

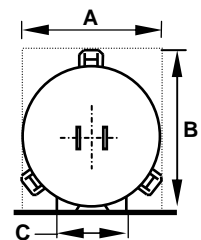
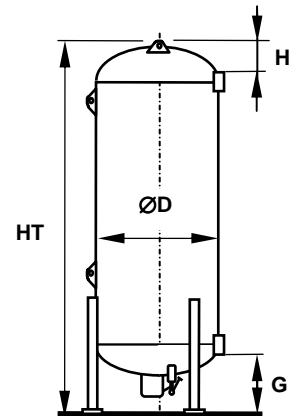
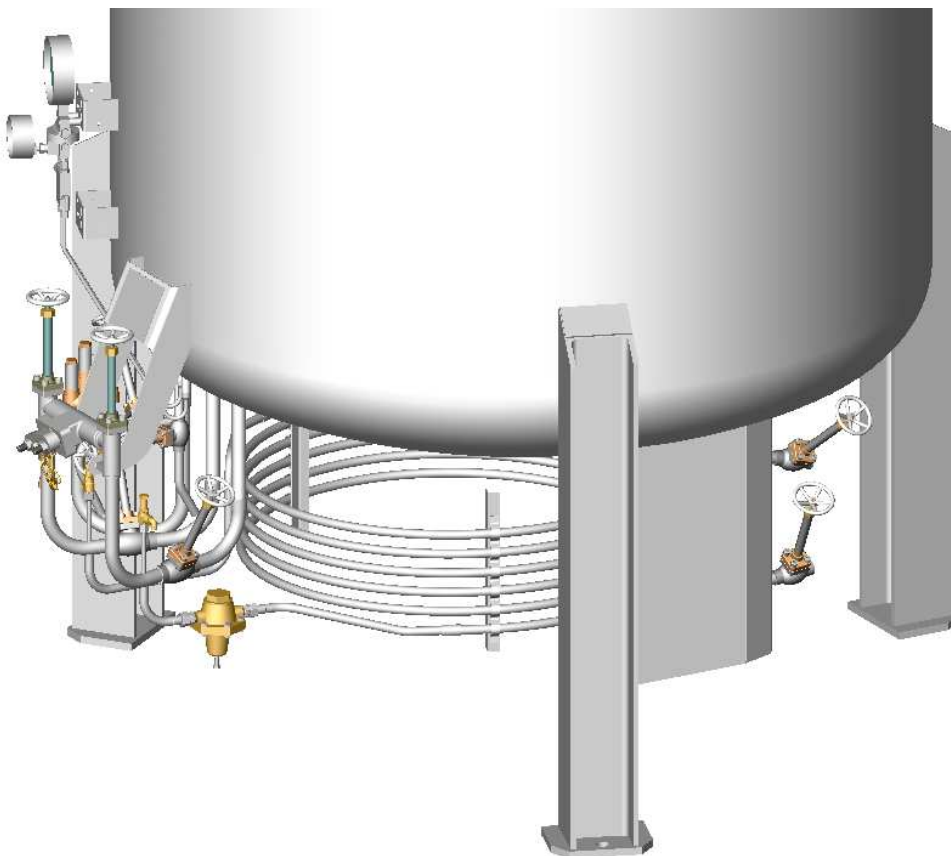
Vertical Thermosiphon Tank

CRYOLOR ASIA PACIFIC introduces the latest generation vacuum isolated cryogenic thermosiphon tank, the **RVTA Céline 3**, for liquid nitrogen, oxygen or argon service and developed in partnership with leading cryogenic pump manufacturers. Specifically for cylinder filling systems, the **RVTA Céline 3** is simply the most efficient, economical pumping solution for cutting costs by reducing product losses and pump maintenance.

Available in a range of sizes with a Maximum Allowable Working Pressure of **250 psig** (≈ 17 bar), **RVTA Céline 3** is designed in accordance with **ASME Section VIII Division 1 with 'U' stamp**.

