

IHI Aerospace (IA) is one of the major manufacturers of tanks and propulsion systems in Japan and has manufactured a large number of tanks since its founding in 1964. IA's product line covers a wide range of tanks from 3 to 1494 liters in volume and from diaphragms to surface tension channel mesh propellant management devices (PMDs).

Design

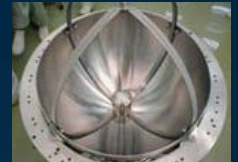
- Stress analysis (including PMDs)
- Dynamic analysis
- Leak before burst (LBB) and flow growth analysis
- Analysis of the propellant behavior

Standards

- MIL-STD-1522A
- JAXA standards, NASA standards, ESA standards



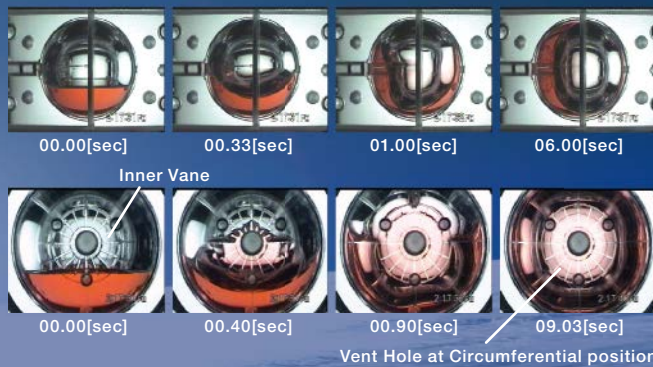
430 L tank for SELENE



Channel Mesh



Vane



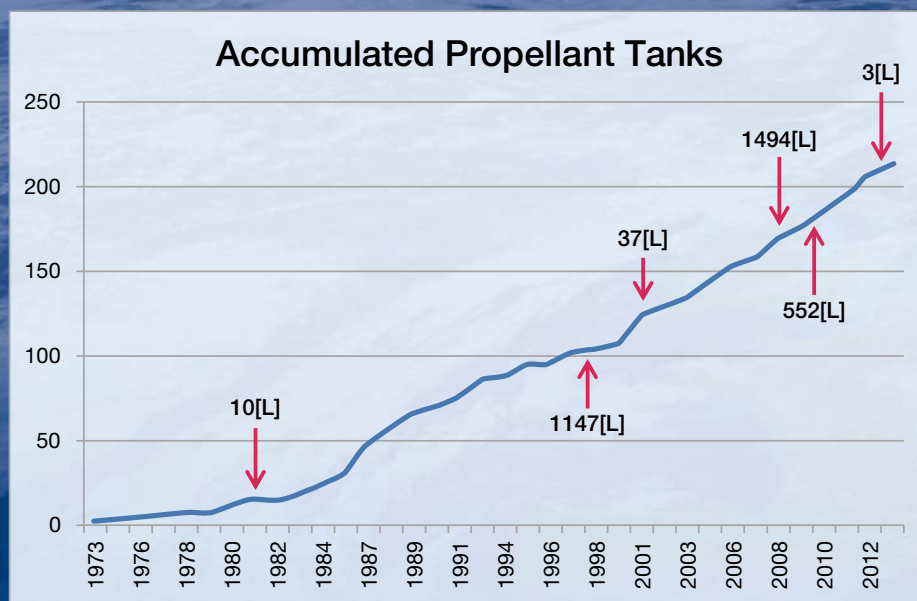
Drop tower test



552 L tanks for HTV



Diaphragm



Lineup of Propellant Tanks

Volume [L]	Size [mm]	Internal device
3	182 ID Sphere	DIAPHRAGM
10	270 ID Sphere	NONE
14	300 ID Sphere	BLADDER
14	300 ID Sphere	VANE
18	278 ID Tear-drop	NONE
22	300 ID x 390 length	SPONGE METAL
37	420 ID Sphere	DIAPHRAGM
48	449 ID Tear-drop	NONE
56	474 ID Sphere	NONE
67	420 ID x 750 length	DIAPHRAGM
86	550 ID Sphere	CHANNEL MESH
117	609 ID Sphere	START BASCKET
141	650 ID Sphere	DIAPHRAGM
169	650 ID x 750 length	DIAPHRAGM
289	820 ID Sphere	START BASCKET
300	820 ID x 845 length	START BASCKET
389	820 ID x 1011 length	START BASCKET
427	820 ID x 1087 length	CHANNEL MESH
430	820 ID x 1087 length	CHANNEL MESH
510	995 ID Sphere	START BASCKET
552	1020 ID Sphere	CHANNEL MESH
760	1136 ID Sphere	START BASCKET
1018	1156 ID x 1361 length	CHANNEL MESH
1147	1300 ID Sphere	CHANNEL MESH
1494	1300 ID x 1565 length	CHANNEL MESH

*The highlighted tanks are currently in production

Material

- Titanium
(forging, super plastic forming)
- Aluminum
- CFRP/Aluminum

Internal devices

- Diaphragm
(SiO₂-free diaphragm is under development)
- Surface tension channel mesh
- Vane
- Others (start basket, sponge metal)

Lineup of Pressurant Tanks

Volume [L]	Size [mm]	Material
16	310 ID Sphere	CFRP/Ti-6Al-4V
17	262 ID x 480 length	CFRP/A6061
57	480 ID Sphere	CFRP/Ti-6Al-4V
104	585 ID Sphere	CFRP/Ti-6Al-4V

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