENC COCR-A	1008 1009 1009
2 5/16	1 1/8	METAL	RADIUS SEAT FOR CLASS V SHUT OFF	1L5000	416 SST	416 SST	17-4 PH	1042
					316 SST/HF S/G	COCR-A	17-4 PH 316 SST ENC	1036 1037
				1L7500	416 SST	416 SST	17-4 PH	1043
					316 SST/HF S/G	COCR-A	316 SST 316 SST ENC	1038 1039
			OTHER	1L5000	416 SST	416 SST	17-4 PH	927
					316 SST	316 SST	316 SST 316 SST ENC	964 964
					316 SST/HF S/G	COCR-A	17-4 PH 316 SST ENC COCR-A	928 966 966
		COMP	ALL	1L5000	416 SST	316 SST	17-4 PH	931
					316 SST	316 SST	316 SST 316 SST ENC	970 970
					316 SST/HF S/G	COCR-A	17-4 PH 316 SST ENC COCR-A	932 971 971

WITH ANTI-EXTRUSION RING, METAL SEAT

PORT	TRAVEL	VSC	VALVE PLUG		SEAT RING	CAGE	D
1 5/16	3/4	1L5000	316 SST/HF S/G	STD	COCR-A	17-4 PH 316 SST ENC	1024 1025
				HI-TEMP	COCR-A	17-4 PH	1023
			416 SST		416 SST	17-4 PH	1029
2 5/16	1 1/8	1L5000	416 SST		416 SST	17-4 PH	1040
			316 SST/HF S/G	STD	COCR-A	17-4 PH 316 SST ENC	1032 1034
				HI-TEMP	COCR-A	17-4 PH	1030
		1L7500	416 SST		416 SST	17-4 PH	1041
			316 SST/HF S/G	STD	COCR-A	17-4 PH 316 SST ENC	1033 1035
				HI-TEMP	COCR-A	17-4 PH	1031

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN (CONT)

DESIGN	PORT	TRAVEL	SEAT	VSC	VALVE PLUG	DISC SEAT/RETAINER OR SEAT RING	D				
ET WITHOUT SPRING LOADED SEAL RING	1 5/16	3/4	METAL	1L5000	416 SST	416 SST	846				
					316 SST	316 SST	847				
					316 SST/HF SEAT	COCR-A	926				
					316 SST/HF S/G	COCR-A	963				
					MONEL	MONEL	858				
			COMP	1L5000	416 SST	316 SST	866				
					316 SST	316 SST	860				
					MONEL	MONEL	865				
					2 5/16	1 1/8	METAL	1L5000	416 SST	416 SST	361
									316 SST	316 SST	362
	316 SST/HF SEAT	COCR-A	924								
	316 SST/HF S/G	COCR-A	780								
	316L SST	316L SST	363								
	304L SST	304L SST	365								
	MONEL	MONEL	376								
	1L7500	416 SST	416 SST	378							
	COMP	1L5000	416 SST	316 SST			796				
			316 SST	316 SST			456				
			316 SST/HF S/G	COCR-A/316 SST	783						
			MONEL	MONEL	470						
		1L7500	416 SST	316 SST	771						
			316 SST	316 SST	489						
			316 SST/HF S/G	COCR-A/316 SST	784						
				316 SST	979						

ITEM E - DISC

SEAT	DISC	TEMP ° F	PORT	E
COMP	PTFE FMS 17F3	-100+400	1 5/16	6
			1 7/8	11
			2 5/16	1
METAL	N/A	N/A	N/A	N

ITEM F - BOLTING

BOLTING	NUT	TEMP ° F	CWP(PSI)	HYDRO(PSI/MIN)	BODY	TEMP ° F
B7	2H	-50+800	BODY	BODY		
B7	GR 7	-50+1000	BODY	BODY		
B7M	2HM	-50+800	1000	1500/1		
B16	GR 7	-20+1100	BODY	BODY		
SAE GR 5	-	-20+650	BODY	BODY		
B8	GR 8	-425+100	880	1325/1		
B8M CL1	8M	-325+1000	880	1325/1		
B8M CL2	8M	-325+800	1200	1800/1	HAST C	-325+250



Engineering Master

ECX3

Page 13 of 20

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM F - BONNET BOLTING (CONT)

