

EASY DRY LINE
REFRIGERATION AIR DRYERS



The art of treating compressed air

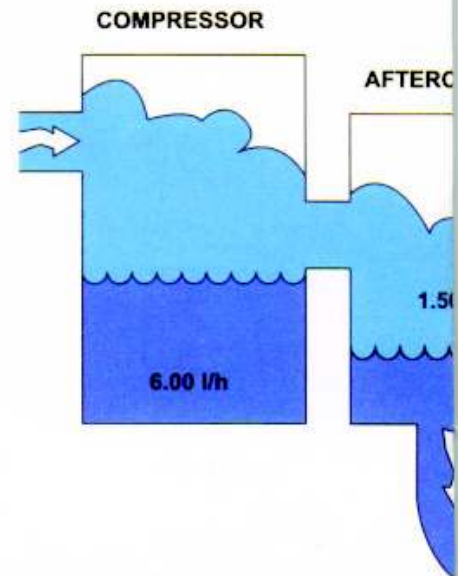
THE ART OF TREATING COMPRESSED AIR

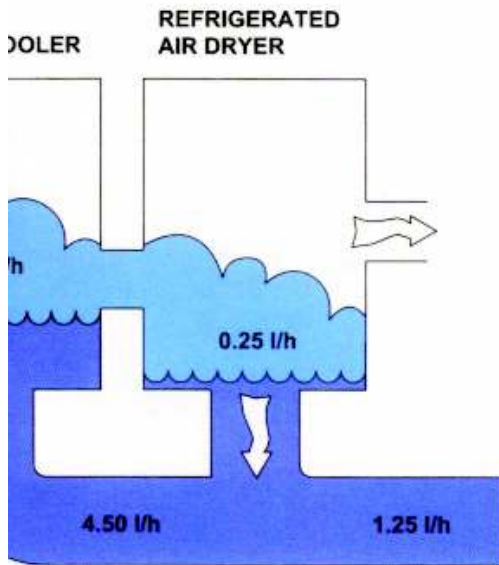
Compressed air supplied by industrial plants if not properly treated contains a large quantity of contaminants like solid and liquid particles where water's vapour represents the bigger share.

Such water is responsible of the corrosion of piping system and pneumatic equipment.

These damages, which are spoiling and interrupting the production, will result in higher running costs of the whole system.

In order to realize the phenomenon, as a sample, we can consider that:





A 50 HP screw compressor (37 kW) which delivers about 6,000 l/min. free air at 7 Bar, 25 °C Ambient temperature and 70 % relative humidity, introduces 6 lt./hour of vaporized water into the compressed air system. After compression about 75% of such vapour condenses in water droplets that, if not properly removed, will enter the compressed air pipe line. By means of aftercoolers, separators and condensate drains it is already possible to eliminate up to 70- 80 % of the condensed liquids but, only with a refrigerated air dryer, it will be possible to eliminate an additional amount of humidity to guarantee a clean air suitable for most of the pneumatic applications.



KED 2 ÷ 20 A

The entry level range of our refrigeration air dryers has been subject of further improvements in order to achieve higher performances and better reliability.

All dryers are equipped with a **new high efficiency state of the art heat exchanger** integrating a specifically designed condensate separator.

Such new heat exchangers have been completely designed in our laboratories to guarantee the highest level of performances with the lowest pressure drop.

A sophisticated microprocessor, thanks to an exclusive **variable speed fan Patented solution**, allows a constant pressure dew point under every working condition.

A large range of parameters and alarms - high temperature, low temperature (antifreezing), temperature probe failure - are included in every unit.

An electronic auto drain which is a standard feature on all models it is easily adjustable through the controller to match all possible working conditions. A capacity "intelligent" type drain is available upon request.

KED 40 ÷ 75 A

This series has been completely redesigned to allow easier installation, inspection and maintenance. These new units have been developed to be integrated with a large series of accessories like filters, by pass and capacity type drain.

These new units have taken advantage of microprocessor which controls, monitors and sets dew point temperature and drain valve.

Out of standard operation and alarms are included as standard features.

The heat exchangers combined with a high efficiency condensate separator guarantee an extremely low pressure drop and proper operation even under heavy duty working conditions.



KED 100 ÷ 750 A

This new series of "industrial" dryers represents the culmination of our experience gained through many years of manufacturing and distributing large drying equipment worldwide.

