



# BURAN REFRIGERATION COMPRESSED AIR DRYER

UltraPleat®  
Technology



# Plug & Play 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.

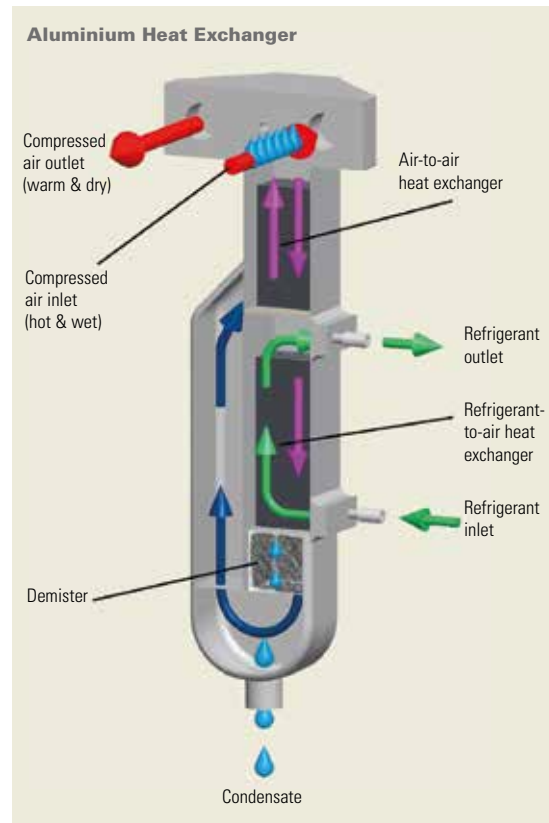


## Buran Refrigeration Compressed Air Dryers

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 integrated pre- and post filter inclusive 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 electronic level controlled condensate drain. 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

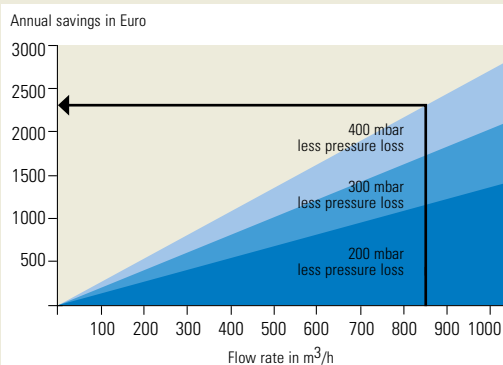
## Efficient and Economical

The efficiency of the outmost compact and space saving design is shown by the significant reduction of the differential pressure. Only a 400 mbar lower differential pressure with regard to 8,000 operating hours at a flow rate of 850 m<sup>3</sup>/h will already save 2,300 Euro per year (7 bar mains pressure, 90 kW of installed capacity, 8 Eurocent/kWh). This example shows that an investment into the optimization of the compressed air system amortises itself within a short time.



The display shows all relevant information

## Energy Cost Savings through Reduction of Differential Pressure



A decrease of differential pressure by only 400 mbar saves 2,300 EUR per year. (with 8,000 operating hours/year, 7 bar mains system pressure, 90 kW installed capacity and 0.08 Euro/kWh)

Legend:  
Savings with 400 mbar (light blue)  
Savings with 300 mbar (medium blue)  
Savings with 200 mbar (dark blue)

## Easy Handling

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

- Space saving design, easy installation. No additional pipe installation of pre- and post-filter required.\*
- 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
- Reduced maintenance effort

\*(Buran I- III)

## Clear, easily visible Control Display

The user-friendly control panel 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
- Service display informs automatically about the forthcoming filter replacement



