



Food and Beverage

# SUPRApak M Series Filter Systems

SUPRApak™ Filtration  
For Medium Batch Depth Filtration



## SUPRApak M Series-SA Filter Systems Technical Information

SUPRApak M Series-SA filtration units are turn-key systems designed for use with SUPRApak M filter modules, to handle medium batch sizes in wine, distilled spirits, sweeteners, gelatin, enzymes, and other food and beverage applications.

| Features  | Benefits  |
|---|---|
| Closed filtration system  | <ul style="list-style-type: none"> <li>Increased process safety and product quality; no drip losses; minimum operator exposure to process fluids</li> </ul> |
| Installation package with standard accessories                                    | <ul style="list-style-type: none"> <li>Turn-key installation allows quick integration into existing system</li> </ul>                                       |
| Compact design with high filtration area  | <ul style="list-style-type: none"> <li>High throughput filtration for medium batch production, resulting in low investment cost</li> </ul>                  |
| Drainable, low hold-up volume assembly  | <ul style="list-style-type: none"> <li>Higher product yield; minimized cleaning costs</li> </ul>  |
| High quality internal surface finish, sanitary and crevice-free design            | <ul style="list-style-type: none"> <li>Enhanced cleanability</li> </ul>   |
| Modular construction available  | <ul style="list-style-type: none"> <li>Enables flexibility and matching of production volumes to equipment capacity</li> </ul>                              |
| External tensioning device with preset torque limit                               | <ul style="list-style-type: none"> <li>Provides secure operation without bypass</li> </ul>  |
| Simple, quick installation and servicing  | <ul style="list-style-type: none"> <li>Reduced labor and maintenance costs; reduced process downtime</li> </ul>   |
| Filter module lifting device available on request                                 | <ul style="list-style-type: none"> <li>Eases filter installation and removal</li> </ul>   |
| European ATEX Directive, Group 2, Category II documentation (Zones 1/21 and 2/22) | <ul style="list-style-type: none"> <li>Suitable for use in potentially explosive environments</li> </ul>  |

### Description

SUPRApak M filtration units provide a closed system approach to high capacity depth filtration, maximizing product protection and minimizing product losses. They are a cost-effective alternative to traditional sheet filtration and lenticular module filtration.

SUPRApak M Series-SA units provide a complete installation package including standard accessories, which allows quick integration into an existing system. They hold from one to four SUPRApak M modules, representing up to approximately 11 m<sup>2</sup> (116.6 ft<sup>2</sup>) of filtration area in a very compact and low hold-up volume design. They are available either in single dome or flexible modular design.

### Specifications

|   |   |
|---|---|
| Minimum/Maximum Design Pressure <sup>1,2</sup>  | -1 to 8 barg (-14.5 to 116 psig)  |
| Minimum/Maximum Design Temperature <sup>1</sup> | -10 to 150 °C (14 to 302 °F)  |
| Materials of Construction                       | Wetted parts 1.4404 (AISI 316L stainless steel)   |
| Sealing Materials <sup>3</sup>                  | EPDM elastomer  |
| Internal Surface Finish                         | Housing<br>≤ 0.8 micrometers Ra (≤ 32 Ra microinches), electropolished  |
|   | Piping<br>≤ 0.8 micrometers Ra (≤ 32 Ra microinches)  |
| Internal Welds                                  | Housing<br>Dressed and blended to provide uniform ripple- and crevice-free surface to ≤ 0.8 micrometers Ra (≤ 32 Ra microinches), electropolished             |
|   | Piping<br>Weld finish is as welded with a uniform crevice-free profile. ≤ 1.6 micrometers Ra (≤ 63 Ra microinches), pickled and passivated or bright annealed |
| Connections                                     | Inlet/Outlet<br>DN40 (DIN 11851)<br>1.5 inch ISO 2852 clamp coupling compatible adaptors available by specific order  |
|   | Feed Fluid Vent<br>DN6 (8 mm / 0.31 inch OD) hose tail  |
|   | Filtrate Vent<br>DN6 (8 mm / 0.31 inch OD) hose tail  |
|   | Drains-Piping<br>Drain-Safety Valve<br>DN15 (18 mm / 0.71 inch OD) hose tail<br>DN32 (34 mm / 1.34 inch OD)   |
| Filter Module Compatibility <sup>4</sup>        | SUPRApak M series modules   |