These models have been designed and developed in accordance to the latest safety regulations.

Like the professional series, these new units are offered with a totally new design with smaller footprint that allows best inspection and easy maintenance also in the more critical installations.

All units are equipped with an electronic control system combined with a hot gas by pass and are supplied, as standard, with all the devices to guarantee a perfect operation even under heavy duty working conditions.

Safety devices, like high and low pressure switches coupled with the control of the alarms, prevent the damage of the dryer in case of out of standard or wrong working conditions.

KED 100÷750 A feature advanced aluminum heat exchangers, specifically designed for compressed air dryers.

These exchangers provide the very best combination of high efficiency and low pressure drop. The improved air-to-air heat exchanger performance reduces the refrigeration load and increases the reheat temperature. The resulting customer benefits are: smaller refrigeration compressor, reduced power consumption and increased volumetric efficiency. The integrated demister separator insures greater than 99.9% separator efficiency from zero to maximum rated airflow.

The Control Panel includes all the main functions to control and monitor the unit :

- Adjustment of operation temperatures.
- Setting and control of the drain valve.
- Control of the main working conditions:
 - ♦ Frigorific circuit working pressures
 - ♦ Compressor's status
 - ♦ Fan's status
 - ♦ Alarms

All unit are preinstalled to suit:

- ♦ Intellidrain
- ♦ Remote ON/OFF
- ♦ Remote Control
- ♦ Tele-assistance via GSM

The company's versatility along with the availability of a large range of accessories and components allows to match every customer' and market' requirements.

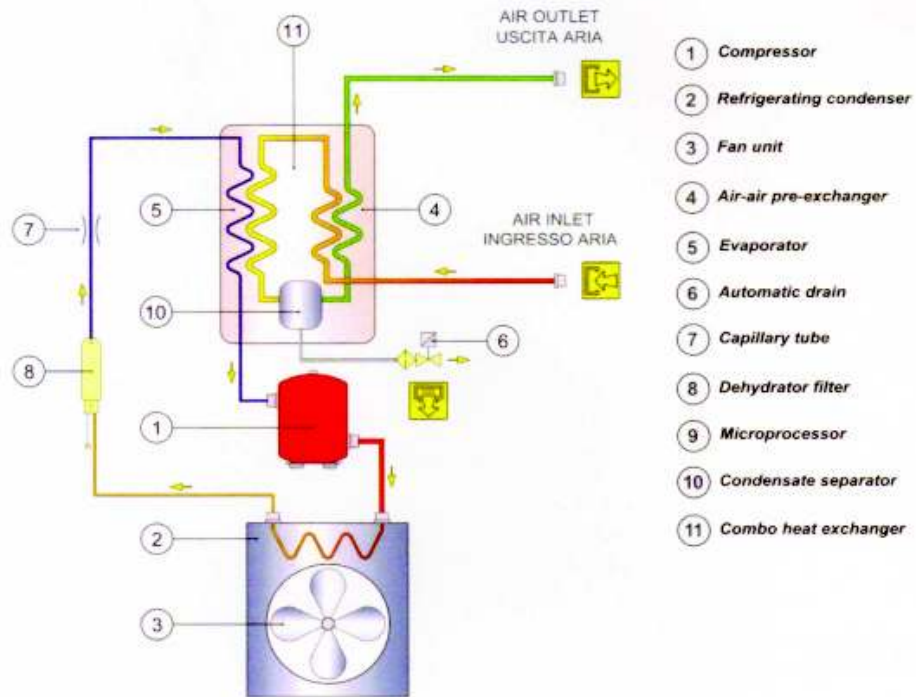


OPERATION

Compressed air enters the combo heat exchanger (11) where it is cooled down to the dew point temperature in two different stages:

In the first air/air sector (4) compressed inlet air temperature is cooled down thanks to the colder compressed air flowing counterflow out from the condensate separator (10).

