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ECX2-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: ECX2- A G H K L 9D & MICROX1- A B 9A 9B

Temperatures per ASME B31.3, EN1092-1

CWP per ASME B16.34, EN1092-1

| Item | Parts contained in Item | Find No. |
|------|-------------------------------------|----------|
| A | Valve Body | 1 |
| | Pipe Plug | 17 |
| B | Cage Adaptor | 4 |
| 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 | Piston Ring | 6 |
| | Seal Ring | 28 |
| | Rings, Anti-Extrusion | 63 |
| G | Cap Screw or Stud Bolt | 15 |
| | Hex Nut | 16 |
| H | Bonnet Gasket | 10 |
| | Spiral Gasket | 12 |
| | Seat Ring Gasket or Seal Ring | 13 |
| | Cage Adaptor Gasket | 20 |
| | 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 | |

**ITEM A - VALVE BODY**

| BODY | TEMP °F | TEMP °C | RATING | | CWP (PSI/100° F) | CWP (BAR/38° C) |
|--------|-----------|----------|--------|-----|------------------|-----------------|
| CI | -100+450 | -73+232 | CL125 | | 200 | 13.8 |
| | | | CL250 | NPT | 400 | 27.6 |
| | | | | FLG | 500 | 34.5 |
| WCC | -20+800 | -29+427 | CL150 | | 290 | 20 |
| | | | CL300 | | 750 | 51.7 |
| | | | CL600 | | 1500 | 103.4 |
| WC1 | -20+850 | -29+454 | CL150 | | 265 | 18.3 |
| | | | CL300 | | 695 | 47.9 |
| | | | CL600 | | 1390 | 95.8 |
| LCC | -50+650 | -46+343 | CL150 | | 290 | 20 |
| | | | CL300 | | 750 | 51.7 |
| | | | CL600 | | 1500 | 103.4 |
| WC6 | -20+1000 | -29+538 | CL150 | | 290 | 20 |
| | | | CL300 | | 750 | 51.7 |
| | | | CL600 | | 1500 | 103.4 |
| WC9 | -20+1050 | -29+566 | CL150 | | 290 | 20 |
| | | | CL300 | | 750 | 51.7 |
| | | | CL600 | | 1500 | 103.4 |
| C5 | -20+1100 | -29+593 | CL150 | | 290 | 20 |
| | | | CL300 | | 750 | 51.7 |
| | | | CL600 | | 1500 | 103.4 |
| CF8M | -325+1000 | -198+538 | CL150 | | 275 | 19 |
| | | | CL300 | | 720 | 49.6 |
| | | | CL600 | | 1440 | 99.3 |
| CF3M | -325+1000 | -198+538 | CL150 | | 275 | 19 |
| | | | CL300 | | 720 | 49.6 |
| | | | CL600 | | 1440 | 99.3 |
| 347SST | -325+1100 | -198+593 | CL150 | | 275 | 19 |
| | | | CL300 | | 720 | 49.6 |
| | | | CL600 | | 1440 | 99.3 |
| ALY 20 | -325+800 | -198+427 | CL150 | | 230 | 15.9 |
| | | | CL300 | | 600 | 41.4 |
| | | | CL600 | | 1200 | 82.7 |
| HAST C | -325+1000 | -198+538 | CL150 | | 290 | 20 |
| | | | CL300 | | 750 | 51.7 |
| | | | CL600 | | 1500 | 103.4 |
| CD3MN | -20+500 | -29+260 | CL300 | | 750 | 51.7 |

**ITEM A - VALVE BODY (CONT)**

| BODY | TEMP °F | TEMP °C | RATING | CWP (PSI/100° F) | CWP (BAR/38°C) |
|--------|-----------|----------|----------------|------------------|----------------|
| CI | -100+450 | -73+232 | PN 10/16 | 232 | 16.0 |
| | | | PN 25 | 363 | 25.0 |
| WCC | -20+800 | -29+425 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| WC1 | -20+850 | -29+454 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| LCC | -50+650 | -46+343 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| WC6 | -20+1000 | -29+538 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| WC9 | -20+1100 | -29+593 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| C5 | -20+1100 | -29+593 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| CF8M | -325+1000 | -198+538 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| CF3M | -325+1000 | -198+538 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |
| 347SST | -325+1100 | -198+593 | PN 10/16/25/40 | 580 | 40.0 |
| | | | PN 63/100 | 1450 | 100.0 |

ITEM B - CAGE ADAPTOR

| MATL | TEMP ° F | BODY | TEMP ° F |
|------|----------|------|----------|
| WCC | -20+800 | LCC | -20+650 |
| | | CI | -20+450 |



ITEM A - VALVE BODY (W/O DRAIN TAPPING = N/TAP) (W/DRAIN TAPPING = TAP)

ITEM B - CAGE ADAPTOR (USE ON RESTRICTED TRIM ONLY)

| | SCREWED | | CL125 FF | | CL250 RF | | ADAPTOR |
|-----------|---------|-----|----------|-----|----------|-----|---------|
| | N/TAP | TAP | N/TAP | TAP | N/TAP | TAP | |
| | A | A | A | A | A | A | |
| CAST IRON | 1 | 94 | 2 | 185 | 3 | 186 | 3 |

| | SCREWED | | SOCKET WELD | | SCH 40 BWE | SCH 80 BWE | CL150 RF | | ADAPTOR |
|------|---------|-----|-------------|-----|------------|------------|----------|-----|---------|
| | N/TAP | TAP | N/TAP | TAP | N/TAP | N/TAP | N/TAP | TAP | |
| | A | A | A | A | A | A | A | A | |
| WCC | 4 | 95 | 13 | 104 | 22 | 31 | 40 | 131 | 3 |
| C5 | 7 | -- | 16 | 107 | -- | -- | 43 | -- | 7 |
| LCC | -- | -- | -- | -- | -- | -- | 41 | -- | 3 |
| WC6 | -- | -- | 17 | -- | -- | -- | -- | -- | 7 |
| CF8M | 9 | 100 | 18 | -- | 27 | 36 | 45 | 136 | 3 |
| CF3M | 290 | -- | 291 | -- | 292 | 293 | 294 | -- | 3 |
| WC9 | 276 | -- | 188 | -- | 277 | 278 | 279 | -- | 7 |

