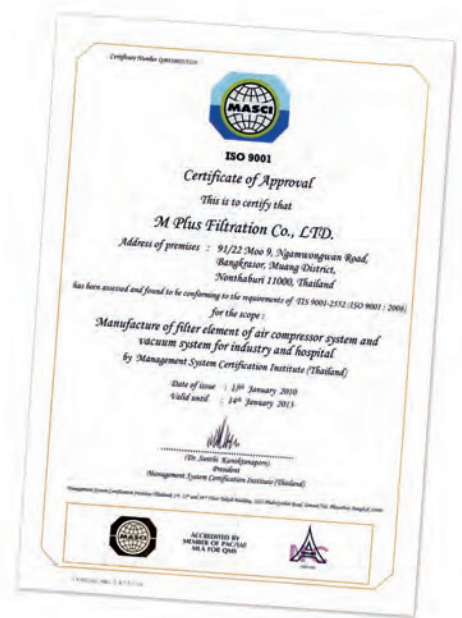


Why M-PLUS ?

ISO 9001 certification is the most comprehensive document in the ISO9000 series of standards and defines a quality management system for the manufacture, delivery and servicing of goods that must meet critical performance standards.

M-Plus Filtration Co., Ltd. are accredited for our range of the scope "Manufacture of filter element of air compressor system and vacuum system for industry and hospital" by Management System Certification Institute (Thailand) (MASCI).



ISO 8573 is the group of international standards relating to the quality of compressed air and consists of nine separate parts. Part 1 specifies the quality requirement of the compressed air and Part 2-9 specifying the methods of testing for a range of contaminants.

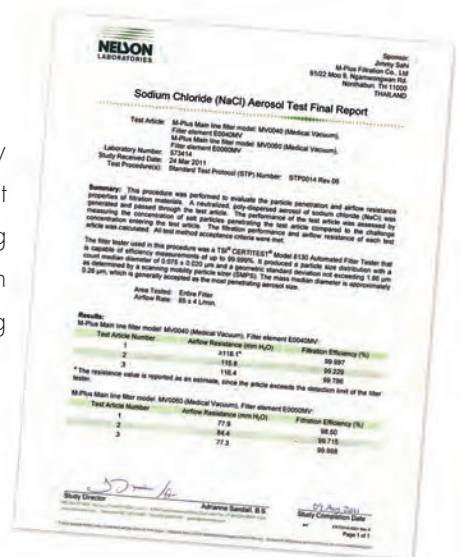
In 2001, the ISO 8573.1 air quality standard was amended in an effort to provide a more stringent air quality specifications for critical applications and the latest revision is expressed as ISO8573.1 : 2001.

Within ISO8573.1 : 2001, a number of quality classes are shown in tabular form, each specifying the maximum amount of solid particulate, water and oil allowable per cubic metre of compressed air.

This document provides an introduction to ISO 8573.1 the international standard for compressed air quality, purification equipment required to achieve the standards and how to apply the standard to typical applications.



TSI® CERTITEST® Model 8130 Automated Filter Tester that is capable of efficiency measurements of up to 99.999%. It produced a particle size distribution with a count median diameter of 0.075 ± 0.020 µm and a geometric standard deviation not exceeding 1.86 µm as determined by a scanning mobility particle sizer (SMPS). The mass median diameter is approximately 0.26 µm, which is generally accepted as the most penetrating aerosol size.



Compressed Air Classes

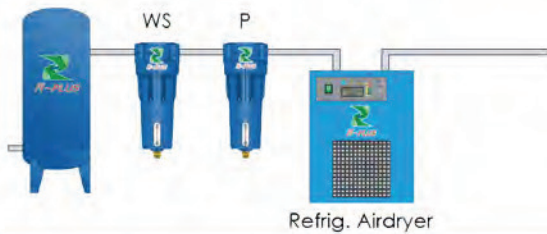
Compressed air purity classes ISO8573-1:2001(E)

ISO 8573-1:2001(E) details the following classifications for specifying the purity of compressed air.

