

***BINKS***®

## Instruction Manual

### Cartridge Paint Filters

- 5" Cartridge Filters
- 10" Cartridge Filter
- 20" Cartridge Filter

Note: Read and follow all instructions and safety precautions before using this equipment

## Product Description

107874 / 107875 - 5" Cartridge Filter  
107868 / 107870 / 107871 - 10" Cartridge Filter  
107869 / 107872 / 107873 - 20" Cartridge Filter



This equipment is designed for use with Solvent based and Waterborne materials.  
Suitable for use in Zone 1 and 2, Protection Level: **II 2 GD cX**

**Manufacturer:** - *ITW* Automotive Finishing  
Justus-von-Liebig-Straße 31,  
63128 Dietzenbach. DE

## EU Declaration of Conformity

We: *ITW* Automotive Finishing declare that the above product conforms with the Provisions of Pressure Equipment Directive 97/23/EC and the ATEX Directive 94/9/EC by complying with the following statutory documents and harmonized standards: -

Pressure Equipment Regulations 1999 (SI 1999/2001)  
Explosion Prevention Potentially Explosive Atmospheres BS EN 1127-1  
Non-electrical Equipment for Potentially Explosive Atmospheres BS EN 13463-1 2001  
Constructional Safety for Potentially Explosive Atmospheres BS EN 13463-5 2003

Providing all conditions of safe use stated within the product manuals have been complied with and that the final equipment into which this product is installed has been re-assessed as required, in accordance with essential health and safety requirements of the above standards, directives and statutory instruments and also installed in accordance with any applicable local codes of practice.

A handwritten signature in black ink, appearing to read 'P. Green'.

**PM Green** (General Manager)  
2 September 2007

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## ***General Description – Section 1.1***

### **Introduction**



#### **Main Features**

- Quick Cartridge replacement
- 'Dirt' Removed with filter
- Integral Pressure Gauge Ports
- Efficiency Absolute Filtration 99.98%
- Disposable or Cleanable Cartridge
- 316 St St Construction
- CE Marked
- ATEX Compliant

The Cartridge filter is without doubt the best way to achieve optimum paint filtration and to prevent unwanted contamination reaching the finished paint product.

Binks filters are suitable to filter low pressure fluid systems and are specifically designed to meet the high quality standards for paint filtration in the Automotive Industry.

The stainless steel construction ensures compatibility to solvent and waterborne materials.

**Specification – Section 1.2**

Feature	
Housing Construction Material	Stainless Steel
Maximum Working Pressure	20 Bar
Design Temperature	0 – 110° C
Inlet / Outlet Connections	1 ½” Sanitary Tri Clamp 1” Sanitary Tri Clamp 1” R <sub>P</sub> Thread
Nominal Flow Capacity - 20” Nominal Flow Capacity - 10” Nominal Flow Capacity – 5” (Best practice to give optimum filter element life)	40 L / min 20 L / min 10 L / min
Bowl Volume 20” Bowl Volume 10” Bowl Volume 5”	3.8 Litres 2.2 Litres 1.5 Litres
Dry Weight 20” Dry Weight 10” Dry Weight 5”	3.7 kg 2.8 kg 2.4 kg
Top Fixing Attachments	4 off M6 x 9 deep