Moreover, the support legs used in the Céline 3 range are calculated **to resist high winds and earthquakes (IBC code)**

- **A maximum use of Stainless steel:** Only Céline 3 uses as much stainless in its construction to guarantee the lowest life cycle costs - valves, interconnecting piping, pressure raising coil and all welded connections are stainless steel.
- **Components selected for their operational reliability** - mono-bloc pressure building economizer - regulator, safety system with dual relief valves and burst discs as standard, stainless steel valves.
- **Reduced overall operational costs** - optimized pipework layout with fewer connections minimize potential leaks and facilitate operation & servicing, filling assembly isolation valves, proven painting techniques guarantee years of care-free operation.



Vertical Thermosiphon Tank

Type	RVTA6		RVTA11		RVTA14		RVTA21		RVTA27	
	(1.5 KUSG)		(3 KUSG)		(4 KUSG)		(6 KUSG)		(7.5 KUSG)	
Gross capacity (liters / USG) *	6 150	1 625	10 540	2 784	14 910	3 939	23 660	6 250	28 040	7 407
Net capacity (liters / USG) *	5 843	1 543	10 013	2 645	14 165	3 742	22 477	5 938	26 638	7 037
Daily Evaporation Rate O ₂ (%)	0.28	0.28	0.26	0.26	0.24	0.24	0.22	0.22	0.20	0.20
Empty weight (kg / lbs)	4 550	10 031	6 050	13 338	8 050	17 747	10 750	23 700	12 300	27 117
Weight full Nitrogen (kg / lbs) - LIN	9 271	20 438	14 141	31 174	19 495	42 979	28 911	63 739	33 824	74 568
Weight full Oxygen (kg / lbs) - LOX	11 216	24 728	17 475	38 525	24 212	53 378	36 396	80 240	42 694	94 124
Weight full Argon (kg / lbs) - LAR	12 689	27 974	19 998	44 088	27 781	61 247	42 060	92 727	49 407	108 923
Continuous flow rate										
for 8 Hours at 2 bar at 0°C (l/h) - LIN	2290	2290	2290	2290	2290	2290	2290	2290	2290	2290
for 8 Hours at 2 bar at 0°C (l/h) - LOX	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
for 8 Hours at 2 bar at 0°C (l/h) - LAR	2130	2130	2130	2130	2130	2130	2130	2130	2130	2130
Ø Diameter (mm / feet)	2 200	7.2	2 200	7.2	2 200	7.2	2 200	7.2	2 200	7.2
HT height (mm / feet)	4 400	14.4	5 400	17.7	7 860	25.8	10 435	34.2	11 940	39.2
H (mm / feet)	520	1.7	520	1.7	520	1.7	520	1.7	520	1.7
G (mm / feet)	1 055	3.5	1 055	3.5	1 055	3.5	980	3.2	980	3.2
A (mm / feet)	2 250	7.4	2 250	7.4	2 250	7.4	2 300	7.5	2 300	7.5
B (mm / feet)	2 450	8.0	2 450	8.0	2 450	8.0	2 500	8.2	2 500	8.2
C (mm / feet)	1 245	4.1	1 245	4.1	1 245	4.1	1 245	4.1	1 245	4.1

