



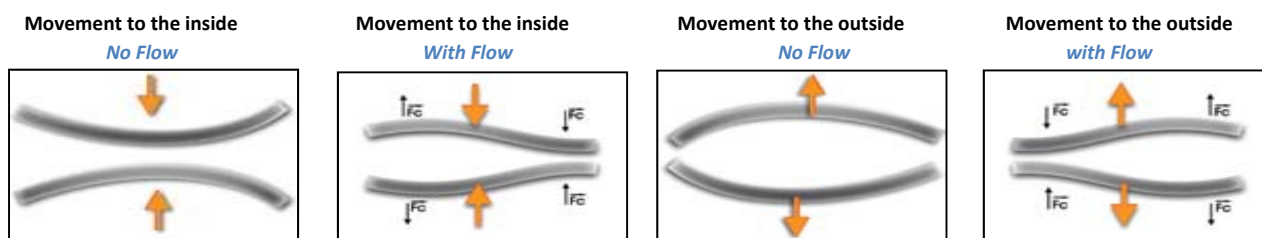
# ALCM-DT

Coriolis Mass Flowmeter  
ALCM Series

## GENERAL

SMC's ALCM-DT Delta Tube Coriolis Mass flowmeter makes use of delta, or triangle shaped measuring tubes in a parallel arrangement. The delta tube geometry provides excellent low-flow performance versus other coriolis tube geometries, making this instrument an ideal choice for applications with smaller line sizes and lower flow rates. The ALCM is offered in line sizes ranging from 1/8" (3mm) to 8" (200mm) and is capable of measuring flow rates from 26 to 2,000,000 lbs per hour at accuracies of up to 0.15% of reading.

The ALCM-DT features an easy-to-read LCD display that can be configured to display either mass or volumetric flow rates in a variety of user-selectable engineering units as well as density, temperature, and totalized flows. This meter offers excellent value by providing a highly accurate, compact instrument that can measure flow, density, and temperature in a single package that has lower cost, lower pressure differential and a more compact design versus competitive coriolis-technology flowmeters. The unique combination of features and benefits offered by the ALCM-DT make it an ideal choice for applications that are found in a variety of industries including Food & Beverage, Petrochem, Oil & Gas, Paint, and Industrial Process Control.



## FEATURES

- ☐ Suitable for aggressive and contaminated media
- ☐ Measurement of mass flow, density, temperature and volume flow with a single instrument
- ☐ High rotation frequency and well-balanced measuring tubes
- ☐ Excellent accuracy and low-flow performance
- ☐ Operation up to + 575°F (300 °C)
- ☐ Individual 8-point-calibration including report
- ☐ EX protection (optional)

## SPECIFICATIONS

- |                        |                                                                        |                          |                                                             |
|------------------------|------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------|
| • Flow Range:          | 26 ~ 2,000,000Lb/hr. (12~900,000 kg/hr.)                               | • Zero Drift (%FS / °C): | 0.005                                                       |
| • Line Sizes:          | 1/8"~8" (3~200 mm)                                                     | • Process Temperature:   | -58~392 °F (-50~200 °C) -std                                |
| • Process Connections: | Threaded (M20*1.5)<br>Flanged (ANSI, DIN, Tri-Clamp®)                  | • Ambient Temperature:   | -5~312 °F (-20~55 °C)                                       |
| • Tube geometry:       | Delta-Tube                                                             | • Max Working Pressure:  | 360 psig (2.5MPa) std, 930 psig optional                    |
| • Accuracy:            | ±0.5% of reading(std), 0.2% or 0.15% (opt)                             | • Measuring Tube Mat'l:  | SS per DIN1.4571 (AISI 316Ti) standard                      |
| • Repeatability:       | ±0.075% of reading                                                     | • Housing Material:      | SS #304                                                     |
| • Frequency:           | 10-2000 Hz                                                             | • Power Supply:          | 24 V <sub>DC</sub> , ± 20%; 86~260V <sub>AC</sub> , 50~60Hz |
| • Display:             | LCD                                                                    | • Power Consumption:     | Less than 6W                                                |
| Eng. Units (mass):     | kg, lb., and ton                                                       | • Outputs:.              | 4-20 mA, 0-10 kHz pulse, RS485                              |
| Eng. Units (Temp):     | °C, °F                                                                 | • Density Meas. Range:   | 12.5-125lb/ft <sup>3</sup> (0.2~2.0 g/cc)                   |
| Eng. Units (Vol.):     | m <sup>3</sup> , Liter, US Gallon, Imperial Gallon,<br>Million Gallon, | • Density Accuracy:      | ±0.06 b/ft <sup>3</sup> (0.001 g/cc)                        |
| • Zero Stability:      | 0.1% full-scale                                                        | • Temperature Accuracy:  | up to ±1°F (°C)                                             |