BODY	TEMP ° F	BOLT	NUT	PLAIN	EXT	BELLOWS SEAL	
				F	F	STANDARD	ENVIRO- SEAL
CAST IRON	-100+250	B8M CL2	-----	—	—	—	M
	-20+450	SAE GR 5	-----	7	M	M	M
	-50+450	B7	2H	—	1	4	M
WCC	-20+450	B7	2H	1	1	4	27
		B7M	2HM	15	15		
	450+800	B7	2H LUB	17	17	23	30
		B7M	2HM LUB	21	21		
LCC	-50+450	B7	2H	1	1	4	27
		B7M	2HM	15	15		
	450+650	B7	2H LUB	17	17	23	30
		B7M	2HM LUB	21	21		
WC1	-20+450	B7	2H	1	1	4	27
	450+800	B7	2H LUB	17	17	23	30
	801+850	B7	GR 7 LUB	16	16	22	29
WC6	-20+450	B7	2H	1	1	4	27
	450+800	B7	2H LUB	17	17	23	30
	801+1000	B7	GR 7 LUB	16	16	22	29
WC9	-20+450	B7	2H	1	1	4	27
	450+800	B7	2H LUB	17	17	23	30
	801+1000	B7	GR 7 LUB	16	16	22	29
	1001+1050	B16	GR 7 LUB	18	18	24	31
C5	-20+450	B7	2H	1	1	4	27
	450+800	B7	2H LUB	17	17	23	30
	801+1000	B7	GR 7 LUB	16	16	22	29
	1001+1100	B16	GR 7 LUB	18	18	24	31
HAST C	-50+450	B7	2H	1	1	4	27
	450+800	B7	2H LUB	17	17	23	30
CF8M & CF3M	-325+450	B8M CL2	8M	3	3	6	28
	450+800	B8M CL2	8M LUB	19	19	25	32
	-50+450	B7 STD	2H	1	1	4	27
		B7M	2HM	15	15		
	450+800	B7	2H LUB	17	17	23	30
		B7M	2HM LUB	21	21		
	801+1000	B8M CL1	8M LUB	20	20	26	33
347 SST	-325+450	B8M CL2	8M	3	3	6	28
	450+800	B8M CL2	8M LUB	19	19	25	32
	-50+450	B7 STD	2H	1	1	4	27
	450+800	B7	2H LUB	17	17	23	30
	801+1000	B8M CL1	8M LUB	20	20	26	33
ALY 20	-325+400	B8M CL2	8M	3	3	6	28
	-50+450	B7 STD	2H	1	1	4	27
	450+800	B7	2H LUB	17	17	23	30

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM G - PISTON RING OR SEAL RING

DESIGN ED			FULL	2X1
SERVICE	PISTON RING MATL	TEMP GUIDE° F	G	G
	CARBON FILLED TFE	-100 TO 450	1	3
STEAM OR NON-OXIDIZING FLUIDS	GRAPHITE FMS 17F19	+450 TO 600	2	4
	GRAPHITE FMS 17F27	+601 TO 900	9	10
	GRAPHITE FMS 17F39	+901 TO 1100	17	18
AIR OR OXIDIZING FLUIDS	GRAPHITE FMS 17F27	+450 TO 800	9	10
	GRAPHITE FMS 17F39	+801 TO 1000	17	18

DESIGN ET

SEAL RING	BACK UP RING	TEMP DEG F	SERVICE	FULL	2X1
				G	G
PTFE FMS 17F3	FKM FMS 17G34	0+400	OXYGEN	13	14
CARBON/PTFE FMS 17F18	FKM FMS 17G34	0+400	NACE NOT WATER >180° F NOT STEAM	6	8
		-40+160	HYDROCARBONS,AIR	5	7
	NBR, FMS 41G14	-40+180	FIRE-RESISTANT HYDRAULIC OILS	M	M
			OTHER COMPATABLE FLUIDS	5	7
	ETHYL PROP FMS 17G39	-40+450	NOT HYDROCARBON(OIL)	20	21

