

AIR COMPRESSORS
ROLLAIR®
75-100-125E

E F F I C I E N C Y



R E L I A B I L I T Y

ROLLAIR® 75-100-125E

Superior quality & Performance

The modern ROLLAIR® compressor is the result of more than 30 years of continuous product development.

Our design and manufacturing policy is to produce a Quality Product combining Reliability, Low Maintenance and Energy Efficiency.

Our aim is simple : to produce a compressor that sets the standard for the compressed air industry.



ROLLAIR® 75

ROLLAIR® 100

Good design = high efficiency

Quality products start with good design.

At Worthington-Creysensac, we use the latest computer aided design and testing techniques to prove the concept of our new products before the manufacturing process starts.

Each component is manufactured to the highest standards to ensure the total package performance is maintained with maximum reliability throughout its operational life.

At each stage of the manufacturing process, components are tested to ensure material quality and tolerances are within the design specification.

Final assembly of our products is carried out in a modern factory environment using the latest assembly techniques. At the end of each production line is a final test cell to ensure product performance meets the original design specification.

Build quality = low maintenance

The ROLLAIR® 75-125E compressor is supplied in an epoxy coated steel enclosure, which while aesthetically pleasing incorporates many practical design features to make the installation and maintenance of the package as simple as possible.

The vibration damped frame incorporates slots for a fork lift truck to allow easy movement of the compressor and large panels to improve maintenance access.

The excellent sound attenuation within the package results in low noise levels, enabling the package to be installed in a production area, increasing the number of installation opportunities.

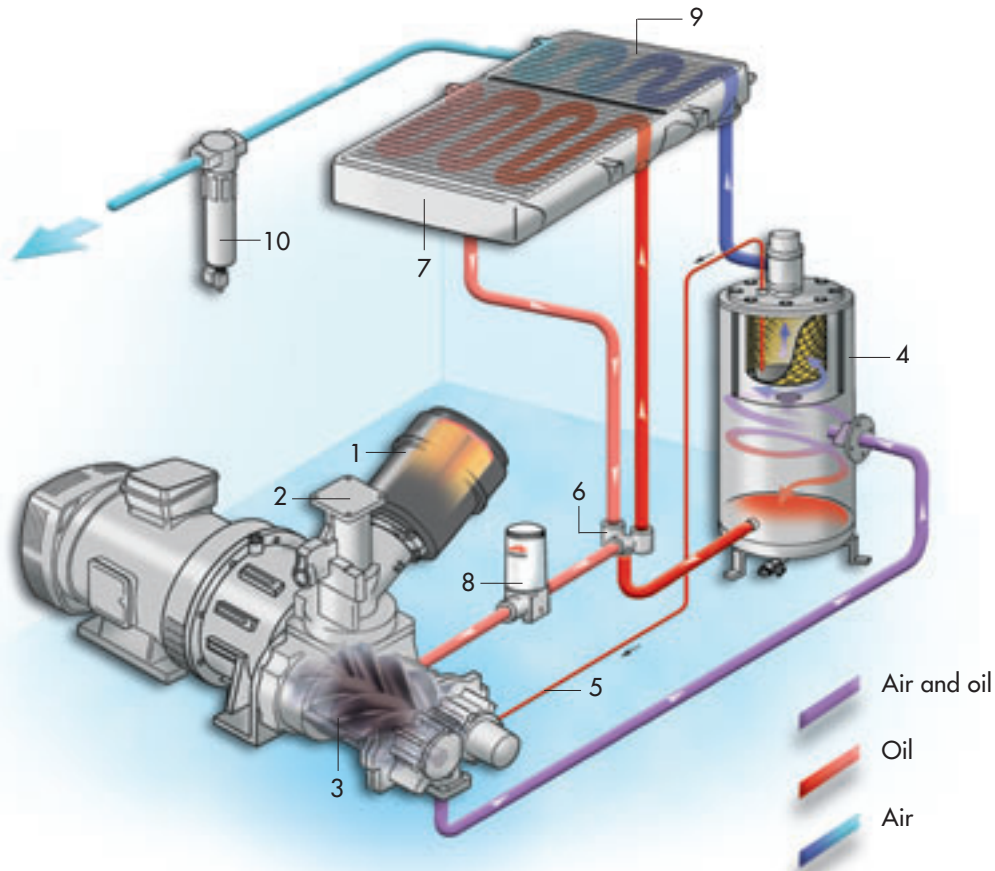
All ROLLAIR® 75-125E are supplied filled with oil and have been run and tested according to our quality control procedures, ensuring they are ready for immediate operation.