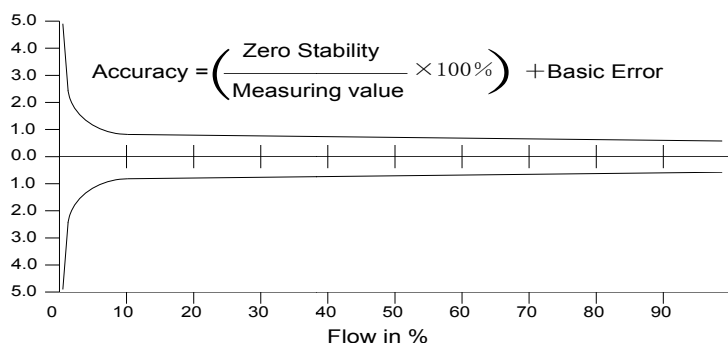
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## ➤ Flow Ranges

| Meter Size (mm) | Weight (kg) | Flow Range Kg/Hr. (Lb./Hr.)<br>(0.2% & 0.5% accuracy) | Stability of Zero Point Kg/Hr. (Lb./Hr.) |
|-----------------|-------------|-------------------------------------------------------|------------------------------------------|
| DN3             | 7.0         | 12~120 (26.5~265)                                     | 0.02 (0.044)                             |
| DN4             | 7.0         | 24~240 (53~530)                                       | 0.04 (0.088)                             |
| DN6             | 10.0        | 80~800 (176~1765)                                     | 0.06 (0.132)                             |
| DN10            | 10.0        | 150~1,500 (330~3,306)                                 | 0.11 (0.243)                             |
| DN15            | 12.5        | 300~3,000 (661~6,614)                                 | 0.22 (0.485)                             |
| DN20            | 16.0        | 700~7,000 (543~15,432)                                | 0.53 (1.169)                             |
| DN25            | 16.5        | 1,200~12,000 (2,646~26,460)                           | 0.90 (1.984)                             |
| DN32            | 20.6        | 2,100~21,000 (4,629~46,297)                           | 1.40 (3.087)                             |
| DN40            | 27.0        | 3,600~36,000 (7,937~79,366)                           | 2.50 (5.512)                             |
| DN50            | 38.0        | 6,000~60,000 (3,227~132,227)                          | 4.10 (9.039)                             |
| DN80            | 70.0        | 15,000~150,000 (33,069~330,693)                       | 13.0 (38.66)                             |
| DN100           | 210.0       | 24,000~240,000 (52,911~529,109)                       | 20.0 (44.09)                             |
| DN150           | 350.0       | 50,000~500,000 (10,233~1,102,331)                     | 50.0 (110.23)                            |
| DN200           | 500.0       | 90,000~900,000 (98,416~1,984,160)                     | 100 (220.46)                             |

### Accuracy:



The diagram shows typical values. Individual values may be taken from the calibration records supplied with each meter.

### Repeatability:

|               |        |       |        |
|---------------|--------|-------|--------|
| Accuracy      | 0.15%  | 0.20% | 0.50%  |
| Repeatability | ±0.05% | ±0.1% | ±0.25% |

### Density Measuring

|               |                                                                 |
|---------------|-----------------------------------------------------------------|
| Density Range | 12.5-125lb/ft <sup>3</sup> (0.2~2.0 g/cc)                       |
| Basic Error   | ±0.06 b/ft <sup>3</sup> (0.001 g/cc) Affected by the transducer |
| Repeatability | ±0.06 b/ft <sup>3</sup> (0.001g/cm <sup>3</sup> )               |

### SmartMeasurement

10437 Innovation Drive, Suite 315, Milwaukee, WI 53226  
TEL: +1-414-299-3896 FAX: +1-414-433-1606

### Page 2

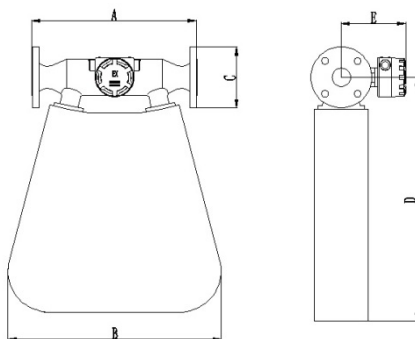
URL: <http://www.smartmeasurement.com>  
E-mail: [sales@smartmeasurement.com](mailto:sales@smartmeasurement.com)



