

Biogas dryer / Dehumidifier

Unit for Biogas plants

model MDU

Biogas dryer / Dehumidifier is designed for applications:

Biogas	- from agricultural and food substrates
Sewage gas	- sewage sludge from the wastewater treatment plant
Landfill gas	- from landfills

Flow of gas **150 – 300 – 600 Nm³/hod. *)**



Description :

The equipment is designed for installation on the supply pipe to the biogas cogeneration units. In terms of the material used for the heat exchanger, it is supposed to be used absorber of sulphur compounds in the gas piping system before the dehumidifying unit.

As standard, system is based on the steel frame and includes of three parts:

- Cooling unit with circuit of antifreeze, operating at very low temperatures
- Tube condenser / heat exchanger with special low pressure drop of 0.5 kPa with thermal insulation
- Condensate collector

Cooling unit includes of main components :

- Primary refrigerant circuit with evaporator, compressor and condenser
- Secondary circuit with antifreeze pump and properly insulated pipes
- Main electrical panel
- Temperature Controller

Optional features on request:

- Backup pump
- Heat for subsequent heating gas
- Dual or multi-stage refrigeration circuit
- Booster fan - in case it is not possible to secure the gas pressure at the inlet of the heat exchanger.



Dehumidifier unit can be installed in open air or under cover.

Condenser tube is cleaned by flushing chemical detergents, if necessary. (mixture of hydrocarbon-based solvent with additives such as antioxidants and corrosion inhibitors.) Material of condenser is chrome-nickel stainless steel.

The device has been designed to fulfill specific parameters of gas and gas concentrations. For different parameters of the gas, It is useful to check size with calculation program. When the temperature or flow of biogas is crossing, it is necessary to size of condenser and also size of the cooling unit.



VOSMIK E&C – Makovskeho 1227/15 – CZ 16300 PRAHA 6 – Czech Republic

phone +420 211 140 101 – mob. +420 736 462 770

info@vosmik-engineering.com – www.vosmik-engineering.com

Table of technical parameters		Biogas dryer / Dehumidifier type MDU		
General parameters		MDU 150	MDU 300	MDU 600
Overall dimensions (W x H x D)	mm		3000 x 1445 x 2300	3000 x 1445 x 2300
Gas flow	Nm ³ /hod	150	300	600
Max. working pressure of gas	kPa	4,5	4,5	5
Heat Exchanger unit Nr.	pcs	1	1	1
Material of gas piping (variant)	-	1.4541	1.4541	1.4541
Size of connections - input/output		DN200 / DN125	DN250 / DN125	DN300 / DN125
Flange type		EN 1092-4/PN10/DN.../02+32 B1/ Alu + 1.4541		
Weight total	kg	836	856	1127
Cooling unit – heat pump				
Cooling power	kW	8	16	33,5
Refrigerant – internal cooling circle		R407c		
Max. working pressure	kPa	2,5MPa		
Control system (producer)		Siemens		
Way of cooling power control	%	10-100% proportional		
Fans – air power	m ³ /h	3000	6000	12000
Ambient temperature	°C	-30 / +35		
Manual control of back flow		YES	YES	YES
Coolant - secondary circuit		propylene glycol - water 50%		
Temperature of cooled medium input	°C	8	8	8
Temperature of cooled medium output	°C	2	2	2
Pump - external pressure	kPa	30	30	50
Weight of cooling unit	kg	295	295	570
Electrical supply power of pump	kW	0,22	0,22	0,22
Electric installation				
Power supply		3/N/PE/AC 400/230V, 50Hz TN-S		
Maximum power consumption	kW	9,6	9,6	19,6
Maximum current	A	17,4	17,4	36,4
Connection cable type		CYKY-J 5x4	CYKY-J 5x4	CYKY-J 5x10
Fuse, characteristics of circuit breakers		character.C A20	character.C A20	character.C A40

MDU dehumidifiers do not need a service at start up. These are tested at the factory.
Installation is done on a concrete base.

