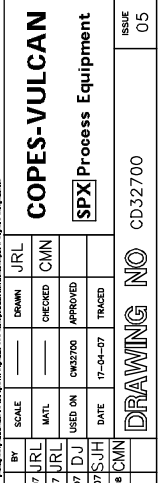
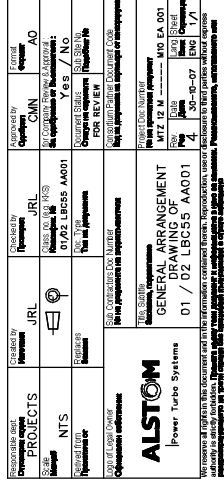
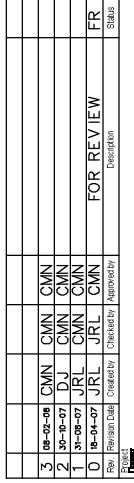
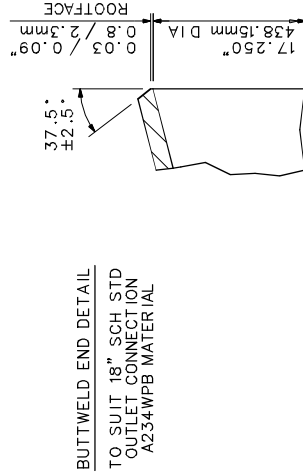
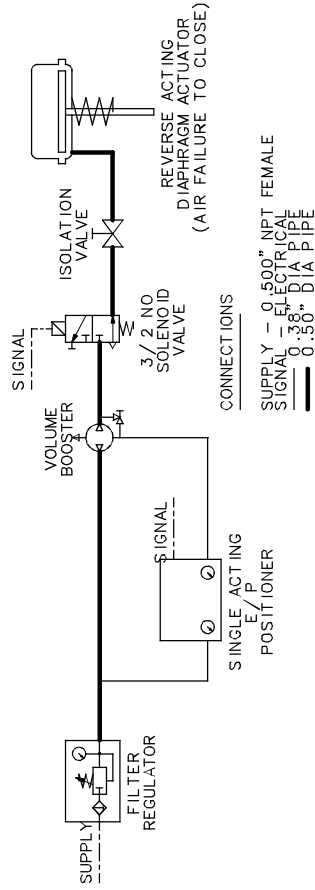
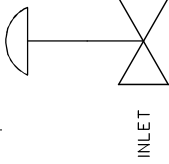