| | CL300 RF | | CL400, 600RF | | CL150 RTJ | CL300 RTJ | CL400-600 RTJ | CL150FF | ADPTR |
|--------|----------|-----|--------------|-----|-----------|-----------|---------------|---------|-------|
| | N/TAP | TAP | N/TAP | TAP | N/TAP | N/TAP | N/TAP | N/TAP | |
| | A | A | A | A | A | A | A | A | |
| WCC | 49 | 140 | 58 | 149 | 67 | 76 | 85 | 257 | 3 |
| C5 | 52 | -- | 61 | 152 | -- | -- | 88 | -- | 7 |
| LCC | 50 | -- | 59 | -- | -- | -- | 275 | -- | 3 |
| WC1 | -- | -- | 60 | -- | -- | -- | -- | -- | -- |
| WC6 | 53 | -- | -- | -- | -- | -- | -- | -- | 7 |
| CF8M | 54 | 145 | 63 | 154 | -- | 81 | 90 | 258 | 3 |
| CF3M | 295 | -- | 296 | -- | -- | 297 | 298 | 299 | 3 |
| ALY 20 | 56 | -- | -- | -- | -- | -- | -- | -- | 5 |
| HAST C | 57 | -- | -- | -- | -- | -- | -- | -- | 6 |
| WC9 | 192 | -- | 280 | -- | 281 | 282 | 283 | -- | 7 |

STEAM JACKET BODY ASSY

| | CL150 RF | CL300 RF |
|------|----------|----------|
| | TAP | TAP |
| | A | A |
| WCC | R | R |
| CF8M | R | R |

**ITEM A - VALVE BODY (W/O DRAIN TAPPING = N/TAP) (W/DRAIN TAPPING = TAP) (CONT)****ITEM B - CAGE ADAPTOR (USE ON RESTRICTED TRIM ONLY) (CONT)**

DN 40, EN1092-1

RF (Type B)

| | PN 10/16 | PN 25 | ADAPTOR |
|-----------|----------|----------|---------|
| | N/TAP | N/TAP | |
| | A | A | |
| CAST IRON | 207 | 208 | 3 |

| | PN 10/16/25/40 | PN 63/100 | ADAPTOR |
|----------|----------------|-----------|---------|
| | N/TAP | N/TAP | |
| | A | A | |
| WCC | 209 | 219 | 3 |
| C5 | 212 | 222 | 7 |
| LCC | 210 | 220 | 3 |
| WC1 | 211 | 221 | -- |
| WC6 | 213 | 223 | 7 |
| CF8M | 214 | 224 | 3 |
| CF3M | 300 | -- | 3 |
| 347 | 215 | 225 | -- |
| ALLOY 20 | 216 | 226 | 5 |
| HAST C | 217 | 227 | 6 |
| WC9 | 218 | 228 | 7 |

Spigot (Type E)

| | PN 10/16/25/40 | PN 63/100 | ADAPTOR |
|------|----------------|-----------|---------|
| | N/TAP | N/TAP | |
| | A | A | |
| LCC | 270 | 271 | 3 |
| WCC | 272 | 273 | 3 |
| CF8M | 274 | -- | -- |

Recess (Type F)

| | PN 10/16/25/40 | PN 63/100 | ADAPTOR |
|------|----------------|-----------|---------|
| | N/TAP | N/TAP | |
| | A | A | |
| LCC | 284 | 287 | 3 |
| WCC | 285 | 288 | 3 |
| CF8M | 286 | 289 | -- |

**ITEM C - CAGE****ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN**

M-FLUTE, M-FLOW

| CAGE | VALVE PLUG | RING | TEMP ° F | TRIM/BODY | TEMP LIMIT |
|------------|----------------------|---------------------------|----------------------|-------------|------------|
| | | | | BODY | TEMP ° F |
| 17-4PH | 416 SST | 416 SST 316 SST | -20+800 -20+800 | | |
| | 316SST/HF TIP/SEAT | 316 SST 316 SST/COCR-A | -150+300 -150+800 | CF8M/347SST | -150+700 |
| 316L SST | 316L SST/HF TIP/SEAT | 316 SST | -425+300 | | |
| 316SST ENC | 316SST/HF TIP/SEAT | 316 SST | -425+300 | | |
| | | 316 SST/COCR-A | -425+1100 | | |
| COCR-A | 316SST/HF TIP/SEAT | 316 SST/COCR-A | -425+1100 | 347SST | -425+1030 |

OTHER CHARACTERISTICS

| CAGE | VALVE PLUG | RING | TEMP ° F | TRIM/BODY | TEMP LIMIT |
|------------|---------------------------|----------------------------------|-----------------------|----------------------------|--------------------|
| | | | | BODY | TEMP ° F |
| 17-4PH | 416 SST | 416 SST 316 SST | -20+800 -20+800 | CF8M/347SST CF8M/347SST | -20+670 -20+700 |
| | 316 SST 316SST/HF SEAT | 316 SST COCR-A | -150+410 -150+300 | | |
| | 316SST/HF S/G | COCR-A | -150+410 | | |
| | STD HI-TEMP | COCR-A | +410+800 | CF8M/347SST | +410+700 |
| 304SST | 304 SST | 304 SST | -425+300 | | |
| 304L SST | 304L SST | 304L SST | -425+300 | | |
| 316SST | 316 SST | 316SST | -425+300 | | |
| 316L SST | 316L SST | 316L SST | -425+300 | | |
| ALY 20 | ALY 20 | ALY 20 | -325+300 | | |
| MONEL | MONEL | MONEL | -400+300 | | |
| 316SST ENC | 416 SST | 416 SST | -20+410 | | |
| | 316 SST | 316 SST | -425+600 | | |
| | 316 SST/HF SEAT | 316 SST/COCR-A | -425+300 | | |
| | 316 SST/HF S/G | 316 SST/COCR-A | -425+650 | | |
| | MONEL | MONEL | -400+500 | | |
| COCR-A | 316 SST/HF SEAT | 316 SST/COCR-A | -425+300 | | |
| | 316 SST/HF S/G | 316 SST/COCR-A 316 SST/COCR-A | -425+800 +800+1100 | 347 SST | +800+1030 |
| | STD HI-TEMP | | | | |

