

Quality control of compressed air

Compressed air is used for various application. Hence cleaning of compressed air and the quality control is required as per high-performance of equipment and improvement of food safety. For compressed air there is Cleaning class regulated by ISO 8573-1(JIS B 8392-1).

Quality Control of compressed air which is based on this class is increasing.

Point 1. Cleaning class setting as per classify by industry

Cleaning class of compressed air ISO 8573-1(JIS B 8392-1)

Classify	Cleaning Class(tendency & target)																
	Particle							Humidity & water					Oil				
Machine tool	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4
Measuring unit	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4
Semiconductor	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4
Drink & Food	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4
Medical equipment	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4
Medicine	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4

*As per our own investigation result.

*As for the details of cleaning class table, see separate page.

Point 2. Quality control method of compressed air

Certification of Quality Class 1 (equivalent to class Zero) of ISO8573-1 Particle ,Oil by Third inspection authority
Install [3in 1 Multi Dry Filter]at Control point only

Filter primary side
Third inspection authority result
Particle class: out of class

Oil class: 2
Oil : 0.041mg/m3

Filter primary side
Particle counter result
Solid Particle Qty of
0.3µm or more

514,579 pcs/liter

DATE	01/25/16	TIME	08:48:22
LOCATION	0	PERIOD	08:08:22
SIZE	CUMULATIVE	DIFFERENTIAL	
0.3µ	514579	339809	
0.5µ	174778	149326	
1.0µ	25444	25444	
3.0µ	0	0	
5.0µ	0	0	

Filter secondary side
Third inspection authority result

Particle class: **1**
Particle Qty of 0.1 µm or more
0 pcs/m3
(equivalent to Zero)

Oil class: **1**
Oil : 0.006mg/m3
(equivalent to Zero)

Filter secondary side
Particle counter result
Solid Particle Qty of
0.3µm or more