|  |              |             |             |                    |  |                          |   |                             |                |                         |
|--|--------------|-------------|-------------|--------------------|--|--------------------------|---|-----------------------------|----------------|-------------------------|
| COPES-VULCAN, SPX Process Equipment<br>Road Two, Industrial Estate, Winsford, Cheshire. United Kingdom<br>Phone: +44 (0)1606 552041 Fax: +44 (0)1606 558275  |              |             |             |                    |  |                          | CONTROL VALVE<br>SPECIFICATION SHEET  |                             |                |                         |
| Customer Name: ALSTOM POWER CENTRALES - BELFORT<br>Customer Inquiry: EMAIL<br>Customer PO: 745117 P12 73077<br>Ultimate User: MARITZA EAST 1 BULGARIA<br>Tag: 01/02 LBC55 AA001<br>Application: FEEDWATER SUSTAINING BY CRS  |              |             |             |                    |  |                          | CV Inquiry: DMS/060909/PM1<br>CV Job: WH/00071<br>CV Job Ref: CW32700<br>CV Serial#: 07CW32700/01-02<br>Item: 01<br>Quantity: 2 |                             |                |                         |
| Description : 10 Inch, Class 600 STD, BW, A217 WC9, SD, CV700 160-5R+TMHW  |              |             |             |                    |  |                          |   |                             |                |                         |
| FLUID: Steam   |              |             |             | SERVICE CONDITIONS |  |                          |   |                             |                |                         |
|  | FLOW<br>t/hr | P1<br>bar.a | P2<br>bar.a | Temp<br>deg C      | Cv<br>Cv   | Cv<br>(%)                | Travel<br>(%)   | Valve Outlet Vel.<br>ft/min | Noise<br>(dBA) | Exit Vel. Head<br>bar.a |
| COND 1   | 43.2         | 13.3        | 3.779       | 333.3              | 323.2  | 83%                      | 85%   | 29212                       | 77             | 1.49                    |
| COND 2   | 32.8         | 13.3        | 3.341       | 333.3              | 243.4  | 63%                      | 65%   | 24298                       | 78             | 1.66                    |
| COND 3   |              |             |             |                    |  |                          |   |                             |                |                         |
| COND 4   |              |             |             |                    |  |                          |   |                             |                |                         |
| COND 5   |              |             |             |                    |  |                          |   |                             |                |                         |
| SHUTOFF  |              | 54          | 1.01        | 370.0              | Allowable Leakage:   |                          |   | Predicted noise level with  |                | Insulation<br>3.0 Inch  |
| DESIGN   |              | 54          |             | 370.0              | ANSI FCI 70-2 Class IV   |                          |   | Insulation (IEC 60534-8-3)  |                |                         |
| BODY AND BONNET  |              |             |             |                    |  |                          |   |                             |                |                         |
| Style: SD-Severe Duty, Globe<br>Size: 10 Inch<br>ASME Class: 600 Standard<br>Body Inlet: Butt Weld, Sch 80 Per ANSI B16.25, Fig. 2b<br>Body Outlet: Butt Weld, Sch STD Per ANSI B16.25, Fig. 2b<br>Material: ASTM A217 WC9<br>Inlet Pipe: 10" x 8mm WT<br>Outlet Pipe: 18" Sch STD |              |             |             |                    | Bonnet Type: Bolted w/Extension<br>Packing Material: Grafoil<br>Packing Hardware: Stainless Steel<br>Options: Single Packed<br>Service: Continuous Modulation<br><br>Outlet Expander : 10" x 18" Sch STD, Length: 15.00 In., Material: A-234 WPB |                          |   |                             |                |                         |
| TRIM   |              |             |             |                    |  |                          |   |                             |                |                         |
| Size: 10 Inch with 4 Turns<br>Style: RAVEN (Balanced with Piston rings)<br>Flow Direction: UNDER THE WEB<br>Stem Diameter: 1.00 Inch<br>LINEAR   |              |             |             |                    | Seat Type: Metal<br>Trim Material: 400/70 SST & 300 SST Disc Stack<br>Max. Cv Available: 388.2 @Max Travel of 3" (+/-1/8)<br>Min. Controllable Cv of Trim: 11.08   |                          |   |                             |                |                         |
| ACTUATOR   |              |             |             |                    |  |                          |   |                             |                |                         |
| Actuator Model: CV700 160-5R+TMHW<br><br>Action: Reverse (Air Fail Closed)<br>Handwheel: Top Mounted<br>Frame Material: Ductile Iron<br>Air Pressure Available: 4.0 bar.g<br>Air Pressure Required: 3.2 bar.g  |              |             |             |                    | Actuator Mounting Style: 4 x Studded<br>Actuator Spring: 357580<br>Spring Rate: 768 lbf/in<br>Max Stem Thrust Required to Close: 1605 lbf<br>Max Stem Thrust Required to Open: 806 lbf<br>Bench Set: 20-35 psi.g                                 |                          |   |                             |                |                         |
| ACCESSORIES  |              |             |             |                    |  |                          |   |                             |                |                         |
| Positioner: Copes SIPART PS2, Single Acting<br>Positioner Input Range: 4-20 mA<br>Position FeedBack Module (4-20mA): YES<br>Alarm Module: NO<br>HART Module: NO<br><br>Piping: 1/2" Stainless Steel Tubing (Hoke)<br>Limit Switches: None  |              |             |             |                    | Airlock: None<br>Filter/Regulator: Norgren B64G-4GK-AD3-RMN Qty: 1<br>Solenoid Valve: ASCO (110 VDC) Qty: 1<br>De-energize to vent actuator<br>Booster Relay: RK3000 Qty: 1<br>Additional Acc'y: Pneumatic Isolation Valve Qty: 1                |                          |   |                             |                |                         |
| COMMENTS   |              |             |             |                    |  |                          |   |                             |                |                         |
| Downstream multi-orifice diffuser cartridge fitted - See Separate Data Sheet<br>Outlet pressure shown on this datasheet are those prior to the diffuser plate<br><br>Stroking speed Opening or Closing shall be less than 10 seconds   |              |             |             |                    |  |                          |   |                             |                |                         |
|  |              |             |             |                    |  |                          |   |                             |                |                         |
|  |              |             |             | 04                 | CMN  | Per customer comments    |   |                             |                | Aug-31-2007             |
|  |              |             |             | 03                 | IJW  | Revised For Contract Use |   |                             |                | Jan-23-2007             |
|  |              |             |             | 02                 | MW   | Revised per L2 meeting   |   |                             |                | Nov-20-2006             |
|  |              |             |             | 01                 | MW   | Stroking speed added     |   |                             |                | Oct-25-2006             |
|  |              |             |             | 00                 | MW   | Original Data Sheet      |   |                             |                | Sep-15-2006             |
|  |              |             |             | Rev                | Initials   | Description              |   |                             |                | Date                    |
| Program Rev Level: UK-1-2 (WS Version)   |              |             |             |                    |  |                          |   |                             |                |                         |