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

| | |
|-----------|------|
| FLOWING | |
| ES M-FORM | 500 |
| OTHER | 1500 |

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

SHUT OFF

| DESIGN | SEAT | VALVE PLUG | RING | | |
|-------------------|-------|----------------------|------------|--------------------|-------------|
| EC M-FLUTE/M-FLOW | METAL | 416 SST | 416 SST | | 1500 |
| | | 416 SST | 316 SST | | 300 |
| | | 316SST/HF TIP/SEAT | 316 SST | | 300 |
| | | | 316 SST/HF | | 1500 |
| | | 316L SST/HF TIP/SEAT | 316L SST | | 300 |
| ED/ET | COMP | 316SST/ALY 6B TIP | 316SST | NYLON DISC PTFE | 1500 300 |
| | METAL | 416 SST | 416 SST | | 1500 |
| | | 316 SST | 316 SST | | 300 |
| | | 316 SST/HF SEAT | COCR-A | | 1500 |
| | | 316 SST/HF S/G | COCR-A | | 1500 |
| | | 316L SST | 316L SST | | 300 |
| | | 304 SST | 304 SST | | 300 |
| | | 304L SST | 304L SST | | 300 |
| | | ALY 20 | ALY 20 | | 300 |
| | | MONEL | MONEL | | 300 |
| | COMP | 416 SST | 416 SST | | 1500 |
| | | | 316 SST | | 1500 |
| | | 316 SST | 316 SST | | 1500 |
| | | MONEL | MONEL | | 1500 |

DESIGN ES

| | CHARACTERISTIC | M-FORM | OTHER | | | | | | | |
|------------|-----------------|--------------------|--------|------|-------|------|--------|------|-------|------|
| | SEAT | METAL | METAL | | | | COMP | | | |
| | PORT | ALL | 1 5/16 | | 1 7/8 | | 1 5/16 | | 1 7/8 | |
| | STEM RING | ALL | 3/8 | 1/2 | 3/8 | 1/2 | 3/8 | 1/2 | 3/8 | 1/2 |
| VALVE PLUG | 416 SST | 416 SST 316 SST | 1500 | 1500 | 1500 | 1034 | 1500 | 1500 | 1500 | 1034 |
| | 316 SST | 316 SST | 300 | 300 | 300 | 300 | 300 | 1500 | 1500 | 1034 |
| | MONEL | MONEL | 300 | 300 | 300 | 300 | 300 | 1500 | 1500 | 1034 |
| | 316 SST/HF SEAT | COCR-A | 1500 | 1500 | 1500 | 1034 | 1500 | | | |
| | 316 SST/HF S/G | COCR-A | 1500 | 1500 | 1500 | 1034 | 1500 | | | |

**ITEM C - CAGE (CONT)**

TRAVEL 3/4

| CHARACTERISTIC | CAGE | PORT | C |
|-----------------------|--------------|-----------------|------------|
| M-FORM/M-FLUTE/M-FLOW | 17-4PH H900 | ALL | 145 |
| | 316 SST | ALL | 146 |
| | 316 SST ENC | ALL | 164 |
| | 316L SST | ALL | 147 |
| | COCR-A | ALL | 156 |
| EQ PERCENT | 17-4PH H900 | 1 5/16 1 7/8 | 73 1 |
| | 17-4PH H1100 | 1 7/8 | 16 |
| | 304 SST | 1 7/8 | 4 |
| | 304L SST | 1 7/8 | 18 |
| | 316SST | 1 5/16 1 7/8 | 74 2 |
| | 316SST ENC | 1 5/16 1 7/8 | 92 20 |
| | 316L SST | 1 7/8 | 3 |
| | ALY 20 | 1 5/16 1 7/8 | 82 10 |
| | COCR-A | 1 5/16 1 7/8 | 84 12 |
| | MONEL | 1 7/8 | R |
| LINEAR | 17-4PH H900 | 1 5/16 1 7/8 | 95 23 |
| | 316SST ENC | 1 5/16 1 7/8 | 114 42 |
| | COCR-A | 1 5/16 1 7/8 | 106 34 |
| | MONEL | 1 7/8 | R |
| Q-OPEN | 17-4PH H900 | 1 5/16 1 7/8 | 117 45 |
| | 304L SST | 1 7/8 | 62 |
| | 316SST ENC | 1 5/16 1 7/8 | 136 64 |
| | COCR-A | 1 5/16 1 7/8 | 128 56 |
| | MONEL | 1 7/8 | R |
| WHISPER | 17-4PH H900 | 1 5/16 1 7/8 | 140 68 |
| | 316SST ENC | 1 5/16 1 7/8 | 188 187 |
| | COCR-A | 1 5/16 1 7/8 | 186 185 |
| | MONEL | 1 7/8 | 189 |

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

DESIGN EC, 1L3570/1L5001 VSC, 3/4 TRAVEL

| CHARACTERISTIC | SEAT | VALVE PLUG | SEAT RING | PORT | | D |
|----------------|-------|--|------------|------|----------|-----|
| M-FLUTE | METAL | 416 SST | 416 SST | 1/2 | 3 FLUTE | 168 |
| | | | | 3/4 | 3 FLUTE | 187 |
| | | | | 1 | 3 FLUTE | 206 |
| | | 316L SST/HF TIP/SEAT | 316 SST | 1/2 | 3 FLUTE | 812 |
| | | | | 1 | 3 FLUTE | 815 |
| | | 316SST/HF TIP/SEAT | 316 SST | 1/4 | 2 FLUTE | 808 |
| | | | | | 3 FLUTE | 809 |
| | | | | 3/8 | 3 FLUTE | 810 |
| | | | | 1/2 | 3 FLUTE | 811 |
| | | | | 3/4 | 3 FLUTE | 813 |
| | | | | 1 | 3 FLUTE | 814 |
| | | | 316 SST/HF | 1/4 | 1 FLUTE | 94 |
| | | | | | 2 FLUTE | 113 |
| | | | | | 3 FLUTE | 132 |
| | | | | 3/8 | 3 FLUTE | 151 |
| | | | | 3/4 | 3 FLUTE | 189 |
| | | | | 1 | 3 FLUTE | 208 |
| | COMP | 316SST/ALY 6B OR CR CT TIP PTFE DISC W/STEM FOR ACTR GP 1 PER AU2259 | 316 SST | 1/4 | 3 FLUTE | 816 |
| | | | | 3/8 | 3 FLUTE | 817 |
| | | | | 1/2 | 3 FLUTE | 818 |
| | | | | 3/4 | 3 FLUTE | 819 |
| | | | | 1 | 3 FLUTE | 820 |
| M-FLOW | METAL | 316L SST/HF TIP/SEAT | 316L SST | 3/16 | 0.181 CV | 806 |