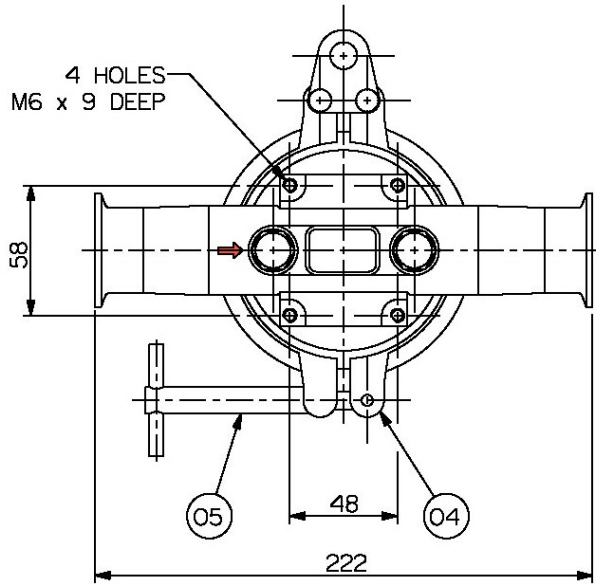
**Parts Lists – Section 2.1**

<b>FILTER HOUSING PART NUMBER REFERENCE</b>		
<b>PART No</b>	<b>DESCRIPTION</b>	<b>REMARKS</b>
107874	5" Filter Housing 1" R <sub>P</sub> Thread	5" Cartridge (Code 3)
107875	5" Filter Housing 1" Sanitary Tri Clamp	5" Cartridge (Code 3)
107871	10" Filter Housing 1" R <sub>P</sub> Thread	10" Cartridge (Code 3)
107872	20" Filter Housing 1" R <sub>P</sub> Thread	20" Cartridge (Code 3)
107870	10" Filter Housing 1" Sanitary Tri Clamp	10" Cartridge (Code 3)
107873	20" Filter Housing 1" Sanitary Tri Clamp	20" Cartridge (Code 3)
107868	10" Filter Housing 1 ½" Sanitary Tri Clamp	10" Cartridge (Code 3)
107869	20" Filter Housing 1 ½" Sanitary Tri Clamp	20" Cartridge (Code 3)

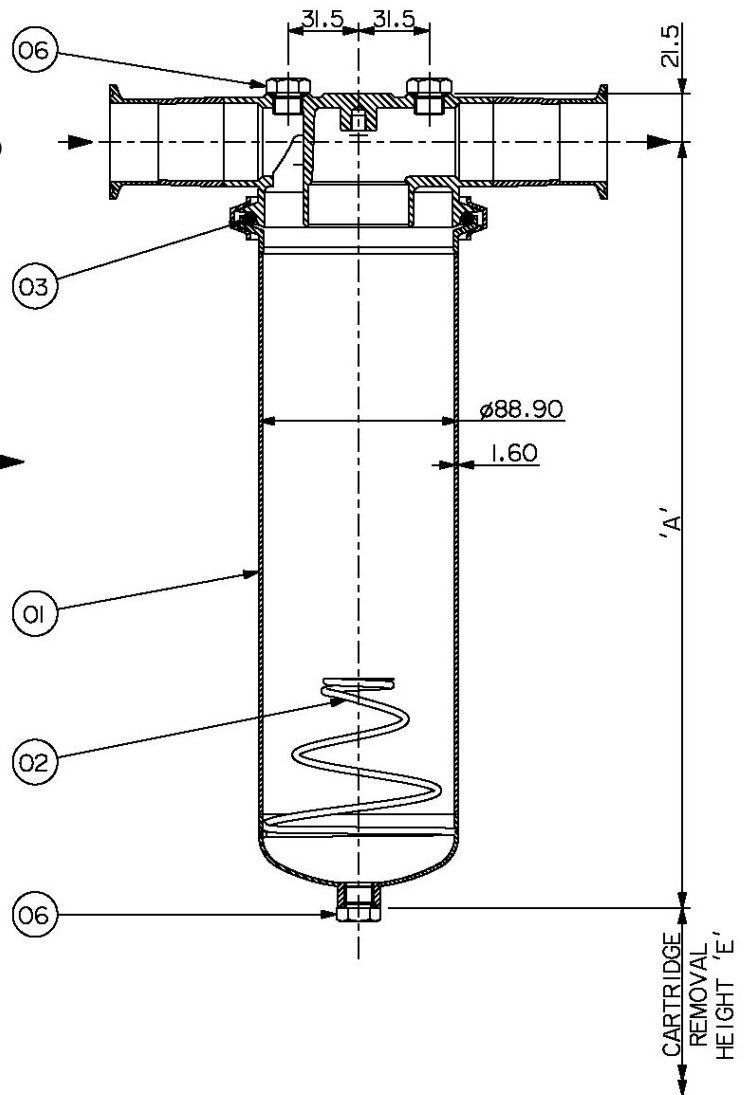
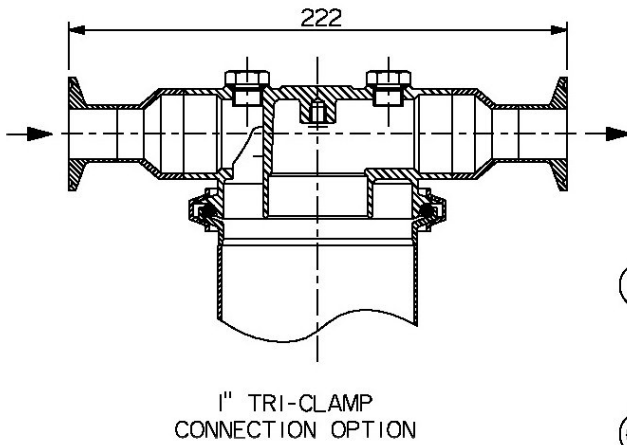
<b>PARTS LIST / ACCESSORIES</b>			
<b>ITEM</b>	<b>PART No</b>	<b>DESCRIPTION</b>	<b>REMARKS</b>
1	52S010001	5" Filter Bowl	
1	52S011000	10" Filter Bowl	
1	52S012000	20" Filter Bowl	
2	50S010300	Spring	
3	192517	Filter Bowl Seal	VITON
3	192518	Filter Bowl Seal (alternate material)	Rubber Encapsulated in FEP
4	52S010002	Filter Bowl Clamp Assembly	
5	51S010001	Filter Bowl Clamp Tee Bar	
6	192505	PTFE O-Ring	
7			
8	167184	Standard Pressure Gauge	20 Bar
9	171673	R-¼" Plug	316 ST ST
10	172027	R-¼" -BSP(H) Ball Valve	316 ST ST
11	107917	Filter Vent Assembly	316 ST ST
12			
13	192519	Mounting Bracket	304L ST ST
14	192520	Clamp Support Kit	To secure clamp to bracket

