



Food and Beverage

SUPRApak L Series Filter Systems

SUPRApak™ Filtration
For Large Scale Depth Filtration



SUPRApak L Series-SA filtration units are turn-key systems designed for use with SUPRApak L filter modules. They revolutionize depth filtration applications in the food and beverage industry, providing a cost-effective alternative to classical sheet filtration.

Features	Benefits
Closed filtration system	<ul style="list-style-type: none"> Increased process safety and product quality; minimized product losses, product contamination risk and personnel exposure to process fluids
Installation package with standard accessories	<ul style="list-style-type: none"> Turn-key installation allows quick integration into existing system
Compact design with high filtration area	<ul style="list-style-type: none"> Extremely high throughput at low investment cost
Drainable, low hold-up volume assembly	<ul style="list-style-type: none"> Higher product yield; minimized cleaning costs
High quality internal surface finish, sanitary and crevice-free design	<ul style="list-style-type: none"> Enhanced cleanability
Quick release V-band housing closure	<ul style="list-style-type: none"> Ease of handling during filter change-out and cleaning
Flexible modular design	<ul style="list-style-type: none"> Production volumes can be matched to equipment capacity; capability for future expansion
External tensioning device with preset torque limit	<ul style="list-style-type: none"> Provides secure operation without bypass
Dual inlet connections on sizes exceeding 3 modules	<ul style="list-style-type: none"> Minimizes product mixing zones
Simple, quick installation and servicing	<ul style="list-style-type: none"> Reduced labor, maintenance and downtime costs
Filter module lifting device available on request	<ul style="list-style-type: none"> Eases filter installation and removal
ATEX (94/9/EC) Group II, Category 2 documentation — by specific order	<ul style="list-style-type: none"> Suitable for use in potentially explosive environments

Description

SUPRApak L filtration units provide a closed system approach to high capacity depth filtration, maximizing product protection and minimizing product losses. Lower cost of ownership is achieved due to higher throughput, yield improvement, and reduced handling, cleaning, maintenance and downtime costs, when compared to sheet filtration.

SUPRApak L technology is ideal for use in distilled spirits, beer, sweetener, enzyme, gelatin, yeast extract, and other food and beverage applications.

SUPRApak L Series-SA units provide a complete installation package including standard accessories, which allows quick integration into an existing system. They hold from one to six SUPRApak L modules, representing up to approximately 60 m² (646 ft²) 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 ^{1,2}		Liquids: -1 to 8 barg (-14.5 to 116 psig) Gases: -1 to 3.5 barg (-14.5 to 50.8 psig)
Minimum/Maximum Operating Temperature ¹		-10 to 150 °C (14 to 302 °F)
Materials of Construction		Wetted parts 1.4404 (AISI 316L stainless steel)
Sealing Materials ³		EPDM elastomer
Internal Surface Finish	Housing	≤ 0.8 micrometers Ra (≤ 32 Ra microinches), electropolished
	Piping	≤ 0.8 micrometers Ra (≤ 32 Ra microinches)
Internal Welds	Housing	Dressed and blended to provide uniform ripple- and crevice-free surface to ≤ 0.8 micrometers Ra (≤ 32 Ra microinches), electropolished
	Piping	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	DN65 (DIN 11851) 2.5 inch ISO 2852 clamp coupling compatible adaptors available by specific order
	Feed Fluid Vent	DN6 (8 mm / 0.31 inch OD) hose tail
	Filtrate Vent (optional)	DN6 (8 mm / 0.31 inch OD) hose tail
	Drains—Piping Drain—Safety Valve	DN15 (18 mm / 0.71 inch OD) hose tail; DN32 (DIN 11850)
Filter Module Compatibility ⁴		SUPRApak L series modules

¹ 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 module temperature limitations, please refer to SUPRApak module literature.

² Design satisfies EC Pressure Equipment Directive (PED) 97/23/EC (Fluid Group 2, Category II, Module H). Pressure rating is suitable for non-hazardous liquids or gases. 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).

