

Pall Advanta™ II

FILTER HOUSINGS

Pall Advanta™ II filter housings allow high-quality filtration in critical liquid and gas applications. The housings have been designed and built in conformance with American Society of Mechanical Engineers Bioprocessing Equipment (ASME BPE) standards for high levels of sanitary requirements. This reflects in the choice of materials, the designs, and the manufacturing process, including weld procedures and surface finishes. All connections are in accordance with ASME BPE and are compatible with ASME BPE pipework. By adopting this industry standard, Pall Advanta II housing users can further increase quality and have confidence that they are conforming with established safety standards.

(For more information on ASME BPE please refer to www.asme.org)

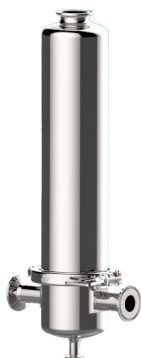
This housing range accepts one single-open-ended code 7 or code 2 'AB' style filter cartridge, and is available in four common flow patterns as shown in Figure 2.

- AGT series: for gas filtration applications, T-style flow pattern
- ALT series: for liquid filtration applications, T-style flow pattern
- ALI series: for in-line liquid filtration applications
- AVL series: typically for venting applications, L-shaped flow pattern

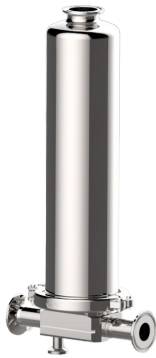


Fig 1. Pall Advanta II filter housings are designed for liquid and gas filtration applications in bioprocessing.

AGT gas housing T-style



ALT liquid housing T-style



ALI liquid housing in-line



AVL liquid/gas housing for vent applications L-style



Fig 2. Pall Advanta II housings are available in four configurations.

Features and benefits

- **Aseptic design** with crevice-free electropolished surfaces (internal Ra value < 0.375 µm [14.8 µin]), fully self-draining and no dead legs, enabling low point drainage and supporting low hold-up volumes for maximum product recovery.
- **Flexibility and modular design:** Variety of inlet and outlet connections as part of the core housing, and a range of modular interchangeable vent and drain connections to choose from, enabling flexible fit into a facility, and reconsideration of vent and drain option without the need to replace the entire housing.
- **Filter cartridge:** Accepts one single-open-ended code 7 or code 2 'AB' style 127 mm (5 in.), 254 mm (10 in.), 508 mm (20 in.) or 762 mm (30 in.) height filter cartridge.
- **Compliances:**
 - European pressure equipment directive (PED) 2014/86/EU (Module H)
 - ATEX directive 2014/34/EU (Group II category 2)
 - 3-A Sanitary standards (except for optional drain and vent valves)
 - CSA B51 (Canadian registration number [CRN] on drawings)
 - designed and manufactured in conformance with ASME BPE standards

Documentation

All Pall Advanta II housings include a basic documentation package containing the certificate of conformance to quality standards, BPE certificate, ATEX certificate (Declaration of Conformity), and the instruction and operation manual.

A variety of additional documentation packages are available, as well as individual certificates. An overview of the documentation included within each package is detailed in Table 1.

- **Material package** (PPD009CBPE) – 3.1 Material certification and general assembly (GA) drawing.
- **Biotech package** (PPD009DBPE) (recommended) – all documentation referenced above, supplemented with certificates for USP Class VI, TSE/BSE/ADI and FDA, PED certificates (when applicable) and certificate of surface conditioning and ferrite content.
- **Welding package** (PPD009MBPE) – all documentation referenced above, supplemented with welding documentation.
- **Gold package** (PPD009GOLDBPE) – the complete package: All documentation referenced above supplemented with the procedures.

Individual certificates can be ordered, please contact your sales representative.

Technical specifications and dimensions of the housing are found in Table 2 and 3, respectively.

Table 1. Overview of documentation supplied with Pall Advanta II housings documentation packages.