SPRING LOADED SEAL RING

SEAL RING	ANTI-EXTRUSION RING		
	W/O	PEEK	
	N10276/PTFE	R30003/PTFEPPVE	
	GLASS/MOS2	OXIDIZING SERV	NON-OXIDIZING SERV
° F	-100+450	-100+500	-100+600
CAPACITY	G	G	G
FULL	16	24	24
RESTRICTED 2X1	22	25	25

ITEM H - GASKET

PORT	SPIRAL WOUND	FLAT SHEET	TEMP ° F	H
2 5/16	MONEL/ GRAPH	GRAPH/SST	-100+900	84
	MONEL/PTFE	MONEL/PTFE	-100+300	75
	INCONEL/GRAPH	GRAPH/SST	-325+1100	81
1 7/8	MONEL/PTFE	MONEL/PTFE	-100+300	77
	INCONEL/GRAPH	GRAPH/SST	-325+1100	83
1 5/16	MONEL/PTFE	MONEL/PTFE	-100+300	76
	INCONEL/GRAPH	GRAPH/SST	-325+1100	82

NOTE: DESIGN ES W/M-FLAT CAVITATION TRIM USES THE GASKET OPTIONS FOR FULL CAPACITY CONSTRUCTION



Engineering Master

ECX3

Page 15 of 20

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM J - STEM**ITEM 9F - DESCRIPTOR/NAMEPLATE DATA WHEN ITEM J NOT USED**

ACTR	BONNET	VSC	CHARACTERISTIC	STEM	J	9F
GROUP 1/ AU2259	PLAIN	1L5000	FULL/RESTRICTED 2X1 1/2	316	1	N
				NIT 50	300	N
				316L	2	N
				304	3	N
				304L	4	N
				HAST B	10	N
				HAST C	11	N
				ALY 20	12	N
				K-MONEL	13	N
				INCONEL	15	N
			RESTRICTED 2X1	316	243	N
				NIT 50	298	N
				316L	244	N
				ALY 20	253	N
				HAST C	252	N
				K-MONEL	254	N
			M-FORM/HF SEAT/TIP(1 1/4 PORT)	316	1	N
		1L5001	M-FLUTE METAL SEAT, M-FORM, M-FLOW	316	97	N
				NIT 50	293	N
				316L	98	N
				304L	100	N
				ALY 20	108	N
				K-MONEL	109	N
			M-FLUTE COMP SEAT	ALL	N	1
		1L7500	FULL/RESTRICTED 2X1 1/2	316	145	N
				NIT 50	295	N
				HAST C	155	N
	EXT STYLE 1	1L5000	FULL/RESTRICTED 2X1 1/2	316	17	N
				NIT 50	297	N
				316L	18	N
				K-MONEL	29	N
			RESTRICTED 2X1	316	257	N
				NIT 50	299	N
		1L5001	M-FLUTE METAL SEAT, M-FORM, M-FLOW	316	113	N
				NIT 50	294	N
			M-FLUTE COMP SEAT	ALL	N	1
		1L7500	FULL/RESTRICTED 2X1 1/2	316	161	N
				NIT 50	296	N

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM J - STEM (CONT)
ITEM 9F - DESCRIPTOR/NAMEPLATE DATA WHEN ITEM J NOT USED (CONT)

ACTR	BONNET	VSC	CHARACTERISTIC	STEM	J	9F
GROUP 1/AU2259	EXT STYLE 2	1L5000	FULL/RESTRICTED 2X1 1/2	316	33	N
			RESTRICTED 2X1	316 HAST B	271 279	N N
		1L5001	M-FLUTE METAL SEAT, M-FORM, M-FLOW M-FLUTE COMP SEAT	316 ALL	129 N	N 1
	EXT STYLE 4		1L5000	FULL/RESTRICTED 2X1 1/2	316	287
		1L7500	FULL/RESTRICTED 2X1 1/2	316	288	N
	STYLE NS	1L5000	RESTRICTED 2X1	316	243	N
				NIT 50	298	N
				316L	244	N
				ALY 20	253	N
				HAST C	252	N
				K-MONEL	254	N
		1L5001	M-FLUTE METAL SEAT, M-FORM, M-FLOW	316	97	N
				NIT 50	293	N
	316L			98	N	
	1L7500	M-FLUTE COMP SEAT	304L	100	N	
			ALY 20	108	N	
			K-MONEL	109	N	
	1L7500	FULL/RESTRICTED 2X1 1/2	ALL	N	1	
			FULL/RESTRICTED 2X1 1/2	316	289	N
			BELLOWS SEAL	1L5000	FULL/RESTRICTED 2X1 1/2	316
	304L	84				N
HAST C	91	N				
NICKEL	94	N				
K-MONEL	93	N				
RESTRICTED 2X1/M-FORM M-FLUTE/M-FLOW	316 420	65	N	N		
		-	N	N		
ENVIRO-SEAL BELLOWS SEAL	ALL	ALL	316L	N	1	
			HAST C	N	2	
GROUP 103/AU2259	PLAIN	1L5000	FULL	316	241	N
298T	N/A	N/A	N/A	N/A	N	1
607	PLAIN	1L5000	3/4 TRVL	316	286	N
617	PLAIN	1L5000	3/4 TRVL	316	286	N
795	N/A	N/A	N/A	N/A	N	1
796	N/A	N/A	N/A	N/A	N	1