**Assembly Drawing – Section 2.2**

Housing	'A' mm	'E' mm
5"	214	173
10"	341	300
20"	595	554

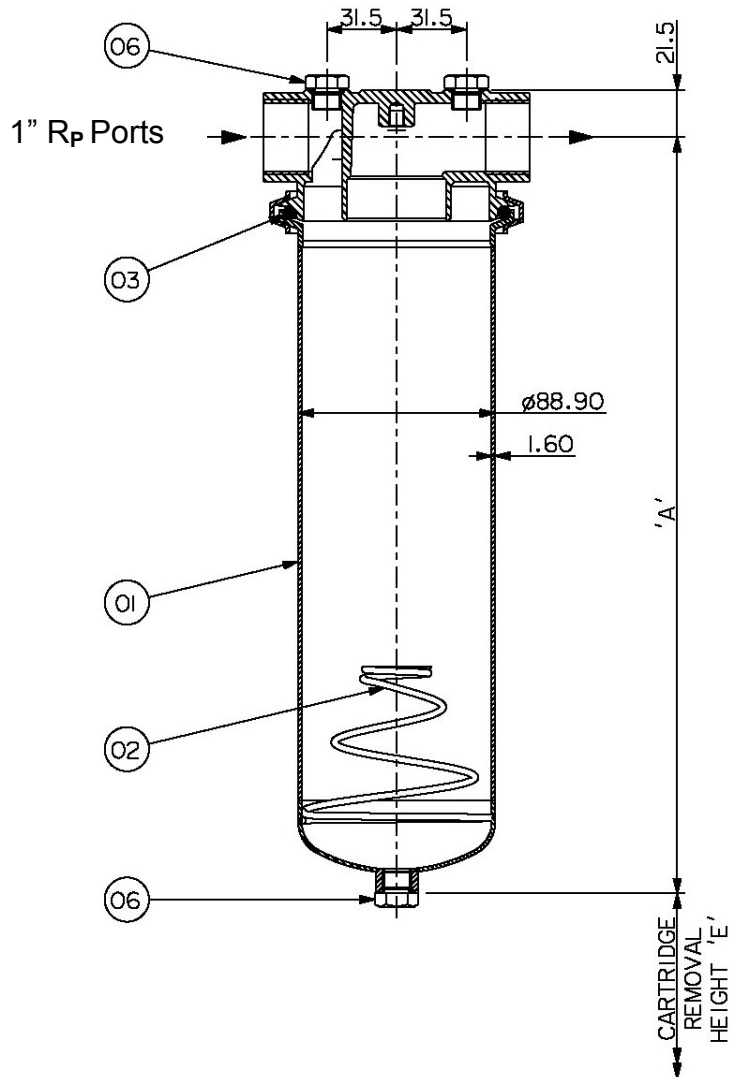
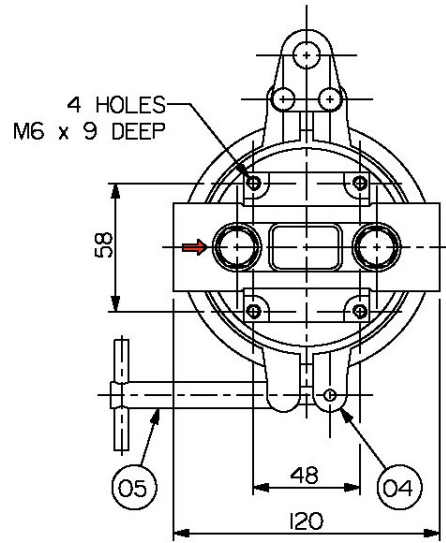