## RECOMMENDED SPARES LIST

|                |                                  |                    |               |                 |                 |
|----------------|----------------------------------|--------------------|---------------|-----------------|-----------------|
| CUSTOMER NAME  | ALSTOM POWER CENTRALES - BELFORT | VENDOR CONTRACT N° | WH00071       | DATE            | 21-May-07       |
| PROJECT NAME   | MARITZA EAST 1 BULGARIA          | DOCUMENT N°        | CW32700/01-02 | AFTERMARKET REF | DGE070206/RS L8 |
| CUSTOMER PO N° | 745117 P12 73077                 | REV STATUS         | 0             | CONTACT         | D.G. EDWARDS    |

|               |       |             |                         |
|---------------|-------|-------------|-------------------------|
| Qty Of Valves | 2 OFF | Description | SD - Globe 10" ANSI 600 |
|---------------|-------|-------------|-------------------------|

| Tag N° | Serial N° | Qty Installed Per Valve | CD Drawing N° | Drawing Item | Description | Part N° | Notes | Recommended 2 Yrs Operation |
|--------|-----------|-------------------------|---------------|--------------|-------------|---------|-------|-----------------------------|
|--------|-----------|-------------------------|---------------|--------------|-------------|---------|-------|-----------------------------|

|                  |                 |   |            |                   |   |              |   |   |
|------------------|-----------------|---|------------|-------------------|---|--------------|---|---|
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 3,4,5,18,20,21,40 | Assy Trim, Raven 10" 4T 48P Consisting Of #     | C99108EAQA   |   | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 3+                | Plug #  | C33791-XMC   |   | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 4+                | Trim Stack #                                    | C33789-AQA   |   | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 5+                | Seat #  | C33790-XMA   |   | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 18+               | Spirol Pin #                                    | U20-120      |   | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 2 | CD32700    | 20++              | Trim Gasket #                                   | S267466Q     | 1 | 8 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 21+               | Trim Spacer #                                   | C33792-XMA   | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 2 | CD32700    | 40++              | Piston Ring #                                   | S339357      | 1 | 4 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 6+                | Stem  | STM320332504 | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 9++               | Bonnet Gasket                                   | S286657      | 1 | 4 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 10+               | Gland Washer                                    | S373408      | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | CD32700    | 16++              | Gland Packing                                   | S368493      | 1 | 4 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | See Manual | 14,30,32,33,35,36 | Actuator Spares Kit 160R-L 1" Consisting of ### | C80141-AQA   | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | See Manual | 14+               | Diaphragm ###                                   | S195964BPP   | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | See Manual | 32++              | Gasket ###                                      | S356989      | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | See Manual | 33+               | U Cup Seal ###                                  | S357800      | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | See Manual | 35+               | O Ring (Inner) ###                              | S357801      | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | See Manual | 36+               | O Ring (Outer) ###                              | S357802      | 1 | 1 |
| 01/02 LBC55AA001 | CW32700/01 & 02 | 1 | See Manual | 30+               | Bushing   | S356093      | 1 | 1 |

### NOTES

1

### COMMENTS

Please note that items marked with a [ 1 ], must be changed during an inspection or maintenance overhaul it should be ensured that these items are available before commencing the inspection.

Do Not Re-Use