<sup>1</sup> Maximum design pressure and temperature ratings are vessel ratings only. Safe operation will also depend on filter module and housing gasket use. EPDM assembly seals restrict continuous operating temperature to 130 °C (266 °F). For details on filter module temperature limitations, please refer to SUPRApak module literature.

<sup>2</sup> Design satisfies EC Pressure Equipment Directive (PED Assessment) (Fluid Group 2, Category II, Module A1). Pressure rating is for liquid or gas. The PED category and fluid group classification indicates suitability of housing use on distilled spirits less than 70% by weight absolute alcohol. For such applications, the maximum allowable temperature must be below the flash point. For 70% by weight absolute alcohol the flashpoint is 21 °C (69.8 °F).

<sup>3</sup> Please contact Pall to ensure the products meet specific National Legislation and/or Regional Regulatory requirements for food contact use.

<sup>4</sup> Refer to Pall Food and Beverage SUPRApak module literature for additional guidelines on use.

# SUPRApak M Series-SA Filter Systems

## Technical Information

SUPRApak M Series-SA systems are supplied with standard accessories, which include inlet and outlet butterfly valves, a safety device with drain assembly, a feed fluid vent assembly with pressure gauge, a downstream drain assembly with pressure gauge, and a downstream non-return valve. Additional optional selections are: sight glass on feed fluid vent, and downstream sight glass.

**Nominal Dimensions in mm (inches) —**  
for specific dimensions, please contact Pall<sup>5</sup>

|                  | M-100       | M-210       | M-421       |
|------------------|-------------|-------------|-------------|
| A                | 1040 (40.9) | 1299 (51.1) | 1818 (71.6) |
| B <sup>6,7</sup> | 1001 (39.4) | 1001 (39.4) | 1001 (39.4) |
| C <sup>6</sup>   | 513 (20.2)  | 513 (20.2)  | 513 (20.2)  |
| D <sup>6,7</sup> | 489 (19.3)  | 489 (19.3)  | 489 (19.3)  |
| E <sup>8</sup>   | 359 (14.1)  | 359 (14.1)  | 359 (14.1)  |
| F                | 324 (12.8)  | 324 (12.8)  | 324 (12.8)  |

<sup>5</sup> Pall Corporation reserves the right to make dimensional modifications at any time, maintaining the same fit, form, and function. Please request a general arrangement drawing if exact dimensions are required.

<sup>6</sup> Indicated dimensions are for installations requiring DIN connections. For installations requiring clamp coupling connections, an optional DIN-clamp coupling adaptor is additionally available. See Optional Accessories. If adaptors are added to the inlet and outlet connections, add 88 mm (3.5 in) for each adaptor.

<sup>7</sup> An optional sight glass for the filtrate piping is available. See Optional Accessories. Installation of this sight glass will add 156 mm (6.1 in) to this dimension.

<sup>8</sup> Adjustable (leg height adjustment)

