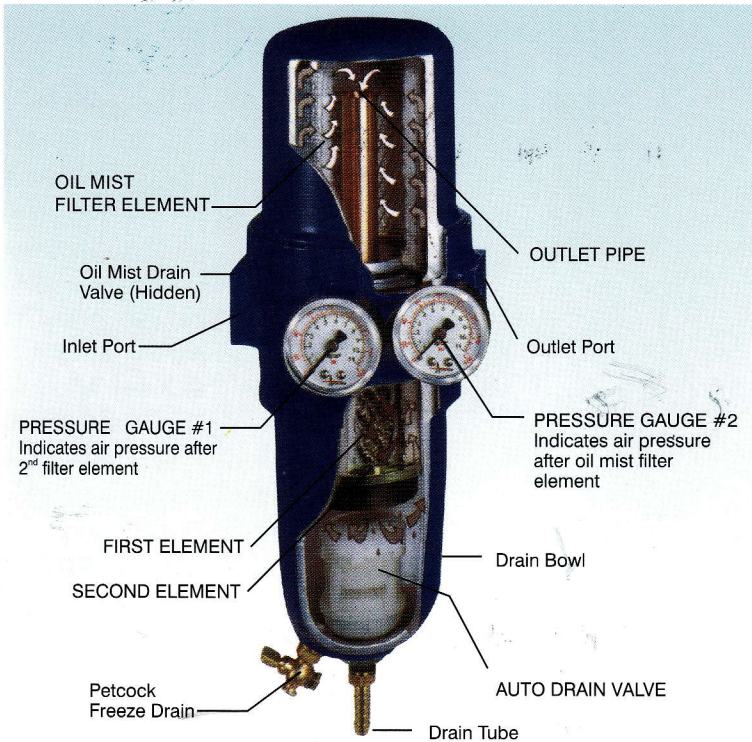


3-in-1 MULTI DRY FILTER

With Auto Drain



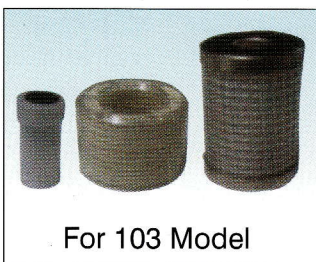
Awarded 1997 PM Prize
from Japan Plant
Maintenance Association

Environment Innovation Award
in 1999 from Filtration &
Separation Industries of the US

UNIQUE FEATURES

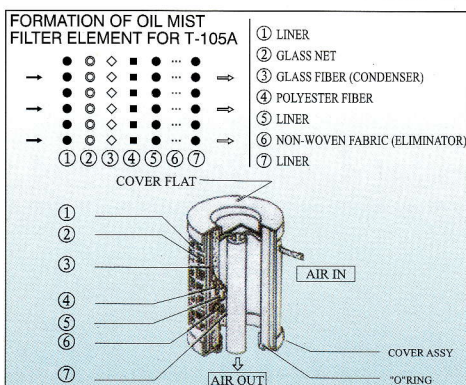
- ULTIMATE PERFORMANCE WITH MINIMAL PRESSURE DROP**
 The 3-IN-1 MULTI DRY FILTER combines three separate filter elements (designed for different purposes) and two chambers in a single body. Together they eliminate 100% of the liquid water, 99.99% of the oil mist and solid particles larger than 0.01 micron.
- EXCELLENT DURABILITY & COOLING EFFECT**
 The superior thermal conductivity of the durable aluminum body helps cool the compressed air and enhances the elimination of oil and water droplets.
- COMPACT & SPACE SAVING**
 No pre-filter required. Single unit is compact and eliminates leakage between separate components.
- QUICK AND EASY REPLACEMENT OF FILTER ELEMENTS**
 Replacement of elements in less than a minute.
- PRESSURE GAUGES**
 Twin pressure gauges indicate when the filter elements should be replaced. The pressure gauges can be mounted in the ports provided on the other side, with the unused ports plugged.

When air temperature in the pipeline cools down, condensation begins to occur and liquid water is blown along the line. Once air travels into the Unicom 3-IN-1 Multi Dry Filter, it creates a few phenomena. First, the coalescing effect; the coalesces or the first element (stainless steel mesh) causes the air and water to change directions. This change causes the water droplets to unite into each other and collect on the coalesces. The water droplet begins to grow in size, unite with other larger contaminants, and are then blown or run down by gravity into the Drain Bowl. Contaminated laden water flows along the bottom and discharges out by the Auto Drain Valve in the Drain Bowl. Large amounts of water (estimated 95% of water) are removed by this process. The next process of filtration is by the second element, a tightly wound cotton fiber. The change of direction and rotation of the compressed air flowing in and around the strand of cotton fiber, supported by fine stainless steel wire will allow vortices or rotating eddies to form. The speed of the air increases the airflow and constant change of air direction is where the drying process takes place by the small vortices. At the same time, remaining large contaminants and oil residue are filtered and remain in the cotton fiber. 100% of liquid water and 5 μm sized particles are completely eliminated. 99.99% of oil residue (0.01 ppm w/w) and particles size of 0.01 μm are filtered off by the Oil Mist Filter Element, a media that consists of glass fiber ply and non-woven fiber. While the unit is under pressure, no freezing occurs even when atmospheric temperature is below zero degrees. 3-IN-1 Auto Drain Valve has worked through the cold winter in open quarries without freezing. A Petcock Valve is opened to release water from the Drain Bowl if the unit is exposed to freezing conditions when the compressed air is turned off. Manual draining ensures trouble-free sub-freezing morning start-up and is not usually necessary at any other time.