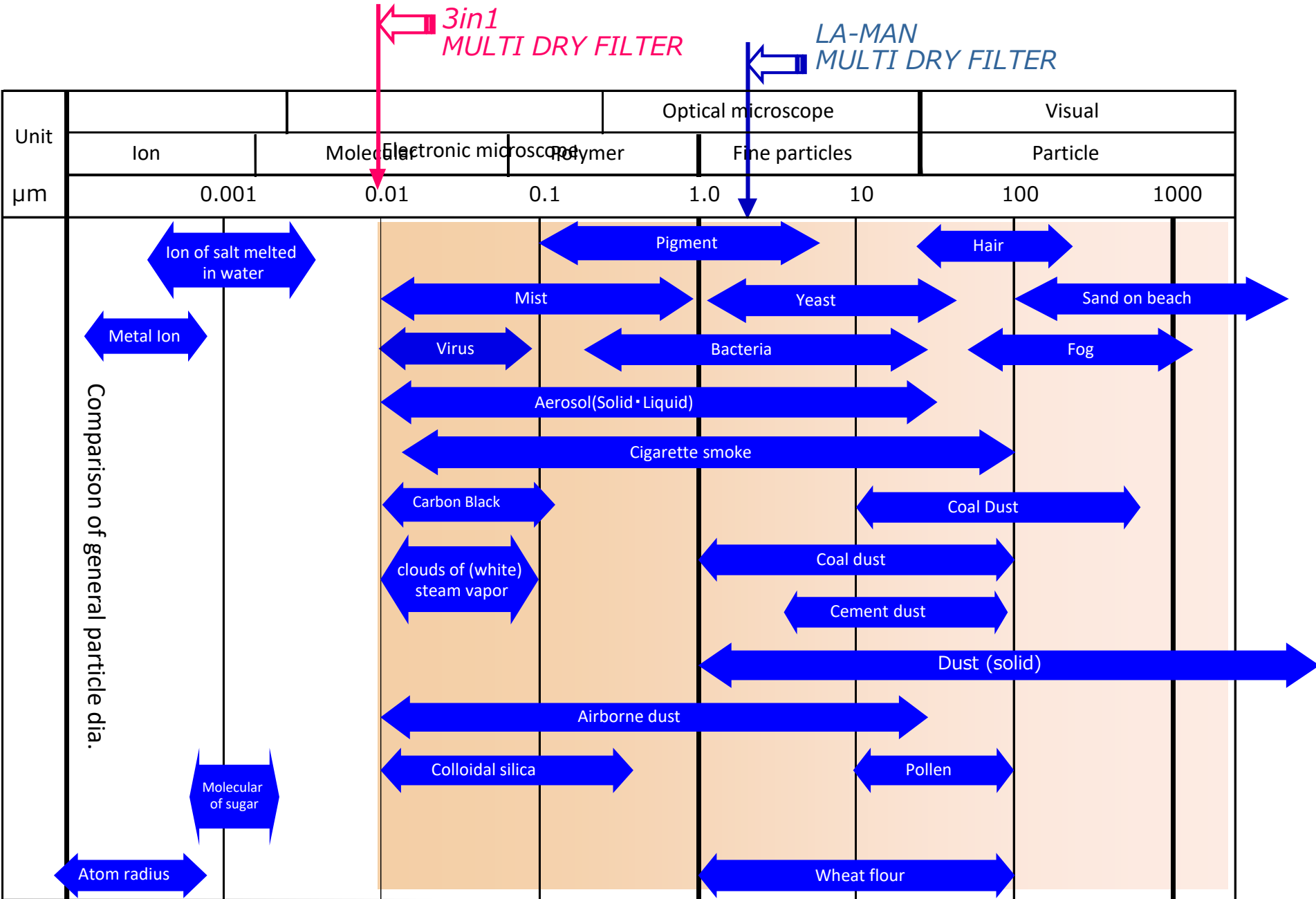
0 pcs/liter

DATE	01/25/16	TIME	08:46:42
LOCATION	0	PERIOD	08:08:22
SIZE	CUMULATIVE	DIFFERENTIAL	
0.3µ	0	0	
0.5µ	0	0	
1.0µ	0	0	
3.0µ	0	0	
5.0µ	0	0	

*Cleaning class of primary and secondary side of filter has been confirmed with inspection method based on ISO(JIS).

*Compressed air after passing Oil system compressor (without dryer function) + line filter (3 µm performance) has been supplied to Filter primary side.

Quality Control way for compressed air





Air Filter For Compressed Air

(Antibacterial/Bacteria eliminable type)

NO harmful bacteria and mold with antibacterial treatment.

Supplies ultra clean compressed air



Utility Model:2543671
Patented in the U.S, England, France and Italy.



Die cast aluminum

Over 25 years of experience

Antibacterial • Bacteria eliminable 3in1 Multi Dry Filter®

Product No. ①T-103A-1000-AB/②T-105A-1000-AB/③T-107A-1000-AB
④T-110A-1000-AB/⑤T-120A-1000-AB/⑥T-140A-1000-AB/⑦T-180A-1000-AB

Energy-Saving 0.01 μm
ISO-8573-1 HACCP

Stepwise filtration through 3 elements ensures reliability and safety in food, drug and cosmetic plants.

Internal Structure

Example :T-105A-1000-AB

Solid particles: removes **0.01 μm** more
Oil mist: removes **99.99%**

Water droplet: **ZERO**
Removal of bacteria: **LRV ≥ 9**

Significant reduction of CO2 thanks to the ECO filter with low pressure loss.

Best for food, drug, and cosmetic manufacturers!

Stepwise filtration through 3 elements with different performances.

This filter incorporates three elements in one unit, separates oil/moisture, creates dry air and removes solid particles of 0.01μm or more. Stepwise filtration provide ultra-clean air. Thanks to equipped two pressure gauges, element replacement can be visually managed. *T-103A-1000-AB is not supplied with pressure gauges.

Supplies ultra-dry air based on the principle of tornado.

The second element, in which cylindrical special cotton scroll with about 13,000 holes is contained, produces tens of thousands of tornados. When the compressed air passes through those holes, vacuum state occurs same as in the actual tornados, water-drop can be evaporated by the difference of pressure between the external and internal sides, therefore the dry air can be produced. Since its outstanding function, the second element is called a dry filter.

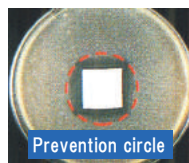
Energy Saving Filter

Compared with other oil mist filters, pressure loss is reduced by 30~50%.