Example: Compressed air to air purity class 1.2.1 (Particle removal to 0.01 micron. Water to -40°C pdp, Oil to 0.01 mg/m^3)

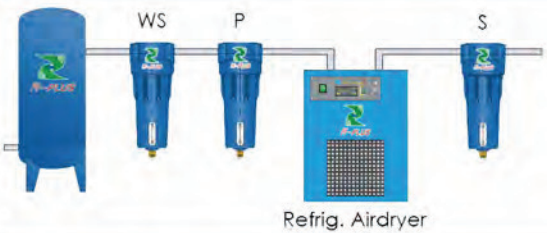
CLASS	SOLID PARTICLES Maximum number of particles per m^3			HUMIDITY & LIQUID WATER pressure dewpoint $^{\circ}\text{C}$	OIL (including aerosol, liquid & vapour mg/m^3)
	0.1 — 0.5 micron	0.5 — 1.0 micron	1.0 — 5.0 micron		
1	100	1	0	-70	0.01
2	100,000	1,000	10	-40	0.1
3	-	10,000	500	-20	1
4	-	-	1,000	+3	5
5	-	-	20,000	+7	-
6	-	-	-	+10	-

FILTER GRADE	Q (25 micron)	P (5 micron)	S (1 micron)	X (0.01 micron)	Z (Activated carbon)
Maximum particle size Class to ISO 8573-1:2001(E)	Class 4	Class 3	Class 2	Class 1	Class 1
Maximum oil content Class to ISO 8573-1:2001(E)	-	Class 4	Class 2	Class 1	Class 1



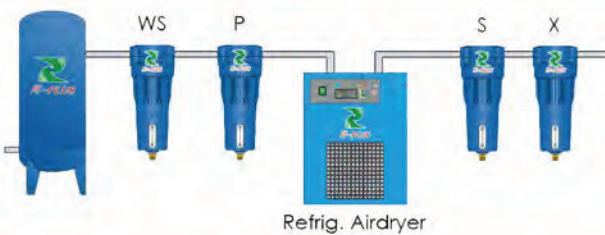
Air Quality to ISO 8573-1:2001(E), Class 3.4.4

Application: General workshop, servicing shop, quality sandblasting



Air Quality to ISO 8573-1:2001(E), Class 2.4.3

Application: Pneumatic equipment, spray painting, pneumatic transportation



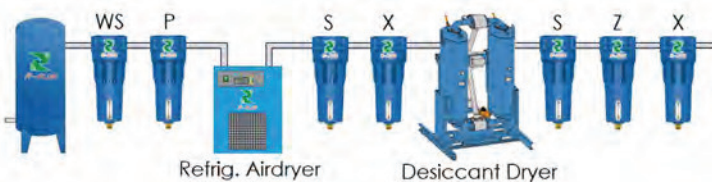
Air Quality to ISO 8573-1:2001(E), Class 1.4.1

Application: Packing, checking and instruments, powder painting, tools



Air Quality to ISO 8573-1:2001(E), Class 1.4.1

Application: Feed packing, weaving factory, photo and cosmetics factory



Air Quality to ISO 8573-1:2001(E), Class 1.(1,2,3).1

Application: Chemical plants, pharmaceutical factory, optic, electronic, micro-chips, feed productions, industrial medicine.

For medicinal and chemical applications is better if compressed air tank is protected by internal anticorrosive paint.

Note: These are only general rules. User of the equipment must comply with all local and national pressure equipment legislation in the country of installation.

Construction

A dynamic approach to design, material selection and construction means that M-Plus Filtration is at the forefront of filtration technology. Our internal Research and Development team constantly identify, evaluate and implement enhancements to improve the ease of use and performance of our market leading range. Typically, most alternative filter elements are manufacture to M Plus Filtration's standard construction illustrated below.

