



CIRRUS[®] VEC system. Vapour Emission Control equipment.



CIRRUS[®] M50, M150 and M500 modules. The CIRRUS[®] M50 module is equipped with an optional valve.

Efficient vapour emission control

The CIRRUS[®] Vapour Emission Control (VEC) system provides flexible, compact and efficient solutions to air treatment problems. The CIRRUS[®] VEC system uses cryogenic condensation to minimise emission of volatile organic compounds (VOCs) to the atmosphere.

Pressure vessel approval

The CIRRUS[®] VEC system complies with the Pressure Equipment Directive (PED) 97/23/EC. The nitrogen side is protected by a pressure relief valve.

Materials of construction

All materials wetted by process gas and condensate are stainless steel 1.4404 or equivalent (corresponding to Type 316L) and PTFE. The condensers are mounted in a skid made from stainless steel 1.4301 (corresponding to Type 304). The condensers are insulated with CFC-free polyurethane foam and Armaflex[®].

Electrical safety

The CIRRUS[®] VEC system complies with the ATEX Directive 94/9/EEC, for installation in an area classified as Ex-Zone 1, IIC, T4. This is achieved by using intrinsically safe signal loops (EEx ia), and explosion-protected junction boxes (EEx d and EEx e) for the power supply to the built-in defrost system. The instrument cabinet with operator panel is to be installed in a non-classified area. The CIRRUS[®] VEC system also complies with the Low Voltage Directive (LVD) 73/23/EEC and the Electromagnetic Compatibility Directive (EMC) 89/336/EEC.

Installation

The unit can be installed outdoors, but the control cabinet needs to be installed with weather protection and at temperatures of 0 to +50 °C.

Documentation

Each CIRRUS[®] VEC unit is delivered with complete documentation. This includes instructions for installation, maintenance, safety and operation. There are also component datasheets, electrical and dimensional drawings, and manufacturing control documentation, such as welding documents, material certificates and test protocols.

Technical data

	CIRRUS® M50	CIRRUS® M150	CIRRUS® M500
Process data			
Nominal flow rate [Nm ³ /h] ¹	50	150	500
Nominal cooling duty [kW] ¹	6	25	80
Min./max. pressure [bar(g)] ²			
→ Process gas side	-1/+5.5 ³	-0.5/+0.5	-0.5/+0.5
→ Nitrogen side	3/19	3/15	3/15
Min./max. temperature [°C] ⁴	-196/+150	-196/+150	-196/+50
Skid dimensions⁵			
Width [mm]	800	800	1,200
Depth [mm]	1,200	1,200	1,600
Height [mm]	2,800	3,400	4,300
Weight [kg]	350	820	1,680
Control system			
	Siemens PLC Simatic S7 with CPU314		
Operator panel	OP177B	OP177B	OP177B
Connections⁵			
Process gas			
→ Inlet flange	DN100	DN100	DN200
→ Outlet flange	DN50	DN100	DN150
Condensate, outlet flange	2 x DN25	DN50	DN100
Liquid nitrogen, inlet flange	1/2" ISO ⁶	DN15	DN25
Gaseous nitrogen			
→ Inlet flange	-	DN15	DN25
→ Outlet flange	1/2" NPT ⁶	1/2" NPT ⁶	DN50
Utilities			
Electricity (50/60 Hz)	230 V, 25 A, 1P+N	400 V, 32 A, 3P+N	400 V, 32 A, 3P+N
Compressed air			
→ Pressure [bar(g)]	5-7	5-7	5-7
→ Dew point [°C]	< -20	< -20	< -20

¹ These values are nominal values. For most applications, the system can handle loads that range anywhere from 20 % to the full 100 % of these nominal values. In some cases, however, the upper load limit can even exceed 100 %.

² Minimum/maximum allowable pressure for which the equipment, with its internal components, is designed.

³ Option for maximum allowable pressure of 10 bar(g) available.

⁴ Minimum/maximum allowable temperature for which the equipment, with its internal components, is designed.

⁵ Without installed options and pipe connection.

⁶ Internal threaded fitting.

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