Characteristics of multi functional type MF-Ⅲ Filter

1. INTRODUCTION

Asahi Fiber Industry's MF-Ⅲ Filter element is formed as board shape which is adhered at each intersection of fibers by heating the thermal bonded nonwoven fabric. The raw material is mainly polyolefin resin.

By selecting the making condition like grade of material, pressure of stamping machine, heat temperature and other as requested by customer. We can adjust thickness of the filter and porosity, so we can make various type of filter which has different filtration clarity or air flow resistance.

Fig 1. is products of MF-Ⅲ filter element. As you can see, we can make various type of shape according to customers request.

Fig1. Products of MF-Ⅲ Filter element

2. FEATURE OF MF-Ⅲ FILTER ELEMENT

① It is molded board type filter made with polyolefin as main material.（Fig2.）
② Mechanical strength is high.
③ Chemical resistance is excellent.
④ Air-flow rate can be adjusted by changing fiber grade or fiber density.（Fig3.）
⑤ The filter can be made which has longer life and capability of catching more cake by changing the grade of fiber.（Fig3.）
⑥ Filter which has its function can be made by laying activated carbon fiber, oil adsorbent material, ion exchange resin or other material in to the filter layer.（Fig4.）

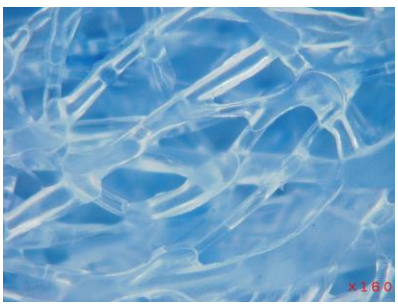

Fig2. Adhering of fibers
【model:MF-6560】

Fig3. Cross section of filter layer①
（Three layers type）
【model:MF-6560】

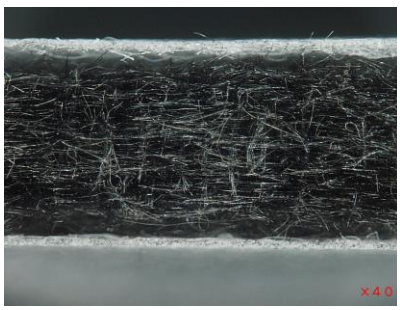

Fig4. Cross section of filter layer②
（Activated carbon filter）
【model:MF-70340】

3. CHARACTERISTICS OF MF-Ⅲ FILTER ELEMENT

3-1) Air flow resistance of MF-Ⅲ Filter element

Air flow resistance of MF-Ⅲ is discriminated by measuring the pressure with setting flow rate or aeration speed as parameter at reducing valve in the machine described as Fig5.

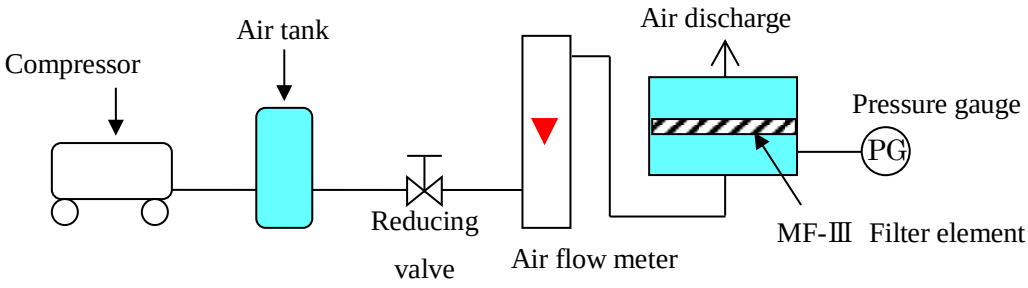

Fig5. Flow sheet of measuring air flow resistance

3-2) Relationship between aeration speed and air flow resistance of MF-Ⅲ filter element which is made from various type of material grade

Fig6. shows the measurement result of air flow resistance as the aeration speed is set as parameter, for various type of MF-Ⅲ filter which is formed as board type from different type of nonwoven fabric. The thickness of filter is 5mm. As you can see from Fig 6. we can make filter of various type of air flow resistance by selecting the grade of inner nonwoven fabric.

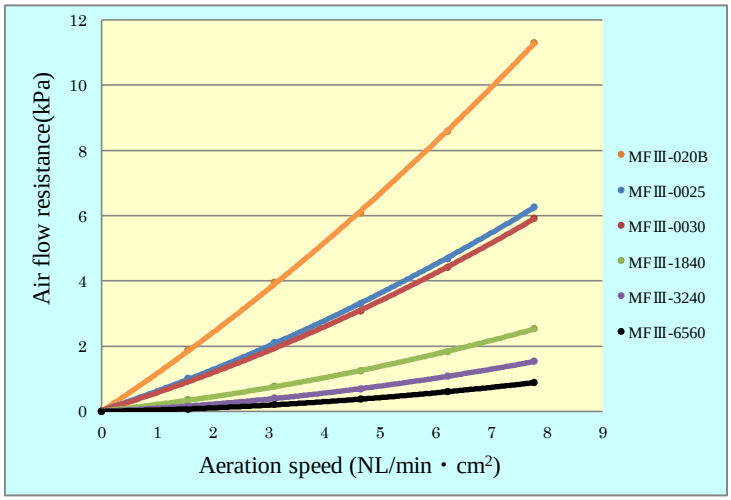

Fig6.
Relationship between aeration speed and air flow resistance of various grade of MF-Ⅲ filter element which is made from different nonwoven fabric

3-3) Relationship between aeration speed and air flow resistance of MF-Ⅲ filter element MF-20B type

Fig7. shows the measurement result of air flow resistance as the aeration speed is set as parameter, for thickness of MF-Ⅲ(MF-20B) filters are 1mm, 3mm, 5mm. As you can see from Fig 7. we can make filter of various type of air flow resistance by selecting the thickness of filter.