The service life of the first element (made of stainless steel mesh for 105 model and plastic deflector for 103 model) and the second element (made of special cotton cloth) depends on the amount of oil and contamination in the compressed air. Replace or clean the 1st element every 10-12 months or every 3600 operating hours.

Replace the second element at the same intervals or whenever the pressure drops by 0.7 kg/cm² (10 psi) as indicated by pressure gauge #1. Replace the oil mist filter element once a year or whenever the pressure increase of the pressure gauge #2 is more than 0.7 kg/cm² (10 psi).



STRUCTURE & FUNCTIONS OF OIL MIST FILTER ELEMENT

The filter captures oil and solid particles in the compressed air and supplies clean air. The inner structure basically consists of a glass fiber ply (condenser) and a non-woven fabric ply (eliminator). When oil mist and solid particles collide against the glass fiber, a molecular attraction is generated and they contact and adhere to the glass fiber ply. Even if there is no airflow, tiny particles (less than 0.01 micron) will move in all directions by Brownian movement and contact and adhere to the glass fiber ply. Although solid particles cannot be eliminated indefinitely, captured oil mist goes down to the fiber intersections and gathers together to make large oil droplets that eventually travel to the bottom of the filter. By a series of these actions, oil mist is continuously removed from the air. The inner non-woven fabric ply contains these large oil droplets by preventing them from being dispersed by air pressure. The droplets drain down to the collection area naturally by gravity.

Continuously removes over 99.99% of oil mist, particles of 0.01 micron and 100% of liquid water, delivers ultra-clean air without refrigeration.

2in1 MULTI DRY FILTER

UNIQUE FEATURES

- STABLE REMOVAL EFFICIENCY**
 The unit incorporates two filter elements and two chambers to remove oil and water droplets plus particles larger than 5 microns and delivers ultra clean dry air.
- EXCELLENT DURABILITY AND COOLING EFFECT**
 The aluminum body provides excellent strength and helps to cool the compressed air. The cooling greatly increases the elimination of oil and water droplets.
- QUICK AND EASY TO REPLACE THE FILTER ELEMENTS**
 Replacement of elements in less than a minute.
- PRESSURE GAUGE**
 The pressure gauge indicates when the filter element should be replaced.



1st stage filter and 2nd stage filter have the same structure as the 3-IN-1 MULTI DRY FILTER. (No oil mist filter element is installed in this model.)

SPECIFICATION

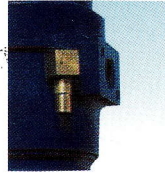
MODEL	D-103A	D-103W	D-105A	D-105W	D-107A	D-107W
MAX. PRESSURE	9.9kg/cm sq.					
OPERATION TEMP	5-60deg °C					
OIL ELIMINATION	0.01 ppm w/w					
MAX. FLOW RATE	300 liter/min		750 liter/min			
PORT SIZE	1/4"		3/8"		1/2"	
DIMENSION(mm)	85X100X210			110X130X250		
WEIGHT(kg)	0.95	0.90	1.60	1.55	1.60	1.55

The complete body of Unicom 3-IN-1 and 2-IN-1 MULTI DRY FILTERS is made of aluminum to provide cooling effect. Carefully die-cast with high precision milling, made to last. It also goes through a process of impregnation to cover all porosities and guarantee 100% leakage proof. Lastly, another process of anodizing treatment before spray painting to prevent rust or corrosion on the inner body.

SPECIFICATION

MODEL	T-103A	T-103W	T-105A	T-105W	T-107A	T-107W	T-110A	T-110W	T-120A	T-120W
MAX. PRESSURE	9.9kg/cm sq.									
OPERATION TEMP	5-60deg °C									
OIL ELIMINATION	0.01 ppm w/w									
MAX. FLOW RATE	300 liter/min		750 liter/min				1500 liter/min		3000 liter/min	
PORT SIZE	1/4"		3/8"		1/2"		3/4"		1"	
DIMENSION(mm)	85X100X260			110X130X310			135X160X390		200X220X600	
WEIGHT(kg)	1.12	1.07	1.90	1.85	1.90	1.85	3.30	3.25	10.70	10.65

DISCHARGING OF COLLECTED OIL MIST



When the air pressure drops below 1 kg/cm sq.(14psi), the OIL MIST DRAIN VALVE automatically operates and drains out the content, in case of continuous operation when the system is always pressurized, replace the oil mist drain valve with alternative PETCOCK VALVE. Be sure to discharge accumulated oil by opening once a day. Otherwise, adjust the petcock valve so the small amount of constantly air leaks will carry out together with the contaminated content.



DISCHARGING OF CONTENT FROM FILTER BOWL



When adequate liquid accumulates, the AUTO DRAIN float rises and opens the valve, and the accumulated liquid is discharged. Since the internal area of the auto drain is covered with a screen, it will not malfunction as often as conventional auto drains. To prevent the auto drain from freezing during system shutdown periods in cold weather, the petcock may be used to drain any remaining accumulated liquid after system shutdown. In case of high contamination of liquid water and oil, you may replace the bowl with a WEEP DRAIN type. It continuously leaks small amount of air along with the contents to prevent any accumulation, keeping the bowl constantly dry. The discharged air is no more than 1.7-5.0 liters per minute (0.06-0.08cfm).