³ Seal materials meet requirements for food contact use as detailed in FDA 21 CFR Section 177.2600, and EC Regulation 1935/2004, including BfR XV and XXI. Please contact Pall for additional options.

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

SUPRApak L Series-SA Filter Systems

Technical Information

SUPRApak L Series-SA systems are supplied with standard accessories, which include different components depending on the housing height.

1 to 3-High Housings:

- An inlet and an outlet butterfly valve, a safety device with drain assembly, a feed fluid vent assembly including sight glass, vent and pressure gauge, a downstream drain assembly with pressure gauge, and a downstream non-return valve

4 to 6-High Housings:

- Two inlet and one outlet butterfly valves, a safety device with drain assembly, a vertical riser pipe with feed fluid vent assembly including sight glass, vent and pressure gauge, a downstream drain assembly with pressure gauge, and a downstream non-return valve

For additional accessories, see Optional Accessories.

Nominal Dimensions in mm (inches) —
For specific dimensions, please contact Pall⁵.

	L-100	L-200	L-300	L-400	L-520	L-630
		L-210	L-311	L-421	L-531	L-632
			L-320	L-430		
A	1337 (52.6)	1827 (71.9)	2333 (91.9)	2870 (113)	3604 (141.9)	4113 (161.9)
B	1017 (40)	1277 (50.3)	1537 (60.5)	1797 (70.7)	2057 (81)	2317 (91.2)
C	872 (34.3)	1132 (44.6)	1392 (54.8)	1652 (65.0)	1912 (75.3)	2172 (85.5)
D ⁶	320 (12.6)	320 (12.6)	320 (12.6)	320 (12.6)	320 (12.6)	320 (12.6)
E ⁷	600 (23.6)	600 (23.6)	600 (23.6)	794 (31.3)	794 (31.3)	794 (31.3)
F ^{7,8}	773 (30.4)	773 (30.4)	773 (30.4)	773 (30.4)	773 (30.4)	773 (30.4)
G	457.2 (18)	457.2 (18)	457.2 (18)	457.2 (18)	457.2 (18)	457.2 (18)

⁵ 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.

⁶ Adjustable (leg height adjustment)

⁷ Indicated dimensions are for installations requiring DIN connections. For installations requiring clamp coupling connections, an optional DIN to clamp coupling adaptor is additionally available. See Optional Accessories. If adaptors are added to the inlet and outlet connections, add 85.3 mm (3.4 in) for each adaptor to the pipeline length.

⁸ Dimension includes optional pipeline sight glass. Subtract 162 mm (6.4 in) from this dimension for installations without sight glass.

Volume and Weight⁹

	L-100	L-200	L-210	L-300	L-311	L-320	L-400	L-421	L-430	L-520	L-531	L-630
Volume L (US gal)	60 (15.9)	101 (26.7)	101 (26.7)	144 (38)	144 (38)	144 (38)	194 (51.3)	194 (51.3)	194 (51.3)	232 (61.3)	232 (61.3)	282 (74.5)
Weight kg (lb)	86 (189.6)	96 (211.6)	102 (224.9)	106 (233.7)	119 (262.4)	113 (249.1)	128 (282.2)	140 (308.6)	135 (297.6)	150 (330.7)	157 (346.1)	160 (352.7)

⁹ Volumes and weights include housing, pipework, standard accessories.

Standard Documentation¹⁰

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

¹⁰ Additional documentation packages can be ordered.

Please request PPD004BRONZ, PPD004SILVER, or PPD004GOLD.