1 1/2" Sanitary Tri Clamp



**Assembly Drawing – Section 2.2**

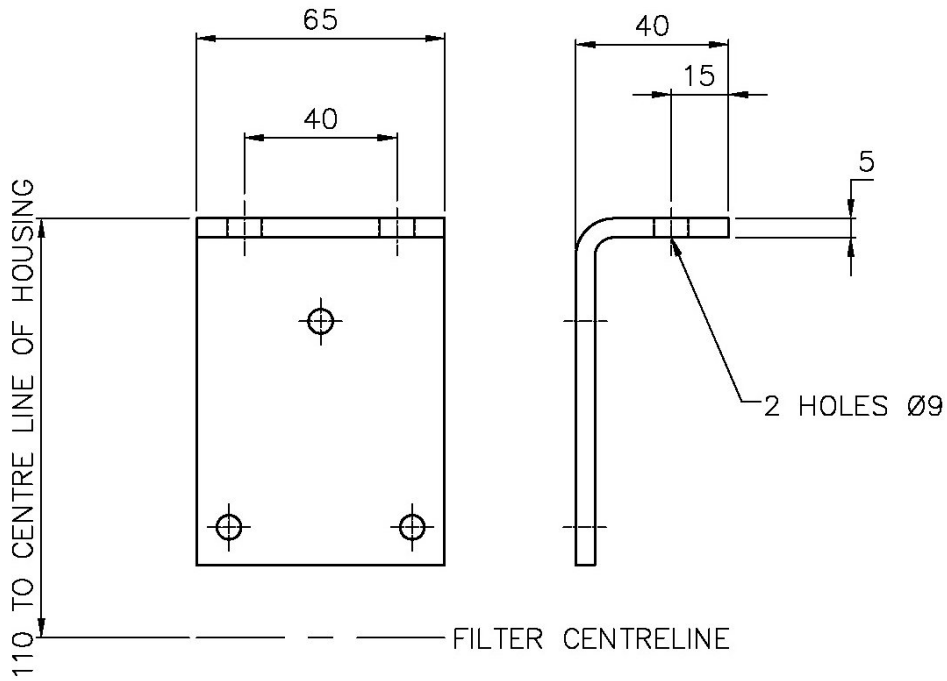
Housing	'A' mm	'E' mm
5"	214	173
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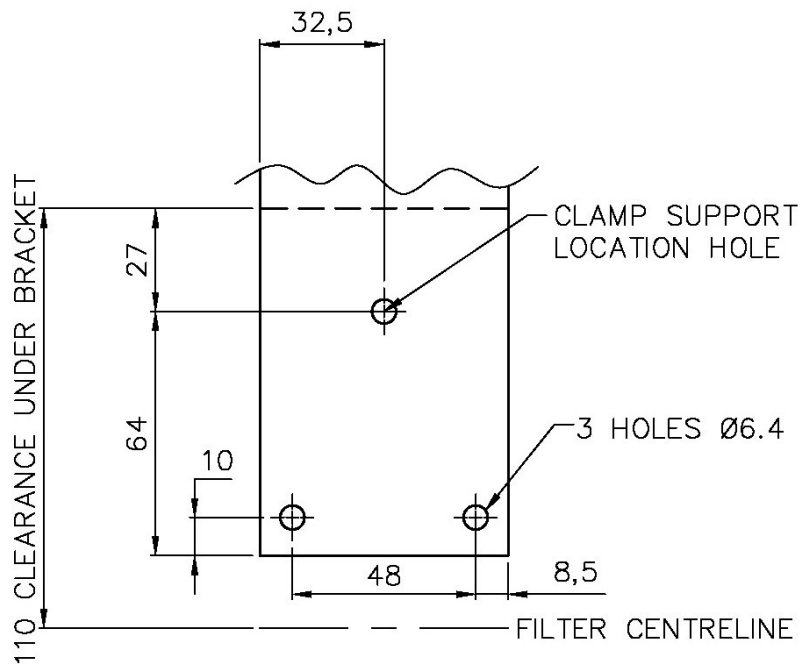