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

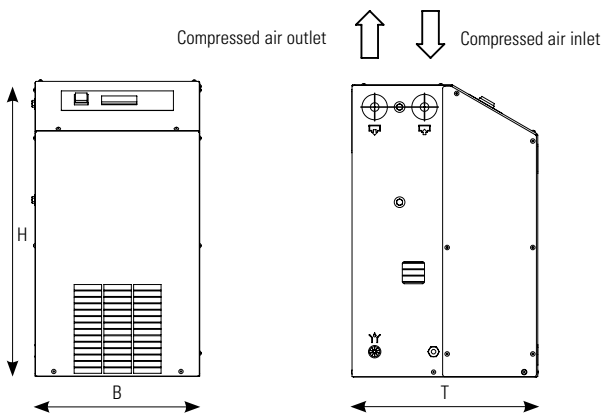
# Technical Data

## Buran I-III with integrated pre- and post-filters

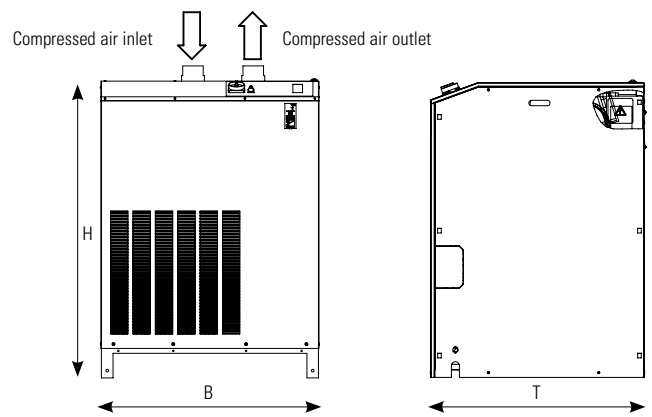
	Type	Volume flow		Pressure drop bar	Power supply V/Ph/Hz	Power consumption kW (50 Hz)	Cooling air requirement m <sup>3</sup> /h	Air connection BSP	Weight kg	Dimensions mm		
		m <sup>3</sup> /h	m <sup>3</sup> /min							W	H	D
-	DC 0020 AB	20	0.33	0.04	230/1~/50-60	0.14	200	¾"	30	455	410	645
	DC 0035 AB	35	0.58	0.04	230/1~/50-60	0.17	200	¾"	31	455	410	645
	DC 0050 AB	50	0.83	0.10	230/1~/50-60	0.19	300	¾"	33	455	410	645
	DC 0065 AB	65	1.08	0.13	230/1~/50-60	0.24	300	¾"	36	455	410	645
	DC 0085 AB	85	1.42	0.14	230/1~/50-60	0.28	300	¾"	37	455	410	645
	DC 0105 AB	105	1.75	0.28	230/1~/50-60	0.28	300	¾"	37	455	410	645
=	DC 0125 AB	125	2.08	0.39	230/1~/50	0.45	300	¾"	38	455	410	645
	DC 0150 AB	150	2.50	0.15	230/1~/50	0.47	300	1 ½"	63	600	590	870
	DC 0180 AB	180	3.00	0.12	230/1~/50	0.68	380	1 ½"	65	600	590	870
	DC 0225 AB	225	3.75	0.18	230/1~/50	0.76	380	1 ½"	76	600	590	870
	DC 0300 AB	300	5.00	0.36	230/1~/50	0.71	450	1 ½"	76	600	590	870
	DC 0360 AB	360	6.00	0.49	230/1~/50	0.89	450	1 ½"	76	600	590	870
≡	DC 0450 AB	450	7.50	0.11	230/1~/50	0.91	450	2"	143	800	920	1055
	DC 0550 AB	550	9.17	0.15	230/1~/50	1.11	1900	2"	152	800	920	1055
	DC 0650 AB	650	10.83	0.32	230/1~/50	1.40	1900	2"	159	800	920	1055
	DC 0750 AB	750	12.50	0.25	230/1~/50	1.34	2500	2"	175	800	920	1055
	DC 0850 AB	850	14.17	0.33	230/1~/50	1.70	3300	2"	192	800	920	1055