Antibacterial Element

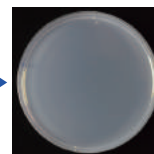
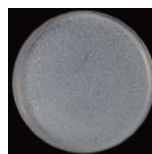
Prevents bacteria from entering compressor air and controls proliferation of harmful bacteria and mold to supply clean air. (The second element and oil mist element)

※Antibacterial effectiveness has been tested and approved by Japan Food Research Laboratories. Test Report (No. NA69090103)



Disinfection Efficacy

Removal of bacteria: **LRV ≥ 9**
1billion of bacteria (after filtering) 0pcs
*Proven LRV ≥ 8 by a third party organ



Only 20 seconds for filter element replacement.

Simple screw structure and tool-free

All filter element can be easily removed for replacement. The body can be disassembled for easy disinfection because of the screw structure. *Must securely tighten the element.



Easy installation Compact size

Adoption of Rp straight screw makes it easy to install the filter on the piping.

Space-saving



Antibacterial/bacteria eliminable type

[Oil Mist Element]

Removes oil mist and solid particles of 0.01μm or more by 7-layer element.

Replace every 6 to 10 months

Antibacterial/bacteria eliminable type

[Second Element]

Removes moisture, oil and solid particles of 5μm or more.

Replace every 6 to 10 months

[First Element]

Separates oil and moisture contents through the mesh in the first element.

Wash or replace every 2 years.

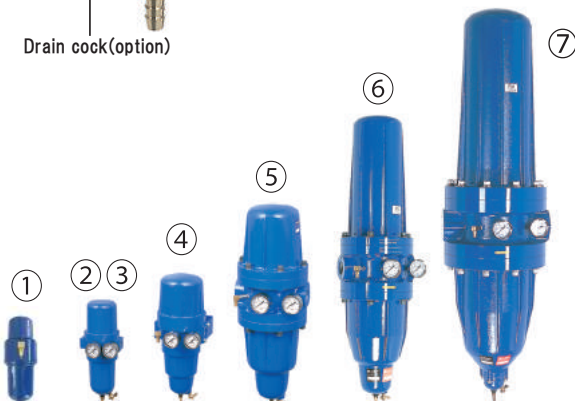
Energy-Saving

[Auto Drain]

Automatically discharges drain. *One year warranty period.

Wash with water every 6 to 10 months.

Drain cock(option)



Use Application

- Food • Drugs • Cosmetics • Medical equipment • Manufacture of electronics • Semiconductors • Ionizers • Packaging machines
- Precise measuring instruments • Ultraclean air blow • Papermaking • Other applications that require ultraclean air



Air Filter for Compressed Air **Antibacterial/Bacteria eliminable 3in1 Multi Dry Filter**

Specifications

●ℓ/mim(ANR) is the volume in the atmospheric pressure condition.

Model	Working pressure (MPa)	Removal of solid particles(μm)	Removal of oil content (mg/m ³)	Operating temperature range(°C)	Max. flow at the time of ℓ/min (ANR)0.7MPa ●	Connection port (Rc)	Dimensions (W*D*H)	Mass (kg)	Accessories
①T-103A-1000-AB	0.3~0.97	0.01	0.01 or less	5~60	300	1/4	85×101×262	1.3	Bracket Bracket screw Hose fitting Hose Push pin
②T-105A-1000-AB					500	3/8	120×138×316	1.7	
③T-107A-1000-AB					500	1/2	120×138×316	1.7	
④T-110A-1000-AB					1,000	3/4	135×167×392	3.6	Hose Hose fitting Push pin
⑤T-120A-1000-AB					2,000	1	200×219×601	10.5	
⑥T-140A-1000-AB					4,000	1-1/4	224×233×846	16.2	
⑦T-180A-1000-AB					8,000	2	310×300×1,162	43.9	

Replacement elements

Model	Part No. First element	Part No. Second element+Oil mist element
T-103A-1000-AB	T-10309	T-103FS-AB
T-105A-1000-AB T-107A-1000-AB	T-10509	T-105FS-AB
T-110A-1000-AB	T-11009	T-110FS-AB
T-120A-1000-AB	T-12009	T-120FS-AB
T-140A-1000-AB	T-14009	T-140FS-AB
T-180A-1000-AB	T-18009	T-180FS-AB

