

CA CHOKE VALVE SERIES

TECHNICAL DATA SHEET FOR MAXIMUM TRIM SIZE OF 3.25"

The 'CA' product family of production choke valves utilizes a 2.22" to 3.25" body orifice and offers the ability to manually or remotely control well production flow at the wellhead and or flowline with a more conventional type choke body. The cage & plug flow trim is pressure balanced to minimize the stem loads and provide low operating torques. Standard end connections range in size from 4" to 7 1/16".



| DESIGN | CAGE & PLUG TRIM | |
|-----------------|--------------------|--------|
| TRIM SIZE: | 2.22" | 3.25" |
| CV: | 103.4 | 221 |
| MAX BEAN SIZE: | 142/64 | 208/64 |
| END CONNECTION: | CUSTOMER SPECIFIED | |

| | |
|------------------------|----------------------------------------------------------------------|
| VALVE MODEL | CA |
| BODY TYPE | Right Angle |
| BODY SIZE | Suitable for max. 3.25" orifice |
| BODY RATING | 10,000 psi (max.), Limited by the rating of the body end connection. |
| INLET CONNECTION | See 'End Connection' table below |
| OUTLET CONNECTION | See 'End Connection' table below |
| BONNET TYPE | Lancaster Proprietary Bonnet |
| BODY / BONNET MATERIAL | See 'Material Options' table below |
| STEM MATERIAL | See 'Material Options' table |
| SEAL MATERIAL | See 'Material Options' table |
| TRIM STYLE | Equal Percentage Cage and Plug or Needle |
| BALANCED / UNBALANCED | Balanced |
| FLOW CHARACTERISTIC | Equal Percentage or Linear |
| TRIM MATERIAL | See 'Trim Options' table below |
| DESIGN CV | See the table above |
| LEAKAGE CLASSIFICATION | ANSI/FCI 70-2 Class IV (Standard) |

THE ART OF FLOW CONTROL

When you are serious about your flow control, LFA Provides genuine solutions.



API SPEC. 6A MATERIAL CLASS DESIGNATIONS

| Temperature Class | Certification Level | Material Class Designations | | | | | | |
|-------------------------------------|---------------------|-----------------------------|----|----|----|----|----|----|
| | | AA | BB | CC | DD | EE | FF | HH |
| P-U -20F to 250F -29C to 82C | STD/PSL-1 | BB | BB | FF | EE | EE | FF | HH |
| | PSL-2 | EE | EE | FF | EE | EE | FF | HH |
| | PSL-3 | EE | EE | FF | EE | EE | FF | HH |
| L-U -50F to 250F -46C to 121C | STD/PSL-1 | EE | EE | FF | EE | EE | FF | HH |
| | PSL-2 | EE | EE | FF | EE | EE | FF | HH |
| | PSL-3 | EE | EE | FF | EE | EE | FF | HH |

NOTES: other temperature classes are available upon request

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| | BB-GENERAL SERVICE | EE-SOUR SERVICE | FF- SOUR SERVICE | HH- SOUR SERVICE |
|---------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------|
| RECOMMENDED SERVICE | General Oil, Corrosive (CO2) | Sour (H2S) Low Corrosive (CO2) | Sour (H2S) Corrosive (CO2) | High Sour (H2S) High Corrosive (CO2) |
| BODY | Carbon Steel (60K) Low Alloy Steel (75K) | Carbon Steel (60K) Low Alloy Steel (75K) | Carbon Steel (60K) Low Alloy Steel (75K) | Clad Low Alloy Steel Corrosion Resistant Alloy |
| BONNET | Carbon Steel (60K) Low Alloy Steel (75K) Stainless Steel (75K) | Carbon Steel (60K) Low Alloy Steel (75K) Stainless Steel (75K) | Carbon Steel (60K) Low Alloy Steel (75K) Stainless Steel (75K) | Clad Low Alloy Steel Corrosion Resistant Alloy |
| STEM | AISI 17-4PH Low Alloy Steel | AISI 17-4PH Low Alloy Steel | Inconel 625 or Inconel 718 | Inconel 625 or Inconel 718 |
| PLUG/CAGE ASSEMBLY | AISI 17-4PH Low Alloy Steel w/ TCC | AISI 17-4PH Low Alloy Steel w/ TCC | Inconel 718 w/ TCC | Inconel 718 w/ TCC |
| SEALS | PTFE/PEEK | PTFE/PEEK | PTFE/PEEK | PTFE/PEEK |

NOTE: The materials supplied may change based on the customers NACE service designation (i.e.- "x.xx- NL")

