

# Mass flow controller (MFC) VEFC-L-6-200-D31-Q10-Q10-MRM1

Part number: 8204586

**FESTO**



 General operating condition

## Data sheet

| Feature                                 | Value                                                                                     |
|-----------------------------------------|-------------------------------------------------------------------------------------------|
| Degree of protection                    | IP20                                                                                      |
| Flow rate control range                 | 10 l/min ... 200 l/min                                                                    |
| Note on the flow rate control range     | N2 equivalent, the specified dynamic and accuracy values apply to setpoint values >10 %FS |
| Flow direction                          | Non-reversible                                                                            |
| Operating pressure                      | 0.6 MPa                                                                                   |
| Operating pressure                      | 6 bar                                                                                     |
| Overload pressure                       | 0.8 MPa                                                                                   |
| Overload pressure                       | 8 bar                                                                                     |
| Overload pressure                       | 116 psi                                                                                   |
| Burst pressure                          | 2.1 MPa                                                                                   |
| Burst pressure                          | 21 bar                                                                                    |
| Burst pressure                          | 305 psi                                                                                   |
| Inlet pressure 1 MPa                    | 0.1 MPa ... 0.7 MPa                                                                       |
| Inlet pressure 1                        | 1 bar ... 7 bar                                                                           |
| Inlet pressure 1 psi                    | 14.5 psi ... 101.5 psi                                                                    |
| Output pressure 2                       | -0.1 MPa ... 0.35 MPa                                                                     |
| Outlet pressure 2                       | -1 bar ... 3.5 bar                                                                        |
| Output pressure 2                       | -14.5 psi ... 50.8 psi                                                                    |
| Suitability for vacuum                  | yes                                                                                       |
| Valve function                          | 2-way proportional flow control valve                                                     |
| Actuation type                          | Electrical                                                                                |
| Pneumatic connection 1                  | QS-10                                                                                     |
| Pneumatic connection 2                  | QS-10                                                                                     |
| Total leakage                           | 0.6 l/h                                                                                   |
| Note on total leakage                   | standardized according to SEMI E16 tested with CDA                                        |
| Relative air humidity                   | 5 - 85 %<br>Non-condensing                                                                |
| Climatic category                       | 3K22 as per EN 60721                                                                      |
| Nominal altitude of use above sea level | ≤ 2000 m NHN                                                                              |
| Operating medium                        | Compressed air as per ISO 8573-1:2010 [7:4:4]<br>Inert gas                                |
| Temperature of medium                   | 5 °C ... 50 °C                                                                            |
| Ambient temperature                     | 5 °C ... 50 °C                                                                            |
| Storage temperature                     | -20 °C ... 60 °C                                                                          |
| Nominal operating voltage DC            | 24 V                                                                                      |

| Feature                                            | Value                                                                                                                                                                                                                                                      |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DC operating voltage range                         | 24 V                                                                                                                                                                                                                                                       |
| Max. current consumption                           | 65 mA                                                                                                                                                                                                                                                      |
| Max. electrical power consumption                  | 1.6 W                                                                                                                                                                                                                                                      |
| Note on power consumption                          | Typical <1 W                                                                                                                                                                                                                                               |
| Overvoltage category                               | II                                                                                                                                                                                                                                                         |
| Residual ripple                                    | ± 10%                                                                                                                                                                                                                                                      |
| Electrical connection 1, function                  | Analog output<br>Analog input<br>Communication<br>Power supply                                                                                                                                                                                             |
| Electrical connection 1, connection type           | Plug                                                                                                                                                                                                                                                       |
| Electrical connection 1, connection technology     | Sub-D                                                                                                                                                                                                                                                      |
| Electrical connection 1, number of pins/wires      | 9                                                                                                                                                                                                                                                          |
| Setpoint input                                     | 0 - 5 V<br>0 - 10 V<br>1 - 5 V<br>4 - 20 mA<br>Modbus RTU                                                                                                                                                                                                  |
| Protection against direct and indirect contact     | PELV                                                                                                                                                                                                                                                       |
| Display type                                       | LED                                                                                                                                                                                                                                                        |
| Reverse polarity protection                        | for operating voltage                                                                                                                                                                                                                                      |
| Overall accuracy                                   | 1.5 %FS                                                                                                                                                                                                                                                    |
| Reproducibility                                    | 0.2 %FS                                                                                                                                                                                                                                                    |
| Linearity                                          | 1.5 %FS                                                                                                                                                                                                                                                    |
| Hysteresis                                         | 0.15 %FS                                                                                                                                                                                                                                                   |
| Overshoot                                          | 2 %FS                                                                                                                                                                                                                                                      |
| Settling time                                      | 500 ms                                                                                                                                                                                                                                                     |
| Step response time                                 | 500 ms                                                                                                                                                                                                                                                     |
| Note on the measured variable                      | Dynamic characteristic values according to SEMI E17 with preset "fast". The dead time, the step response and the settling time may be increased in the event of setpoint changes from a closed valve state or when the back pressure is above atmospheric. |
| Product weight                                     | 250 g                                                                                                                                                                                                                                                      |
| Note on materials                                  | RoHS-compliant                                                                                                                                                                                                                                             |
| Dimensions W x L x H                               | 24 mm x 114.6 mm x 97 mm                                                                                                                                                                                                                                   |
| Application note                                   | The product is suitable for industrial purposes only. Radio interference suppression measures may be required in residential areas.<br>For indoor use only                                                                                                 |
| Material fire test                                 | UL94 HB                                                                                                                                                                                                                                                    |
| Contamination level                                | 2                                                                                                                                                                                                                                                          |
| Certification                                      | RCM compliance mark                                                                                                                                                                                                                                        |
| CE marking (see declaration of conformity)         | As per EU EMC directive<br>As per EU RoHS directive                                                                                                                                                                                                        |
| UKCA marking (see declaration of conformity)       | To UK instructions for EMC<br>To UK RoHS instructions                                                                                                                                                                                                      |
| KC characters                                      | KC EMC                                                                                                                                                                                                                                                     |
| KC approval number EMC/radio                       | FTO-KC-2024-1003                                                                                                                                                                                                                                           |
| LABS (PWIS) conformity                             | VDMA24364 zone III                                                                                                                                                                                                                                         |
| Suitability for the production of Li-ion batteries | Suitable for battery production with reduced Cu/Zn/Ni values (F1a)                                                                                                                                                                                         |