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

DESIGN ED, METAL SEAT

| VALVE PLUG | | SEAT RING | PORT | VSC | D | | |
|-----------------|---------|-----------|-----------------|------------------|-----------------|----------------------------|-------------------|
| 416 SST | | 416 SST | 1 5/16 | 1L3750 1L5000 | 389 686 | | |
| | | | 1 7/8 | 1L3750 1L5000 | 361 375 | | |
| 316 SST | | 316 SST | 1 5/16 | 1L3750 1L5000 | 390 687 | | |
| | | | 1 7/8 | 1L3750 1L5000 | 362 376 | | |
| 316L SST | | 316L SST | 1 5/16 1 7/8 | 1L3750 1L3750 | 391 363 | | |
| 316 SST/HF SEAT | | COCR-A | 1 5/16 | 1L3750 | 737 | | |
| | | | 1 7/8 | 1L3750 1L5000 | 735 736 | | |
| 316SST/HF S/G | STD | COCR-A | 1 5/16 | 1L3750 1L5000 | 638 757 | | |
| | | | 1 7/8 | 1L3750 1L5000 | 636 637 | | |
| | HI-TEMP | COCR-A | 1 5/16 | 1L3750 1L5000 | 756 758 | | |
| | | | 1 7/8 | 1L3750 | 754 | | |
| | | | ALY 20 | ALY 20 | 1 5/16 1 7/8 | 1L3750 1L3750 | 397 369 |
| | | | MONEL | MONEL | 1 5/16 1 7/8 | 1L5000 1L3750 1L5000 | 698 373 387 |

DESIGN ES, 3/4 TRAVEL, M-FORM, 1L3750/1L5001 VSC, METAL SEAT

| VALVE PLUG | | SEAT RING | PORT | D |
|-----------------|---------|------------|------|-----|
| 416 SST | | 416 SST | 1/4 | 502 |
| | | | 3/8 | 517 |
| | | | 1/2 | 532 |
| | | | 3/4 | 547 |
| | | | 1 | 562 |
| 316SST | | 316 SST | 1/4 | 503 |
| | | | 3/8 | 518 |
| | | | 1/2 | 533 |
| | | | 3/4 | 548 |
| | | | 1 | 563 |
| 316 SST/HF SEAT | | 316 SST/HF | 1/4 | 504 |
| | | | 3/8 | 519 |
| | | | 1/2 | 534 |
| | | | 3/4 | 549 |
| | | | 1 | 564 |
| 316 SST/HF S/G | STD | 316 SST/HF | 1/4 | 609 |
| | | | 3/8 | 610 |
| | | | 1/2 | 612 |
| | | | 3/4 | 614 |
| | | | 1 | 616 |
| | HI-TEMP | 316 SST | 3/8 | 764 |
| | | | 1/2 | 765 |
| | | | 3/4 | 766 |
| | | | 1 | 767 |
| | | | 1/4 | 609 |

**ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN (CONT)**DESIGN ES, 3/4 TRAVEL
OTHER THAN M-FORM

| SEAT | VALVE PLUG | | SEAT RING | PORT | VSC | D | |
|-------|----------------|------------------|------------|----------------|------------------|------------------|------------|
| METAL | 416 SST | | 416 SST | 1 5/16 | 1L3750 1L5000 | 485 707 | |
| | | | | 1 7/8 | 1L3750 1L5000 | 451 468 | |
| | | | | 316 SST | | 316 SST | 1 5/16 |
| | 1 7/8 | 1L3750 1L5000 | 772 775 | | | | |
| | 316SST/HF SEAT | | COCR-A | 1 5/16 | 1L3750 1L5000 | | 487 709 |
| | | | | 1 7/8 | 1L3750 1L5000 | 773 776 | |
| | | | | 316 SST/HF S/G | STD | COCR-A | 1 5/16 |
| | 1 7/8 | 1L3750 1L5000 | 774 777 | | | | |
| | | HI-TEMP | COCR-A | | 1 5/16 | 1L3750 1L5000 | 761 762 |
| | | | | | 1 7/8 | 1L3750 1L5000 | 759 760 |
| COMP | 416 SST | | 316 SST | 1 5/16 | 1L3750 1L5000 | 630 734 | |
| | | | | 1 7/8 | 1L3750 1L5000 | 628 629 | |
| | | | | 316 SST | | 316 SST | 1 5/16 |
| | 1 7/8 | 1L3750 1L5000 | 578 587 | | | | |
| | 316 SST/HF S/G | | 316 SST | 1 5/16 | 1L3750 1L5000 | 804 805 | |
| | | | | 1 7/8 | 1L3750 1L5000 | 802 803 | |

**ITEM D - VALVE PLUG/SEAT RING/GROOVE PIN (CONT)**DESIGN ET, 3/4 TRAVEL
WITHOUT SPRING LOADED SEAL RING

| SEAT | VALVE PLUG | DISK SEAT/RETAINER OR SEAT RING | PORT | VSC | D |
|-------|----------------|---------------------------------|-----------------|------------------|------------|
| METAL | 416 SST | 416 SST | 1 5/16 | 1L3750 1L5000 | 389 686 |
| | | | 1 7/8 | 1L3750 1L5000 | 361 375 |
| | 304 SST | 304 SST | 1 7/8 | 1L3750 | 364 |
| | 304L SST | 304L SST | 1 7/8 | 1L3750 | 365 |
| | 316L SST | 316L SST | 1 7/8 | 1L3750 | 363 |
| | 316 SST | 316 SST | 1 5/16 | 1L3750 1L5000 | 390 687 |
| | | | 1 7/8 | 1L3750 1L5000 | 362 376 |
| | 316 SST/HF | COCR-A | 1 5/16 | 1L3750 | 737 |
| | | | 1 7/8 | 1L3750 1L5000 | 735 736 |
| | 316 SST/HF S/G | COCR-A | 1 5/16 | 1L3750 1L5000 | 638 757 |
| | | | 1 7/8 | 1L3750 1L5000 | 636 637 |
| | ALY 20 | ALY 20 | 1 5/16 1 7/8 | 1L3750 1L3750 | 397 369 |
| | MONEL | MONEL | 1 7/8 | 1L3750 1L5000 | 373 387 |
| | | | | | |
| COMP | 416 SST | 316 SST | 1 5/16 | 1L3750 1L5000 | 627 706 |
| | | | 1 7/8 | 1L3750 1L5000 | 625 626 |
| | 316 SST | 316 SST | 1 5/16 | 1L3750 | 444 |
| | | | 1 7/8 | 1L3750 1L5000 | 430 437 |
| | 316 SST/HF S/G | 316 SST | 1 5/16 | 1L3750 | 801 |
| | | | 1 7/8 | 1L3750 1L5000 | 799 800 |
| | | COCR-A/316 SST | 1 5/16 | 1L3750 | 641 |
| | | | 1 7/8 | 1L3750 1L5000 | 639 640 |