ROLLAIR® 75-100-125E

Precision Mechanics

- 1 Air is drawn through a high efficiency filter into the compression element.
- 2 The air entering the compression element is regulated by the pneumatically controlled inlet valve.

- 6 Thermostatic by-pass valve ensures optimum oil temperature before oil enters the coolers, to reduce the load on the motor on start up and improve lubrication of the air-end element.



- 3 Oil in the compression element performs three vital roles : cooling, lubrication and a seal between the rotor profiles. Ensuring peak performance with no loss in efficiency throughout the life of the compression element.
- 4 The three stage air/oil separation system is designed to provide a low residual oil content in the air below 3 ppm. The oil in the separator vessel, is separated by cyclonic action, weight, and finally filtrated through a cartridge designed with a large filtration surface to ensure high air quality.
- 5 Residual oil inside the separator element is removed by the oil scavenge line and re injected into the rotary screw element, reducing oil carryover into the compressed air network.

- 7 Oil coolers with a large surface area maintain the correct operating temperature of the compressor.
- 8 Oil is filtered to remove contamination before being re injected into the air-end.
- 9 Air coolers reduce the temperature in the compressed air to 10 °C above ambient temperature causing water vapour to condense.
- 10 90 % of all water is removed by a cyclonic separator and drained by an electronic drain valve controlled by the PCI 07. This protects down-stream equipment from water contamination, increasing the reliability of pneumatic equipment and reducing product contamination.

The water cooled machines and energy recovery options have been designed with heat exchangers accurately sized according to water temperature specifications.

High filtration quality

The 2-micron pleated air filter is designed to give maximum protection for the air/oil circuit while maintaining sufficient surface area for unobstructed airflow.

The encapsulated air filter has several benefits over conventional filters including :

Pre-cyclonic filtration to capture large dust particles before passing through the filtration media, extending the life of the filter element.

Inlet air duct to the filter element ensuring the air temperature entering the element is as low as possible, reducing the operating temperature and increasing the compression efficiency of the compressor.



Reliable air inlet control

A very simple and reliable suction valve with a pressure balancing system to reduce vibration during off load cycles, lowering noise levels and extending the life of the compression element.

Based on pneumatic regulation, the control system automatically selects one of three control methods according to the pressure required and the air demand fluctuations, ensuring the compressor is always working at maximum efficiency.

High efficiency screw element

The new ROLLAIR® 75-125E has the latest evolution of the asymmetrical profile rotary screw element. Combining proven technology with advanced materials and production methods, we have developed a new element that sets the standard for efficiency and reliability.



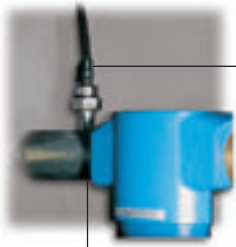
Safe and solid air & oil connections

All air and oil connections have high quality hoses or rigid tubes with FLEXMASTER® expansion joints.

Each component has been specially designed for maximum reliability and durability to increase the operating life time of the compressor package and reduce maintenance costs.

