THE COMPACT SERIES

REFRIGERATED AIR DRYERS

RUSSELL

AIR DRYERS

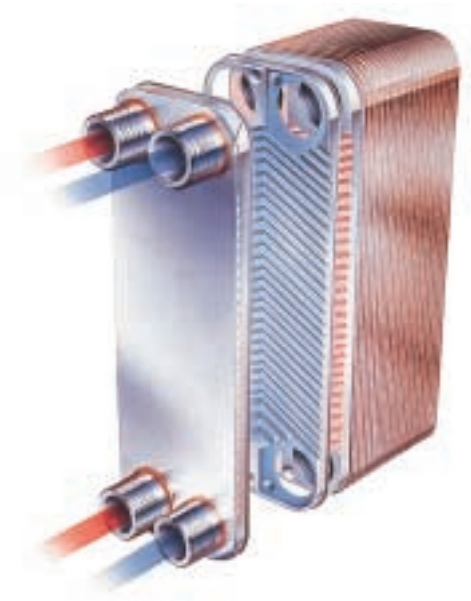
SMALL IN SIZE BIG ON PERFORMANCE

Water - the essence of life, curse of the pneumatics industry!

Why is water so much a poison to industrial compressed air users, and where does it come from? Water in a compressor system is simply a nuisance. It makes things rust, causes seizures, washes away lubricant from air tools, causes inaccuracies and much more, resulting in product wastage, inconvenient malfunctions and costly downtime. This water comes from the air that originally entered the compressor. Although it entered as a harmless vapour, it changes its state during compression and aftercooling resulting in water droplets forming which in turn causes all the associated problems. Installing a COMPACT dryer within the process will prevent these costly diseases by eliminating almost all of the harmful water and return only clean and dry air into the network which will ensure the plant can operate efficiently and reliably with minimal running costs.

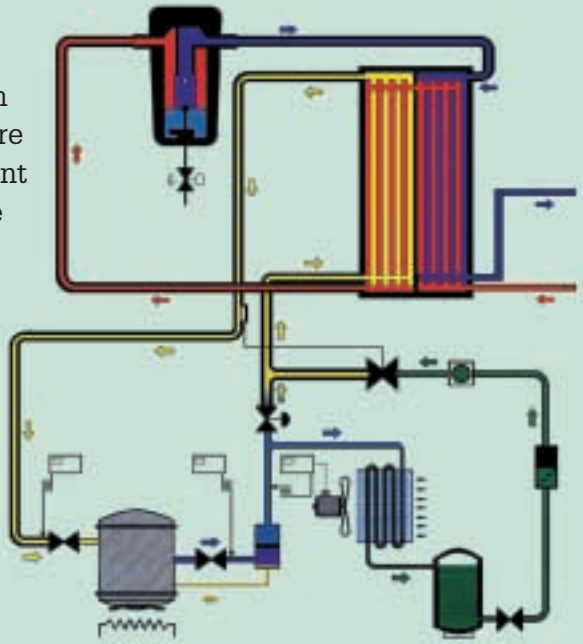
The COMPACT range: simplicity, efficiency and reliability using modern concepts in air-drying.

Many refrigerated dryers may look the same but the new COMPACT range is far from being just another dryer.
The use of the latest, and highly efficient, stainless steel plate type heat exchangers, designed into a refined package, results in a dryer that has an excellent performance, is simple to operate, and will keep doing its job reliably for many years. All this from such a compact cabinet.



The principles of operation

Wet compressed air enters the dryer and is directed to the single monobloc plate heat exchangers.
The air entering is cooled down by the outgoing cold and dried air, which reduces the load on the refrigeration compressor, saving energy costs.
The air now passes to the "air to refrigerant" heat exchanger, which reduces its temperature to the pre-set dew point (normally +3˚C) where water droplets form.
All the condensed moisture is separated from the air in the high efficiency water separator where it is discharged to a drain.
Finally, the cool and dry air is reheated by thermally mixing it with the incoming air that also reduces its relative humidity, thus preventing pipework corrosion and annoying condensation on the downstream pipework.



High performance
Using the latest designs of plate coolers (which are a fifth of the size of the old "shell and tube" types for the same capacity), combined with proven direct expansion refrigeration technology, produces a dryer with ultra high performance under all operating conditions.

Low running costs
In order to minimise any additional load on the air compressor, careful attention has been paid to reducing pressure losses. This, together with the use of high efficiency heat exchangers and separators, has been a design priority to ensure low running costs.