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

DESIGN ET, SPRING LOADED SEAL RING, 3/4 TRAVEL
WITHOUT ANTI-EXTRUSION RING

| SEAT | VALVE PLUG | SEAT RING | CAGE | PORT | VSC | D |
|-------------------------------------|----------------|-----------|-----------------------|--------|--------|-----|
| METAL | 416 SST | 416 SST | 17-4PH | 1 5/16 | 1L3750 | 745 |
| | | | | 1 7/8 | 1L3750 | 739 |
| | 316 SST | 316 SST | 316SST 316 SST ENC | 1 7/8 | 1L3750 | 778 |
| | | | | 1 7/8 | 1L3750 | 778 |
| | 316 SST/HF S/G | COCR-A | 17-4PH | 1 5/16 | 1L3750 | 746 |
| | | | | 1 7/8 | 1L5000 | 741 |
| | | | 316 SST ENC COCR-A | 1 5/16 | 1L3750 | 785 |
| | | | | 1 5/16 | 1L3750 | 785 |
| COMP | 416 SST | 316 SST | 17-4PH | 1 5/16 | 1L3750 | 747 |
| | | | | 1 7/8 | 1L3750 | 742 |
| | 316 SST | 316 SST | 316 SST | 1 5/16 | 1L3750 | 789 |
| | | | | 1 7/8 | 1L3750 | 786 |
| | | | 316 SST ENC | 1 7/8 | 1L5000 | 787 |
| | | | | 1 5/16 | 1L3750 | 789 |
| | | | | 1 7/8 | 1L3750 | 786 |
| | | | | 1 7/8 | 1L5000 | 787 |
| RADIUS SEAT PLUG/ CL V SEAT LEAK | 416 SST | 416 SST | 17-4PH | 1 5/16 | 1L3750 | 848 |
| | | | | 1 7/8 | 1L3750 | 861 |
| | | | | 1 7/8 | 1L5000 | 862 |
| | 316 SST/HF S/G | COCR-A | 17-4PH | 1 5/16 | 1L3750 | 845 |
| | | | | 1 7/8 | 1L3750 | 855 |
| | | | 316SST ENC | 1 7/8 | 1L5000 | 857 |
| | | | | 1 5/16 | 1L3750 | 846 |
| | | | | 1 7/8 | 1L3750 | 856 |
| | | | | 1 7/8 | 1L5000 | 858 |

WITH ANTI-EXTRUSION RING, METAL SEAT

| VALVE PLUG | | SEAT RING | CAGE | PORT | VSC | D |
|---------------|---------|-----------|-------------|--------|--------|-----|
| 416 SST | | 416 SST | 17-4PH | 1 5/16 | 1L3750 | 847 |
| | | | | 1 7/8 | 1L3750 | 859 |
| | | | | | 1L5000 | 860 |
| 316SST/HF S/G | STD | COCR-A | 17-4PH | 1 5/16 | 1L3750 | 843 |
| | | | | 1 7/8 | 1L3750 | 851 |
| | | | | 1L5000 | 852 | |
| | | | 316 SST ENC | 1 5/16 | 1L3750 | 844 |
| | | | | 1 7/8 | 1L3750 | 853 |
| | | | | | 1L5000 | 854 |
| | HI-TEMP | COCR-A | 17-4PH | 1 5/16 | 1L3750 | 842 |
| | | | | 1 7/8 | 1L3750 | 849 |
| | | | | | 1L5000 | 850 |

**ITEM E - DISC**

| SEAT | CAPACITY | CHARACTERISTIC | DISC | TEMP °F | E |
|-------------|------------|----------------|-------|----------|---|
| COMPOSITION | FULL | M-FLUTE | PTFE | -100+300 | 1 |
| | | | NYLON | -50+200 | 3 |
| | | OTHER | PTFE | -100+400 | 1 |
| | | | NYLON | -50+200 | 3 |
| | RESTRICTED | OTHER | PTFE | -100+400 | 6 |
| METAL | ALL | ALL | N/A | N/A | N |

ITEM F - PISTON RING OR SEAL RING

DESIGN ED

| | | |
|-------------------------------------|--------------------|-----------|
| STEAM OR NON-OXIDIZING FLUIDS | PISTON RING MATL | TEMP ° F |
| | CARBON FILLED TFE | -100+450 |
| | GRAPHITE FMS 17F19 | -425+600 |
| | GRAPHITE FMS 17F27 | -425+900 |
| | GRAPHITE FMS 17F39 | -425+1100 |
| AIR OR OXIDIZING | GRAPHITE FMS 17F27 | -425+800 |
| | GRAPHITE FMS 17F39 | -425+1000 |

DESIGN ET

| SEAL RING | BACK-UP RING | TEMP ° F |
|-------------|------------------------|----------|
| PTFE | FKM FMS 17G34 | 0+400 |
| CARBON/PTFE | FKM FMS 17G34 | 0+400 |
| | NITRILE FMS 17G14 | -20+200 |
| | ETHYL PROPYL FMS 17G39 | -40+450 |

SPRING LOADED SEAL RING

| ANTI-EXTRUSION RING | SEAL RING | SERVICE | TEMP ° F |
|---------------------|------------------------|---------------|----------|
| W/O | N10276/PTFE GLASS/MOS2 | ALL | -100+450 |
| PEEK | R30003/PTFEPPVE | OXIDIZING | -100+500 |
| | | NON-OXIDIZING | -100+600 |

**ITEM F - PISTON RING OR SEAL RING**

DESIGN ED

| | PISTON RING | TEMP GUIDE ° F | CAPACITY | |
|-------------------------------------|--------------------|----------------|----------|------------|
| | | | FULL | RESTRICTED |
| | | | F | F |
| | 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 | 19 | 20 |
| AIR OR OXIDIZING | GRAPHITE FMS 17F27 | +450 TO 800 | 9 | 10 |
| | GRAPHITE FMS 17F39 | +801 TO 1000 | 19 | 20 |
| NACE | CARBON FILLED TFE | -100 TO 450 | 1 | 3 |
| | GRAPHITE FMS 17F19 | +450 TO 600 | 2 | 4 |
| | GRAPHITE FMS 17F27 | +450 TO 800 | 9 | 10 |
| | GRAPHITE FMS 17F39 | +901 TO 1100 | 19 | 20 |

DESIGN ET

| SEAL RING | BACK UP RING | TEMP °F | SERVICE | FULL | RESTD |
|--------------------------|----------------------|---------|--|------|-------|
| | | | | F | F |
| 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 |
| | NBR, FMS 41G14 | -40+160 | HYDROCARBONS,AIR | 5 | P |
| | | -40+180 | FIRE-RESISTANT HYDRAULIC OILS | M | M |
| | | | OTHER COMPATABLE FLUIDS | 5 | P |
| | ETHYL PROP FMS 17G39 | -40+450 | NOT HYDROCARBON(OIL) | 23 | 24 |