ROLLAIR® 75-100-125E

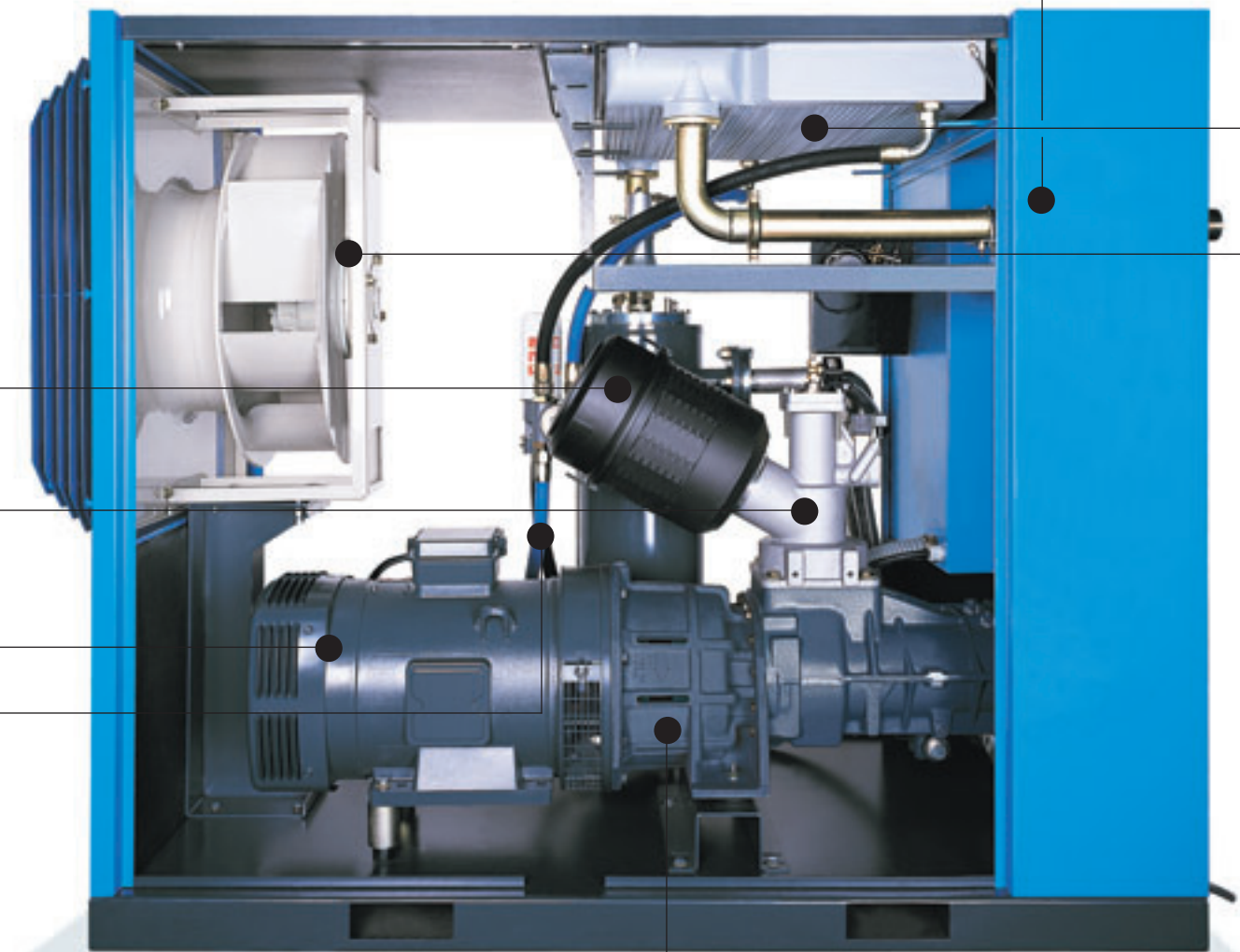
High quality components for optimum reliability



Accurate pressure control

The regulation pressure is controlled at the outlet of the compressor package, ensuring an outlet package pressure in line with the working pressure required.

The highly accurate pressure transducer combined with the PCI07 and variable control inlet valve allows the compressor to work within a minimum pressure band resulting in significant energy savings compared to conventional regulation systems.



Superior drive efficiency

Gears combined with the SUREFLEX® (TEXOFLEX® for ROLLAIR® 100A) coupling provide superior drive efficiency compared to belt drive systems. The gears used on the ROLLAIR® compressors require no maintenance and no periodic change.

A bell housing is fitted to guarantee perfect alignment between the motor and the air-end element : this combined with the SUREFLEX® coupling reduces vibrations and extends the life of the compression element.

Large cooling capacity

High efficiency aluminium type cooler blocks are designed with a large surface area reducing the air and the oil fluid temperature to the minimum for maximum cooling efficiency.