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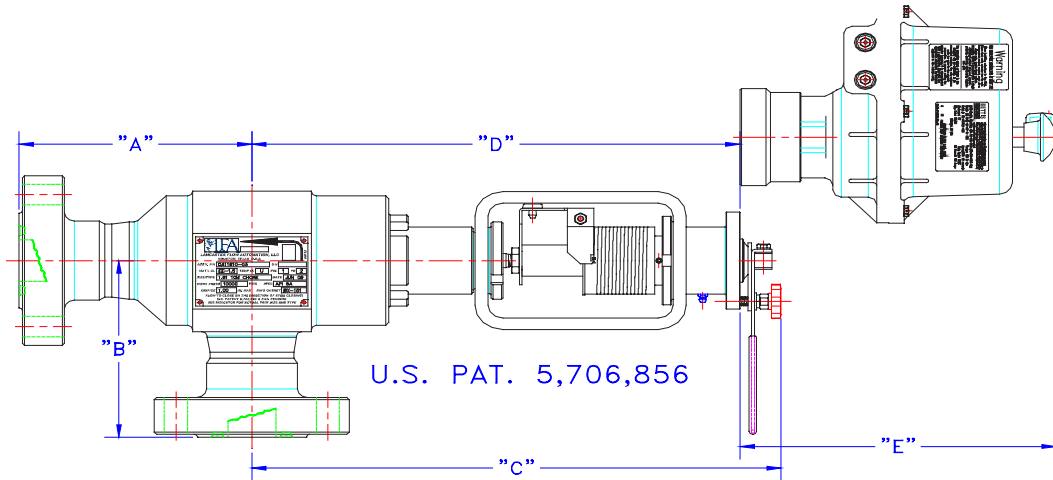


LFA LANCASTER FLOW AUTOMATION

a LSH company

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| Connection Size | Working Pressure psig | Dim. Ref. | A Outlet | B Inlet | C Manual Operator | D Mounting Flange |
|------------------------------------------------------------------------------------------|-----------------------|-----------|-------------|-------------|-------------------|-------------------|
| 3.00" (50.8) Nom. Orifice (Adj.-Pos., multiple orifice sizes available), Max CV = 221.00 | | | | | | |
| 4" NPS, RF | ANSI 600 LB. | | 11.75 (298) | 11.75 (298) | 24.94 (633.48) | 23.38 (593.85) |
| 6" NPS, RF | ANSI 600 LB. | | 12.38 (314) | 12.38 (314) | | |
| 4" NPS, RF | ANSI 900 LB. | | 12.25 (311) | 12.25 (311) | | |
| 6" NPS, RF | ANSI 900 LB. | | 13.25 (337) | 13.25 (337) | | |
| 4" NPS, RTJ | ANSI 900 LB. | | 12.31 (313) | 12.31 (313) | | |
| 6" NPS, RTJ | ANSI 900 LB. | | 13.31 (338) | 13.31 (338) | | |
| 4" NPS, RF | ANSI 1500 LB. | | 12.62 (321) | 12.62 (321) | | |
| 6" NPS, RF | ANSI 1500 LB. | | 14.50 (368) | 14.50 (368) | | |
| 4" NPS, RTJ | ANSI 1500 LB. | | 12.69 (322) | 12.69 (322) | | |
| 6" NPS, RTJ | ANSI 1500 LB. | | 14.62 (371) | 14.62 (371) | | |
| 4" NPS, RTJ | ANSI 2500 LB. | | 15.44 (392) | 15.44 (392) | | |
| 6" NPS, RTJ | ANSI 2500 LB. | | 18.75 (476) | 18.75 (476) | | |

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| Connection Size | Working Pressure psig | Dim. Ref. | A Outlet | B Inlet | C Manual Operator | D Mounting Flange |
|-----------------|-----------------------|-----------|----------------|----------------|-------------------|-------------------|
| 3-1/16" (78.0) | API 5,000 | | 14.45 (367) | 15.95 (405) | 24.94 (633.48) | 23.38 (593.85) |
| 4-1/16" (104.0) | API 5,000 | | 12.24 (311) | 10.75 (273) | | |
| 5-1/8" (130.18) | API 5,000 | | 14.00 (355.60) | 12.50 (317.50) | | |

* "C" and "D" shown with 3" x 2" reduced orifice trim

- Using our 24vDC actuator shown, "E" is 11.97"; Pneumatic & Hydraulic units are also available as well as other Electric units
- For sizes or dimensions not shown, for ANSI flanges or hub connections, contact sales or engineering
- In addition to "C", provide clearance for bonnet and trim removal as follows (worse case – with trim in fully closed position): 1.0" (25.4) Nominal, add 7.81" (198.37) for needle trim; add 6.75" (171.45) for cage trim
- (xxx.xx) dimensions shown in parenthesis are in millimeters (mm)
- Orifices in X/64ths are openings with the equivalent area of a circle with the diameter of X/64ths of an inch; 64/64ths = 1.00"
- API 5,000 psig is equal to 34.473 MPa; 10,000 psig = 68.946 MPa; 15,000 psig = 103.420 MPa; 20,000 psig = 137.893 MPa.
- Dimensions shown above are subject to change without notice. Other dimensions are available, please consult the Lancaster engineering department.

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