Expansion Tank

Coolant expansion, degassing and level buffering for fuel-cell loops

A pressurised expansion tank for the coolant circuit of a fuel-cell system. It absorbs the volume change of the coolant between cold start and operating temperature, holds the system pressure, and gives the circuit a place for entrained gas to separate. Single- and dual-chamber bodies in PP or SS304, from 1 L to 14.5 L.



1311HF-S150L



1311HF-S90L



4L+2.4L



1L+1L



1.7L+1.5L



1311HF-SQ90L



1311HF-J26L



1311-S1.6L



1311HF-S47L



1311HF-S40L



1311HF-S35L



1311HF-S20L

Tank family — single- and dual-chamber bodies, PP and SS304

Design features

Sized on the loop

Usable and expansion volumes are quoted separately, so sizing follows the real coolant swing, not total volume.

Single or dual chamber

Dual-chamber bodies give two independent circuits in one housing, each with its own usable and expansion volume.

PP or SS304

PP for standard water-glycol coolant; SS304 where the circuit runs hot, or where a metal body is required.

Custom opening pressure

On the SS304 range the cap opening pressure and the port arrangement are specified at order.

Why the loop needs an expansion tank

Volume change

Coolant expands as the stack warms up. Without somewhere to put that volume the circuit pressure rises until a joint or a seal gives way.

Gas separation

Entrained air and gas leave the coolant in the tank, so the pump does not cavitate and the stack keeps a full, even coolant flow.

Pressure holding

The cap holds system pressure above the coolant vapour pressure, which keeps the loop from boiling at the hottest point of the stack.

Model selection

Total, usable and expansion volumes are listed separately. Choose on the usable and expansion volume the loop actually needs, then check that the body fits the space available.

Model	Chamber	Total volume (L)	Usable volume (L)	Expansion (L)	Material	Working temp.
1311-S1.6L	Single	1.6	0.8	0.8	PP	−40~120 °C
1L+1L	Dual	1.0+1.0	0.6+0.6	0.4+0.4	PP	−40~120 °C
1.7L+1.5L	Dual	1.7+1.5	1.2+1.0	0.5+0.5	PP	−40~120 °C
1311HF-S20L	Single	2.0	1.3	0.7	PP	−40~120 °C
1311HF-S35L	Single	3.5	1.2	2.3	PP	−40~120 °C
4L+2.4L	Dual	4.0+2.4	2.4+1.3	1.6+0.9	PP	−40~120 °C
1311HF-S40L	Single	4.0	1.3	2.7	PP	−40~120 °C
1311HF-S47L	Single	4.7	2.1	2.6	PP	−40~120 °C
1311HF-S90L	Single	9.0	6.0	3.0	PP	−40~120 °C
1311HF-SQ90L	Single	9.0	5.8	2.6	PP	−40~120 °C
1311HF-S150L	Single	14.5	10.5	4.0	PP	−40~120 °C
1311HF-J20L	Single	2.0	1.3	0.7	SS304	−40~120 °C
1311HF-J26L	Single	2.6	1.7	0.5	SS304	−40~120 °C
1311HF-J4.5L+J9L	Dual	4.5+9.0	3.0+3.0	1.5+6.0	SS304	−40~120 °C
1311HF-J13.5L	Single	13.5	9.0	4.5	SS304	−40~120 °C

1311HF-SQ90L is the grade specified for hydrogen fuel-cell vehicles. SS304 models allow the opening pressure and port layout to be customised.

Three body families

PP single chamber

1.6 L to 14.5 L in one moulded body. The default choice for a coolant loop with a single circuit.

PP dual chamber

Two independent chambers in one housing, for systems that run two loops or need separate expansion volumes side by side.

SS304

Stainless bodies from 2 L to 13.5 L, single or dual chamber. Cap opening pressure and ports are set at order.

How to size the tank

1 Coolant volume — Take the total coolant volume of the loop and the temperature swing between cold fill and operating condition.

2 Expansion volume — Multiply the volume by the thermal expansion of the coolant over that swing, then pick a tank whose expansion volume covers it.

3 Usable volume — Check the usable volume against the fill level and the low-level alarm point, so the pump never draws air.