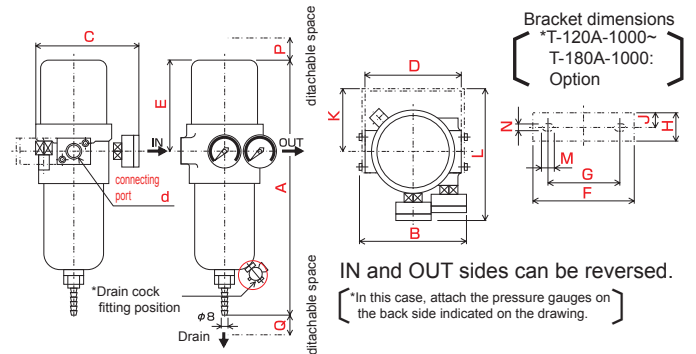


*T-103A-1000-AB (plastic)

Dimensions

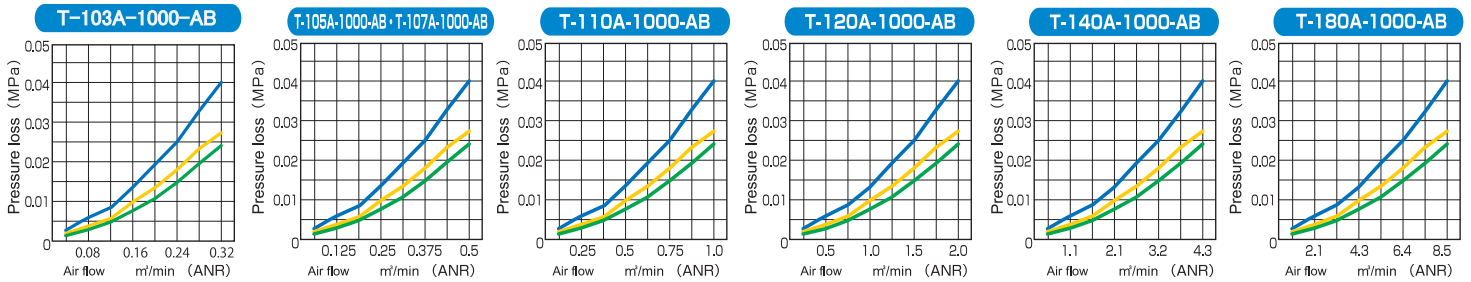
*These dimensions below are only for reference. (Unit:mm) If formal dimensions are necessary, contact us.

Model	Connection port (Rc)	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
T-103A-1000-AB	1/4	262	91	101	80	88.5	82	50	30	15	74	133	R2.8	90	75	
T-105A-1000-AB	3/8	316	130	138	120	118.7	124.6	80	32	16	72	159	φ6	100	65	
T-107A-1000-AB	1/2	316	130	138	120	118.7	124.6	80	32	16	72	159	φ6	100	65	
T-110A-1000-AB	3/4	392	148	167.5	134.8	160.9	139.4	80	50	25	90	190	15	7	110	75
T-120A-1000-AB	1	601	215	219	200	243.7	206.6	125	80	40	133	254	30	9	180	130
T-140A-1000-AB	1-1/4	846	234	233.2	224.4	440	215.2	140.4	90	45	149.6	278	30	11	380	175
T-180A-1000-AB	2	1162	355	300	310	628	328	210	150	75	269	419	35	11	530	195



Flow and Pressure Loss Characteristics

— 0.5MPa — 0.7MPa — 0.9MPa



Maintenance

- Replace or wash the first element once every 2 years. ●Replace the second element and oil mist element in pairs and replace it every 6 to 10 months. (approximately 1,000 hours) If the pressure difference on the pressure gauges occurs (10%), replacement of the element is required. *T-103A-1000-AB is not supplied with pressure gauges. ●Wash the auto drain with water every 6 to 10 months. *1 year warranty period.

- Completely discharge drain especially in frosty temperatures to avoid freezing drain. Use the forced discharge "Drain Cock" (option). ●If the elements are used more than 6 months, it may lower air quality. Please consult us regarding element replacement.

*Replace the oil mist valve with the manual oil mist valve in case of 24-hour operation.

⚠️ Precautions strictly to be observed.

- If it is in an oily condition, use a La-Man dry filter together and install the air filter on the air equipment side. ●Never give a shock to or drop the filter body. ●Use the air filter within the ranges of processing air capacity, working pressure, operating temperature displayed.
- 1-year of auto drain warranty period. ●Never remove the lable films and pictured tag for maintenance on the body.

Please be sure to read the instruction manual before using this filter.

MAEDA SHELL SERVICE CO., LTD. is an air consultant for compressed air. Please consult us regarding compressed air.

