



BURAN REFRIGERATION COMPRESSED AIR DRYER



Compact Design

There is more to Compressed Air than just compressing Air

Compressed air is an indispensable source of operating and processing power in all areas of industrial and technical production. The compressed air is generated by raising the pressure of large volumes of ambient air. Usually this air contains harmful substances, such as dirt particles and moisture in the form of water vapour. The water vapour condenses and can lead to operational breakdowns and considerable but avoidable costs. To prevent production downtimes compressed air must be clean, dry and oil-free.

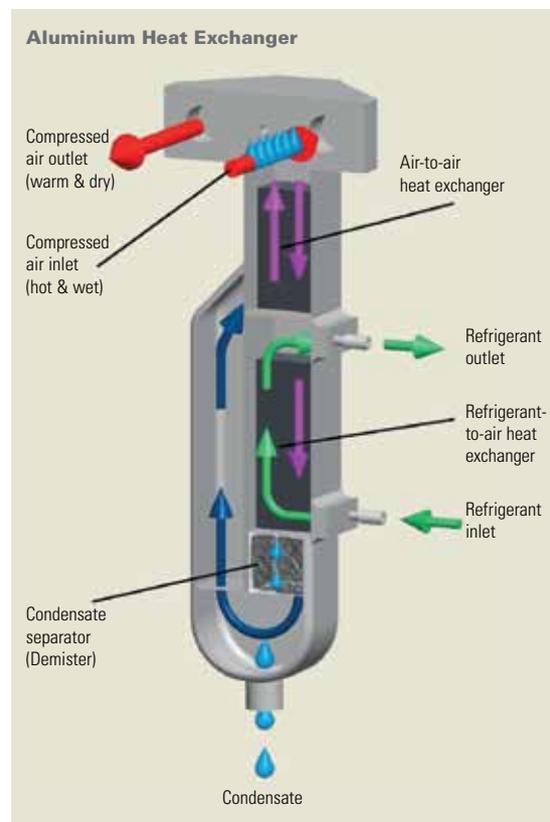


Buran Refrigeration Compressed Air Dryers

The refrigeration compressed air dryers of the Buran range, dry the air to prevent condensation and corrosion damage. The dryers in a robust metal housing are equipped with an electronic level controlled condensate drain and a dewpoint indicator. The aluminium heat exchanger includes three functions in one: air-to-air heat exchanger, refrigerant-to-air heat exchanger and water separator. Hereby an especially compact design is achieved.

How the Buran functions?

The compressed air is being fed into the dryer and being pre-cooled in the air-to-air heat exchanger by the outgoing cold compressed air. The pre-cooled air then passes through the refrigerant-to-air heat exchanger where it is being further cooled down to the required pressure dewpoint. The moisture in the compressed air condenses out and gathers and discharges automatically. Finally, the cold discharged air is being reheated by the incoming compressed air. This saves energy and prevents any moisture forming beyond the dryer in the compressed air system. The cooling capacity of the refrigeration cycle is being controlled by a hot gas bypass, which will assure secure functioning even during partial loading.



The main feature of the Buran refrigeration compressed air dryer is the aluminium heat exchanger

Low Pressure Losses

Low Operating Costs

Due to the new heat exchanger concept pressure losses are reduced to a minimum and the operating costs are kept low throughout the whole lifetime. By the reduction of the pressure losses the energy efficiency could further be increased. The average pressure loss is 22 % lower than with the previous dryer range.

Increase of the energy efficiency by reduction of pressure loss



The average pressure loss was reduced in comparison to the previous range by 22 %

Annual energy saving by the use of high-efficient technology

	Standard refrigeration compressed air dryer previous range	Standard refrigeration compressed air dryer new range*
Flow (m ³ /h)	300	300
Pressure dewpoint (°C)	3 °C	3 °C
Pressure loss (bar)	0.28	0.19
Annual power consumption for pressure loss (kWh)	2,068	1,403

The example for energy savings is based on: 2 shifts industrial production, 5 days a week (4,000 hours per year)

*Buran I-III

Clear, easy visible Control Display

The control panel, which is user-friendly allows for the monitoring of the operating status at a glance:

- The dewpoint is clearly displayed with a 10 point LED indicator
- Easy LED-Display for the operating mode, an alarm and the function of the fan
- Adjustable dewpoint alarm



The display shows all relevant information

Easy Handling

The robust Buran refrigeration compressed air dryers stand out due to the easy handling and ease of maintenance:

- All connections are accessible from one side (compressed air in- and outlet, electrical connection, condensate drain and inspection drain control)
- Good accessibility of the main components
- Low maintenance time



An easy installation is guaranteed with all connections being located on one side

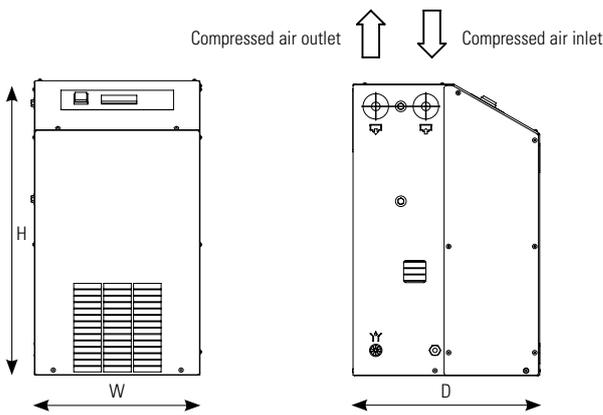
Technical Data

Buran I–IV (Volume Flows from 20 bis 1,650 m³/h)

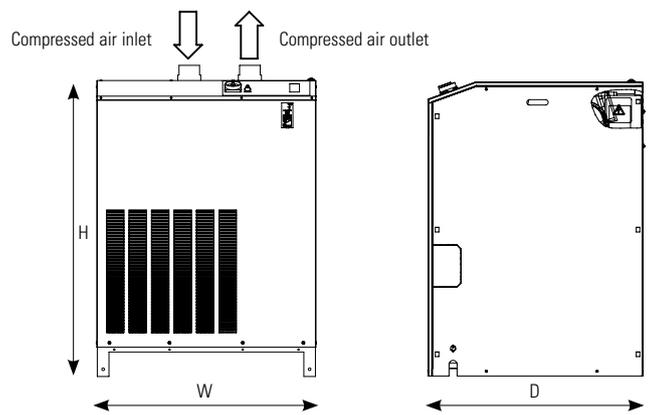
Housing	Type	Volume flow		Pressure drop bar	Power supply V/Ph/Hz	Power consumption kW (50 Hz)	Cooling air requirement m³/h	Air connection BSP	Weight kg	Dimensions mm		
		m³/h	m³/min							W	H	D
I	DC 0020 AB	20	0.33	0.03	230/1/50-60	0.16	200	½"	26	360	645	410
	DC 0035 AB	35	0.58	0.06	230/1/50-60	0.18	200	½"	27	360	645	410
	DC 0050 AB	50	0.83	0.09	230/1/50-60	0.22	300	½"	29	360	645	410
	DC 0065 AB	65	1.08	0.11	230/1/50-60	0.22	300	½"	31	360	645	410
	DC 0085 AB	85	1.42	0.15	230/1/50-60	0.30	300	½"	32	360	645	410
	DC 0105 AB	105	1.75	0.17	230/1/50-60	0.30	300	1"	33	360	645	410
II	DC 0125 AB	125	2.08	0.22	230/1/50	0.46	300	1"	34	360	645	410
	DC 0150 AB	150	2.50	0.19	230/1/50	0.47	300	1 ¼"	55	480	870	660
	DC 0180 AB	180	3.00	0.22	230/1/50	0.72	380	1 ¼"	56	480	870	660
	DC 0225 AB	225	3.75	0.23	230/1/50	0.80	380	1 ¼"	57	480	870	660
	DC 0300 AB	300	5.00	0.19	230/1/50	0.70	450	1 ½"	68	480	870	660
	DC 0360 AB	360	6.00	0.26	230/1/50	0.76	450	1 ½"	74	480	870	660
III	DC 0450 AB	450	7.50	0.04	230/1/50	0.80	450	2"	116	645	1055	920
	DC 0550 AB	550	9.17	0.16	230/1/50	1.10	1900	2"	120	645	1055	920
	DC 0650 AB	650	10.83	0.23	230/1/50	1.52	1900	2"	121	645	1055	920
	DC 0750 AB	750	12.50	0.10	230/1/50	1.55	2200	2"	155	645	1055	920
	DC 0850 AB	850	14.17	0.14	230/1/50	1.60	3300	2"	165	645	1055	920

Buran IV with electronic control (energy saving function)