## Buran IV with electronic control (energy saving function) without filters

>	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, power consumption at ambient temperature +25 °C, permitted inlet temperature: max. 70 °C, Permitted ambient temperature: min. +2 °C – max. 50 °C, max. operating pressure: DC 0020 AB to DC 0085 AB and DC 1000 AX to DC 1650 AX 16 bar; DC 0105 AB bis DC 0850 AB 14 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 <sub>p</sub>	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		
Compressed air inlet temperature	°C	3	5	7	10	Temperature of the cooling air or cooling waters						°C	25	30	35	40	45	50
Factor	f <sub>tpd</sub>	1.00	1.12	1.24	1.36	Factor	f <sub>tu</sub>	1.00	0.97	0.97	0.87	0.75	0.62					
Factor	f <sub>te</sub>	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<sub>p</sub> x f<sub>tpd</sub> x f<sub>tu</sub> x f<sub>te</sub>

# Benefits of the new Buran range

## Features and Benefits

### Integrated pre- and post-filter (BURAN I-III)

- Pre-filter type V protects the air heat exchanger from oil and particle contamination
- Post-filter UltraPleat M meets specified compressed air quality requirements
- High separation efficiency of filter at low pressure drop
- No additional installation effort for pre- and post-filter required

### 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 (BURAN I-III)

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

### Compact & user-friendly

- Compact plug & play design
- Achievable compressed air quality according to ISO8573-1:2010 [2:4:2] (with usual impurity of compressed air)
- Energy savings through low differential pressure
- Easy to service concept (service kits, service display, easy access to components within the housing)

### High Overload Capacity

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

### Potential free Alarm Signal

- Economical operation and safe system installation in the compressed air network.
- Connection to higher-level control possible

### Electronic level controlled Condensate Drain

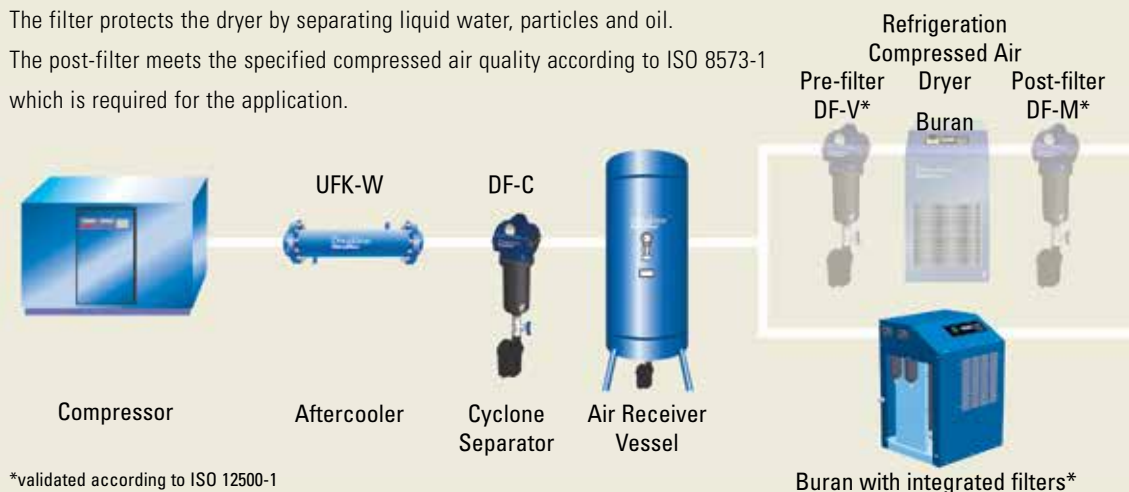
- No compressed air losses due to condensate removal

## Increase of the Compressed Air Quality with Filtration

With a pre- and post filter the quality of the compressed air is further increased.

The filter protects the dryer by separating liquid water, particles and oil.

The post-filter meets the specified compressed air quality according to ISO 8573-1 which is required for the application.



\*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 comprehensive 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 regard to energy efficiency.

Our Buran IV refrigeration compressed air dryers (1,000 to 1,650 m<sup>3</sup>/h) with electronic control as well as the Boreas (1,800 to 28,500 m<sup>3</sup>/h) and Brisa (10,500 to 50,000 m<sup>3</sup>/h) range are available for this purpose.

**Donaldson**<sup>®</sup>  
**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**<sup>®</sup>  
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 compressive range of services especially designed to keep your production at peak performance and at the lowest total cost of ownership.

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