

## WHY DRY AIR ?

The air given off by any compressor always contains water vapour, the amount of which depends on the temperature and the relative degree of humidity.

When the air is compressed, the volume decreases proportionately, but the exhaust water vapour still remains in the air. When temperature decreases and reaches a value at which the air becomes saturated, the water vapour in the air begins to condense. This is called DEW POINT. With an appropriate aftercooling unit which reduces the temperature of the air produced by the compressor, approximately 60 - 70 % of the water gets condensed.

## DAMAGES CAUSED BY THE CONDENSATE

Condensate corrodes piping, solenoid valve and pneumatic tooling, forcing the user to withstand expensive repair interventions, especially the expensive "down-time"-heavy costs which cannot be easily controlled.

When compressed air is used as "process air" for painting equipment, in chemical industries, food processing industries, glass factories and in plants for conveying and handling hygroscopic raw materials, the installation of **ultrafilter** dryer is essential to eliminate the condensate which pollutes the production cycle.

## ELECTRONIC CONTROLS

For an optimal operation of its dryers, **ultrafilter (india)** has developed a new series of reliable and state-of-the-art microprocessor based controllers to monitor and control all the functions of the dryers. The details of these controllers are furnished below:

### URD1 Controller: For dryer Model UE / UR 10 to UE / UR 50



This controller is used to control all the functions of the dryer, which includes hot gas bypass valve and condensate drain valve operations. One temperature probe is used for controlling operation of hot gas solenoid valve. Condensate drain solenoid is operated using an in-built timer in the controller.

### URD2 Controller: For dryer Model UE / UR 75 to UE / UR 600



URD2 controller uses two temperature probes. One probe located at the end of evaporator controls the operation of hot gas solenoid valve. The second probe, located at the end of the condenser, activates the condenser fan. Condensate drain solenoid is operated using an in-built timer in the controller.

### URD3 Controller: For dryer Model UE 10-600



URD controller can be used for all dryer models. This is used mainly to control the operation of hot gas solenoid valve. An additional timer is used for the operation of condensate drain valve.

## Features :

- Non-cyclic operation
- Constant Pressure Dew Point 3°C
- Hot gas by-pass valve for freeze protection
- High efficiency centrifugal moisture separator with timer controlled electronic auto drain to remove condensate
- Easy to install, operate and maintain
- Low noise
- Low power consumption
- Low maintenance costs

## Technical Specifications

Model	Capacity cfm	Inlet/outlet Connection	Power Supply V AC/Ph/Hz	Dimensions						Weight Kgs
				A mm	B mm	C mm	D mm	E mm	F mm	
UE/UR 10	15	1/2" BSP(F)	220/1/50	505	450	540	50	210	210	34
UE/UR 20	30	3/4" BSP(F)	220/1/50	505	450	540	50	210	210	41
UE/UR 35	50	3/4" BSP(F)	220/1/50	505	450	540	50	210	210	43
UE/UR 50	65	1" BSP(F)	220/1/50	505	450	540	50	210	210	45
UE/UR 75	85	1" BSP(F)	220/1/50	635	540	670	75	260	290	57
UE/UR 100	120	1 1/4" BSP(F)	220/1/50	805	590	820	80	290	420	76
UE/UR 125	145	1 1/2" BSP(F)	220/1/50	805	590	820	80	290	420	94
UE/UR 150	170	2" BSP(F)	220/1/50	805	590	820	80	290	420	102
UE/UR 200	210	2" BSP(F)	220/1/50	805	590	820	80	290	420	105
UE/UR 250	275	2" BSP(F)	220/1/50	900	600	1150	115	400	200	210
UE/UR 300	325	2 1/2" BSP(F)	220/1/50	900	600	1150	115	400	200	240
UE/UR 400	440	65 NB	415/3/50	1100	800	1600	145	500	270	290
UE/UR 500	500	65 NB	415/3/50	1100	800	1600	145	500	270	300
UE/UR 600	600	80 NB	415/3/50	1100	800	1600	145	500	270	320
UE/UR 700	700	80 NB	415/3/50	1100	800	1600	145	500	270	350
UE/UR 800	800	80 NB	415/3/50	1100	800	1600	145	500	270	350
UE/UR 1000	1000	80/100 NB	415/3/50	1100	800	1600	145	500	270	400

Capacities mentioned above are for 7 bar operating pressure, 40°C inlet temperature, 38° C ambient temperature and +3° C pressure dew point. For other operating conditions, please refer correction factors shown in the following tables.