In the second refrigerant / air sector (5), compressed air temperature is lowered down to the pre-set dew



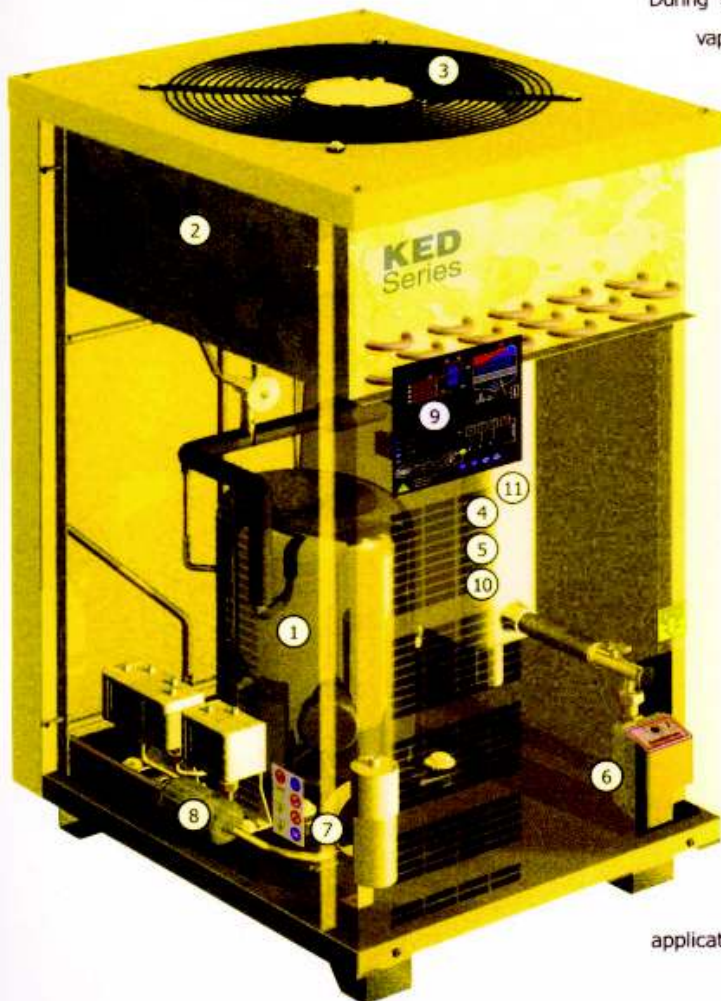
During this two cooling stages almost all the oil and water vapours contained in compressed air will condense and successively they are separated from the air in the high efficiency separator (10) and drained out by the automatic drain (6).

At this point cold dry air re-enters counterflow or crossflow the initial air / air exchanger (4) and it is reheated by the inlet hot air with the consequence of energy recovering and also reduction of the relative humidity of the leaving air.

The patented cooling circuit is designed to be able to automatically adjust the cooling capacity depending on the quantity and temperature of the air to be treated.

The system is coupled with a microprocessor (9) developed to guarantee a stable dew point and to monitor and control out of standard operations.

The dry air obtained with this process is the cleanest and most environmentally friendly source of energy used to operate pneumatic applications throughout the industry.



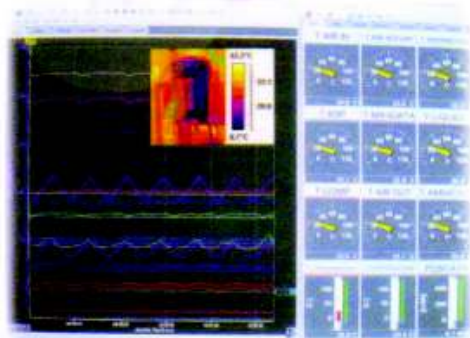
Our experience in the field of compressed air treatment has led to the development of a new series of dryers that satisfies the requirements of a highly specialized market.

The use of the best available components combined with ecological refrigerants and recyclable materials has allowed us to become one of the leaders of the market.

All models are manufactured in accordance to the main European directive 98/37/CE, 87/404/CEE, 97/23/CEE (PED) - others on request - and performances are guaranteed based on ISO 7183 to meet the quality standard of the ISO 8573-1.

The ISO 9001 standard, together with the know how developed thanks to the cooperation of always more sophisticated customers, guarantees the higher standard of quality in compliance with the modern market demands.

The implementation of the company's management system according to ISO 14001 shows the sensibility towards environment's respect and protection.



In our production we are adopting the most modern systems of manufacturing and accurate controls available in the market.

During the assembly process every single unit is accurately inspected to prevent gas leakages through the use of sophisticated **helium & hydrogen** leak detectors.