Filter Element Design and Materials

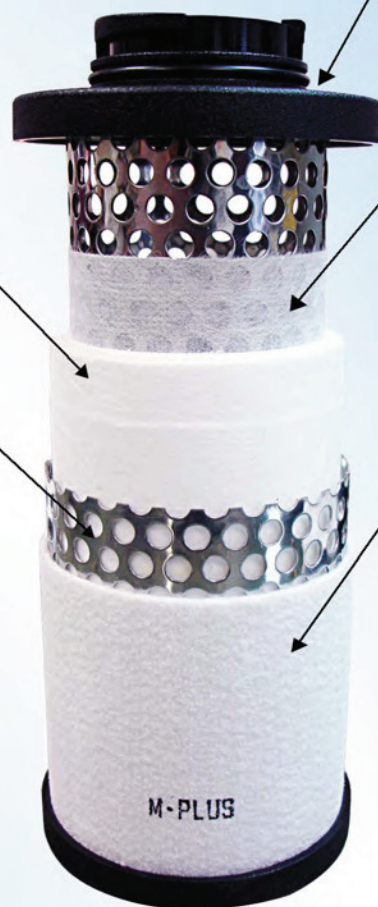
Borosilicate Microfibre Glass Material high quality filter material is used to manufacture the media pack. This material, with a bonded structure, withstands high temperatures, is completely inert and is immune to degradation. With sub micron fibre diameters and an extremely high voids volume (as seen in this stereo micro-scan above) it is available in different grades for varying efficiency.



Stainless Steel perforated support cylinders, twice as strong as galvanized steel, can withstand 7 bar (100 psig) in either direction.

Deep Bed Multi Wrap technology is used to form the media pack. This offers low differential pressure, extremely high oil removal efficiencies and proven continuous performance with long service life.

Extra Stainless Steel inner support on larger reverse flow elements is provided by the addition of a coil spring spot welded to the inner cylinder. This feature ensures these element meet the demands of "outside to in" flow and do not rupture causing downstream contamination.



High Nitrile "O" Rings ensure perfect sealing within the filter housing whilst withstanding high temperatures of over 120°C (250°F).

Particulate Pre-filtration on both sides of the media pack offers protection with air flow in either direction. This non-woven fabric also enhances the strength of the filter pack and increases filter life.

Polyester Fibre Drainage Sleeve, Has now become industry standard. This polyester material collects coalesced oil from the media pack and allows it to gravitate down to the quiet zone of the filter bowl thus preventing any oil carryover. Unlike reticulated foams which can seriously degrade causing downstream contamination, this material has a high tensile strength and withstands all the demands of compressed air filtration.



Example of a typical reticulated foam sleeve exhibiting considerable degradation, a much less robust solution than the M-Plus polyester drainage sleeve.

Alternative Filter Element

Replacement for HIROSS

HIROSS Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
004	MH004	3/4" or 3/8"	0.4
007	MH007	3/4" or 3/8"	0.7
015	MH015	3/4" or 1/2"	1.5
024	MH024	1.1/2" or 1"	2.4
035	MH035	1.1/2"	3.5
060	MH060	1.1/2"	6.0
090	MH090	2"	9.0
120	MH120	2"	12.0
150	MH150	2"	15.0
240	MH240	PN16 DN65	24.0

Note: * is grade of filter element

HIROSS GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
D	Q	5	N.A.
Q	P	3	N.A.
P	S	1	0.1
S	X	0.01	0.01
C	Z	N.A.	0.003



Replacement for DOMNICK HUNTER



DOMNICK HUNTER Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
K009*	MD009*	1/4"	0.5
K017*	MD017*	3/8"	1.0
K030*	MD030*	1/2"	1.8
K058*	MD058*	3/4"	3.6
K145*	MD145*	1" - 1.1/2"	4.8 - 8.7
K220*	MD220*	1.1/2" - 2"	12 - 13.2
K330*	MD330*	2"	19.8
K430*	MD430*	2.1/2" - 3"	24 - 25.8
K620*	MD620*	3"	37.2

Note: * is grade of filter element

DOMNICK HUNTER GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
PF	Q	25	N.A.
AO	S	1	0.6
AA	X	0.01	0.01
AX	V	0.01	0.001
ACS	Z	N.A.	0.003
AR	P	1	N.A.
AAR	A	0.01	N.A.