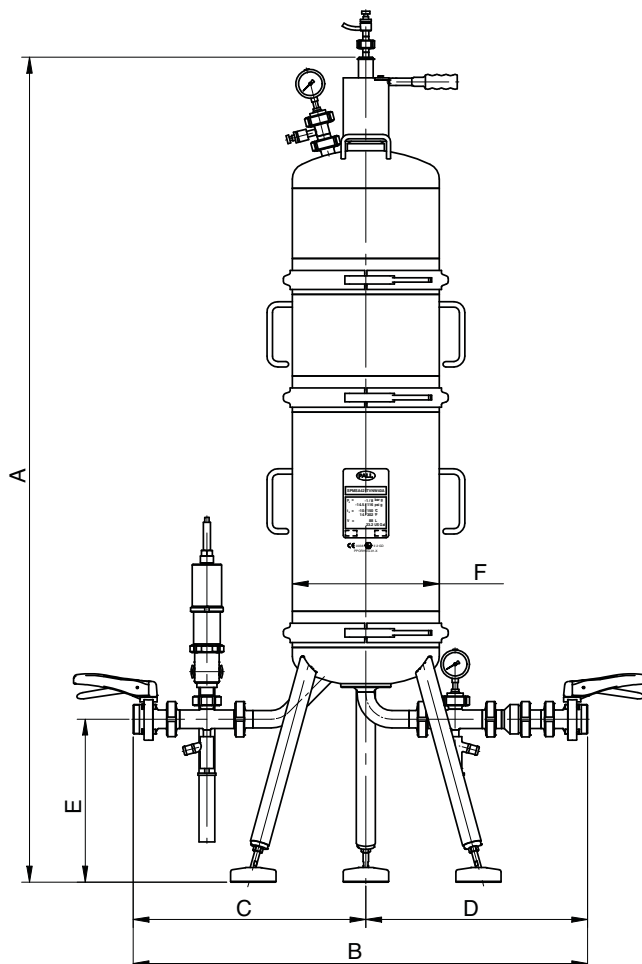


Figure 1: Dimensional information

### Volume and Weight

|                   | M-100        | M-210        | M-421        |
|-------------------|--------------|--------------|--------------|
| Volume L (US gal) | 28.2 (7.5)   | 48.2 (12.7)  | 89.2 (23.6)  |
| Weight kg (lb)    | 55.8 (123.0) | 66.7 (147.1) | 83.8 (184.8) |

### Standard Documentation<sup>9</sup>

- Certificate of Conformity to Quality Standards
- Final Inspection Certificate
- Installation/Operating Manual (IOM)

<sup>9</sup> Additional documentation packages can be ordered. Please request PPD004BRONZ, PPD004SILVER, or PPD004GOLD.

This is a guide to the part numbering structure and possible options only.  
For availability of specific options, please contact Pall.

Part Number: SPM SA   TV NW40 A

Table 1

Example Part Number: **SPMSA421TVNW40A**

Note: See bold reference codes in the tables.

Table 1

| Code       | Bowl Height and Configuration | Number of SUPRApak Modules |
|------------|-------------------------------|----------------------------|
| 100        | 1-High Bowl                   | 1                          |
| 210        | 2-High Split Bowl             | 1 or 2                     |
| <b>421</b> | 4-High Split Bowl             | 1, 2, 3, or 4              |

### Optional Accessories

| Part No.                    | Description  | Details   |
|-----------------------------|--|---|
| 25590-0226 <sup>10</sup>    | Hot Fluid Core   | 1.4404 (AISI 316L SS)   |
| 25590-0226-01 <sup>10</sup> | Hot Fluid Core Extension Z1                              | 1.4404 (AISI 316L SS)   |
| 25590-0226-02 <sup>10</sup> | Hot Fluid Core Extension Z2                              | 1.4404 (AISI 316L SS)   |
| ACS1036AA                   | Hook Spanner DN10-20                                     | Tool  |
| ACS1037AA                   | Hook Spanner DN25-100                                    | Tool  |
| ACS1012AA                   | Sight Glass DN40   | For filtrate piping   |
| ACS1020AA                   | Sight Glass DN25   | For feed fluid vent assembly  |
| ACS1116AA                   | Maintenance Tool Kit                                     | Hook spanners, adjustable torque wrench, torque unit tools                |
| ACS1067GS                   | Inlet/Outlet Adaptor (DN40 to 1 1/2 inch clamp coupling) | Adaptor for piping adaption from DN to ISO 2852 clamp coupling connection |



Figure 2: Stainless steel core for hot fluid filtration

<sup>10</sup> For hot fluid filtration (>40 °C/ >104 °F) select Hot Fluid Core for the top module in the stack and add Hot Fluid Core Extension Z1 (1-high section) and/or Hot Fluid Core Extension Z2 (2-high section) as required. A 1-high housing will only require the Hot Fluid Core.