The device is designed for the parameters :
Composition of the gas: CH₄ 65%, CO₂ 35%, the rest - N₂, trace ingredients and water vapour
specific humidity input 58g/kg, P = 105-110 kPa, t_i / t_o = 40 °C / 4 °C, refrigerant - Propylenglycol mixture

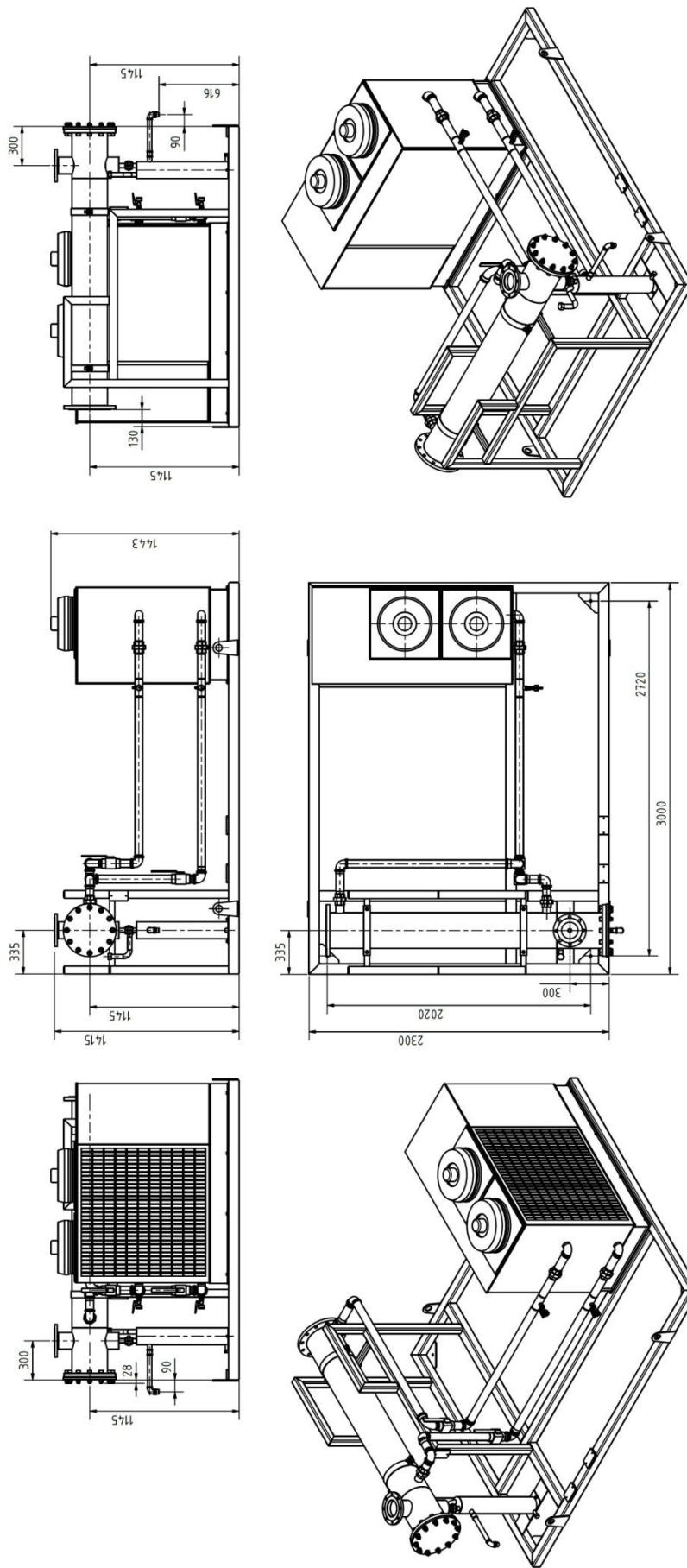
If it is not possible to have constant gas input pressure 1,5 - 6 kPa, it require the installation of a centrifugal fan R.RV 400-A-P0 °

Technical details pleased to send and answer questions on the following phone numbers.

The manufacturer reserves the right to make technical and design changes to the product without notification.



DIMENSIONS OF DEHUMIDIFIER - MDU 300



DIMENSIONS OF DEHUMIDIFIER - MDU 600