SPRING LOADED SEAL RING CONSTRUCTION

| ANTI-EXTRUSION RING | W/O | PEEK | |
|---------------------|-------------|-----------------|--------------------|
| SEAL RING | N10276/PTFE | R30003/PTFEPPVE | |
| | GLASS/MOS2 | OXIDIZING SERV | NON-OXIDIZING SERV |
| ° F | -100+450 | -100+500 | -100+600 |
| | F | F | F |
| FULL CAPACITY | 16 | 25 | 25 |
| RESTRICTED | 18 | 26 | 26 |

ITEM G - BOLTING

| BOLTING | NUT | TEMP ° F | BODY | TEMP ° F | CWP (PSI) | HYDRO (PSI/MIN) |
|----------|------|-----------|--------|----------|-----------|-----------------|
| SAE GR 5 | | -20+650 | | | | |
| B7 | 2H | -50+800 | | | | |
| B16 | GR 7 | -20+1100 | | | | |
| B8M CL1 | 8M | -325+1000 | | | 1325 | 2000/1 |
| B8 | GR 8 | -425+100 | | | 1325 | 2000/1 |
| B7 | GR 7 | -50+1000 | | | | |
| B7M | 2HM | -50+800 | | | 1480 | 2225/1 |
| B8M CL2 | 8M | -325+800 | HAST C | -325+250 | | |

**ITEM G - BONNET BOLTING (CONT)**

FULL CAPACITY, M-FLUTE, M-FLOW & M-FORM
M-FLAT CAVITATION TRIM

| BODY | ° F | BOLT | NUT | PLAIN | EXT | ENVIRO-SEAL BELLOWS SEAL |
|----------------|-----------|----------|----------|-------|-----|-----------------------------|
| | | | | G | G | G |
| CAST IRON | -100+250 | B8M CL2 | — | — | — | M |
| | -20+450 | SAE GR 5 | — | 1 | M | M |
| | -50+450 | B7 | 2H | — | 2 | M |
| WCC | -20+800 | B7 | 2H | 2 | 2 | 53 |
| | | B7M | 2HM | 29 | 29 | |
| LCC | -50+650 | B7 | 2H | 2 | 2 | 53 |
| | | B7M | 2HM | 29 | 29 | |
| WC1 | -20+800 | B7 | 2H | 2 | 2 | 53 |
| | 801+850 | B7 | GR 7 LUB | 31 | 31 | 55 |
| WC6 | -20+800 | B7 | 2H | 2 | 2 | 53 |
| | 801+1000 | B7 | GR 7 LUB | 31 | 31 | 55 |
| WC9 | -20+800 | B7 | 2H | 2 | 2 | 53 |
| | 801+1000 | B7 | GR 7 LUB | 31 | 31 | 55 |
| | 1001+1050 | B16 | GR 7 LUB | 33 | 33 | 57 |
| C5 | -20+800 | B7 | 2H | 2 | 2 | 53 |
| | 801+1000 | B7 | GR 7 LUB | 31 | 31 | 55 |
| | 1001+1100 | B16 | GR 7 LUB | 33 | 33 | 57 |
| HAST C | -50+450 | B7 | 2H | 2 | 2 | 53 |
| | 450+800 | B8M CL2 | 8M LUB | 34 | 34 | 58 |
| CF8M & CF3M | -425+-325 | B8 | GR 8 | 16 | 16 | — |
| | -325+450 | B8M CL2 | 8M | 4 | 4 | 54 |
| | 450+800 | B8M CL2 | 8M LUB | 34 | 34 | 58 |
| | -50+800 | B7 | 2H | 2 | 2 | 53 |
| | 801+1000 | B8M CL1 | 8M LUB | 35 | 35 | 59 |
| | -50+800 | B7M | 2HM | 29 | 29 | |
| 347 | -425+-325 | B8 | GR 8 | 16 | 16 | — |
| | -325+450 | B8M CL2 | 8M | 4 | 4 | 54 |
| | 450+800 | B8M CL2 | 8M LUB | 34 | 34 | 58 |
| | -50+800 | B7 | 2H | 2 | 2 | 53 |
| | 801+1000 | B8M CL1 | 8M LUB | 35 | 35 | 59 |
| ALY 20 | -325+400 | B8M CL2 | 8M | 4 | 4 | 54 |
| | -50+800 | B7 STD | 2H | 2 | 2 | 53 |

**ITEM G - BONNET BOLTING (CONT)**

RESTRICTED

| BODY | ° F | BOLT | NUT | PLAIN | EXT | ENVIRO-SEAL BELLOWS SEAL |
|----------------|-----------|----------|----------|-------|-----|-----------------------------|
| | | | | G | G | G |
| CAST IRON | -100+250 | B8M CL2 | — | — | — | M |
| | -20+450 | SAE GR 5 | — | 8 | M | M |
| | -50+450 | B7 | 2H | — | 9 | M |
| WCC | -20+800 | B7M | 2HM | 30 | 30 | |
| WCC | -20+800 | B7 | 2H | 9 | 9 | 60 |
| LCC | -50+450 | B7 | 2H | 9 | 9 | 60 |
| | 450+650 | B7 | 2H LUB | 43 | 43 | 60 |
| | -50+650 | B7M | 2HM | 30 | 30 | |
| WC1 | -20+800 | B7 | 2H | 9 | 9 | 60 |
| | 801+850 | B7 | GR 7 LUB | 42 | 42 | 62 |
| WC6 | -20+800 | B7 | 2H | 9 | 9 | 60 |
| | 801+1000 | B7 | GR 7 LUB | 42 | 42 | 62 |
| WC9 | -20+800 | B7 | 2H | 9 | 9 | 60 |
| | 801+1000 | B7 | GR 7 LUB | 42 | 42 | 62 |
| | 1001+1050 | B16 | GR 7 LUB | 44 | 44 | 64 |
| C5 | -20+800 | B7 | 2H | 9 | 9 | 60 |
| | 801+1000 | B7 | GR 7 LUB | 42 | 42 | 62 |
| | 1001+1100 | B16 | GR 7 LUB | 44 | 44 | 64 |
| HAST C | -50+450 | B7 | 2H | 9 | 9 | 60 |
| | 450+800 | B8M CL2 | 8M LUB | 45 | 45 | 65 |
| CF8M & CF3M | -325+450 | B8M CL2 | 8M | 11 | 11 | 61 |
| | 450+800 | B8M CL2 | 8M LUB | 45 | 45 | 65 |
| | -50+800 | B7 STD | 2H | 9 | 9 | 60 |
| | 801+1000 | B8M CL1 | 8M LUB | 46 | 46 | 66 |
| | -50+450 | B7M | 2HM | 30 | 30 | |
| 347 | -325+450 | B8M CL2 | 8M | 11 | 11 | 61 |
| | 450+800 | B8M CL2 | 8M LUB | 45 | 45 | 65 |
| | -50+800 | B7 STD | 2H | 9 | 9 | 60 |
| | 801+1000 | B8M CL1 | 8M LUB | 46 | 46 | 66 |
| ALY 20 | -325+400 | B8M CL2 | 8M | 45 | 45 | 65 |
| | -50+450 | B7 STD | 2H | 9 | 9 | 60 |
| | 450+800 | B7 | 2H LUB | 43 | 43 | 60 |