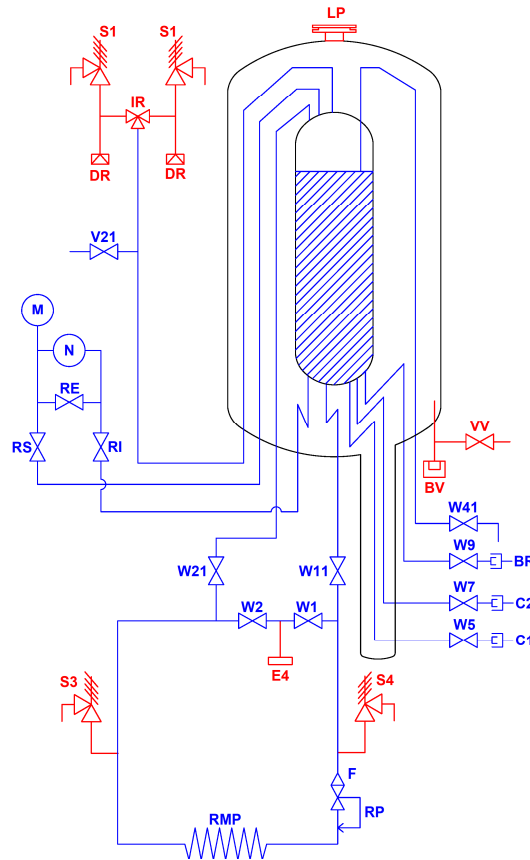
* Manufacturing tolerance : ± 4%

Type	RVTA33		RVTA41		RVTA47		RVTA53		RVTA63	
	(9 KUSG)		(11 KUSG)		(12 KUSG)		(13 KUSG)		(15 KUSG)	
Gross capacity (liters / USG) *	34 340	9 072	41 300	10 910	47 580	12 569	56 270	14 865	63 750	16 841
Net capacity (liters / USG) *	32 623	8 618	39 235	10 365	45 201	11 940	53 457	14 122	60 563	15 999
Daily Evaporation Rate O ₂ (%)	0.18	0.18	0.16	0.16	0.16	0.16	0.15	0.15	0.13	0.13
Empty weight (kg / lbs)	14 850	32 739	17 380	38 316	19 370	42 704	22 170	48 876	24 490	53 991
Weight full Nitrogen (kg / lbs) - LIN	41 209	90 851	49 082	108 207	55 892	123 221	65 363	144 100	73 425	161 873
Weight full Oxygen (kg / lbs) - LOX	52 073	114 801	62 147	137 011	70 944	156 405	83 164	183 345	93 592	206 335
Weight full Argon (kg / lbs) - LAR	60 294	132 925	72 034	158 809	82 335	181 518	96 635	213 044	108 854	239 981
Ø Diameter (mm / feet)	2 840	9.3	2 840	9.3	2 840	9.3	2 840	9.3	2 840	9.3
Continuous flow rate										
for 8 Hours at 8 bar at 0°C (l/h) - LIN	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
for 8 Hours at 8 bar at 0°C (l/h) - LOX	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
for 8 Hours at 8 bar at 0°C (l/h) - LAR	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
HT height (mm / feet)	8 850	29,03	10 510	34,5	11 543	37,87	13 510	44,32	15 025	49,3
H (mm / feet)	650	2,2	650	2,2	650	2,2	650	2,2	3 660	12
G (mm / feet)	1 100	3,6	1 100	3,6	1 100	3,6	1 100	3,6	1 100	3,6
A (mm / feet)	2 950	9,7	2 950	9,7	2 999	9,8	2 999	9,8	2 999	9,8
B (mm / feet)	3 300	10,8	3 300	10,8	3 350	11	3 350	11	3 350	11
C (mm / feet)	1 530	5	1 530	5	1 530	5	1 530	5	1 530	5