The coolers are horizontally mounted in the roof of the compressor to ensure optimum thermal efficiency.

Easy access to clean the coolers is possible because of the separate turbine ventilator.

Maximum ventilation efficiency

One of the most modern innovations incorporated into the ROLLAIR® 75-125E is the turbine ventilator which gives several benefits :

Designed to operate with low rotation speeds, the noise level of the package is reduced to a minimum.

The turbine has a higher ventilation flow with less power consumption than a conventional cooling fan. Reducing both the power consumption and operating temperature of the compressor package.



Low maintenance and maximum accessibility

High Quality components are used throughout the compressor package for maximum operating life and minimum maintenance requirements.

Large access doors and removable central support ensure quick and simple access to all internal components for preventive maintenance and easy cleaning.

The ROLLAIR® 75-125E compressors are equipped with a service monitoring system that provides a count down indication of when maintenance is due, allowing service work to be booked in advance. A flashing maintenance indicator gives a warning if the service period is exceeded.



Variants

Water cooled
Energy recovery on oil circuit
Automatic restart
Oil re-heating system
External Inverter drive unit OPTIMAIR®

Connection to the LEADAIR® compressor management and Energy Saving System

High pre-filtration panels
High inlet air pre-filtration
Capacity drain for zero air loss
Remote control
Link cable for 2 PCI 07

ROLLAIR® 75-100-125E

Packaged for performance

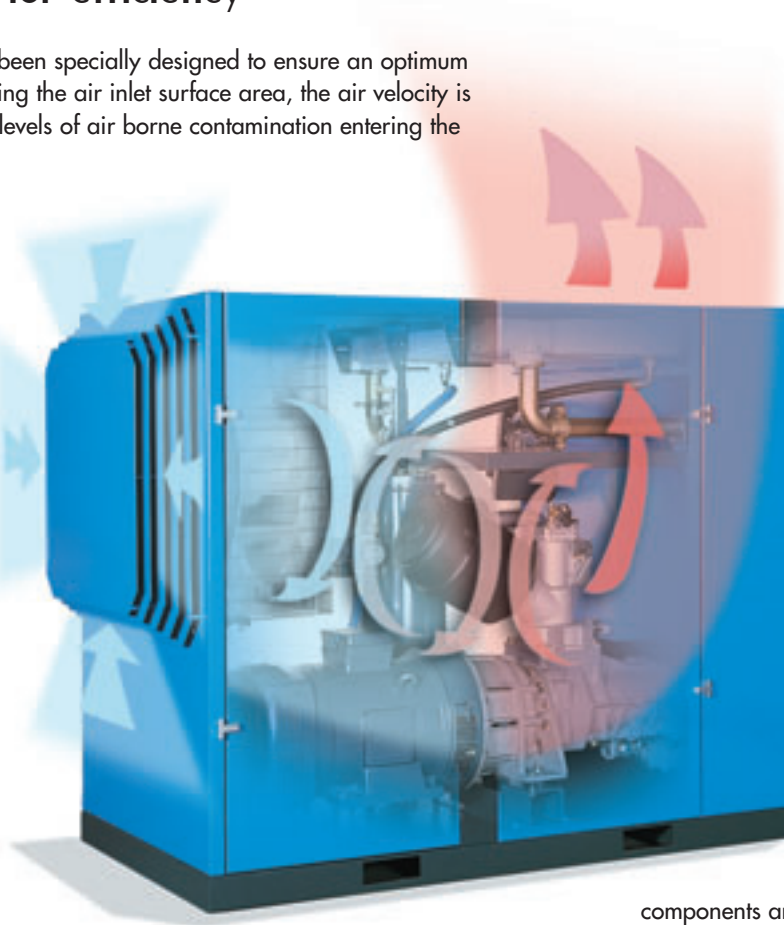
Modern design for efficiency

The air intake baffles have been specially designed to ensure an optimum cooling air flow. By increasing the air inlet surface area, the air velocity is reduced, resulting in lower levels of air borne contamination entering the compressor.

The design of the inlet baffle allows the compressor to be placed against a wall, as air is laterally drawn into the compressor package.