Product name and code	Supplied in box as standard	Material package PDD009CBPE	Biotech package PDD009DBPE	Welding package PDD009MBPE	Gold package PDD009GOLDBPE
Certificate of conformance to quality standards (housing certificate)	✓		✓	✓	✓
BPE certificate	✓	✓	✓	✓	✓
ATEX certificate (D of C)	✓		✓	✓	✓
Instruction and operating manual (incl. Technical Addendum/ATEX Technical Addendum)	✓		✓	✓	✓
Hydrostatic test certificate					✓
General assembly drawing		✓	✓	✓	✓
Actual materials list (incl. material certifications)		✓	✓	✓	✓
PED certificate (D of C)			✓ if applicable ⁽¹⁾	✓ if applicable ⁽¹⁾	✓ if applicable ⁽¹⁾
Certificate of surface conditioning / Ferrite content certificate			✓	✓	✓
USP class vi certificate			✓	✓	✓
TSE/BSE/ADI certificate			✓	✓	✓
FDA certificate			✓	✓	✓
Final inspection certificate			✓	✓	✓
Certificate of with Oxygen clean statement			✓ if applicable ⁽²⁾	✓ if applicable ⁽²⁾	✓ if applicable ⁽²⁾
Certificate of welding				✓	✓
Welder qualification				✓	✓
Welding procedures (WPSs)				✓	✓
Welding procedure qualifications (PQRs)				✓	✓

Table 1. (continued)

Product name and code	Supplied in box as standard	Material package PDD009CBPE	Biotech package PDD009DBPE	Welding package PDD009MBPE	Gold package PDD009GOLDBPE
Boroscope video on usb drive				✓ if applicable ⁽³⁾	✓ if applicable ⁽³⁾
Welding file documentation: Weld inspection procedures, weld gas certs					✓
Hydrostatic test procedure					✓
Surface preparation and mechanical Polishing procedure					✓
Electropolishing/passivation procedure					✓
Cleanability certification (by design)					✓
Drainability certificate (by design)					✓
ISO9001 certificate					✓
Data file					✓
Spare parts list					✓
Cleaning certificate					✓

⁽¹⁾ PED Module H Cat I and II certificates are only available for housing filter length codes 2 and 3 only. Housing filter length codes 05 and 1 undergo PED assessment SEP (sound engineering practice), no certificate supplied.

⁽²⁾ Only relevant when Oxygen Clean packaging is ordered separately (A2-BPE-OXCLEAN).

⁽³⁾ Only relevant when Boroscope weld inspection is ordered separately (A2-BPE-BOROSCOPE).

Table 2. Pall Advanta II housing technical specification.

Materials of construction	
Housing	1.4435/316 L stainless steel (low ferrite containing)
Clamps	316 L stainless steel/nitronic 60
Seals	USP class VI (FDA approved) silicone
Surface finish	
Internal	Ra < 0.375 µm (<14.8 µin.) (electropolished)
External	Ra < 0.8 µm/ < 32 µin. (electropolished)
Operating conditions	
Operating pressure limits	-1 to 10 bar g (-14.5 to 150 psig)
Operating temperature	-10 to 150°C
Steam sterilization	Up to 150°C – for <i>in situ</i> sterilization (SIP) and sterilization by autoclave

Table 3. Housing dimensions.

Length ⁽⁴⁾	Volume	Weight	Product code
254 mm (10.0 in.)	1.3 L	3.2 kg	AVL105G23BPE
390 mm (15.4 in.)	2.1 L	3.7 kg	AVL11G23BPE
641 mm (25.2 in.)	3.6 L	4.6 kg	AVL12G23BPE
916 mm (36.1 in.)	5.1 L	5.5 kg	AVL13G23BPE
248 mm (9.8 in.)	1.6 L	3.3 kg	AGT105G23BPE
384 mm (15.1 in.)	2.4 L	3.8 kg	AGT11G23BPE
635 mm (25.0 in.)	3.8 L	4.7 kg	AGT12G23BPE
910 mm (35.8 in.)	5.4 L	5.6 kg	AGT13G23BPE
249 mm (9.8 in.)	1.3 L	3.6 kg	ALT105G23BPE
385 mm (15.2 in.)	2.1 L	4.0 kg	ALT11G23BPE
636 mm (25.0 in.)	3.6 L	4.9 kg	ALT12G23BPE
911 mm (35.9 in.)	5.1 L	5.8 kg	ALT13G23BPE
310 mm (12.2 in.)	1.3 L	2.8 kg	ALI105G23BPE
446 mm (17.6 in.)	2.1 L	3.3 kg	ALI11G23BPE
697 mm (27.4 in.)	3.5 L	4.1 kg	ALI12G23BPE
972 mm (38.3 in.)	5.1 L	5.1 kg	ALI13G23BPE

⁽⁴⁾ This length does not include drain or vent connections, and does not take into account the clearance required for bowl removal.