The processes of vacuuming, gas filling and setting of the

electrical parameters are performed with specifically designed **fully automated equipment**.

All parameters are monitored, compared with the individual standard ranges and automatically recorded to allow full traceability of every batch of production.



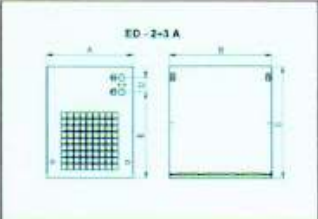
Finally **every single air dryer is automatically tested** to guarantee the **compliance with the standards of operation** and the conformity within the designed **standard codes** required by the different customers and markets.

TECHNICAL FEATURES

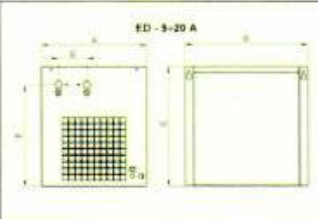
| MODEL | *FLOW-RATE | | | DIMENSIONS [mm] | | | | | | P.SUPP. V/ph/Hz | PRESS. bar | CONN. BSP | WEIGHT [Kg] | POW.CON. [kW] |
|----------------------------|------------|--------|-------|-----------------|------|------|------|-----|-----|--------------------|---------------|--------------|----------------|------------------|
| | [l/min] | [m3/h] | [CFM] | A | B | C | D | E | F | | | | | |
| KED-2A | 283 | 17 | 10 | 307 | 360 | 405 | 50.8 | 313 | - | 230/1/50 | 16 max | 3/8" | 17 | 0.11 |
| KED-3A | 396 | 24 | 14 | 307 | 360 | 405 | 50.8 | 313 | - | 230/1/50 | 16 max | 3/8" | 17 | 0.12 |
| KED-5A | 700 | 42 | 25 | 370 | 433 | 422 | 100 | 359 | - | 230/1/50 | 16 max | 1/2" | 30 | 0.17 |
| KED-10A | 1190 | 71 | 42 | 370 | 433 | 422 | 100 | 359 | - | 230/1/50 | 16 max | 3/4" | 38 | 0.21 |
| KED-15A | 1869 | 112 | 66 | 420 | 516 | 543 | 100 | 463 | - | 230/1/50 | 16 max | 3/4" | 41 | 0.41 |
| KED-20A | 2549 | 153 | 90 | 420 | 516 | 543 | 100 | 463 | - | 230/1/50 | 16 max | 3/4" | 47 | 0.47 |
| KED-40A | 4106 | 246 | 145 | 504 | 642 | 1067 | 158 | 255 | 102 | 230/1/50 | 14 max | 1.1/2" | 85 | 1.04 |
| KED-50A | 6088 | 365 | 215 | 504 | 642 | 1067 | 158 | 255 | 102 | 230/1/50 | 14 max | 1.1/2" | 87 | 1.04 |
| KED-60A | 7079 | 425 | 250 | 504 | 642 | 1067 | 158 | 255 | 102 | 230/1/50 | 14 max | 1.1/2" | 110 | 1.40 |
| KED-75A | 10619 | 637 | 375 | 790 | 720 | 1387 | 180 | 350 | 109 | 230/1/50 | 14 max | 2" | 120 | 1.85 |
| KED-100A | 14696 | 882 | 519 | 790 | 720 | 1387 | 180 | 350 | 109 | 230/1/50 | 14 max | 2" | 130 | 1.98 |
| KED-125A | 16197 | 972 | 572 | 790 | 720 | 1387 | 180 | 350 | 109 | 400/3/50 | 14 max | 2" | 150 | 2.58 |
| KED-150A | 20048 | 1203 | 708 | 784 | 1388 | 1585 | 389 | 84 | 568 | 400/3/50 | 14 max | 3" | 260 | 3.40 |
| KED-200A | 28317 | 1699 | 1000 | 784 | 1388 | 1585 | 389 | 84 | 568 | 400/3/50 | 14 max | 3" | 270 | 3.40 |
| KED-250A | 36667 | 2200 | 1295 | 784 | 1388 | 1585 | 389 | 84 | 568 | 400/3/50 | 14 max | 3" | 300 | 5.30 |
| KED-300A | 45000 | 2700 | 1589 | 914 | 1388 | 1585 | 389 | 84 | 568 | 400/3/50 | 14 max | DN 100 | 330 | 6.80 |
| KED-400A | 60000 | 3600 | 2119 | 1510 | 1500 | 1585 | 405 | 227 | 585 | 400/3/50 | 14 max | DN 125 | 420 | 7.81 |
| KED-500A | 70000 | 4200 | 2472 | 1510 | 1500 | 1585 | 405 | 227 | 585 | 400/3/50 | 14 max | DN 125 | 520 | 11.29 |
| KED-600A | 88333 | 5300 | 3119 | 1510 | 1500 | 1585 | 405 | 227 | 585 | 400/3/50 | 14 max | DN 150 | 620 | 12.91 |
| KED-700A | 100000 | 6000 | 3531 | 1510 | 1500 | 1585 | 405 | 227 | 585 | 400/3/50 | 14 max | DN 150 | 720 | 12.91 |
| KED-750A | 110000 | 6600 | 3882 | 1510 | 1500 | 1585 | 405 | 227 | 585 | 400/3/50 | 14 max | DN 150 | 750 | 12.91 |
| INTER - COOLER for ED40/60 | | | | 227 | 360 | 235 | 158 | 35 | 325 | - | 14 max | 1.1/2" | 20 | - |