IV	DC 1000 AX	1000	16.67	0.27	400/3/50	2.40	3100	2 ½"	177	904	1230	805
	DC 1175 AX	1175	19.58	0.29	400/3/50	2.56	2600	2 ½"	180	904	1230	805
	DC 1350 AX	1350	22.50	0.21	400/3/50	2.80	2600	2 ½"	185	904	1230	805
	DC 1500 AX	1500	25.00	0.25	400/3/50	2.95	2600	2 ½"	190	904	1230	805
	DC 1650 AX	1650	27.50	0.26	400/3/50	3.10	2600	2 ½"	196	904	1230	805



Buran DC 0020 AB - DC 0850 AB



Buran DC 1000 AX - DC 1650 AX

Volume flow referred to the suction status of the air compressor (+20 °C, 1 bar), with compressed air inlet temperature 35 °C, operating overpressure 7 bar, ambient temperature 25 °C, pressure dewpoint +3 °C, measured at dryer outlet in accordance with ISO 7183. Permitted ambient temperature: min. +2 °C – max. 50 °C, permitted inlet temperature: max. 70 °C, max. operating pressure: DC 0020 AB to DC 0085 AB and DC 1000 AX to DC 1650 AX 16 bar; DC 0105 AB to DC 0850 AB 14 bar, higher pressure on request. Protection class IP 20, noise level: dB(A) <70. All refrigeration compressed air dryers are equipped with an environmental-friendly refrigerant: DC 0020 AB to DC 0150 AB and DC 1000 AX to DC 1650 AX R134a; DC 0180 AB to DC 0850 AB R407C.

Working overpressure	bar (g)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Factor	f _p	0.60	0.70	0.80	0.88	0.94	1.00	1.04	1.06	1.09	1.10	1.12	1.14	1.15	1.16	1.17		
Pressure dewpoint	°C	3	5	7	10	Temperature of the cooling air or cooling water						°C	25	30	35	40	45	50
Factor	f _{tpd}	1.00	1.12	1.24	1.36	Factor	f _{te}	1.00	0.97	0.94	0.87	0.75	0.62					
Compressed air inlet temperature	°C	30	35	40	45	50	55	60	65	70								
Factor	f _{ti}	1.28	1.00	0.88	0.75	0.58	0.48	0.44	0.42	0.40								

Corrected dryer capacity =
Standard dryer capacity x f_p x f_{tpd} x f_{te} x f_{ti}

Easy Handling

Features and Benefits

Aluminium Heat Exchanger

- Low operating costs due to marginal compressed air losses
- No corrosion inside the heat exchanger due to contact with wet compressed air

Hotgas Bypass Control*

- Proven and reliable technology with easy handling
- Constant dewpoint even with changing loads

High Overload Capacity*

- In case of overload, the dryer will only switch off at a dewpoint above than approximately +20 °C

Potential free Alarm Signal

- Economical operation and safe system installation in the compressed air network.

Electronic level controlled Condensate Drain

- No compressed air losses due to condensate removal

Compact & user-friendly

- Minimum space requirement (on stock, for transport and for the installation in the compressed air network).
- Installation is made easy by the access to all connections from one side
- Clearly visible operator control panel
- Minimum maintenance requirements

*Buran I–III



Increase of the Compressed Air Quality with Filtration

With a pre-filter the quality of the compressed air is further increased. The filter protects the dryer by separating liquid water, particles and oil.



*validated according to ISO 12500-1

Everything from one Source

Service with highest Expectations

Our service is always nearby! With our technical service and support network throughout Europe, we can routinely service your production systems as well as provide on-site support whenever needed.

With one of our service centers you receive quick, cost-effective and competent services for all filtration applications from one source.



The Solution for high Volume Flows

Donaldson offers a complete range of refrigeration compressed air dryers to meet your specific needs. For high volume flows our engineering team developed an individual solution, which is tailored to your operating parameters and fulfils highest requirements with regards to energy efficiency.

Our Buran IV refrigeration compressed air dryers (1,000 to 1,650 m³/h) with electronic control as well as the Boreas (1,800 to 28,500 m³/h) and Brisa (10,500 to 50,000 m³/h) range are available for this purpose.

Donaldson
Ultrafilter

Compressed Air Filtration · Filters for Sterile Air, Steam and Liquids · Refrigerant Drying · Adsorption Drying · Condensate Drains · Condensate Purification Systems · Process Air and Gas Processing



Donaldson
FILTRATION SOLUTIONS

Total Filtration Management

Donaldson offers a wide variety of solutions to reduce your energy costs, improve your productivity, guarantee production quality and help protect the environment.

Total Filtration Service

A comprehensive range of services especially designed to keep your production at peak performance and at the lowest total cost of ownership.

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