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## TRANSDUCER



| Structure              | Quadrilateral |         |      |         |      |     |
|------------------------|---------------|---------|------|---------|------|-----|
| Pressure rating        | PN40          | PN64    |      | PN100   |      |     |
|                        | ANSI150       | ANSI300 |      | ANSI600 |      |     |
| Materials              | Measurement   | 316L    |      |         |      |     |
|                        | Shell         | 304     |      |         |      |     |
|                        | Junction box  | Al      |      |         |      |     |
| Dimensions<br><br>(mm) | Size          | A       | B    | C       | D    | E   |
|                        | DN3           | 200     | 234  | Φ90     | 165  | 160 |
|                        | DN4           | 200     | 234  | Φ90     | 165  | 160 |
|                        | DN6           | 210     | 338  | Φ90     | 270  | 180 |
|                        | DN10          | 220     | 338  | Φ90     | 270  | 180 |
|                        | DN15          | 254     | 400  | Φ95     | 322  | 180 |
|                        | DN20          | 248     | 430  | Φ105    | 400  | 180 |
|                        | DN25          | 264     | 450  | Φ115    | 410  | 180 |
|                        | DN32          | 290     | 480  | Φ140    | 544  | 160 |
|                        | DN40          | 290     | 556  | Φ150    | 600  | 180 |
|                        | DN50          | 436     | 586  | Φ165    | 660  | 200 |
|                        | DN80          | 540     | 670  | Φ200    | 876  | 200 |
|                        | DN100         | 810     | 930  | Φ235    | 1082 | 230 |
|                        | DN150         | 1100    | 1200 | Φ300    | 1500 | 230 |
|                        | DN200         | 1300    | 1200 | Φ374    | 1810 | 230 |

## Pressure Loss (Water, 20 °C, 1cst):

| Size (mm) | Mass flow (kg/hr) | Pressure drop (bar) | Size (mm) | Measuring (kg/hr) | Pressure drop (bar) | Size (mm) | Mass flow (kg/hr) | Pressure drop (bar) |
|-----------|-------------------|---------------------|-----------|-------------------|---------------------|-----------|-------------------|---------------------|
| DN25      | 1,200             | 0.07                | DN40      | 3,600             | 0.011               | DN80      | 15,000            | 0.01                |
|           | 4,860             | 0.10                |           | 9,000             | 0.06                |           | 37,500            | 0.07                |
|           | 9,320             | 0.33                |           | 18,000            | 0.24                |           | 75,000            | 0.14                |
|           | 12,000            | 0.58                |           | 36,000            | 0.92                |           | 150,000           | 0.52                |
| DN32      | 2,100             | 0.02                | DN50      | 6,000             | 0.01                | DN100     | 24,000            | 0.04                |
|           | 5,280             | 0.09                |           | 14,000            | 0.06                |           | 60,000            | 0.11                |
|           | 10,500            | 0.26                |           | 28,000            | 0.22                |           | 120,000           | 0.25                |
|           | 21,000            | 0.96                |           | 60,000            | 0.75                |           | 240,000           | 0.49                |

## Density Performance:

| Flow Range (kg/m <sup>3</sup> ) | Intrinsic Error (kg/m <sup>3</sup> ) |
|---------------------------------|--------------------------------------|
| 700~1300                        | ±1                                   |

## Temperature Performance:

| Flow Range (°C) | Intrinsic Error (°C) |
|-----------------|----------------------|
| -60~350         | ±0.5                 |



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Please contact your SmartMeasurement application engineer

You also need to provide the following information:

|                                |
|--------------------------------|
| Type of fluid                  |
| Full-scale flow rate           |
| Line Size                      |
| Process Pressure & Temperature |
| Pressure Drop                  |
| Type of Electronics            |
| Power Requirements             |

Please provide the name of your fluid, including operating density and viscosity

Please provide the max and min flow rate, normal flow rate also

Please provide the line size and connection

We will calibrate flow meter as close to your operating conditions as possible

Please indicate the maximum allowable pressure drop

Please specify output and installation type (wall mount, panel mount, etc.)