<Distributor>

<Manufacturer and Distributor>

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http://www.maedauni.co.jp e-mail: sales@maedauni.co.jp

*Some of the specifications, etc., may be subject to change without notice due to product improvements.

3in1 Multi Dry Filter



Demo QR Code

Automaker For Paint Line

Reduce the rate of defects



1 Paint defect rate **7%**

Paint factory

Our defect rate hasn't moved in a long time. Isn't there anything more we can do to improve our paint quality?

2

But, maybe we have to resign ourselves to the fact that since we need to have policies on air quality at the factory, defects are bound to happen...

Clean factory

3 Impurities in the compressed air

0.3µm	110
0.5µm	15
0.7µm	3
1.0µm	1
3.0µm	0

What?! The air given off by paint robots is dirty.

MAEDA SHELL SERVICE

Maeda Shell Service came to measure* the cleanliness of the air using a particle counter.

*Our patented compressed air measurement techniques are used.

5 We placed **3in1 Multi Dry Filter** as a clean air measure for the paint robot

0.3µm	0
0.5µm	0
0.7µm	0
1.0µm	0
3.0µm	0

Whoa! The impurities, which used to be above 0.3µm, are now 0.

Causes pinholes, cissing, uneven paint, etc.

Dirt in compressed air

Oil Moisture

Contaminated compressed air can be a cause of paint defects.

I see.

4

It has contributed to improvements in paint quality.

Paint defect rate (%)

Before	After
7%	3%

3in1 Multi Dry filter

6 Defect rate improved to 3%! Among those, defects thought to be caused by compressors were brought down to 0%.

We've made improvements, thanks to you!

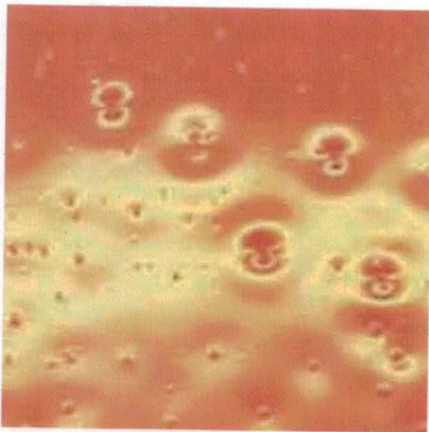
Painting: One point lesson

Tohzai Samtel Co.,Ltd

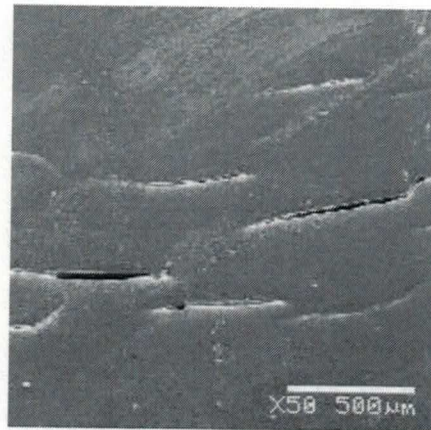
For painting, compressed air is used absolutely

- Main painting sort:
- Electro deposition: dipping work in water soluble resin liquid and painting it through DC current. (anti-rust of car body)
- Electrostatic spray painting: Charging atomized paint to negative and work to positive. Absorbing it by electrical attraction.
- Powder painting: Charging powder paint (resin system) with static electricity and spraying it. After that , baking it by furnace with high temperature.

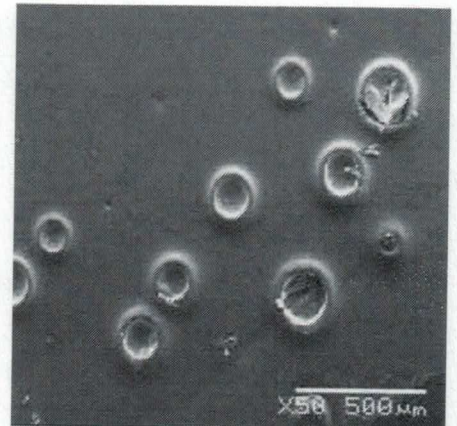
If quality compressed air is poor,



cissing, crawling, fish eye



Crack



Pinhole

Main reason for the above NG is due to impurity in compressed air.

*With supply of clean compressed air through installation of 3in 1 Multi dry filter, you can remove Painting NG like Cissing, Crawling, Fish eye, Crack, Pinhole etc.

