

ED4100/50

Electronic level sensing condensate drains for compressed air up to 50 bar



The Parker ED4100 range of condensate drains are designed for zero loss condensate removal from compressed air and gaseous nitrogen at intermediate pressures up to 50 bar.

The safe and reliable removal of large amounts of condensate, especially at critical installation points, such as compressor aftercoolers, storage vessels, and separators, where approx. 70 to 80% of condensate arises, really make Parker's ED4100 range of condensate drains stand out. The ED4100's integrated dirt filter, large valve cross-section, direct controlled 2/2-way solenoid valve and capacitive level sensing allows for the safe, reliable, and economical removal of condensate, whilst simultaneously preventing any loss of compressed air.

A floating alarm contact (normally closed, NC) enables the operating states (normal and alarm) to be monitored via a highly efficient controller, which also incorporates self-monitoring and cleaning features. After 100 opening cycles, the drain switches to cleaning mode and the outlet valve opens three times for 5 seconds at 1 minute intervals. This allows for high levels of condensate and any sediment to be safely discharged and disposed of. At the end of the cleaning cycle, the controller automatically switches the drain back to normal operation.



Installation is simple and secure using the wall bracket provided, as well as upper or side attachment, allowing for vibration-free installation - even in enclosed spaces. For low ambient temperatures, a heater can be retrofitted. A service kit that contains all of the required wearing parts is available for quick and easy maintenance.

Scope of delivery:

Electronic condensate drains for compressed air and gaseous nitrogen up to pressures of 50 bar, ready for use, with alarm contact and including a wall bracket. Available ex-works in three versions: 230VAC with BSP-P G $\frac{1}{2}$ connection, 115VAC with NPT $\frac{1}{2}$ " threaded connection and 24VDC with BSP-P G $\frac{1}{2}$ connection. Two heater versions are available for pressures up to 30 bar as an optional accessory: 230VAC with BSP-P G $\frac{1}{2}$, connection and 115VAC with NPT $\frac{1}{2}$ " threaded connection.



ENGINEERING YOUR SUCCESS.

Product specifications

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Order information and performance specifications

Stock No.	Aftercooler ² Flow Rate ¹	Refrigeration Dryer ³ Output ¹	Filter ⁴ Flow Rate ¹	Nominal diameter ⁵ Inlet	Nominal diameter ⁵ Outlet	Supply voltage
ED4100/50-G230	6000 m ³ /h	12,000 m ³ /h	60,000 m ³ /h	G1/2	G1/4	230 V, 50-60 Hz
ED4100/50-N115	6000 m ³ /h	12,000 m ³ /h	60,000 m ³ /h	NPT 1/2"	NPT 1/4"	115 V, 50-60 Hz
ED4100/50-G24D	6000 m ³ /h	12,000 m ³ /h	60,000 m ³ /h	G1/2	G1/4	24 VDC

¹ Maximum flow rate in m³/h based on 1 bar_a and 20 °C, subsequently compressed to 50 bar_e.

² Based on 25 °C and 60 % relative humidity of the intake air of the compressor and 35 °C compressed air outlet temperature on the aftercooler.

In the case of a different minimum operating pressure or different suction and aftercooling conditions, the actual throughput is to be multiplied by the corresponding correction factor (see below) to rule out the possibility of exceeding the output.

^{3,4} In the case of a different minimum operating pressure, the actual flow rate is to be multiplied by the corresponding correction factor (see below) to rule out the possibility of exceeding the output.

⁵ Nominal diameter in accordance with DIN ISO 228 (BSP-P) or ANSI B 1.20.1 (NPT-F).

Climate correction factor CFC for the intake air conditions

CFC	Intake air temperature							
	10 °C	15 °C	20 °C	25 °C	30 °C	35 °C	40 °C	45 °C
Relative humidity								
30 %	0.20	0.28	0.38	0.5	0.66	0.86	1.11	1.42
40%	0.27	0.37	0.50	0.67	0.88	1.15	1.48	1.89
50%	0.34	0.46	0.63	0.83	1.10	1.43	1.85	2.37
60%	0.41	0.56	0.75	1	1.32	1.72	2.22	2.84
70%	0.48	0.65	0.88	1.17	1.54	2.01	2.59	3.31
80 %	0.55	0.74	1.00	1.33	1.76	2.29	2.96	3.79
90 %	0.61	0.84	1.13	1.50	1.98	2.58	3.33	4.26

Temperature correction factor CFT for the outlet temperature on the aftercooler

Outlet temperature	20 °C	25 °C	30 °C	35 °C	40 °C	45 °C	50 °C	55 °C
CFT	0.44	0.58	0.77	1	1.29	1.65	2.09	2.63

Example of the installation of the condensate drain on the aftercooler of the compressor according to the formula $V \times (CFC-CFT) \times CFP \leq 6000$ m³/h:

For a maximum flow rate of 5900 m³/h during intake air conditions of 40 °C and 70 % relative humidity and a compressed air outlet temperature of 50 °C on the aftercooler of the compressor, at a minimum operating pressure of 25 bar_e this would be:

5900 m³/h x (2.59 – 2.08) x 1.96 = 5897.6 m³/h as a converted flow rate under normal operating conditions. Model ED4100/50 is sufficient.