Reliable in service
The use of a reliable control valve in a well designed refrigeration circuit eliminates any risk of freeze-ups. Additionally, the use of fewer soldered joints or couplings means that there is less chance of refrigerant leakage - less service calls!

Simple to operate
Simplicity is a key to reliability. The COMPACT range uses proven, easy to read instrumentation - no gimmicks, just what's needed. Once connected to the system, dry air is there at the press of a switch.

Built to last
The dryer is built by dedicated craftsmen. The quality standards we follow to ensure consistent reliability are in accordance with ISO 9001.

Compact design
Combining the monobloc heat exchanger with a cleverly laid out interior has allowed the entire dryer to be shrunk compared to conventional dryers, saving valuable floor space.

Service friendly
Just like the reliability of a domestic refrigerator, the COMPACT dryer will require virtually no maintenance - only routine checks. All serviceable items are located in convenient positions.

Environmentally friendly
The COMPACT dryers use only R134a or R407C refrigerants (CFC free), which fully comply with the latest legislation.

The COMPACT series: small in size but a wealth of features

- High performance
- Low running costs
- Reliable in service
- Simple to operate
- Built to last
- Compact design
- Service friendly
- Environmentally friendly

TECHNICAL SPECIFICATION

COMPACT Model No.	Capacity at 3°C PDP		Capacity at 7°C PDP		Capacity at 10°C PDP		Power Absorbed kW	Air Connections	Weight kg	Size (mm) L x W x H
	cfm	m³/min	cfm	m³/min	cfm	m³/min				
7	**25**	**0.7**	28	0.79	32	0.9	0.2	1/2" BSPF	30	512x370x512
10	**34**	**0.96**	38	1.08	42	1.2	0.21	1/2" BSPF	31	512x370x512
12	**42**	**1.2**	48	1.35	53	1.5	0.24	1/2" BSPF	34	512x370x512
16	**57**	**1.6**	64	1.8	71	2	0.29	1" BSPF	35	512x370x512
20	**71**	**2**	79	2.25	88	2.5	0.52	1" BSPF	50	492x562x797
30	**106**	**3**	119	3.38	134	3.8	0.57	1" BSPF	55	492x562x797
45	**159**	**4.5**	179	5.06	198	5.6	0.64	1" BSPF	65	492x562x797
65	**230**	**6.5**	256	7.26	286	8.1	1.02	1" BSPF	75	492x562x797
90	**318**	**9**	357	10.1	396	11.2	1.30	2" BSPF	140	1005x776x908
110	**381**	**10.8**	431	12.2	477	13.5	1.9	2" BSPF	150	1005x776x908
155	**547**	**15.5**	614	17.4	685	19.4	2.36	2" BSPF	170	1005x776x908
180	**636**	**18**	717	20.3	795	22.5	2.66	2" BSPF	180	1005x776x908
225	**795**	**22.5**	893	25.3	992	28.1	3.46	2" BSPF	190	1005x776x908

Performances are in accordance with ISO 7183.

REFERENCE CONDITIONS

Inlet Compressed air pressure:	7 bar g
Inlet compressed air temperature:	35°C (100%RH)
Ambient temperature:	25°C
Minimum Pressure Dew point:	3°C

OPERATING LIMITATIONS

Working Pressure:	2 to 16 bar g
Inlet Air Temperature:	55°C maximum
Ambient Temperature:	0°C to 43°C (47°C option)

CORRECTION FACTORS

For operating outside of reference conditions.

Operating Pressure (bar g)	5	6	**7**	8	9	10
Coefficient **(Pc)**	0,96	0,98	**1,0**	1,04	1,06	1,09

Inlet temperature (°C)	30	**35**	40	45	50	55
Coefficient **(Ic)**	1,11	**1,0**	0,89	0,79	0,7	0,62

Ambient temperature (°C)	**25**	30	35	40	43
Coefficient **(Ac)**	**1,0**	0.95	0,9	0,85	0,84

EXAMPLE

Desired Capacity:	12m³/min
Operating Pressure:	10 bar g
Inlet air temperature:	40°C
Ambient temperature:	35°C
Required Capacity:	= Nominal Capacity / (Pc * Ic * Ac)
	= 12m³/min / (1.09 * 0.89 * 0.9)
	= 13.74 m³/min
Dryer Selection is:	**COMPACT 155** for 3°C PDP

RUSSELL
AIR DRYERS

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