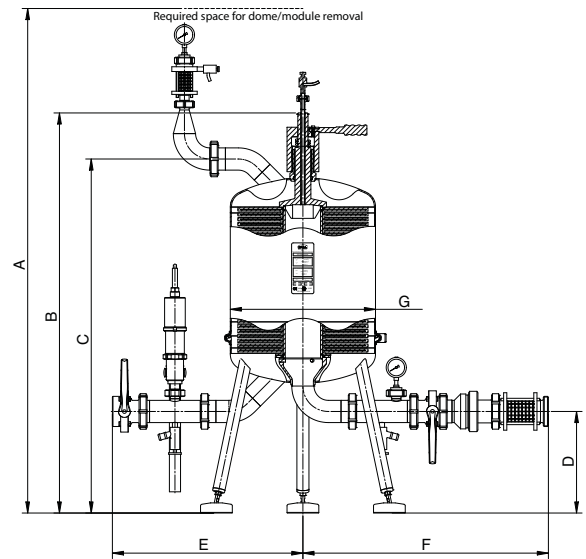


Figure 1: Dimensional information, 1 to 3-high housings

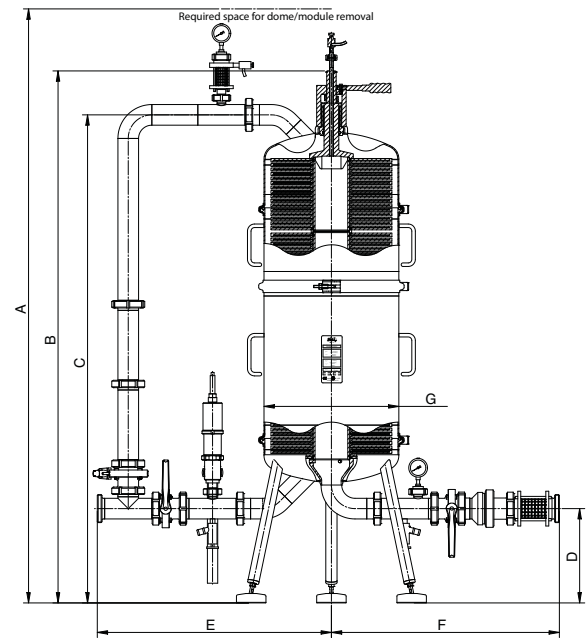


Figure 2: Dimensional information, 4 to 6-high housings

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

Part Number: SPL SA
Table 1 Table 2 Table 3

Example Part Number: **SPLSA421TVA**

Note: See bold reference codes in the tables.

Table 1

Code	Bowl Height and Configuration	Number of SUPRApak Modules
100	1-High Bowl	1
200	2-High Bowl	2
210	2-High Split Bowl	1 or 2
300	3-High Bowl	3
311	3-High Split Bowl	1, 2, or 3
320	3-High Split Bowl	1 or 3
400	4-High Bowl	4
421	4-High Split Bowl	1, 2, 3, or 4
430	4-High Split Bowl	1 or 4
520	5-High Split Bowl	3 or 5
531	5-High Split Bowl	1, 2, 4, or 5
630	6-High Split Bowl	3 or 6
632	6-High Split Bowl	1, 3, 4, or 6

Table 2

Code	Filtrate Vent Option
TW	No vent
TV	With vent, DN6 hose tail

Table 3

Code	ATEX Documentation
A	ATEX (94/9/EC) Classification: Group II, Category 2, (Zones 1/21 and 2/22) Documentation
N	No ATEX Documentation

Optional Accessories

Part No.	Description	Details
ACS1035AA	Sight Glass DN65	For filtrate piping
25590-0226 ¹¹	Hot Fluid Core	1.4404 (AISI 316L SS)
25590-0226-01 ¹¹	Hot Fluid Core Extension Z1	1.4404 (AISI 316L SS)
25590-0226-02 ¹¹	Hot Fluid Core Extension Z2	1.4404 (AISI 316L SS)
ACS1036AA	Hook Spanner DN10-20	Tool
ACS1037AA	Hook Spanner DN25-100	Tool
20040118-12	1-2 High Lifting Device	Supplied with spacer
20040118-34	3-4 High Lifting Device	Supplied with spacer
20040118-56	5-6 High Lifting Device	Supplied with spacer
ACS1034GM	Inlet/Outlet Adaptor (DN65 – 2 ½ inch clamp coupling)	Adaptor for piping adaption from DN to ISO 2852 clamp coupling connection

