

1 HDV-E08 / HDV-E16 / HDV-E23 / HDV-E30 / HDV-45 / HDV-E65 / HDV-E95

Modulating ejector

1.1 Front view



Fig. 1: Front view HDV-E95

1.2 Features

- Modulating ejector for transcritical CO₂ refrigeration plants
- Operating mode: Modulating high pressure valve and modulating ejector
- System integration: Simple and robust, with self-cleaning tip adapter
- · Continuous bipolar step motor drive with high spread of control signals
- Activation via the control module SVD001/SVD101:
 - Easy to configure
 - Emergency closing function with separate energy supply
 - 0...10V DC, galvanically isolated
 - Defined safe valve position, configurable
 - High maximum working pressure difference of 120bar
- High immunity to cable lengths
- Maintenance-free

Validity of the documentation

Date	
2024-07	Basis of documentation

This document will automatically cease to be valid if a new technical description is issued. **Manufacturer**: Armaturenwerk Altenburg GmbH (Bitzer Group), Am Weißen Berg 30, D-04600 Altenburg. The manufacturer's CE Declaration of Conformity is valid for the product.



1.3 Safety instructions

Writing conventions

NOTICE	Notices provide you with helpful information for handling the device.
(i)	



Avoid the described hazard: Otherwise death or serious bodily injury will be a direct result.

For your safety

For safe operation and to avoid personal injury and equipment damage through operator error, always read these instructions, become familiar with the device, and follow all safety instructions on the product and in this document, as well as the safety guidelines of Wurm GmbH & Co. KG Elektronische Systeme. Keep these instructions ready to hand for quick reference and pass them on with the device if the product is sold.

Wurm GmbH & Co. KG Elektronische Systeme accepts no liability in the case of improper use or use for purposes other than the intended purpose.

Target group	This manual is intended for "service technician" personnel.				
Intended use	HDV-E is an ejector to be installed in refrigeration plants and air conditioning systems.				





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DANGER

1.4 Installing the device

DANGER TO LIFE DUE TO PRESSURE SURGE!

- Make sure the line is free of pressure when installing and dismantling the ejector.
- Wear safety shoes, protective clothing and safety goggles when performing work of any kind.
- Make sure all pipes mounted to the ejector are free from loads and tension. The ejector may break if subjected to high mechanical strain.
- Never completely fill the blocked off components and pipes with liquid. Leave sufficient volume above liquids. The components and pipes could break if subjected to excessive fluid pressure.
- Make sure the maximum permitted pressure levels are not exceeded.



- Upon delivery, the ejector's connections are sealed with caps and the valve is open.
- The ejectors can be installed horizontally or vertically with the refrigerant outlet at the bottom.
 Install a filter in the propellant pressure line upstream of the ejector inlet and the high-pressure
- Install a filter in the propellant pressure line upstream of the ejector inlet and the high-pressure control valve connected in parallel.



- Install a non-return valve in the ejector's suction line.
- On the outlet side, install an aligned settling line to the diffuser. The settling line must be at least 1.5-times longer than the ejector.
- Use pipe elbows instead of T-pieces downstream of the settling line.

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1.4.1 Dimensions



Fig. 3: Illustrative example of the dimensions

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	Mass flow [kg/h]*	Weight [kg]	Connections		Dimensions				
Ejector type			In [mm]	Out [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDV-E08	800	3.1	21.3	26.9	443	263	24	100	220
HDV-E16	1600	3.1	21.3	26.9	443	263	24	100	220
HDV-E23	2300	3.5	33.7	33.7	462	282	24	100	220
HDV-E30	3040	3.5	33.7	33.7	462	282	24	100	220
HDV-E45	4500	3.5	33.7	33.7	462	282	24	100	220
HDV-E65	6500	6.0	33.7	48.3	568	388	24	100	220
HDV-E95	9500	9.1	33.7	60.3	658	478	24	100	220

Type overview

* kg/h = Nominal value for R744, 92bar, 31°C

1.5 Technical data

Max. permitted pressure	140bar	
Maximum permitted pressure difference	120bar	
Medium temperature	-2060°C	
Ambient temperature	-2050°C	
Materials	Valve body: Stainless steel 1.4305/1.4307	
Motor type	2-phase hybrid stepper motor	
Phase resistance	5Ω	
Power supply	24V DC	
Degree of protection	IP67	
Maximum cable length	< 50m	
CE conformity	- 2014/30/EU (EMC Directive)	CE
	RoHS II	