Please specify AC or DC power supply

## Model Selection Guide

| ALCM-DT                                                            |      |                     |    |    |    |    |    |    |    |    |             |  |
|--------------------------------------------------------------------|------|---------------------|----|----|----|----|----|----|----|----|-------------|--|
| Example 1: ALCM-DT-025-F-5-1-N-CBS-NX-DC-NN                        |      |                     |    |    |    |    |    |    |    |    |             |  |
| ALCM-DT-                                                           | **   | **                  | ** | ** | ** | ** | ** | ** | ** | ** | Description |  |
| DN3 (12-120 kg/hr)                                                 | 003  | Nominal Line Size   |    |    |    |    |    |    |    |    |             |  |
| DN4 (24-240 kg/hr)                                                 | 004  |                     |    |    |    |    |    |    |    |    |             |  |
| DN6 (80-800 kg/hr)                                                 | 006  |                     |    |    |    |    |    |    |    |    |             |  |
| DN10 (150-1,500 kg/hr)                                             | 010  |                     |    |    |    |    |    |    |    |    |             |  |
| DN15 (300-3,000 kg/hr)                                             | 015  |                     |    |    |    |    |    |    |    |    |             |  |
| DN20 (700-7,000 kg/hr)                                             | 020  |                     |    |    |    |    |    |    |    |    |             |  |
| DN25 (1,200-12,000 kg/hr)                                          | 025  |                     |    |    |    |    |    |    |    |    |             |  |
| DN32 (2,100-21,000 kg/hr)                                          | 032  |                     |    |    |    |    |    |    |    |    |             |  |
| DN40 (3,600-36,000 kg/hr)                                          | 040  |                     |    |    |    |    |    |    |    |    |             |  |
| DN50 (6,000-60,000 kg/hr)                                          | 050  |                     |    |    |    |    |    |    |    |    |             |  |
| DN80 (15,000-150,000 kg/hr)                                        | 080  |                     |    |    |    |    |    |    |    |    |             |  |
| DN100 (24,000-240,000 kg/hr)                                       | 100  |                     |    |    |    |    |    |    |    |    |             |  |
| DN150 (50,000-500,000 kg/hr)                                       | 150  |                     |    |    |    |    |    |    |    |    |             |  |
| DN200 (90,000-900,000 kg/hr)                                       | 200  |                     |    |    |    |    |    |    |    |    |             |  |
| ANSI 150 #                                                         | F    | Process Connections |    |    |    |    |    |    |    |    |             |  |
| ANSI 300# flange                                                   | F3   |                     |    |    |    |    |    |    |    |    |             |  |
| Other connection                                                   | O    |                     |    |    |    |    |    |    |    |    |             |  |
| 0.15% - For DN6 to DN100                                           | 1    | Accuracy            |    |    |    |    |    |    |    |    |             |  |
| 0.2% - For DN6 to DN100                                            | 2    |                     |    |    |    |    |    |    |    |    |             |  |
| 0.5% - standard                                                    | 5    |                     |    |    |    |    |    |    |    |    |             |  |
| 1.6 Mpa - standard                                                 | 1    | Working Pressure    |    |    |    |    |    |    |    |    |             |  |
| 2.5 Mpa                                                            | 2    |                     |    |    |    |    |    |    |    |    |             |  |
| 4.0 Mpa                                                            | 3    |                     |    |    |    |    |    |    |    |    |             |  |
| Up to 80 °C - standard                                             | N    | Working Temperature |    |    |    |    |    |    |    |    |             |  |
| Up to 150 °C                                                       | M    |                     |    |    |    |    |    |    |    |    |             |  |
| Up to 250 °C                                                       | H    |                     |    |    |    |    |    |    |    |    |             |  |
| CB03 Compact Version -local display, 4-20mA, RS485                 | CBS  | Transmitter         |    |    |    |    |    |    |    |    |             |  |
| CB03 Compact Version -local display, 4-20mA, RS485 and HART        | CBH  |                     |    |    |    |    |    |    |    |    |             |  |
| CB03 Remote Version - display, 4-20mA, RS485                       | RBS  |                     |    |    |    |    |    |    |    |    |             |  |
| CB03 Remote Version - display, 4-20mA, RS485 and HART              | RBH  |                     |    |    |    |    |    |    |    |    |             |  |
| TRO Remote Version - surface touch control, display, 4-20mA, RS485 | TRO  |                     |    |    |    |    |    |    |    |    |             |  |
| Other transmitter                                                  | RE   |                     |    |    |    |    |    |    |    |    |             |  |
| Non-Explosion                                                      | NX   | Approval            |    |    |    |    |    |    |    |    |             |  |
| Ex protection EEx d Explosion proof                                | XD   |                     |    |    |    |    |    |    |    |    |             |  |
| 24 V <sub>DC</sub>                                                 | DC   | Power Supply        |    |    |    |    |    |    |    |    |             |  |
| 85-260 V <sub>AC</sub> , 50/60 Hz                                  | AC   |                     |    |    |    |    |    |    |    |    |             |  |
| Standard - with 316L measuring tube                                | NN   | Options             |    |    |    |    |    |    |    |    |             |  |
| Signal cable for remote type                                       | CABL |                     |    |    |    |    |    |    |    |    |             |  |
| Heat jacket                                                        | HJ   |                     |    |    |    |    |    |    |    |    |             |  |