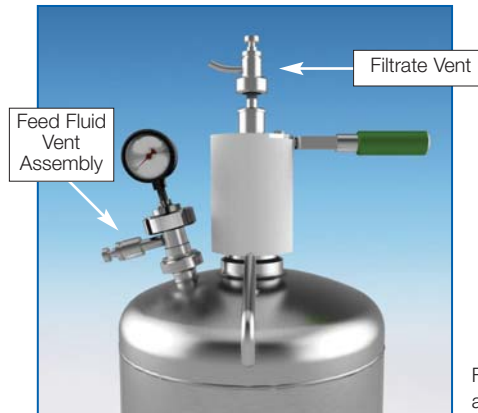


Figure 3: Feed fluid vent assembly and filtrate vent detail

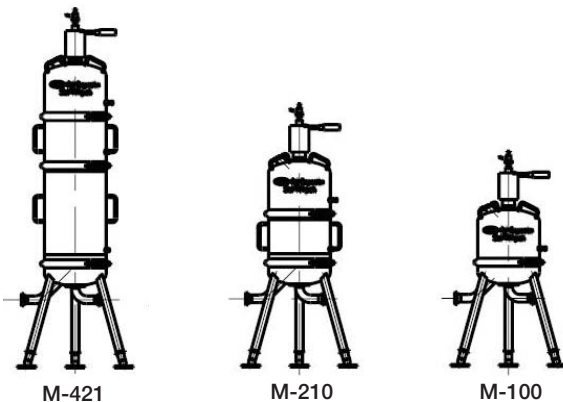


Figure 4: Single and split bowl designs offer flexibility.

### Spare Parts

| Part No.  | Description              | Details   |
|-----------|--------------------------|---|
| ACS1004AM | Housing Z1 Extension Kit | Extension piece, closure clamp, o-ring                      |
| ACS1005AM | Housing Z2 Extension Kit | Extension piece, closure clamp, o-ring                      |
| ACS1006AM | Housing Closure Clamp    | 1.4301 (AISI 304 SS)  |
| ACS1007EM | Housing O-Ring           | EPDM elastomer  |
| ACS1008FA | Pressure Gauge DN25      | For feed fluid and filtrate piping                          |
| ACS1010CS | Butterfly Valve DN40     | For feed fluid and filtrate piping                          |
| ACS1012AA | Sight Glass DN40         | For filtrate piping   |
| ACS1020AA | Sight Glass DN25         | For feed fluid vent assembly                                |
| ACS1014CM | Non-Return Valve DN40    | For filtrate piping   |
| ACS1086EX | Safety Valve DN25/32     | For feed fluid piping                                       |
| ACS1080EA | DN40 Seal                | EPDM elastomer, for piping                                  |
| ACS1087EX | DN40 Seal Kit            | EPDM elastomer kit, for butterfly valves                    |
| ACS1051EA | DN32 Seal                | EPDM elastomer, for safety valve                            |
| ACS1052EA | DN25 Seal                | EPDM elastomer, for pressure gauges                         |
| ACS1081EA | DN10 Seal                | EPDM elastomer, for piping to filtrate vent                 |
| ACS1083EA | DN15 Seal Kit            | EPDM elastomer kit, for drain valves                        |
| ACS1082EA | DN6 Seal Kit             | EPDM elastomer kit, for feed fluid and filtrate vent valves |
| ACS1040AA | Torque Unit (vented)     | Torque unit with filtrate vent                              |
| ACS1106EX | Torque Unit Rod Seal     | EPDM elastomer  |
| ACS1042AA | Torque Wrench            | Torque unit spare part                                      |
| ACS1043AA | Torque Unit Guide Bush   | Torque unit spare part                                      |
| ACS1043AA | Torque Unit Clamp Nut    | Torque unit spare part                                      |
| KCA69045  | Torque Unit Circlip      | Torque unit spare part                                      |



Figure 5: The torque unit is an external tensiing device with preset torque limit, which provides reliable and secure operation without bypass.



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