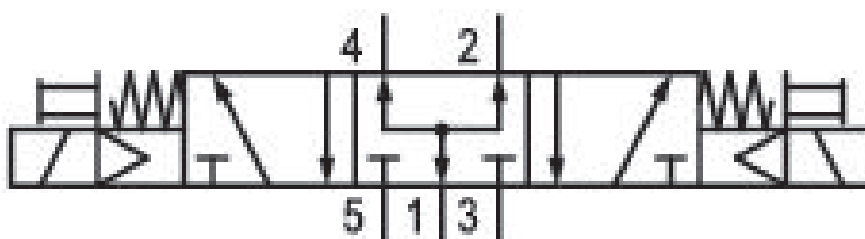


# 5/3-directional valve, Series 503

R503A1B70MA00F1

General series information  
AVENTICS Series 503 Directional Control Valves

■ The AVENTICS Series 503 is a line of pneumatic directional control valves with ultra-high flow ratings per valve size. This enables design and specifying engineers to use smaller, lower-cost valves and components that do more work with less air, energy, and cost. Designers can choose to generate greater speed of motion for their components using the same size valve. The 503 Series valves are designed to complement the benefits of AVENTICS G3 fieldbus electronics. When assembled together, original equipment manufacturers can leverage assemblies that combine ultra-high flow rates with ease of use, plus fieldbus technology to configuration, flexibility, a I/O and distribution architecture. The compact 503 Series valve automation and piloting at a wide range of automotive and beverage, pharmaceutical equipment, and general industrial applications.



## Technical data

|                       |                                    |
|-----------------------|------------------------------------|
| Industry              | Industrial                         |
| Activation            | Electrically                       |
| Valve type            | Spool valve, positive overlapping  |
| Valve function        | Pressurized Center                 |
| Actuating control     | Double Solenoid                    |
| Sealing principle     | metal/metal sealing                |
| Connection type       | Plate connection                   |
| Pilot control exhaust | with directional pilot air exhaust |
| Nominal flow Qn       | 1000 l/min                         |

|                                    |                                                           |
|------------------------------------|-----------------------------------------------------------|
| Working pressure min.              | 2 bar                                                     |
| Working pressure max               | 8 bar                                                     |
| Control pressure min.              | 2 bar                                                     |
| Control pressure max.              | 8 bar                                                     |
| Protection class with connection   | IP65                                                      |
| Protective circuit                 | Z-diode                                                   |
| Reverse polarity protection        | Protected against polarity reversal                       |
| Operational voltage                | 24 V DC                                                   |
| Voltage tolerance DC               | -15% / +10%                                               |
| Pilot                              | External                                                  |
| LED status display                 | Yellow                                                    |
| Power consumption DC               | 1.4 W                                                     |
| Duty cycle                         | 100 %                                                     |
| Typ. switch-on time                | 20 ms                                                     |
| Typ. switch-off time               | 60 ms                                                     |
| Blocking principle                 | Single base plate principle, can be assembled into blocks |
| Can be assembled into blocks       | Can be assembled into blocks                              |
| Min. ambient temperature           | -10 °C                                                    |
| Max. ambient temperature           | 50 °C                                                     |
| Min. medium temperature            | -10 °C                                                    |
| Max. medium temperature            | 50 °C                                                     |
| Medium                             | Compressed air                                            |
| Oil content of compressed air min. | 0 mg/m <sup>3</sup>                                       |
| Oil content of compressed air max. | 5 mg/m <sup>3</sup>                                       |
| Max. particle size                 | 50 µm                                                     |
| mounting screws                    | with hexagon socket                                       |
| Mounting screw tightening torque   | 2.9 Nm                                                    |
| Weight                             | 0.236 kg                                                  |
| <b>Material</b>                    |                                                           |
| Housing material                   | Die cast zinc                                             |
| Seal material                      | Nitrile butadiene rubber                                  |

|                      |                 |
|----------------------|-----------------|
| Material front plate | Polyurethane    |
| Material end plate   | Polyamide       |
| Part No.             | R503A1B70MA00F1 |