* Air flow ref. to the compressor performances.

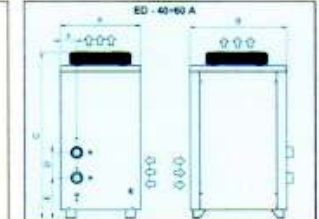
The constructor reserve the right to modify specifications without prior notice.



ED - 2-3 A

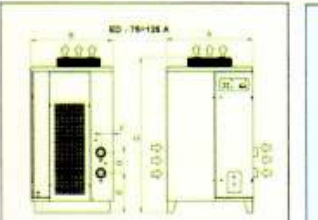


ED - 5-20 A

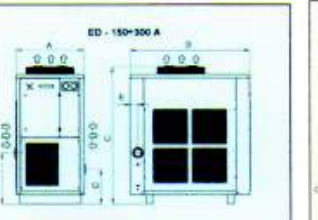


ED - 40-60 A

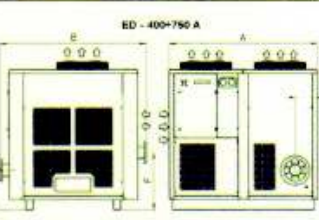
Refrigerant: available with R.134a - R.407C - R.404A
 Inlet air temp.: 45 °C (55 °C)
 Ambient temp.: 35 °C (45 °C)
 Dew point: 3 °C (-22 atm.)



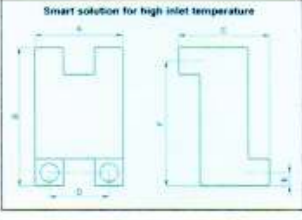
ED - 15-125 A



ED - 150-300 A



ED - 400-750 A



Smart solution for high inlet temperature

Max. Inlet temp. 90 °C

| Correction factors for different working pressures : | | | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| bar | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Fc : 1 | 0.73 | 0.83 | 0.85 | 0.93 | 1.00 | 1.06 | 1.11 | 1.15 | 1.18 | 1.20 | 1.22 | 1.24 | 1.25 | 1.26 |

| Correction factors for different ambient temperatures : | | | | | |
|---|------|------|------|------|------|
| °C | 25 | 30 | 35 | 40 | 45 |
| Fc : 2 | 1.11 | 1.07 | 1.00 | 0.85 | 0.66 |

| Correction factors for different inlet air temperatures : | | | | | | |
|---|------|------|------|------|------|------|
| °C | 30 | 35 | 40 | 45 | 50 | 55 |
| Fc : 2 | 1.43 | 1.30 | 1.20 | 1.00 | 0.87 | 0.68 |

| Correction factors for different dew point emperatures : | | | | | |
|--|------|------|------|------|------|
| °C | 3 | 5 | 7 | 9 | 10 |
| Fc : 4 | 1.00 | 1.09 | 1.18 | 1.30 | 1.33 |

Calculation of the dryers **REAL FLOW RATE = Nominal dryer flow rate x Fc1 x Fc2 x Fc3 x Fc4**

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