ITEM K - FLOW ARROW & DRIVE SCREW
K

1



Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM L - NAMEPLATE

NAMEPLATE	L
FISHER	1
PICK HEATERS	2

ITEM 9A - TYPE, ACTION, FLOW

ACTION	FLOW	UP	DOWN
	TYPE	9A	9A
PDTC	EC	1	5
	ED	2	6
	ET	3	7
	ES	4	8

ITEM 9B - FLOW CHARACTERISTIC

FLOW CHARACTERISTIC	VALVE PLUG	9B
EQUAL PERCENT	M-FLUTE, FORM & FLOW	1
	ALL OTHER	N

ITEM 9D - CLASS/HYDRO

STYLE	BODY	RATING	HYDRO	9D
ASME	CAST IRON	CL125	300 PSI /1 MIN	1
		CL250	750 PSI /1 MIN	2
	WCC, LCC, C5, WC9, CF8M, 347, CF3M	CL150	450 PSI /1 MIN	3
		CL300	1125 PSI /1 MIN	4
		CL600	2250 PSI /1 MIN	5
	ALLOY 20	CL150	350 PSI /1 MIN	6
		CL300	900 PSI /1 MIN	7
		CL600	1800 PSI /1 MIN	8
	HAST C	CL150	450 PSI /1 MIN	9
		CL300	1125 PSI /1 MIN	10
		CL600	2250 PSI /1 MIN	11
EN	CI	PN10/16	350 PSI (24 BAR)/1 MIN	15
		PN25	550 PSI (38 BAR)/1 MIN	16
	ALL OTHER	PN10/16/25/40	875 PSI (60 BAR)/1 MIN	17
		PN63	1375 PSI (95 BAR)/1 MIN	18
		PN100	2175 PSI (150 BAR)/1 MIN	19



Engineering Master

ECX3

Page 18 of 20

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM 9E - SEAT LEAK TEST FGS 4L5

DESIGN EC - EXCEPT M-FLUTE OR M-FLOW

DESIGN ES - EXCEPT M-FORM

FLOW	CHARACTERISTIC	PORT	METAL SEAT (SCFH) CLASS 4				COMP SEAT CLASS 6 BUBBLES/MIN			
			DESIGN EC	9E	DESIGN ES	9E	DESIGN EC	9E	DESIGN ES	9E
UP	EQUAL PERCENT	1 5/16	4.59	1	4.59	1	2	16	2	16
		1 7/8	----	----	7.45	11	----	----	3	18
		2 5/16	13.4	2	13.4	2	4	17	4	17
	LINEAR	1 5/16	6.79	3	6.79	3	2	16	2	16
		1 7/8	----	----	11.68	12	----	----	3	18
		2 5/16	14.7	4	14.7	4	4	17	4	17
	QUICK OPENING	1 5/16	8.73	5	8.73	5	2	16	2	16
		1 7/8	----	----	11.57	13	----	----	3	18
		2 5/16	15.6	6	15.6	6	4	17	4	17
	WHISPER	1 5/16	6.3	7	6.3	7	2	16	2	16
		1 7/8	----	----	8.55	14	----	----	3	18
		2 5/16	14.2	8	14.2	8	4	17	4	17