### Technical information

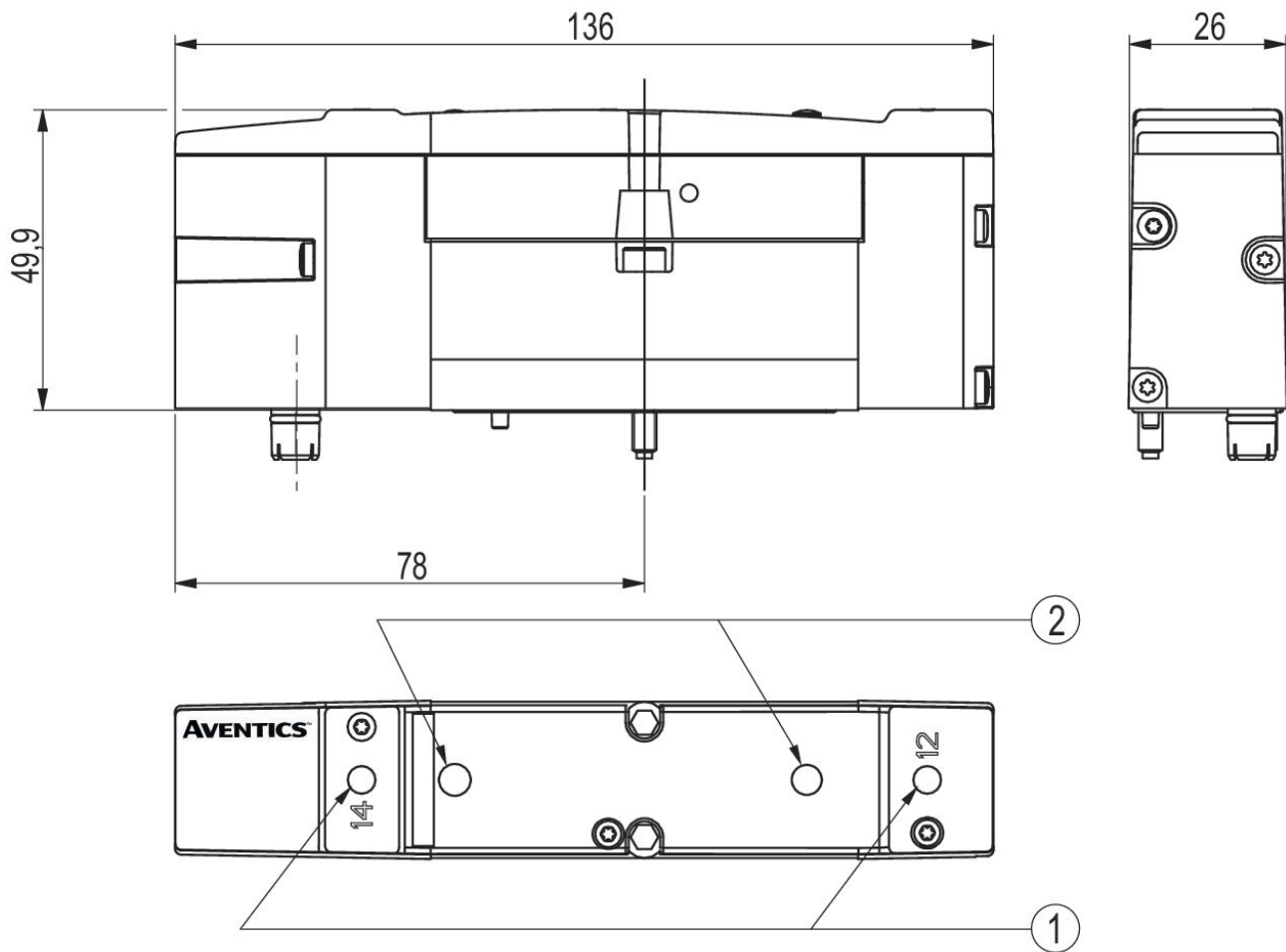
The min. control pressure must be adhered to, since otherwise faulty switching and valve failure may result!

The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

Use only the approved oils from AVENTICS. Further information can be found in the "Technical information" document (available in <https://www.emerson.com/en-us/support>).

### Dimensions



- 1) Manual override
- 2) LED