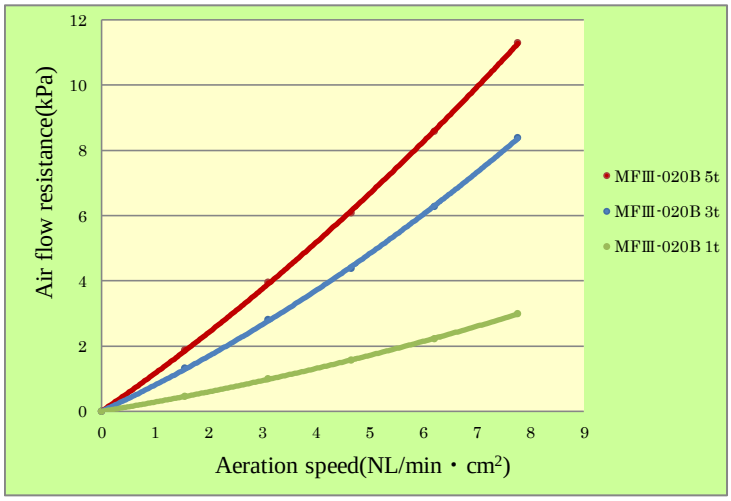

Fig7.
Relationship between ventilation resistance and aeration speed for MF-Ⅲ(MF-20B), t=1mm, 3mm, 5mm

3-4) Relationship between aeration speed and air flow resistance of MF-Ⅲ filter element MF-030 type

Fig8. shows the measurement result of air flow resistance as the aeration speed is set as parameter, for thickness of MF-Ⅲ(MF-030) filters are 1mm, 3mm, 5mm. As you can see from Fig 8. we can make filter of various type of air flow resistance by selecting the thickness of filter.

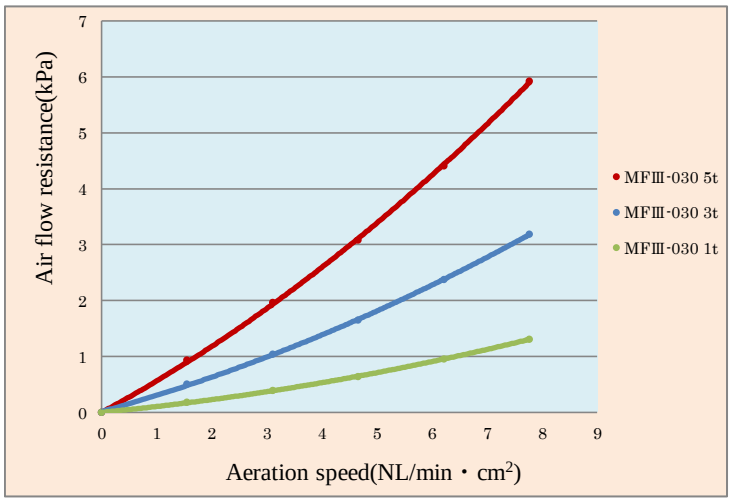

Fig8.
Relationship between ventilation resistance and aeration speed for MF-Ⅲ(MF-030), t=1mm, 3mm, 5mm

3-5) Relationship between aeration speed and air flow resistance of MF-Ⅲ filter element MF-6560 type

Fig9. shows the measurement result of air flow resistance as the aeration speed is set as parameter, for thickness of MF-Ⅲ(MF-6560) filters are 1mm, 3mm, 5mm. As you can see from Fig 9. we can make filter of various type of air flow resistance by selecting the thickness of filter.

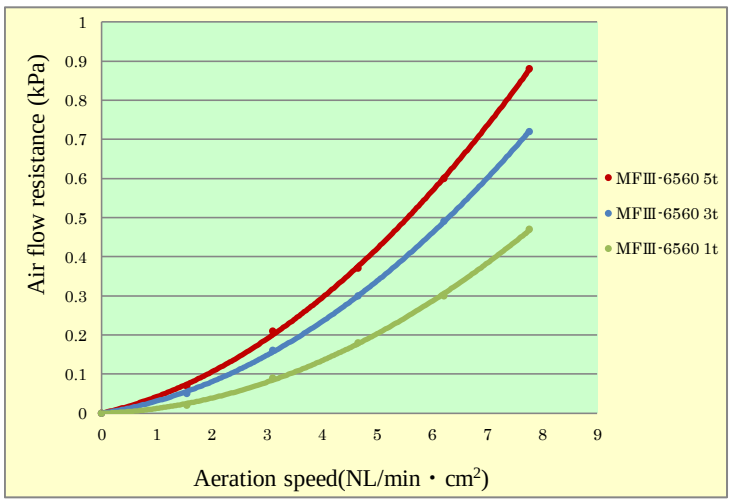

Fig9.
Relationship between ventilation resistance and aeration speed for MF-Ⅲ(MF-6560), t=1mm, 3mm, 5mm

4. USAGE OF MF-Ⅲ FILTER ELEMENT

Table1. Usage of MF-Ⅲ Filter element

Usage	
Board type filter	Pre-filter of pure water purifier
Filter for liquid	Pre-filter of pure water production
Filter for air	Inlet filter
Filter for paints	Anodal case
Various adsorption filler filters	Various nonwoven fabric artifacts
Pad for liquid application	Liquid impregnation part
Filter medium for air freshener	Parts for separator

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