



# CONTROL VALVE SIZING & SELECTION

|                  |               |                |     |
|------------------|---------------|----------------|-----|
| <b>Customer</b>  | DELTA         | <b>Project</b> | BOC |
| <b>Doc. N.</b>   | F240109-CS-01 | <b>Rev.</b>    | 0   |
| <b>Valve tag</b> | LCV-0001A-B   |                |     |

|                   |           |
|-------------------|-----------|
| <b>Fluid type</b> | Propylene |
| <b>State</b>      | Liquid    |

## Pipe data

|                            |        |                             |        |
|----------------------------|--------|-----------------------------|--------|
| <b>Inlet Pipe diameter</b> | 1".1/2 | <b>Outlet Pipe diameter</b> | 4"     |
| <b>Inlet pipe sch</b>      | Sch.80 | <b>Outlet pipe sch</b>      | Sch.40 |

## Process data

|                              |                      |                      | MAX     | NORM    |
|------------------------------|----------------------|----------------------|---------|---------|
| <b>Valve inlet pressure</b>  | <b>p1</b>            | [bar g]              | 19,00   | 18,68   |
| <b>Valve outlet pressure</b> | <b>p2</b>            | [bar g]              | 5,00    | 4,68    |
| <b>Delta p</b>               | <b>Δp</b>            | [bar g]              | 14,00   | 14,00   |
| <b>Inlet temperature</b>     | <b>T1</b>            | [°C]                 | 57,00   | 56,00   |
| <b>Flow rate</b>             | <b>Q</b>             | [kg/h]               | 3273,00 | 3131,00 |
| <b>Specific fluid mass</b>   | <b>ρ</b>             | [kg/m <sup>3</sup> ] | 510,00  | 510,00  |
| <b>Vapour pressure</b>       | <b>p<sub>v</sub></b> | [bar a]              | 0,17    | 0,17    |
| <b>Critical pressure</b>     | <b>p<sub>c</sub></b> | [bar a]              | 40,00   | 40,00   |

## Sizing factors and results

|                                    |                |       |             |             |
|------------------------------------|----------------|-------|-------------|-------------|
| <b>Calculated flow coefficient</b> | <b>Cvc</b>     | [gpm] | 1,46        | 1,39        |
| <b>Travel %</b>                    | <b>T%</b>      | -     | 72          | 69          |
| <b>Recovery Factor</b>             | <b>FL</b>      | -     | 0,96        | 0,96        |
| <b>Fluid velocity on the seat</b>  | <b>vs</b>      | [m/s] | 5,67        | 5,43        |
| <b>Valve outlet fluid velocity</b> | <b>vo</b>      | [m/s] | 3,81        | 3,65        |
| <b>Flow type</b>                   | -              | -     | Normal Flow | Normal Flow |
| <b>Cavitation / Flashing</b>       | -              | -     | no          | no          |
| <b>Sound pressure level at 1 m</b> | <b>LpAe,1m</b> | dB(A) | < 75        | < 75        |

## Valve data

|                        |            |  |
|------------------------|------------|--|
| <b>Type</b>            |            | Globe - Cage Guided - Multistages Anticavitation |
| <b>Series</b>          |            | GL3 2S   |
| <b>Trim type</b>       |            | NoCav 2_Linear. - 2 stages                       |
| <b>Selected Cv</b>     | <b>Cvs</b> | [gpm] 2,00                                       |
| <b>Nominal Size</b>    |            | 1"   |
| <b>Pressure Rating</b> |            | 300  |
| <b>Trim Size</b>       |            | 1"   |
| <b>Valve stroke</b>    | <b>T</b>   | [mm] 20,00                                       |
| <b>Characteristic</b>  |            | Linear   |
| <b>End Connection</b>  |            | RF   |

### NOTE

We have assumed the values of vapor pressure and critical pressure. Please verify these values.