This special feature reduces the amount of installation space required without sacrificing maintenance access.

The main drive motor of the compressor is placed below the turbine fan to maximise cooling efficiency resulting in lower operating temperatures, and lower power consumption.



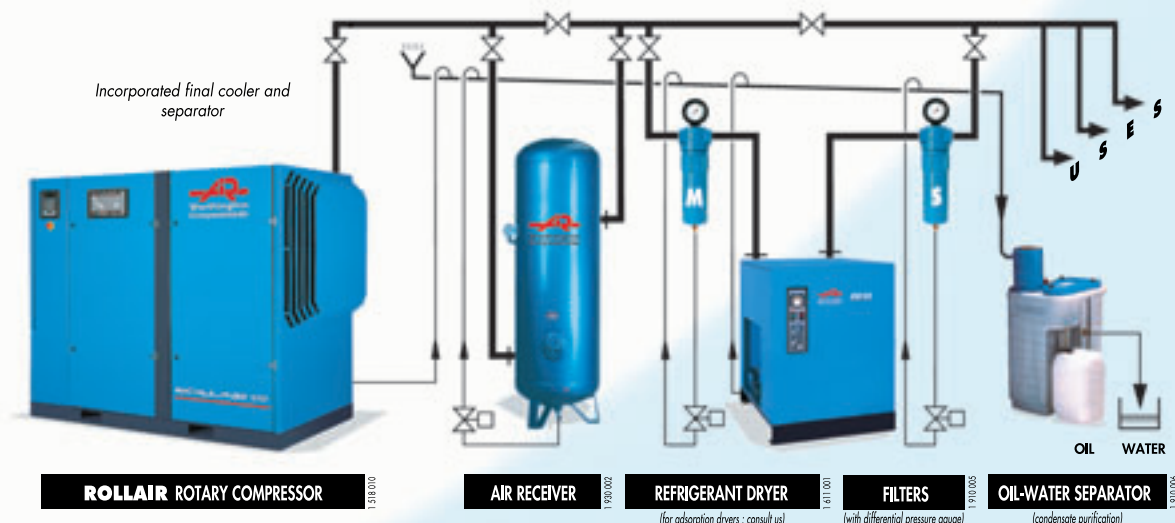
The Worthington-Creysensac turbine cooling system has several advantages over cooling fans.

A conventional cooling fan blows or draws air across the compressor resulting in warm and cold areas in the compressor package.

The turbine circulates air through the package for a more efficient ventilation flow and thermal exchange, reducing stress on internal components and increasing package reliability.

The ventilation flow of the compressor has been optimised for minimum space requirements. Duct work can be fitted to the warm air outlet of the compressor for energy recovery without the need for any additional installation space.

Example of installation for processing compressed air with a refrigeration dryer



ROLLAIR® 75-100-125E

Reliable control for optimum efficiency

The ROLLAIR® 75-125E compressors are equipped with the PCI 07 service monitoring system to provide indications of when maintenance is due and to allow service work to be planned, avoiding unforeseen stoppages.

A fully comprehensive array of displays, warnings and faults are included. The system is user friendly and can be mastered in minutes.

Comprehensive monitoring



Display

- Package outlet pressure
- Element outlet oil temperature
- Total running hours
- On load running hours
- Load rate
- Hours before oil change
- Hours before air filter change
- Hours before oil filter change
- Hours before oil separator change
- Display of operating status
- Display of fault nature
- Last fault memory

Alarm for :

- Element outlet temperature
- Main motor overload fault
- Star contactor fault
- High pressure
- Restart without pressure
- Water flow detection (*water version*)
- Temperature sensor fault
- High temperature fault
- Low temperature fault
- Pressure sensor fault
- Turbine overload fault
- Number of starts per hour
- Oil separator blockage detection

Control for :

- Regulating solenoid valve
- Condensate drain solenoid valve
- Star delta timer

Others :

General fault report	OPTION
Alarm report	OPTION
Remote control	OPTION
Last fault memory	8
On/off (timers)	1 to 56
Auto restart after power cut	OPTION

Safety devices

- High pressure sensor
- Safety valve
- Automatic blow down valve
- Minimum pressure valve
- Thermostatic bypass valve
- Element non return valve
- High temperature thermostat
- Motor thermal overloads
- Water supply detector (*water version*)

With a **Real Time Clock Control**, the starting and stopping of the unit can be programmed through a maximum of 56 timers to set an operating schedule avoiding air production without air demand.