**Accessories – Section 2.3**

192519 FILTER SUPPORT BRACKET



DIMENSIONS FOR FILTER SUPPORT



**Accessories – Section 2.3**



**502156 - Vent Assembly**  
 Used to facilitate fast drainage of paint when replacing the filter element.

**Filter drain using Vent Assembly**

1. Isolate filter inlet and outlet using system ball valves.
2. Relieve paint pressure by careful operation of filter drain valve, draining the paint into a suitable receptacle.
3. Unscrew vent by one full turn.
4. Re-tighten the vent when the paint has completely drained from the filter bowl.
5. Continue with the filter element replacement.

**Accessories – Section 2.3**

192520 - Clamp Support Kit



Picture showing Bowl Clamp retained in position

### ***Filter Elements – Section 3.1***

It is important that the manufacturer of the paint to be used is consulted when determining the correct micron rating of the paint filter element. Filter elements are available either in cleanable/reusable stainless steel 'rigidmesh', and in a disposable polypropylene or nylon material.

#### **Typical Element Sizes for Automotive Applications**

Solvent	Δ 1 micron
Primer	Δ 40 microns – 70 microns
Solid	Δ 70 microns – 90 microns
Clearcoat	Δ 90 microns – 120 microns
Metallic	# 200 microns
Mica	# 400 microns

Δ Indicates Absolute rating of filter element

# indicates Transition rating of filter element to guarantee metal and mica particles up to this size will pass through the filter

'Rigidmesh' Cleanable Filter Element



## Filter Elements – Section 3.1

### SUPASPUN II FEATURES AND BENEFITS

- Absolute removal ratings for consistent and reliable performance
- Graded density structure for maximum dirt holding capacity
- Increased void volume giving high flow rates and low initial pressure losses
- Wide chemical compatibility using optional materials, Polypropylene and Nylon
- Range of Absolute ratings from 0.5 to 180µm (Beta Ratio 5000 on 0.5 to 20µm, PP only)
- Thermal bonding process stops media migration and ensures minimal extractables
- Identification imprinted on every cartridge

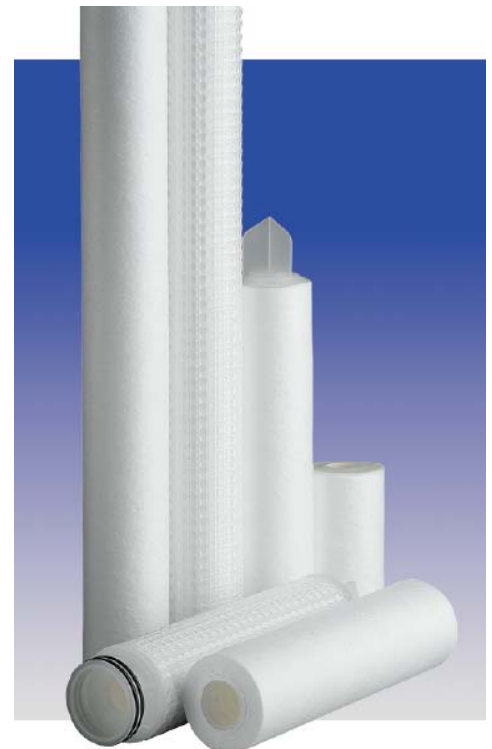
**SUPASPUN II** filter cartridges are produced using an improved manufacturing process resulting in the following features:-

#### Absolute Rated Filter Media

- Available from 0.5 to 180µm
- Polypropylene or Nylon
- Consistent reliable performance

#### Unique Construction

- One piece high strength moulded support core
- High void volume, resulting in low clean  $\Delta p$  and excellent dirt holding capacity
- End cap welded direct to the core for extra security and strength
- Thermally bonded fibre matrix stops fibre migration
- One piece construction up to 1524mm (60")