* Manufacturing tolerance : ± 4%

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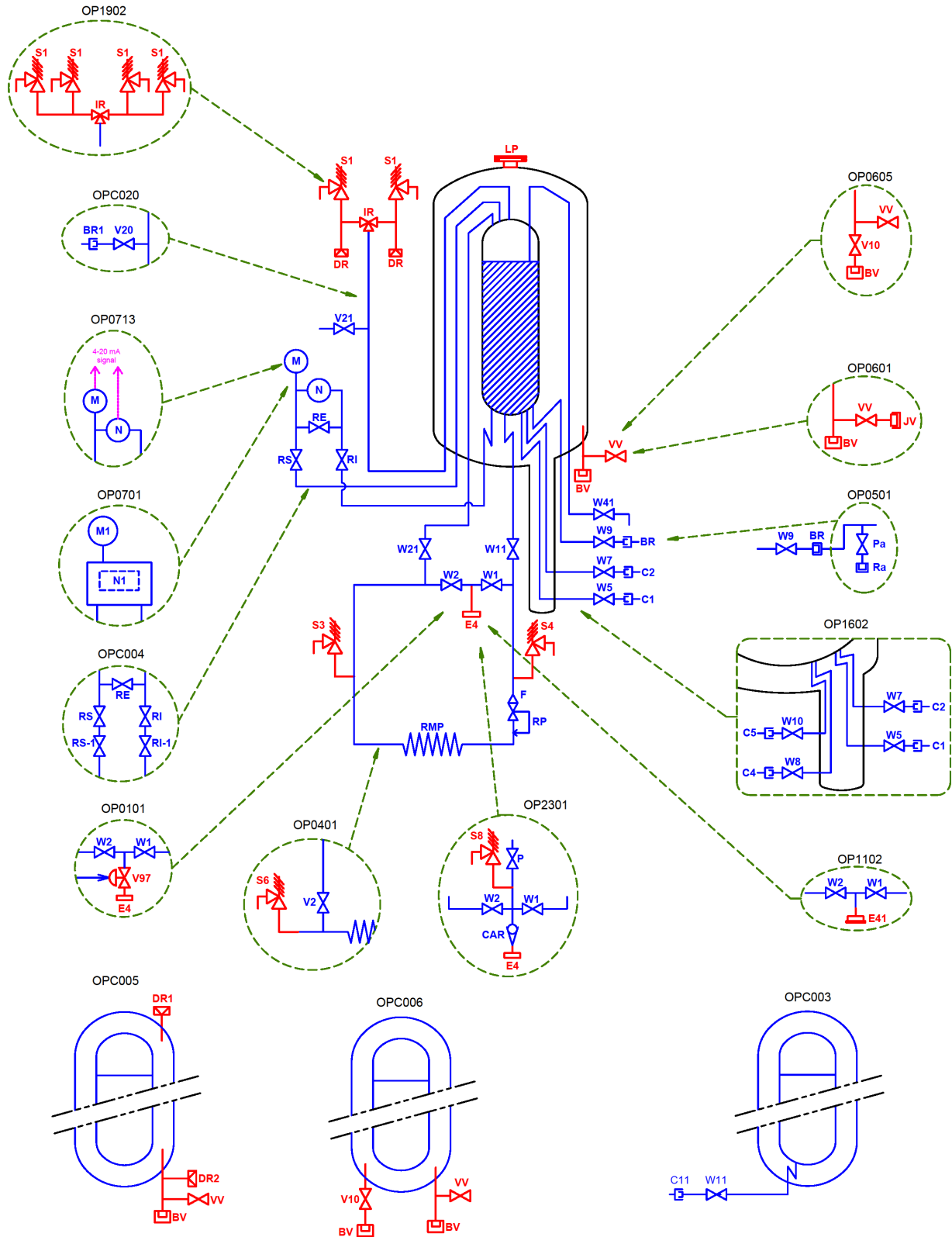
FLOW DIAGRAM (Standard)



REFERENCE	NOMENCLATURE	SIZE
W1, W11	Bottom Filling Valve	DN 25 < 21 kl Tanks
W2, W21	Top Filling Valve	DN 40 ≥ 21_kl Tanks
S3-S4	Line Safety Valve	¼"
E4	Filling Connection	DN 40
S1	Inner Vessel Safety Valve	1/2"
DR	Inner Vessel Protection Device	¾" MNPT
IR	3-Way Valve	DN 20
M	Pressure Indicator	-
N	Level Indicator	
RI	Level Gauge Manifold, Liquid	
RE	Level Gauge Manifold, Equalizer	
RS	Level Gauge Manifold, Gas	
W41	Full Trycock Valve	DN 15
LP	Lift Plate	AS PER CRYOLOR DESIGN
BV	Vacuum Connection	-
W5 / C1	Pump feed valve / Connection	DN20 / DN20
W7 / C2	Pump return valve / Connection	DN20 / DN20
W9	Withdrawal Valve - Liquid	DN 25 < 21 kl Tanks DN 40 ≥ 21 kl Tanks
BR	Withdrawal Connection - Liquid	
RP & F	Pressure Regulator with Filter	-
RMP	Pressure Building Coil	-
V21	Vent Valve	DN 15
VV	Vacuum probe isolation valve	-

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FLOW DIAGRAM (With Options)