The PCI 07 is equipped with a serial port which when connected to another PCI 07 through the optional serial cable enables one compressor to control the operating cycle of a second compressor, eliminating the need for an external change-over switch.

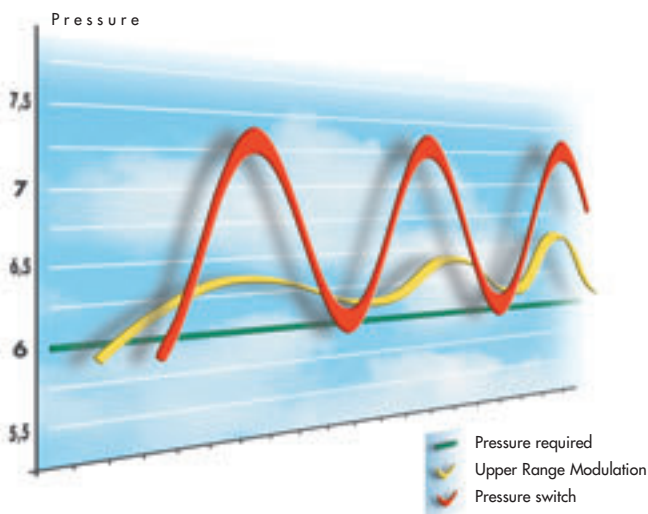
Automatic dual control for optimum efficiency

Accurate control

ROLLAIR® 75-125E compressors use conventional pressure sensors, but in a unique manner to allow upper range modulation. This system allows three different control methods to increase energy efficiency and operating flexibility.

Full load / No load control

Classical control method between a pressure band set accurately with pressure sensor, mostly efficient for the intermittent air usage. When the upper pressure limit is reached the compressor will reduce internal pressure, reducing power consumption to approximately 20 % of full load power.



Modulating control

This system throttles the air as it enters the compressor matching output to demand while maintaining a constant pressure within the network. This method of control is the most efficient form of regulation when the air usage is above 70 % of the compressor output.

The compressor will give a steady pressure into the system increasing reliability of down stream equipment. There is no need to go to a higher pressure to achieve an operating range as with load/no load control, reducing power consumption and lowering energy costs.

Air-end bearing life is also extended with the reduction in axial thrust generated with on/off load cycles.

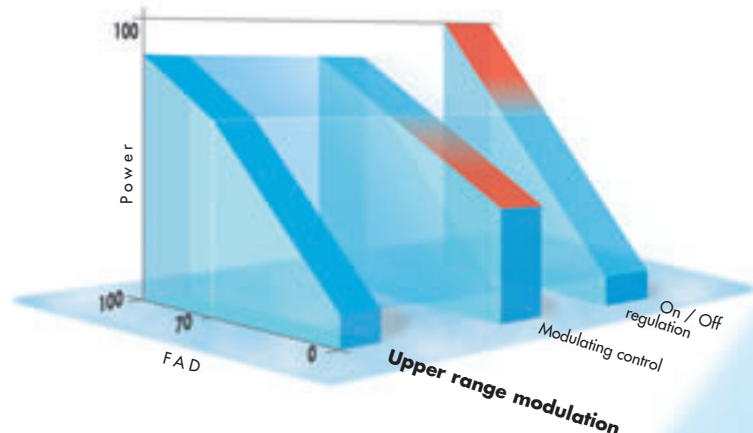
Upper range modulation

This compressor control system combines the best features of load/no load control and modulating control. The ROLLAIR® 75-125E regulation system will automatically change its method as air usage patterns change, ensuring maximum energy efficiency at all times.

Above 70 % of the compressor output, the control system will modulate.

When the demand of the system falls below 70 % the compressor will switch to load/no load control, reducing the power consumption.

Upper range modulation respects the customers needs to have efficient operation combined with extended component life.