### TECHNICAL DATA

#### Materials of Construction

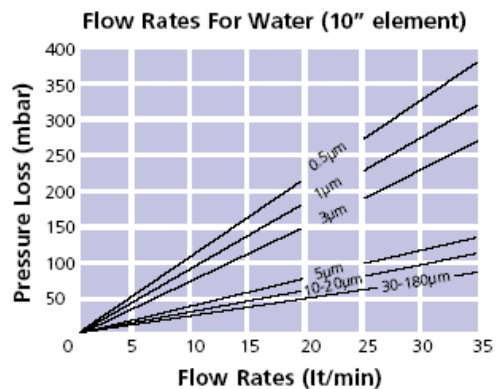
	<b>PP</b>	<b>NN</b>
Filter Media:	Polypropylene	Nylon
Core:	Polypropylene (Glass filled)	Nylon
End caps (optional):	Polypropylene	Nylon

#### Dimensions

Length:	See ordering guide
Outside Diameter:	64mm
Core Diameter:	28mm

#### Maximum Operating Conditions

	PP media PP core	PP media GFPP core	Nylon media Nylon core
Recommended $\Delta P$ @ 20°C	1.5 Bar	1.5 Bar	1.5 Bar
Maximum $\Delta P$	@ 20°C	4.0	4.0
	@ 50°C	1.5	2.5
	@ 80°C	0.25	1.0
	@ 150°C	-	-
			0.5



**Filter Elements – Section 3.1**

Paint Filters

<b>PAINT FILTER ELEMENT SELECTION (Spun)</b> (End Fitting - Single open end Code 3)						
<b>5" Cartridge – Disposable Element (Polypropylene)</b>						
Grade µm	50	70	90	120	150	180
Part No.	04PV050-053VP	04PV070-053VP	04PV090-053VP	04PV120-053VP	04PV150-053VP	04PV180-053VP
<b>5" Cartridge – Disposable Element (Nylon)</b>						
Grade µm	50	70	90	120	150	180
Part No.	04NA050-053VP	04NA070-053VP	04NA090-053VP	04NA120-053VP	04NA150-053VP	04NA180-053VP

<b>PAINT FILTER ELEMENT SELECTION (Spun)</b> (End Fitting - Single open end Code 3)						
<b>10" Cartridge – Disposable Element (Polypropylene)</b>						
Grade µm	50	70	90	120	150	180
Part No.	04PV050-093VP	04PV070-093VP	04PV090-093VP	04PV120-093VP	04PV150-093VP	04PV180-093VP
<b>10" Cartridge – Disposable Element (Nylon)</b>						
Grade µm	50	70	90	120	150	180
Part No.	04NA050-093VP	04NA070-093VP	04NA090-093VP	04NA120-093VP	04NA150-093VP	04NA180-093VP

<b>PAINT FILTER ELEMENT SELECTION (Spun)</b> (End Fitting - Single open end Code 3)						
<b>20" Cartridge – Disposable Element (Polypropylene)</b>						
Grade µm	50	70	90	120	150	180
Part No.	04PV050-203VP	04PV070-203VP	04PV090-203VP	04PV120-203VP	04PV150-203VP	04PV180-203VP
<b>20" Cartridge – Disposable Element (Nylon)</b>						
Grade µm	50	70	90	120	150	180
Part No.	04NA050-203VP	04NA070-203VP	04NA090-203VP	04NA120-203VP	04NA150-203VP	04NA180-203VP

**Filter Elements – Section 3.1**

Flushing Filters

<b>FLUSHING FILTER ELEMENT SELECTION (Spun)</b> (End Fitting - Single open end Code 3)						
<b>5" Cartridge – Disposable Element (Polypropylene)</b>						
<b>Grade µm</b>	1	5	10	20		
<b>Part No.</b>	04PV001-053VP	04PV005-053VP	04PV010-053VP	04PV020-053VP		
<b>5" Cartridge – Disposable Element (Nylon)</b>						
<b>Grade µm</b>	1	5	10	20		
<b>Part No.</b>	04NA001-053VP	04NA005-053VP	04NA010-053VP	04NA020-053VP		

<b>FLUSHING FILTER ELEMENT SELECTION (Spun)</b> (End Fitting - Single open end Code 3)						
<b>10" Cartridge – Disposable Element (Polypropylene)</b>						
<b>Grade µm</b>	1	5	10	20		
<b>Part No.</b>	04PV001-093VP	04PV005-093VP	04PV010-093VP	04PV020-093VP		
<b>10" Cartridge – Disposable Element (Nylon)</b>						
<b>Grade µm</b>	1	5	10	20		
<b>Part No.</b>	04NA001-093VP	04NA005-093VP	04NA010-093VP	04NA020-093VP		