Correction factor CFP according to the actual minimum operating pressure

Minimum operating pressure	15 bar _e	20 bar _e	25 bar _e	30 bar _e	35 bar _e	40 bar _e	45 bar _e	50 bar _e
CFP	3.19	2.43	1.96	1.65	1.42	1.24	1.11	1

Example of the installation of the condensate drain on the heat exchanger of a refrigeration dryer using the formula $V \times CFP \leq 12000$ m³/h:

For a maximum flow rate of 9000 m³/h at a minimum operating pressure of 40 bar_e this would be:

9000 m³/h x 1.24 = 11160 m³/h as a converted flow rate under normal operating conditions. Model ED4100/50 is sufficient.

Example of the installation of the condensate drain on the pre-filter of an adsorption dryer using the formula $V \times CFP \leq 60000$ m³/h:

For a maximum flow rate of 15000 m³/h at a minimum operating pressure of 20 bar_e this would be:

15000 m³/h x 2.43 = 36450 m³/h as a converted flow rate under normal operating conditions. Model ED4100/50 is sufficient.

Product codes

Series	Size	/pressure stage	— Connection	Supply voltage
ED	4100	/50	— G	230

Example: ED4100, nominal pressure PN50, BSP-P thread, supply voltage 230 VAC.

Product specifications

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Application range

Flow medium	Compressed air and gaseous nitrogen		
Condensate	Oil/water condensate, pH 4-8.5 and free from aggressive substances		
Operating pressure, min./max.	0 to 50 bar _e	Optional Heater (accessory)	0 to 30 bar _e
Inlet Temperature	1 to 50 °C		
Ambient Temperature	1 to 50 °C	Optional Heater (accessory)	-25 °C to 5 °C

Electrical connection

Supply voltage	230 V, 50-60 Hz	115 V, 50-60 Hz	24 VDC
Connection power	11 VA	11 VA	20 VA
Alarm contact	Potential-free contact, normally closed (NC), 230V AC, 5-200 VDC, 100 mA – 4 A		
Contact load, max.	4 A at 230 VAC	4 A at 115 VAC	0.5 A at 200 VDC
Connector/alarm plug	in accordance with DIN 43650-B		
Protection class	IP65		

Approvals

EU	Pressure-equipment directive 97/23/EC for fluid group 2
EU	Electromagnetic compatibility directive 2004/108/EU
EU	Low-voltage directive 2006/95/EU

Quality and environmental management system

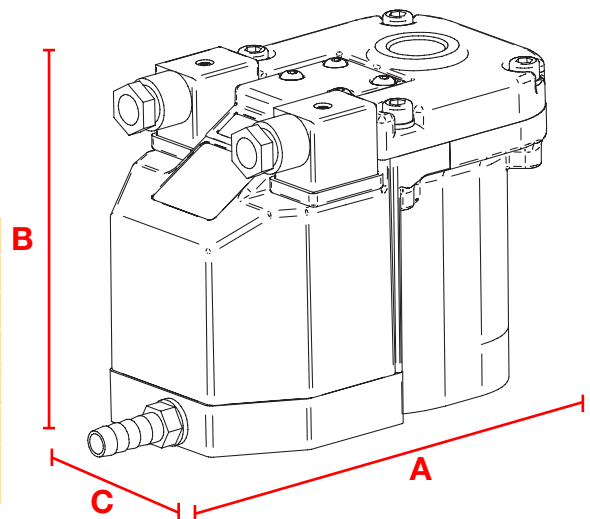
Development / manufacture	DIN EN ISO 9001, DIN EN ISO 14001
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Dimensions [mm] and weight [kg]

Model	A Width	B Height	C Depth	Weight
ED4100/50	178	115	87	1.9 kg

Materials (wetted parts)

Condensate housing	Aluminum, anodized
Housing lid with sensor	PBT
Housing seals	NBR
2/2 way valve	Stainless steel, bronze
Valve seal	FPM
Dirt filter	Stainless steel
Locking screws, outlet spout	Plated brass