¹¹ 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: Stainless steel core for hot fluid filtration

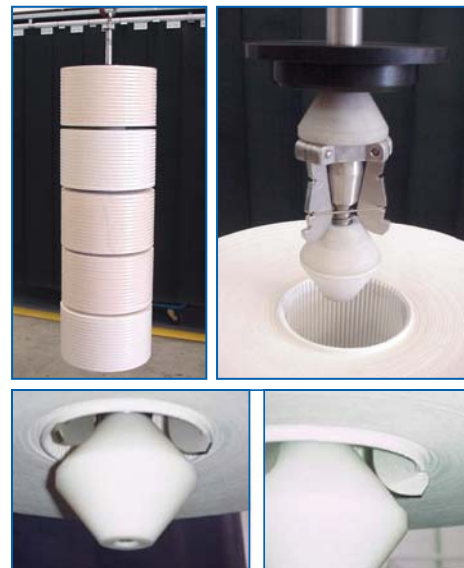


Figure 4a (top): Lifting device enables insertion and removal of the entire stack of modules. Figure 4b (bottom): Hooks on the lifting device grab the bottom of the SUPRApak module stack for easy handling.

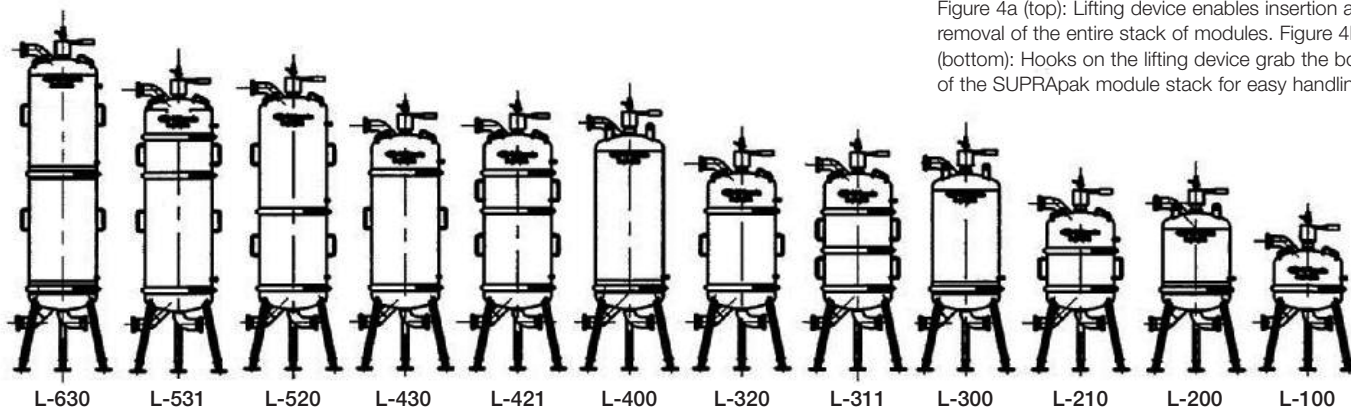


Figure 5: Single and split bowl designs offer flexibility.