<b>FLUSHING FILTER ELEMENT SELECTION (Spun)</b> (End Fitting - Single open end Code 3)						
<b>20" Cartridge – Disposable Element (Polypropylene)</b>						
<b>Grade µm</b>	1	5	10	20		
<b>Part No.</b>	04PV001-203VP	04PV005-203VP	04PV010-203VP	04PV020-203VP		
<b>20" Cartridge – Disposable Element (Nylon)</b>						
<b>Grade µm</b>	1	5	10	20		
<b>Part No.</b>	04NA001-203VP	04NA005-203VP	04NA010-203VP	04NA020-203VP		

## Filter Elements – Section 3.1

### SUPAPLEAT II FEATURES AND BENEFITS

- Absolute removal ratings for consistent and reliable performance
- **PP** – Wide chemical compatibility using 100% polypropylene to meet FDA requirements
- **GP** – Glass microfibre media gives excellent dirt holding capacity
- **MP** – Nylon monofilament mesh offers selective retention with the ability to be cleaned
- Thermal bonding process eliminates adhesives and ensures minimal extractables
- Batch traceability

SUPAPLEAT II MP cartridges feature:

- Nylon monofilament woven mesh media
- High flow, low pressure loss

**Absolute Rated Filter media**

- Available from 1 to 400µm
- Consistent reliable performance

SUPAPLEAT II filter cartridges are produced using an improved manufacturing process resulting in the following features:

- One piece high strength all polypropylene support core up to 1018mm (40")
- High surface area, resulting in low clean Δp and excellent dirt holding capacity
- 100% thermally welded construction for maximum integrity and strength
- No use of any resins or adhesives
- All polypropylene hardware
- Optional high strength core for improved thermal stability at continuously elevated temperatures



### TECHNICAL DATA

#### Materials of Construction

	<b>PP</b>	<b>GP</b>	<b>MP</b>
Filter Media:	Polypropylene	Glass Microfibre	Nylon Monofilament
Media Support:	Polypropylene	Polyester	Polypropylene
End caps:	Polypropylene	Polypropylene	Polypropylene
Core:	Polypropylene	Polypropylene	Polypropylene
Support cage:	Polypropylene	Polypropylene	Polypropylene

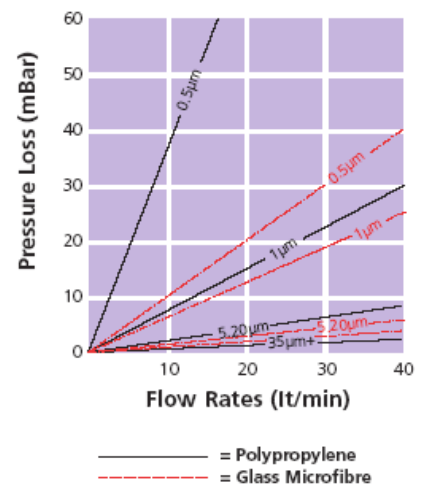
#### Dimensions (10")

	<b>PP</b>	<b>GP</b>	<b>MP</b>
Typical Surface Area:	0.55m <sup>2</sup> (5.92ft <sup>2</sup> )	0.4m <sup>2</sup> (4.31ft <sup>2</sup> )	0.3m <sup>2</sup> (3.23ft <sup>2</sup> )
Outside Diameter:	66mm (2.6")		
Core Diameter:	28mm		

#### Maximum Operating Conditions

	<b>PP core</b>	<b>GFPP core</b>
Recommended Δp	1.5 Bar	1.5 Bar
Maximum Δp @20C	4.0	4.0
@50C	1.5	2.5
@80C	0.25	1.0

Flow Rates For Water (10" element)





**Filter Elements – Section 3.1**

Paint Filters

<b>PAINT FILTER ELEMENT SELECTION (Pleated)</b> (End Fitting - Single open end Code 3)						
<b>5" Cartridge – Disposable Element (Nylon Pleated Mesh)</b>				<b>5" Cartridge – Cleanable Element (Stainless Steel Pleated Mesh)</b>		
<b>Grade µm</b>	100	200	400	100	250	450
<b>Part No.</b>	03MP100-053VP	03MP200-053VP	03MP400-053VP	05SSP100-053VP	05SSP250-053VP	05SSP450-053VP