Accessories, supplied separately

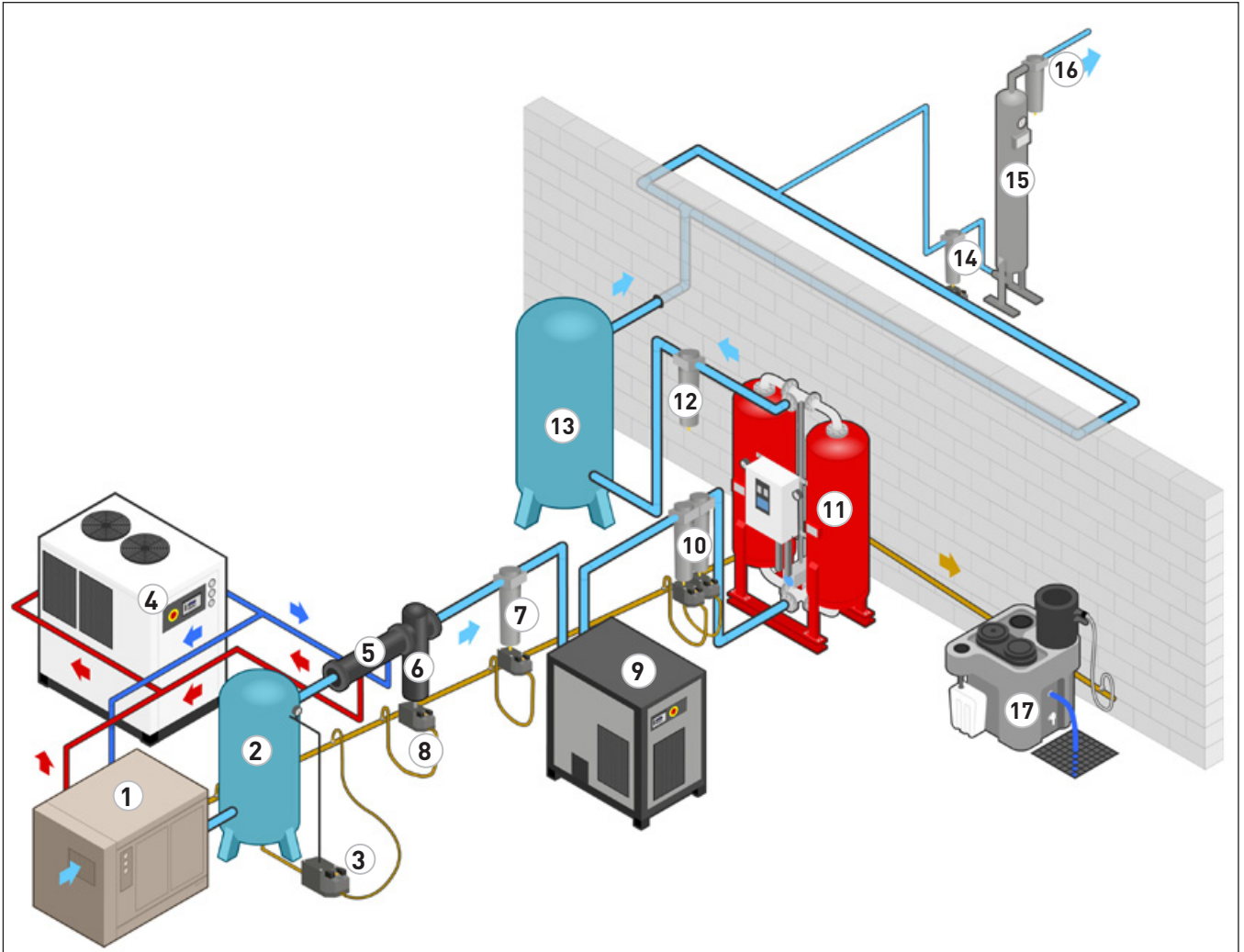
Heater		
Stock No.	Description	Suitable for model
EHT-ED4100-G230	Heater PN30, G1/2, 230 VAC	ED4100/50-G230
EHT-ED4100-N115	Heater PN30, NPT 1/2", 115 VAC	ED4100/50-N115

Service kit: Replacement parts package

Model	Stock No.	Scope of delivery
All Models	RKED4100/50	Solenoid valve, seals for the housing and electronic module
	SKED4100/50	Dirt filter, seals for the housing and electronic module

Product specifications

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| 1 Compressor | 10 Microfilter – oil/water aerosol and fine particle removal |
| 2 Air receiver (wet side) | 11 Vacuum-regenerating adsorption dryer |
| 3 Condensate drain ED4100 | 12 Dust filters |
| 4 Water chiller | 13 Air receiver (dry side) |
| 5 Water-cooled aftercooler | 14 Microfilter – oil/water aerosol and fine particle removal |
| 6 Water Separator | 15 Adsorption Filter – oil vapor / oil odor removal |
| 7 Coalescing Filter - oil, water and particulate removal | 16 Dust filter |
| 8 Condensate drain ED4100 | 17 Oil/water separator |
| 9 Refrigeration dryer | |