**ITEM H - GASKET**

METAL & COMPOSITION SEAT

| SPIRAL WOUND | FLAT SHEET | TEMP ° F |
|-----------------|------------|-----------|
| MONEL & COMP | GRAPH/SST | -100+450 |
| INCONEL & GRAPH | GRAPH/SST | -325+1100 |
| MONEL & PTFE | MONEL/PTFE | -100+300 |

FULL CAPACITY - 1 7/8 PORT - MICRO-FLUTE, FORM & FLOW
M-FLAT CAVITATION TRIM

| SPIRAL WOUND GASKET | FLAT SHEET GASKETS | TEMP ° F | H |
|---------------------|--------------------|--------------|----|
| MONEL & GRAPHITE | GRAPH/SST | -100 TO 900 | 59 |
| MONEL & PTFE | MONEL/PTFE | -100 TO 300 | 53 |
| INCONEL & GRAPHITE | GRAPH/SST | -325 TO 1100 | 57 |

RESTRICTED - 1 1/2 X 1 - 1 5/16 PORT

| SPIRAL WOUND GASKET | FLAT SHEET GASKETS | TEMP ° F | H |
|---------------------|--------------------|--------------|----|
| INCONEL & GRAPHITE | GRAPH/SST | -325 TO 1100 | 58 |
| MONEL & PTFE | MONEL/PTFE | -100 TO 300 | 54 |

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

PDTC

| ACTR | BONNET | VSC | CHARACTERISTIC | STEM | J | 9F |
|--------------------|--------|--------|---|---------|-----|----|
| GROUP 1/ AU2259 | PLAIN | 1L3750 | FULL, M-FLUTE METAL SEAT, M-FORM, M-FLOW | 316 | 1 | N |
| | | | | NIT 50 | 333 | N |
| | | | | 316L | 2 | N |
| | | | | 304 | 4 | N |
| | | | | 304L | 5 | N |
| | | | | HAST B | 10 | N |
| | | | | HAST C | 11 | N |
| | | | | ALY 20 | 12 | N |
| | | | | K-MONEL | 13 | N |
| | | | RESTRICTED | 316 | 65 | N |
| | | | | NIT 50 | 334 | N |
| | | | | HAST C | 75 | N |
| | | | M-FLUTE COMP SEAT | ALL | N | 1 |

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

PDTC

| ACTR | BONNET | VSC | CHARACTERISTIC | STEM | J | 9F |
|--------------------|-----------------------------|--------|---|---------|-----|----|
| GROUP 1/ AU2259 | PLAIN | 1L5000 | FULL | 316 | 113 | N |
| | | | | NIT 50 | 328 | N |
| | | | | K-MONEL | 125 | N |
| | | | RESTRICTED | 316 | 274 | N |
| | | | | NIT 50 | 331 | N |
| | | 1L5001 | M-FLUTE METAL SEAT, M-FORM, M-FLOW | 316 | 177 | N |
| | | | M-FLUTE COMP SEAT | ALL | N | 1 |
| | EXT STYLE 1 | 1L3750 | FULL, M-FLUTE METAL SEAT, M-FORM, M-FLOW | 316 | 17 | N |
| | | | | HAST C | 26 | N |
| | | | RESTRICTED | 316 | 81 | N |
| | | | | NIT 50 | 335 | N |
| | | | M-FLUTE COMP SEAT | ALL | N | 1 |
| | | 1L5000 | FULL | 316 | 129 | N |
| | | | | NIT 50 | 329 | N |
| | | | RESTRICTED | 316 | 288 | N |
| | | | | NIT 50 | 332 | N |
| | | | | HAST B | 296 | N |
| | | 1L5001 | M-FLUTE METAL SEAT, M-FORM, M-FLOW | 316 | 193 | N |
| | | | | HAST B | 26 | N |
| | | | M-FLUTE COMP SEAT | ALL | N | 1 |
| | EXT STYLE 2 | 1L3750 | FULL, M-FLUTE METAL SEAT, M-FORM, M-FLOW | 316 | 33 | N |
| | | | | | | |
| | | | | | | |
| | | 1L5000 | FULL | 316 | 145 | N |
| | | | | | | |
| | | | | | | |
| | EXT STYLE 4 | 1L5000 | FULL | 316 | 320 | N |
| | STYLE NS | 1L5000 | FULL | 316 | 321 | N |
| | | | RESTRICTED | 316 | 323 | N |
| | | 1L5001 | M-FLUTE METAL SEAT, M-FORM, M-FLOW | 316 | 322 | N |
| | | | M-FLUTE COMP SEAT | ALL | N | 1 |
| | ENVIRO-SEAL BELLOWS SEAL | ALL | ALL | 316L | N | 1 |
| | | | | HAST C | N | 2 |

ITEM K - FLOW ARROW AND DRIVE SCREW**K**

1

ITEM L - NAMEPLATE

| | L |
|--------------|---|
| STD | 1 |
| PICK HEATERS | 2 |

**ITEM 9A - TYPE, VVE 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 | CI | CLASS 125 | 300 PSI /1 MIN | 1 |
| | | CLASS 250 | 750 PSI /1 MIN | 2 |
| | WCC, LCC, C5, WC9, CF8M, 347, CF3M | CLASS 150 | 450 PSI /1 MIN | 3 |
| | | CLASS 300 | 1125 PSI /1 MIN | 4 |
| | | CLASS 600 | 2250 PSI /1 MIN | 5 |
| | | CLASS 150 | 350 PSI /1 MIN | 6 |
| | ALLOY 20 | CLASS 300 | 900 PSI /1 MIN | 7 |
| | | CLASS 600 | 1800 PSI /1 MIN | 8 |
| | | CLASS 150 | 450 PSI /1 MIN | 9 |
| | HAST C | CLASS 300 | 1125 PSI /1 MIN | 10 |
| | | CLASS 600 | 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 |
| | | PN63/100 | 2175 PSI (150 BAR)/1 MIN | 18 |