This is an indicative selection of housing parts. For other formats, and detailed drawings, please contact us.

Technical performance

Liquid flow generated backpressure (housing series ALI, ALT and AVL)

The housings have been tested and shown to exhibit low dynamic pressure drops for water (Fig 3). Housings tested were for 254 mm (10 in.) cartridge with a 1 in. clamp coupling inlet/outlet (example ALI11G23BPE), similar flow patterns are commonly seen for the other variants.

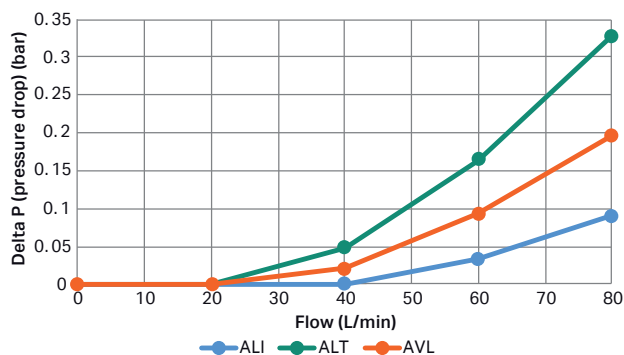


Fig 3. Delta P (pressure drop) characteristics for liquid flow through empty Pall Advanta II housings (ALI, ALT and AVL series).^[5]

^[5] The flow/pressure drop characteristics refer to the empty housing only for water at 20°C. For other liquids multiply pressure drop by relative density. To obtain the total pressure drop of a complete filter assembly, the cartridge pressure drop must be added. Please refer to the relevant filter cartridge literature or contact us for more information.

Gas flow generated backpressure (housing series AGT)

The gas housings were tested for several gas pressures in both a forward and reverse flow mode and were shown to exhibit low dynamic pressure drops (Fig 4 and 5). The results for housing configuration AGT11G23BPE are shown below, but similar pressure drops are measured for the other variants.

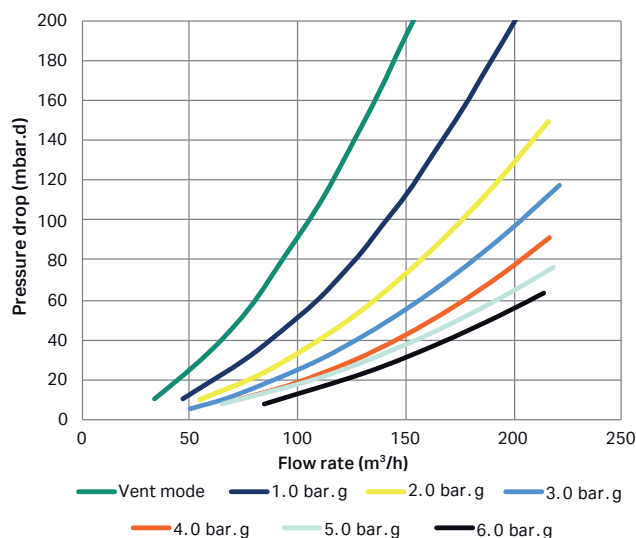


Fig 4. Forward flow direction. Pressure drop measured at variable air flow and variable gas pressures in forward flow direction for the AGT11G23BPE Pall Advanta II gas housing configuration (reference conditions 1013.25 mbar.a at 15°C).