Spare Parts

Part No.	Description	Details
ACS1038AA ¹²	Housing Z1 Extension	Extension piece only
ACS1030AM ¹²	Housing Z1 Extension Kit	Extension piece, V-Band, O-Ring
ACS1031AM ¹²	Housing Z2 Extension Kit	Extension piece, V-Band, O-Ring
ACS1032AM ¹²	Housing Z3 Extension Kit	Extension piece, V-Band, O-Ring
ACS1054AA ¹³	Riser Pipe 1-High Extension Kit	1-high pipe extension, for 4 or 5-high housings only, when required
ACS1055AA ¹³	Riser Pipe 2-High Extension Kit	2-high pipe extension, for 4-high housings only, when required
ACS1033AM	Housing V-Band Kit	Housing V-Band , 1.4301 (AISI 304 SS) and O-Ring, EPDM elastomer
ACS1039EM	Housing O-Ring	EPDM elastomer
ACS0951AM	Pressure Gauge DN25	For feed fluid and filtrate piping
ACS1045AA	Sight glass DN25 and Vent DN6 Assembly	Kit including sight glass, feed fluid vent, pressure gauge
ACS1047CA	Butterfly Valve DN65	For feed fluid and filtrate piping
ACS1035AA	Sight Glass DN65	For filtrate piping
ACS1049AA	Non-Return Valve DN65	For filtrate piping
ACS1086EX	Safety Valve DN25/32	For feed fluid piping
ACS1050EA	DN65 Seal	EPDM elastomer, for piping
ACS1085AX	DN65 Seal Kit	EPDM elastomer kit, for butterfly valves
ACS1051EA	DN32 Seal	EPDM elastomer, for safety valve
ACS1052EA	DN25 Seal	EPDM elastomer, for pressure gauges
ACS1083EA	DN15 Seal Kit	EPDM elastomer kit, for drain valves
ACS1081EA	DN10 Seal	EPDM elastomer, for piping to filtrate vent
ACS1082EA	DN6 Seal Kit	EPDM elastomer kit, for feed fluid and filtrate vent valves
ACS1046AA	Vent Elbow DN65/DN25	For 1-3 high housings only
ACS1053AA	Torque Unit (unvented)	Torque unit without filtrate vent
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
ACS1044AA	Torque Unit Clamp Nut	Torque unit spare part

¹² The PED Category 2 Module H classification limits the maximum allowable housing height to 6-high. New extension additions, which result in 4 to 6-high housings will require the incorporation of a suitable riser pipe assembly. Please consult Pall for best options.

¹³ Order in conjunction with Z1 or Z2 extension kits for 4 or 5-high housings, to complete the riser pipe assembly.

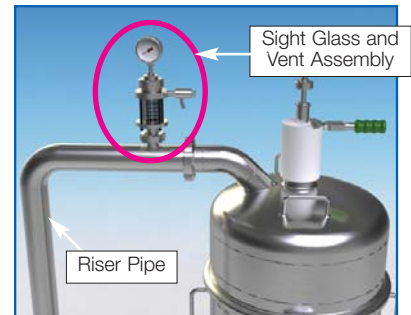
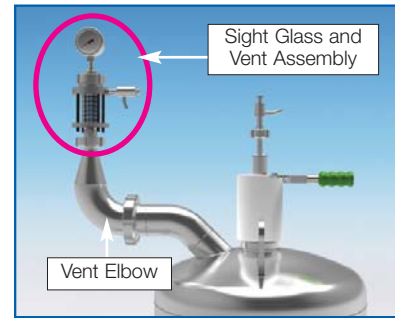


Figure 6a (top) and 6b (bottom): The sight glass and vent assembly, mounted on the feed fluid side of the housing, enables venting of the installation at its highest point, upstream pressure measurement, and visualization of the feed fluid. The mounting configuration shown in Figure 6a is for 1 to 3-high housings, and the one in Figure 6b is for 4 to 6-high housings.

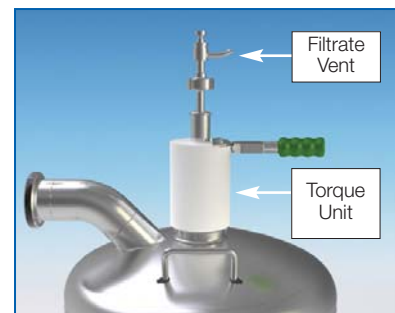


Figure 7 (right): The torque unit is an external tensioning device with preset torque limit, which provides reliable and secure operation without bypass. The optional filtrate vent, mounted on the torque unit, enables release of air from the filtrate inside the module core.



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