<b>PAINT FILTER ELEMENT SELECTION (Pleated)</b> (End Fitting - Single open end Code 3)						
<b>10" Cartridge – Disposable Element (Nylon Pleated Mesh)</b>				<b>10" Cartridge – Cleanable Element (Stainless Steel Pleated Mesh)</b>		
<b>Grade µm</b>	100	200	400	100	250	450
<b>Part No.</b>	03MP100-093VP	03MP200-093VP	03MP400-093VP	05SSP100-093VP	05SSP250-093VP	05SSP450-093VP

<b>PAINT FILTER ELEMENT SELECTION (Pleated)</b> (End Fitting - Single open end Code 3)						
<b>20" Cartridge – Disposable Element (Nylon Pleated Mesh)</b>				<b>20" Cartridge – Cleanable Element (Stainless Steel Pleated Mesh)</b>		
<b>Grade µm</b>	100	200	400	100	250	450
<b>Part No.</b>	03MP100-203VP	03MP200-203VP	03MP400-203VP	05SSP100-203VP	05SSP250-203VP	05SSP450-203VP

## ***Operation and Maintenance – Section 4.1***

It is recommended that the paint filter element is replaced when a differential fluid pressure of no more than 2 bar is reached between the inlet and outlet of the filter.

To change the filter: -

- Isolate and Remove all fluid pressure.
- Drain the filter bowl. #
- Remove the filter bowl clamp and maintain a hold on the filter bowl.
- Disconnect the filter element from the housing.
- Clean the filter bowl and prepare a new or cleaned element  
(If using a spare 'rigimesh' filter a new o-ring must be used - item 1.  
A new o- ring is supplied with the replacement disposable filter elements.)
- Connect the new filter element to the filter body
- Replace the o-ring on the filter bowl (item 3) and reconnect the filter bowl clamp (The FEP encapsulated o-ring can be reused)
- Re-introduce the fluid pressure and check for any leaks

# To completely drain the filter bowl the filter must be vented to allow air to enter inside the filter as fluid is drained out. If pressure gauges are fitted to both vent ports on top of the filter then a filter vent 502156 may be utilised to facilitate easier venting of the filter.

### **'Cleanable' Filter Element - CLEANING PROTOCOL**

- 1) Remove the filter element from the housing and place in a suitable paint solvent. Ensure that residue paint on the filter does not dry prior to immersion in the solvent.
- 2) Brush the filter element with a soft brush to remove contaminants. DO NOT use a wire brush.
- 3) Rinse the filter element with a clean paint solvent, inspect for damage.
- 4) Repeat steps 2 and 3 until the required cleanliness level is achieved.
- 5) Dry the filter element in the atmosphere prior to installation in the filter housing
- 6) Always replace the 'o'-ring seal when reinstalling the filter element.

## ***Important Information - Section 5.1***

### **Directions for Working Safety**

This Product has been constructed according to advanced technological standards and is operationally reliable. Damage may, however, result if it is used incorrectly by untrained persons or used for purposes other than those for which it was constructed.

The locally current regulations for safety and prevention of accidents are valid for the operation of this product under all circumstances.

International, national and company safety regulations are to be observed for the installation and operation of this product, as well as the procedures involved in maintenance, repairs and cleaning.

These instructions are intended to be read, understood and observed in all points by those responsible for this product. These operating and maintenance instructions are intended to ensure trouble free operation. Therefore, it is recommended to read these instructions carefully before start-up. ITW Automotive Finishing cannot be held responsible for damage or malfunctions resulting from the non-observance of the operating instructions. These instructions including regulations and technical drawings may not be copied, distributed, used for commercial purposes or given to others either in full or in part without the consent of ITW Ltd.

We reserve the right to alter drawings and specifications necessary for the technical improvement of this product without notice.

### **High Pressure/Electrostatic Warning**

High pressure equipment can be dangerous if used incorrectly, serious bodily injury may occur if the following instructions are ignored. Installation and maintenance should only be carried out by suitably qualified personnel.

1. Before attempting any work on a high-pressure system ensure material pump, hydraulics, compressed air motor are isolated where relevant.
2. Relieve all pressure from the system. Note: It is possible for pressure to get locked into a system, therefore ensure all sections of the system are checked thoroughly for remaining pressure.
3. Take care when releasing fittings
4. Always replace worn hoses immediately
5. Never plug a leak with your finger, adhesive tape or other stop gap devices
6. Always ensure equipment is suitably earthed before running, to avoid any chance of electrostatic build up.

# **BINKS®**

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