Alternative Filter Element

Replacement for HANKISON

HANKISON Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
-12	MHK-12	3/8" or 1/2"	0.57
-16	MHK-16	3/8" or 1/2"	1.00
-20	MHK-20	3/8" or 1/2"	1.75
-24	MHK-24	3/4" or 1"	2.9
-28	MHK-28	3/4" or 1"	4.9
-32	MHK-32	1" or 1.1/4" or 1.1/2"	7.2
-36	MHK-36	1" or 1.1/4" or 1.1/2"	11.0
-40	MHK-40	2" or 2.1/2"	14.0
-44	MHK-44	2.1/2"	18.0
-48	MHK-48	2.1/2"	22.0

Note: * is grade of filter element

HANKISON GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
E9	P	3	5
E7	S	1	1
1	X	0.01	0.01
E3	A	0.01	0.001
E1	Z	N.A.	0.003



Replacement for ATLAS COPCO



ATLAS COPCO Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
009	MAC009	3/8"	0.54
017	MAC017	1/2"	1.02
032	MAC032	1/2"	1.92
044	MAC044	3/4" or 1"	1.64
060	MAC060	1"	3.6
120	MAC120	1.1/2"	7.2
150	MAC150	1.1/2"	9.0
175	MAC175	1.1/2"	10.5
260	MAC260	2" or 2.1/2"	16.8
390	MAC390	3"	23.4
520	MAC520	3"	31.2
780	MAC780	DN100-DN300	46.8-432

Note: * is grade of filter element

ATLAS COPCO GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
DD	S	1	0.1
DDP	A	1	N.A.
PD	X	0.01	0.01
PDP	V	0.01	N.A.
QD	Z	N.A.	0.003

Alternative Filter Element

Replacement for ULTRA FILTER

ULTRA FILTER Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
*02/05	MU*02/05	1/4"	0.3
*03/05	MU*03/05	3/8"	0.6
*03/10	MU*03/10	3/8"	1.0
*04/10	MU*04/10	1/2"	1.5
*04/20	MU*04/20	1/2"	2.0
*05/20	MU*05/20	3/4"	3.0
*05/25	MU*05/25	1"	4.5
*07/25	MU*07/25	1.1/4"	6.0
*07/30	MU*07/30	1.1/2"	8.0
*10/30	MU*10/30	2"	12.0
*15/30	MU*15/30	2"	18.0
*20/30	MU*20/30	2.1/2"	24.0
*30/30	MU*30/30	3"	32.0
*30/50	MU*30/50	3"	48.0

Note: * is grade of filter element

ULTRA FILTER GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
PE	Q	25	N.A.
SB	P	5	N.A.
FF	S	0.01	0.1
MF	A	0.01	0.03
SMF	X	0.01	0.01
AK	Z	N.A.	0.003



Replacement for ORION



ORION Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
*400-C	MO*400 C	1"	3.9
*700-C	MO*700 C	1.1/2"	6.6
*1000-A	MO*1000 C	1.1/2"	10.6
*1500-B	MO*1500 C	2"	13.8

Note: * is grade of filter element

ORION GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
EL	S	1	N.A.
EM	X	0.01	0.1
EK	Z	N.A.	0.003