DESIGN EC, M-FLUTE OR M-FLOW, FLOW UP

SEAT	CLASS	CHARACTERISTIC	PORT	VALUE	9E
METAL	IV(SCFH)	MICRO-FLUTE 1 FLUTE	1/4	.06	20
		MICRO-FLUTE 2 FLUTE	1/4	.118	21
		MICRO-FLUTE 3 FLUTE	1/4	.181	22
			3/8	.377	23
			1/2	.672	24
			3/4	1.42	25
			1	2.52	26
		MICRO-FLOW CV-.075	3/16	.018	27
		MICRO-FLOW CV-.181	3/16	.038	28
COMP	VI(BUBBLES/MIN)	ALL	ALL	1	19

DESIGN	SEAT	SEAT LEAK CLASS	CHARACTERISTIC	FLOW	PORT	SEAT LEAK	9E
ES	METAL	CLASS IV(SCFH)	M-FORM	UP	1/4	0.313	29
					3/8	0.705	30
					1/2	1.18	31
					3/4	2.47	32
					1	4.03	33
ED	METAL	CLASS II (SCFH)	EQUAL PERCENT	DOWN	1 5/16	253	34
					2 5/16	641	35
			LINEAR	DOWN	1 5/16	359	36
					2 5/16	754	37
			QUICK OPENING	DOWN	1 5/16	362	38
					2 5/16	793	39
			WHISPER	UP	1 5/16	330	41
					2 5/16	601	42



Engineering Master

ECX3

Page 19 of 20

© Fisher Controls Intl. LLC, 1981, 2017

Confidential / Do Not Reproduce

Revised: August 15, 2018

Revision FJ

Design E Series Valve Body Assembly, NPS 2, Class 125-600

ITEM 9E - SEAT LEAK TEST PER FGS 4L5**DESIGN ET**

SEAT	SEAL RING	FLOW	CHARACTERISTIC	CLASS	PORT	VALUE	9E
METAL	STD & SPRING LOADED SEAL W/O ANTI-EXTRUSION RING	DOWN	EQ PERCENT	IV(SCFH)	1 5/16	5.07	43
					2 5/16	12.8	44
			LINEAR	IV(SCFH)	1 5/16	7.18	45
					2 5/16	15	46
		UP	Q OPEN	IV(SCFH)	1 5/16	7.25	47
					2 5/16	15.8	48
	SPRING LOADED SEAL W/ANTI-EXTRUSION	ALL	ALL	V WATER TEST(ML/MIN)	ALL	CALC	53
COMP	ALL	ALL	ALL	V AIR TEST (BUBBLES/MIN)	1 5/16	41	55
				V AIR TEST (ML/MIN)	2 5/16	10.86	56

DESIGN	CAPACITY	ASSEMBLY DRAWING
EC	MICRO FLUTE & FLOW TRIM	CU8376
	COMPOSITION 1/4-3/8 PORT	30A9546
	1/2-1 INCH PORT	30A9545
ED	FULL	30A9542
	RESTRICTED 2 X 1	30A9547
ES	FULL	30A9543
	RESTRICTED 2 X 1	30A9548
	M-FORM	CU3906
ET	FULL	44A7928
	RESTRICTED 2 X 1	44A7931
	SPRING LOADED SEAL RING WITH ANTI-EXTRUSION RING	21B2120



Revision Change Record

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

ECRN: 20180476

Page 1,

Add "Design ES w/Micro-Flat Cavitation Trim Selection String: ECX3- A F H K L 9D & MICROX1- A B 9A 9B"

Page 2 & 3,

Add CF3M body and related information in body material-temp-CWP table

Page 13, update body "CF8M" to "CF8M & CF3M" in Item F table

Page 14, add "NOTE: DESIGN ES W/M-FLAT CAVITATION TRIM USES THE GASKET OPTIONS FOR FULL CAPACITY CONSTRUCTION" in Item H-Gasket table

Page 17, update body from "WCC, LCC, C5, WC9, CF8M, 347" to "WCC, LCC, C5, WC9, CF8M, 347, CF3M" in Item 9D table

Matrix:

Item	Module	Changes
A	539-546	New-created CF3M body options
B	38	New-created CF3M cage adaptor option