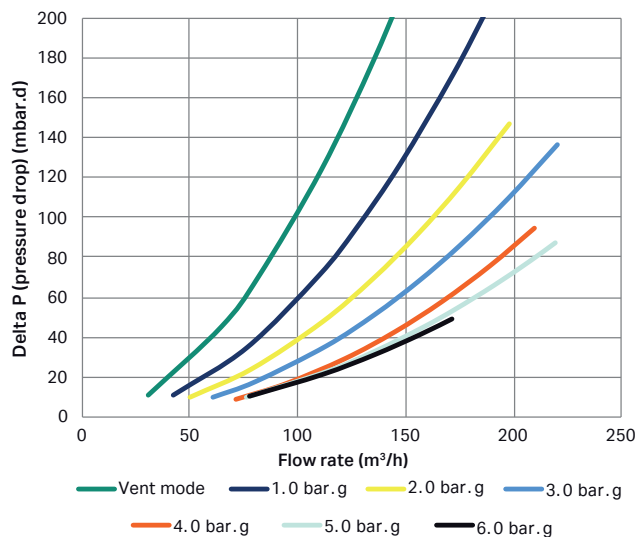


Fig 5. Reverse flow direction. Delta P (pressure drop) measured at variable air flow and variable gas pressures in reverse flow direction for the AGT11G23BPE Pall Advanta II gas housing configuration (reference conditions 1013.25 mbar.a at 15°C).

Modular design and ordering approach

Through its modular design, the Pall Advanta II filter housings give users a large flexibility in choosing vent and drains, together with inlet and outlet connections. In addition, it can be ordered on a short lead time of 3 weeks.

The Pall Advanta II housing modular approach consist of combining four basic standard housing types (Fig 2 and 6) with a choice of filter height and inlet/outlet connections and adding vent/drain connections (Fig 7 to 9). For more detailed ordering information please visit cytiva.com.

Ordering information

1. Select housing

Example product code, ALT105G23LBPE – a Pall Advanta II ASME BPE - compliant liquid housing, T-style, filter length 127 mm (5 in.) with 1½ in. clamp coupling inlet and outlet connections.









							
Code	Design	No. of filters	Code	Filter length	Code	Inlet/outlet connections	Standard
ALT	Liquid, T-style	1	05	127 mm (5 in.)	G23	1 in. clamp coupling	ASME BPE compliant
ALI	Liquid, in-line		1	254 mm (10 in.)	G23L	1½ in. clamp coupling	
AVL	Liquid and gas L-style		2	508 mm (20 in.)	G31	2 in. clamp coupling (AGT and ALI variants only)	
AGT	Gas, T-style		3	762 mm (30 in.)	G94	Ø33.7 mm × 2.0 mm butt weld	
					G95	Ø60.3 mm × 2.3 mm butt weld	

Fig 6. Pall Advanta II filter housing product code configurator.






Product code	G23	G23L	G31	G94	G95
Connection drawing					
Connection description	1 in. clamp coupling	1½ in. clamp coupling	2 in. clamp coupling (AGT and ALI variants only)	Ø33.7 mm × 2.0 mm butt weld	Ø60.3 mm × 2.3 mm butt weld

Fig 7. Housing inlet and outlet connection options.

2. Select vent connections







Product code	A2VCH4BPE	A2VDH4BPE	A2VHH4BPE	A2VKH4BPE	A2VNH4BPE	A2VSH4BPE
Connection drawing						
Connection description	1½ in. clamp coupling and quick release valve (not 3-A compliant)	1½ to ½ in. clamp coupling	1½ in. clamp to in-line quick release valve (not 3-A compliant)	1½ in. clamp to in-line hosetail valve (not 3-A compliant)	1½ in. blanking cap	1½ in. clamp coupling with ½ in. side port

Fig 8. Vent connection options (to be ordered separately).⁽⁶⁾

⁽⁶⁾ For ALI-series the vent options are chosen from the drain options as the connection is ½ in.

3. Select drain connections


Product code	A2DHH4BPE	A2DKH4BPE	A2DNH4BPE
Connection drawing			
Connection description	½ in. clamp to quick release valve (not 3-A compliant)	½ in. clamp to in-line hosetail valve (not 3-A compliant)	½ in. blanking cap

Fig 9. Drain connection options (to be ordered separately).

Additional tools and services

Heating jacket and filter stands are available for the Pall Advanta II housing. In addition, valve seals and closure o-rings are available in a variety of materials. For more details contact us.

For applications with very stringent requirements, the following services are available:

- Oxygen clean packaging, which includes the product being packed in an oxygen seal
- Boroscope weld inspection, to detail weld full penetration

Description	Product code
Pall Advanta II housing boroscope weld inspection	A2-BPE-BOROSCOPE
Pall Advanta II housing oxygen clean	A2-BPE-OXCLEAN

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