Alternative Filter Element

Replacement for ZANDER

ZANDER Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
1030*	MZ1030*	1/4"	0.5
1050*	MZ1050*	1/4"	0.8
1070*	MZ1070*	3/8"	1.1
1140*	MZ1140*	1/2"	1.6
2010*	MZ2010*	3/4"	3.0
2020*	MZ2020*	1"	5.0
2030*	MZ2030*	1.1/2"	7.8
2050*	MZ2050*	1.1/2"	11.6
3050*	MZ3050*	2"	15.6
3075*	MZ3075*	2"	24.1
5060*	MZ5060*	2.1/2"	32.3
5075*	MZ5075*	3"	40.0

Note: * is grade of filter element

ZANDER GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
V	P	3	N.A.
Z	S	1	0.5
Y	A	0.01	0.1
X	X	0.01	0.01
A	Z	N.A.	0.003



Replacement for ORION(NEW)



ORION (NEW) Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
*150B	MOR*150 C	3/4"	1.2
*200B	MOR*200 C	3/4"	1.8
*250B	MOR*250 C	1"	2.7
*400	MOR*400 C	1"	3.9
*700	MOR*700 C	1.1/2"	6.6
*1000	MOR*1000 C	1.1/2"	10.6
*1300	MOR*1300 C	2"	13.8
*2000	MOR*2000 C	2"	20.0

Note: * is grade of filter element

ORION (NEW) GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
EDS	P	5	N.A.
ELS	S	1	0.1
EMS	X	0.01	0.1
EKS	Z	N.A.	0.003

Alternative Filter Element

Replacement for FRIULAIR

FRIULAIR Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
T*008	T*008	3/8"	0.85
T*012	T*012	1/2"	1.20
T*018	T*018	3/4"	1.85
T*030	T*030	1"	3.3
T*055	T*055	1.1/2"	5.5
T*080	T*080	1.1/2"	8.1
T*120	T*120	1.1/2"	12.5
T*160	T*160	2"	16.8
T*250	T*250	2.1/2"	26.0
T*400	T*400	3"	42.0

Note: * is grade of filter element

FRIULAIR GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
P	P	3	N.A.
S	S	1	0.1
X	X	0.01	0.01
Z	Z	N.A.	0.003



Replacement for SWAN/BEA



SWAN/BEA Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
30	MARS30	1/4"	0.5
100	MARS100	1/2"	1.7
180	MARS180	3/4"	3.0
290	MARS290	1"	4.8
460	MARS460	1.1/2"	10.2
610	MARS610	2"	15.5
930	MARS930	2.1/2"	17.5
1050	MARS1050	3"	23.3
1400	MARS1400	3"	35.0

Note: * is grade of filter element

SWAN/BEA GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
ARF	P	3	N.A.
ARB	S	1	0.1
ARA	X	0.01	0.01
ACA	Z	N.A.	0.003

Alternative Filter Element

Replacement for SMC



SMC Model	SMC Model	M-PLUS Model	CONNECTION Ø	FLOW-RATE M ³ /min
-EL150	AFF-EL2B	MEL-150	1/8" or 1/4" or 3/8"	0.2-0.3
-EL250	AFF-EL4B	MEL-250	1/4" or 3/8" or 1/2"	0.5-0.75
-EL350	AFF-EL8B	MEL-350	3/8" or 1/2" or 3/4"	1.0-1.5
-EL450	AFF-EL11B	MEL-450	1/2" or 3/4" or 1"	2.0-2.2
-EL550	AFF-EL22B	MEL-550	3/4" or 1"	3.5
-EL650	AFF-EL37B	MEL-650	1" or 1.1/2"	6.0
-EL850	AFF-EL75B	MEL-850	1.1/2" or 2"	12.0

Note: * is grade of filter element

SMC GRADE	M-PLUS GRADE	Particle removal micron	Oil removal mg/m ³
AFF	P	3	N.A.
AM	A	0.3	1
AMD	S	0.01	0.1
AME	X	0.01	0.3
AMF	Z	N.A.	0.003

And All kind of filter

(Air filter, Hydraulic filter, Oil filter, Oil separator and Make to order)