Vertical Thermosiphon Tank

REFERENCE	NOMENCLATURE (OPTIONS)	SIZE
OP0101	Over pressurization protection (To avoid over pressure filling & Ensure vessel safety while filling)	
V97	Over pressurization protection valve	DN 40
C6	MG 97 valve connection	
OP0401	Pressure Building Coil Isolation valve	
S6	Line Safety Valve	¼"
V2	Pressure Building Coil Isolating Valve	DN 15
OP0501	Liquid Analysis Connection	
Pa	Liquid Analysis Valve	DN 15
Ra	Quick Connection	
OP0601	Annular space vacuum detection / Vacuum sensor / Vacuum measuring probe	
VV	Vacuum Isolation Valve	1/8"
JV	Vacuum Thermocouple Connection	1/8"
OP0605	Vacuum Isolation valve	
V10	Vacuum isolation valve -Edwards Vacuum valve Type SP10K & SP25K	
OP0701	Teleflo Diva	
M1 & N1	Digital Level indicator & Analog Pressure indicator	
OP0713	Wika with Telemetry (4-20mA) option 4-20 mA Telemetry provision with wika gauge	
OP1102	ISO filling connection / Optional adaptor 1½" 300 lbs	
E41	ISO Flange connection for Filling	DN 40
OP1602	Double Thermosiphon Tank	
V5	Globe Valve With Check	DN 15
S7	Line Safety Valve	¼"
V5	Globe Valve With Check	DN 15
S7	Line Safety Valve	¼"
OP1902	Additional safety relief valves 4 Number of safety relief valves without bursting disc	
OP2301	Filling assembly with Check valve, Check valve & Purge valve	
S8	Line Safety Valve	¼"
P	Purge Valve	
CAR	Check Valve	
OP5301	Foot print template Foot print drawing available before tank shipment (For foundation work at customer site)	
OPC001	10% Trycock Net capacity of tank with 10% gas phase	
OPC002	Additional Top filling / Gas withdrawal line	
V11	Top filling / Gas withdrawal valve	DN 25 < 21 kl Tanks
C11	Top filling / Gas withdrawal connection	DN 40 ≥ 21 kl Tanks

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REFERENCE	NOMENCLATURE (OPTIONS)	SIZE
OPC003 Additional Liquid withdrawal line		
W10	Liquid withdrawal valve	DN 25 < 21 kl Tanks
C10	Liquid withdrawal connection	DN 40 ≥ 21 kl Tanks
OPC004 Additional Isolation valve for Pressure & Level gauges		
RS-1	Additional isolation valve for Level gauge - Gas	
RI-1	Additional isolation valve for Level gauge - Liquid	
OPC005 Rupture disc for Outer vessel safety relief		
DR1 & DR2	Vacuum bursting disc (Instead of lift plate)	
OPC006 Additional vacuum pumping line for vacuum valve		
BV	Vacuum pump down connection	
V10	Vacuum isolation valve -Edwards Vacuum valve Type SP10K & SP25K	
OPC007 ANSI flange connection on withdrawals		
	ANSI flange connection on withdrawals (Instead of 3 part coupling)	
OPC008 Metal P&ID		
	Metal P&ID instead of Laminated sheet P&ID	
OPC009 Upsizing liquid withdrawal valve (W9) to DN 50 / 2"		
	Liquid withdrawal valve size increased to DN50 / 2" (Valve size DN50, Pipe size DN25/DN40)	
OPC010 Liquid withdrawal line (W9) to DN 50 / 2"		
	Liquid withdrawal line size DN50 / 2" (Both Pipe & Valve)	
OPC012 LAR-CGA connection on Filling cluster		
	CGA-Filling connection for Liquid Argon	
OPC013 LOX-CGA connection on Filling cluster		
	CGA-Filling connection for Liquid Oxygen	
OPC014 LIN-CGA connection on Filling cluster		
	CGA-Filling connection for Liquid Nitrogen	
OPC015 MOM Certificate		
	MOM certificate available	
OPC016 Herose valves (Instead of Bestobell valves)		
	Operating valves are Herose make, instead of Bestobell make	
OPC017 Customer LOGO		
	Customer requirement LOGO fixed on tank.	
OPC019 Spare valve of Thermosiphon		
	Spare valve of Thermosiphon (2 Nos. of DN20 valve)	
OPC020 High pressure Gas withdrawal		
V20	Isolation valve for Gas withdrawal	
BR1	Connection for Gas withdrawal	