

1 Introduction

1.1 Intended use

This unit is intended for industrial use in gas analysis systems. It's an essential component for conditioning the sample gas to protect the analysis instrument from residual moisture in the sample gas.

Sample gas coolers with the option for high-purity oxygen (suffix -O2) are specially optimised, with regard to the wetted parts, for use with increased oxygen concentrations. A mandatory special cleaning of the components is carried out to minimise organic and inorganic contamination. The manufacture of the products under controlled cleanliness conditions ensures compliance with the limits based on EIGA Doc 33/18.

Sample gas coolers with the option for high-purity hydrogen (suffix -H2) are specially refined using advanced manufacturing measures, in particular to prevent hydrogen-induced component damage. In addition, the parts in contact with the media are subjected to an additional visual inspection to remove any residual metallic contamination, such as chips and particles. Finally, a leak test is carried out as standard.

For passing of flammable gases, make sure that the parts carrying and/or in contact with the medium are tightly connected.

Please note the specifications in the data sheet on the specific intended use, existing material combinations, as well as pressure and temperature limits.

1.2 Overview

The RC 1.1 series was designed specifically for high cooling capacities and high ambient temperatures.

The RC 1.1 with -H2/-O2 heat exchanger series was specially developed for use with high-purity hydrogen and oxygen.

The RC 1.2+ series was designed specifically for the requirements in so-called automated measuring systems (AMS) according to EN 15267-3. The series connection of the heat exchangers will cool in two cycles to minimise wash-out effects.

The compressor coolers are distinguished by two types based on the cooling nests. This classification is reflected in the type designation. The exact item number of the model defined by you is determined by the model code in the ordering information category.

Application	Cooler model	Heat exchanger
Standard	RC 1.1	1 heat exchanger (single or double)
H ₂ /O ₂	RC 1.1	1 heat exchanger (single or double)
Washout-optimised gas cooling	RC 1.2+	2 heat exchangers in series

Additional components which every conditioning system should feature can optionally be integrated:

- Peristaltic pump for condensate separation
- Filter
- Moisture detector

In addition, we offer different signal outputs:

- Status output
- Analog output, 4...20 mA, incl. status output,
- Modbus RTU digital output, incl. status output

This allows for various configurations of the cooler and its options. Here the approach is to simplify the creation of a complete system in a cost-efficient way using pre-installed components with hoses connected. We also prioritised easy access to wear parts and consumables.

1.3 Scope of delivery

- Cooler
- Product documentation
- Connection-/mounting accessories (optional)

1.4 Ordering instructions

1.4.1 Gas cooler with one gas path inside the heat exchanger

The item number is a code for the configuration of your unit. Please use the following model code:

4596	3	1	1	0	X	X	X	X	X	0	X	X	X	0	0	0	0	0	Product characteristic
Power supply																			
1																			115 V AC, 60 Hz
2																			230 V AC, 50/60 Hz
Heat exchanger																			
1				1	1	0													Stainless steel, TS, metric
1				1	1	5													Stainless steel, TS-I, US
1				1	2	0													Duran glass, TG, metric
1				1	2	5													Duran glass, TG, US
1				1	3	0													PVDF, TV, metric
1				1	3	5													PVDF, TV-I, US fittings
Condensate drain																			
0																			without condensate drain
1																			CPsingle with hose nipple, angled
3																			CPsingle with screw connection, metric/US
Filter and moisture detector																			
0				0	0														without filter, without moisture detector
0				0	1														without filter, 1 moisture detector
0				0	3														Moisture detector in stainless steel adapter
3				3	0														1 filter, without moisture detector
3				3	1														1 filter, 1 moisture detector
Signal outputs																			
0																			status output only
1																			Analogue output, 4..20 mA, incl. status output
2																			Modbus RTU digital output, incl. status output

1.4.2 Gas cooler with two gas paths inside the heat exchanger

The item number is a code for the configuration of your unit. Please use the following model code:

4596	3	1	1	0	X	X	X	X	X	0	X	X	X	0	0	0	0	0	Product characteristic
Power supply																			
1																		115 V AC / 60 Hz	
2																		230 V AC, 50/60 Hz	
Heat exchanger																			
2	6	0																Stainless steel, DTS, metric	
2	6	1																Stainless steel, DTS-6 ¹⁾ , metric	
2	6	5																Stainless steel, DTS-I, US	
2	6	6																Stainless steel, DTS-6-I ¹⁾ , US	
2	7	0																Duran glass, DTG, metric	
2	7	5																Duran glass, DTG, US	
2	8	0																PVDF, DTV ¹⁾ , metric	
2	8	5																PVDF, DTV-I ¹⁾ , US	
Condensate drain																			
0																		without condensate drain	
2																		CPdouble with hose nipple, angled	
4																		CPdouble with screw connection, metric/US	
Filter and moisture detector																			
0	0																	without filter, without moisture detector	
0	1																	without filter, 1 moisture detector	
0	2																	without filter, 2 moisture detectors	
0	3																	1 moisture detector in stainless steel adapter	
0	4																	2 moisture detectors in stainless steel adapter	
3	0																	1 filter, without moisture detector	
3	1																	1 filter, 1 moisture detector	
3	2																	1 filter, 2 moisture detectors	
4	0																	2 filters, without moisture detector	
4	1																	2 filters, 1 moisture detector	
4	2																	2 filters, 2 moisture detectors	
Signal outputs																			
0																		status output only	
1																		Analogue output, 4..20 mA, incl. status output	
2																		Modbus RTU digital output, incl. status output	

¹⁾ Condensate outlets only suitable for connecting condensate pumps (CPdouble).

1.4.3 Gas cooler with two heat exchangers in series

The item number is a code for the configuration of your unit. Please use the following model code:

4596	3	1	2	0	X	X	X	X	X	0	X	X	X	0	0	0	0	0	Product characteristic
																			Power supply
																			115 V AC, 60 Hz
																			230 V AC, 50/60 Hz
																			Heat exchanger
																			1 2 2 Duran glass, STG-2, metric
																			1 2 7 Duran glass, STG-2, US
																			1 3 2 PVDF, STV-2, metric
																			1 3 7 PVDF, STV-2, US
																			Condensate drain
																			0 without condensate drain
																			2 CPdouble with hose nipple, angled
																			4 CPdouble with screw connection, metric/US
																			Filter and moisture detector
																			0 0 without filter, without moisture detector
																			0 1 without filter, 1 moisture detector
																			1 0 1 filter, without moisture detector
																			1 1 1 filter, 1 moisture detector
																			Signal outputs
																			0 status output only
																			1 Analogue output, 4..20 mA, incl. status output
																			2 Modbus RTU digital output, incl. status output

1.4.4 Gas cooler for H₂/O₂ applications

The item number is a code for the configuration of your unit. Please use the following model code:

4596	3	1	1	0	X	X	X	X	0	0	0	0	X	0	0	0	0	X	Product Characteristics
																			Power supply
																			1 115 V AC, 60 Hz
																			2 230 V AC, 50/60 Hz
																			Heat exchanger
																			1 1 0 -O2 Stainless steel, TS-O2, metric
																			1 1 5 -O2 Stainless steel, TS-I-O2, US
																			1 1 0 -H2 Stainless steel, TS-H2, metric
																			1 1 5 -H2 Stainless steel, TS-I-H2, US
																			2 6 0 -O2 Stainless steel, DTS-O2, metric
																			2 6 5 -O2 Stainless steel, DTS-I-O2, US
																			2 6 0 -H2 Stainless steel, DTS-H2, metric
																			2 6 5 -H2 Stainless steel, DTS-I-H2, US
																			Signal outputs
																			0 status output only
																			1 Analog output, 4..20 mA, incl. status output
																			2 Modbus RTU digital output, incl. status output