Reduced on load / off load cycles :

- = Reduced wear on internal components
- = Increased reliability

Reduced pressure changes in the rotary screw element :

- = Longer bearing life
- = Lower maintenance costs

Automatic dual control :

- = Reduced power consumption
- = Lower electricity costs

Technical Specifications

Version	Working pressure	* Free air delivery		Motor power	** Acoustic level	Air version : Cooling fan flow	(1) Water version : Water flow at 20 °C	*** Compressed air output diameter	Weight
	Bar eff.	Cfm	m ³ / min	kW / Hp	dB (A)	m ³ / h	m ³ / h	"	kg
ROLLAIR® 75									
A	8	364	10,3	55 / 75	71	13 000	3,5	2"	1 170
B	10,5	307	8,7	55 / 75	71	13 000	3,5	2"	1 170
C	13,5	249	7,0	55 / 75	71	13 000	3,5	2"	1 170
ROLLAIR® 100									
A	8	496	14,0	75 / 100	73	13 000	4,5	2"	1 200
B	10,5	413	11,7	75 / 100	73	13 000	4,5	2"	1 200
C	13,5	358	10,1	75 / 100	73	13 000	4,5	2"	1 200
ROLLAIR® 125E									
A	8	536	15,2	90 / 125	77	15 000	5	2"	1 400
B	10,5	458	13,0	90 / 125	77	15 000	5	2"	1 400
C	13,5	399	11,3	90 / 125	77	15 000	5	2"	1 400

* as per ISO 1217 : 1996

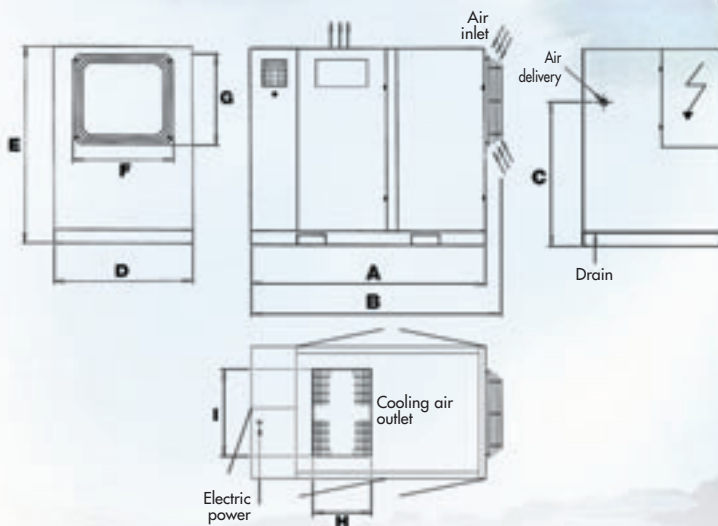
** as per CAGI PNEUROP Norm at 1 metre

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Performances measured on an operating ROLLAIR® at the unit's outlet : suction pressure 1b Abs, ambient temperature 20°C with delivery pressure A=7 bar for 8 bar version, B=9,5 bar for 10,5 bar version and C=12,5 bar for 13,5 bar version.

(1) Water cooled version : Ø water inlet and water outlet : 1".
The temperature of the air leaving the final cooling unit is 10°C higher than the input temperature.

Dimensional requirements



Ref. marks	Air cooled version	Water cooled version
	75-100-125E	75-100-125E
A	2 000	2 000
B	2 160	-
C	1 320	1 320
D	1 110	1 110
E	1 700	1 700
F	1 000	-
G	950	-

Ref. marks	Ducting opening drawing (calories extraction)		
	Air cooled version		
	75	100	125E
H	640	688	825
I	795	795	795

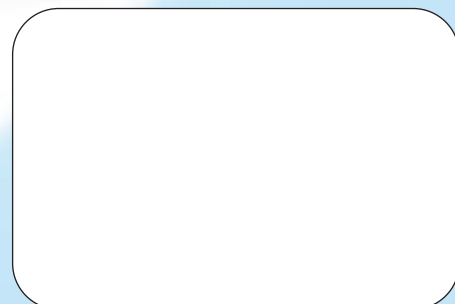
Dimensions in mm

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