ITEM 9E - SEAT LEAK TEST PER FGS 4L5

DESIGN EC - EXCEPT MICRO-FLUTE OR MICRO FLOW

DESIGN ES - EXCEPT MICRO-FORM

| CHARACTERISTIC | PORT SIZE | METAL SEAT (SCFH) CLASS 4 | | COMP SEAT CLASS 6 (BUBBLES/MIN) | |
|----------------|-----------|---------------------------|----|------------------------------------|----|
| | | COL 10 | 9E | COL 10 | 9E |
| EQUAL PERCENT | 1 5/16 | 4.76 | 1 | 2 | 10 |
| | 1 7/8 | 7.70 | 2 | 3 | 11 |
| LINEAR | 1 5/16 | 6.22 | 3 | 2 | 10 |
| | 1 7/8 | 7.89 | 4 | 3 | 11 |
| QUICK OPENING | 1 5/16 | 6.66 | 5 | 2 | 10 |
| | 1 7/8 | 8.73 | 6 | 3 | 11 |
| WHISPER | 1 5/16 | 6.39 | 7 | 2 | 10 |
| | 1 7/8 | 7.70 | 2 | 3 | 11 |



ITEM 9E - SEAT LEAK TEST FGS 4L5 (CONT)

| DESIGN | SEAT | LEAK CLASS | CHARACTERISTIC | | FLOW | PORT | VALUE | 9E |
|-------------|------------------|------------------|----------------|---------|------|--------|-------|----|
| EC | METAL | IV (SCFH) | MICRO-FLUTE | 1 FLUTE | UP | 1/4 | .06 | 12 |
| | | | | 2 FLUTE | UP | 1/4 | .118 | 13 |
| | | | | 3 FLUTE | UP | 1/4 | .181 | 14 |
| | | | | | | 3/8 | .377 | 15 |
| | | | | | | 1/2 | .672 | 16 |
| | | | | | | 3/4 | 1.42 | 17 |
| | | | 1 | 2.62 | 18 | | | |
| | | | MICRO-FLOW | CV-.075 | UP | 3/16 | .018 | 19 |
| | CV-.181 | UP | 3/16 | .038 | 20 | | | |
| COMPOSITION | VI (BUBBLES/MIN) | M-FLUTE & M-FLOW | | UP | 3/16 | 1 | 21 | |
| ES | METAL | IV(SCFH) | M-FORM | | UP | 1/4 | .313 | 22 |
| | | | | | | 3/8 | .705 | 23 |
| | | | | | | 1/2 | 1.18 | 24 |
| | | | | | | 3/4 | 2.47 | 25 |
| | | | | | | 1 | 4.03 | 26 |
| ED | METAL | II (SCFH) | EQUAL PERCENT | | DOWN | 1 5/16 | 250 | 27 |
| | | | | | | 1 7/8 | 381 | 28 |
| | | | LINEAR | | DOWN | 1 5/16 | 323 | 29 |
| | | | | | | 1 7/8 | 410 | 30 |
| | | | QUICK OPENING | | DOWN | 1 5/16 | 336 | 31 |
| | | | | | | 1 7/8 | 439 | 32 |
| | | | WHISPER | | UP | 1 5/16 | 301 | 35 |
| | | | | | | 1 7/8 | 326 | 36 |

DESIGN ET

| SEAT | SEAL RING | FLOW | CHARACTERISTIC | CLASS | PORT | VALUE | 9E |
|-------|--|------|----------------|-----------------------------|--------|-------|----|
| METAL | STD & SPRING LOADED W/O ANTI-EXTRUSION RING | DOWN | EQ PERCENT | IV (SCFH) | 1 5/16 | 5.00 | 37 |
| | | | | | 1 7/8 | 7.63 | 38 |
| | | | LINEAR | IV (SCFH) | 1 5/16 | 6.47 | 39 |
| | | | | | 1 7/8 | 8.21 | 40 |
| | | | Q-OPEN | IV (SCFH) | 1 5/16 | 6.73 | 41 |
| | | | | | 1 7/8 | 8.79 | 42 |
| | | UP | WHISPER | IV (SCFH) | 1 5/16 | 6.03 | 45 |
| | | | | | 1 7/8 | 6.53 | 46 |
| | SPRING LOADED WITH ANTI-EXTRUSION | ALL | ALL | V WATER TEST (ML/MIN) | ALL | CALC | 48 |
| | | | | V AIR TEST (BUBBLES/MIN) | 1 5/16 | 41 | 50 |
| | | | | V AIR TEST (ML/MIN) | 1 7/8 | 8.84 | 51 |
| COMP | ALL | ALL | ALL | V AIR TEST (BUBBLES/MIN) | 1 5/16 | 41 | 50 |
| | | | | V AIR TEST (ML/MIN) | 1 7/8 | 8.84 | 51 |



ET, SPRING LOADED SEAL RING W/ANTI-EXTRUSION RING ASSY DWG 21B2120
EC, MICRO FLUTE & FLOW ASSY CU8376
EC, COMPOSITION 1/4-3/8 ORIFICE ASSY 30A9546
EC, COMPOSITION 1/2 THRU 1 ORIFICE ASSY 30A9545
ES, FULL CAPACITY ASSEMBLY 30A9543
ES, RESTRICTED 1 1/2X1 ASSEMBLY 30A9105
ES, MICRO-FORM ASSEMBLY CU3906
ED, FULL CAPACITY ASSEMBLY 30A9542
ED, RESTRICTED ASSEMBLY 30A9113
ET, FULL CAPACITY ASSEMBLY 44A7928
ET, RESTRICTED ASSEMBLY 44A7933

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: ECX2- A G 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 16,

Add note "M-FLAT CAVITATION TRIM" below the note "FULL CAPACITY ... M-FORM" in Item G table

Update body "CF8M" to "CF8M & CF3M" in Item G table

Page 17, update body "CF8M" to "CF8M & CF3M" in Item G table

Page 18, add note "M-FLAT CAVITATION TRIM" below the note "FULL CAPACITY - ... FLOW" in Item H table

Page 20,

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 | 290-300 | New-created CF3M body options |