### A : Correction factor according to working pressure

Op. Pressure [Bar]	2	3	4	5	6	7	8	9	10	11	12
Correction Factor	0.54	0.67	0.77	0.85	0.93	1.00	1.06	1.11	1.15	1.18	1.21

### B : Correction factor according to ambient temperature

Ambient Temp. (°C)	25	30	35	38	40	43	45
Correction Factor	1.08	1.07	1.04	1.00	0.98	0.90	0.84

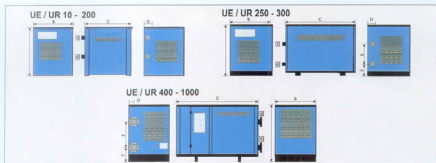
### C : Correction factor according to air inlet temperature

Inlet air Temp (°C)	30	35	40	45
Correction Factor	1.40	1.17	1.00	0.88

### D : Correction factor according to pressure dew point

Dew Point (°C)	3	4	5	6	7	8	9	10
Correction Factor	1	1.02	1.05	1.07	1.1	1.12	1.15	1.18

- Nominal Inlet Air Pressure 7 bar / Maximum Inlet Air Pressure 16 bar
- UE series Dryers are with environment friendly R134a refrigerant
- UR series Dryers are with R22 refrigerant
- For capacities 150 cfm and above, Dryers with R134a refrigerant are available upon request
- Dryers for higher capacities and operating pressures upto 40 bar available upon request
- Dryers with other refrigerants-R404a & R407c are available for higher capacities

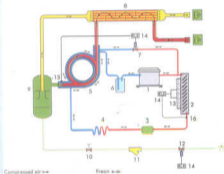


## FUNCTIONING PRINCIPLE

The UE / UR series dryers are basically made of two different circuits - a compressed air circuit, divided into two heat exchangers and a refrigerating circuit. The hot and humid inlet compressed air passes through the air - air heat exchanger 8 and then reaches the evaporator 5 (air-freon heat exchanger), where it is cooled by the refrigerating circuit until it reaches the preset dew point, thus condensing the moisture it contains. In the separator 9 the condensed moisture is then separated and removed.

The advantages of such a system are essentially two, first of all the inlet air is pre-cooled, so the refrigerating system can be sized in order to guarantee a more limited thermal jump, with an energy saving of about 40-50%, and secondly no cold air is conveyed through the compressed air line, thus preventing the overall formation of condensate on the external surface of the piping.

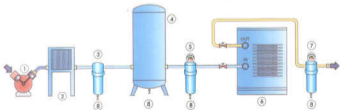
## FLOW DIAGRAM



1. Refrigerating compressor
2. Condenser unit
3. Dehydration filter
4. Capillary tube
5. Evaporator
6. Liquid separator
7. Hot Gas by-pass valve
8. Air-air heat exchanger
9. Condensate separator
10. Condensate drain valve
11. Y type strainer
12. Cond. drain solenoid valve
13. Condenser unit fan
14. Electronic controller
15. Probe (Dew point)
16. Probe (Condensation)

## TYPICAL INSTALLATION

1. Air compressor
2. Aftercooler unit
3. Condensate separator
4. Air receiver
5. Pre filter
6. UE / UR Dryer
7. Final filter
8. Condensate drain



## Other Products in our Range

- Compressed Air Filters • Process Filters • Desiccant Dryers • LDO Filtration Kits
- Air Intake Filters • Moisture Separators • Condensate Drains