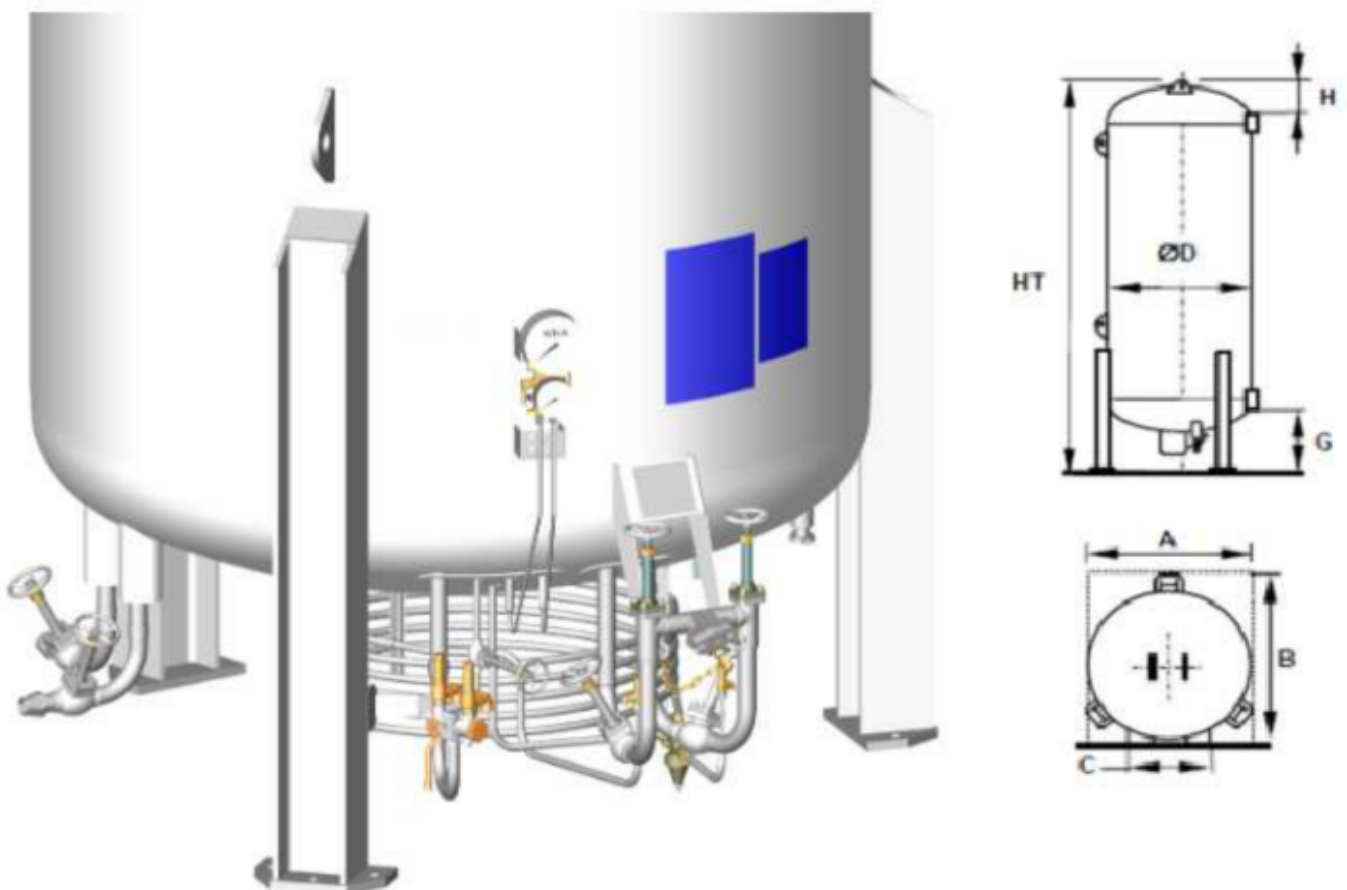


CRYOLOR ASIA PACIFIC introduces the latest generation vacuum insulated cryogenic tank, the **Céline 3**, for Liquid Nitrogen, Oxygen or Argon service. Available in a range of sizes with a Maximum Allowable Working Pressure of **250 psig** ( $\approx 17$  bar), **Céline 3** is designed in accordance with **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)**

- **The widest range of standard options:** Introduced by CRYOLOR, our innovative modular design using prefabricated piping modules, allows the basic model to be customized to satisfy virtually all possible technical requirements.
- **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 carefree operation.



Disclaimer: The image shown above is just a representation of the tank, The actual product may vary on its appearance and size.

TYPE	CA 6 (1.5 KUSG)		CA 11 (3 KUSG)		CA 14 (4 KUSG)		CA 19 (5 KUSG)		CA 21 (6 KUSG)		CA 27 (7.5 KUSG)	
	Gross capacity (liters / USG) *	6150	1625	10540	2784	14910	3939	19290	5096	23660	6250	28040
Net capacity (liters / USG) *	5843	1544	10013	2645	14165	3742	18326	4841	22477	5938	26638	7037
Boil off Rate O2 (%)	0.28		0.26		0.24		0.23		0.22		0.20	
Empty weight (kg / lbs)	4200	9259	5600	12346	7250	15984	8650	19070	10200	22487	11700	25794
Weight full Nitrogen (kg / lbs) - LIN	8921	19668	13691	30182	18695	41216	23457	51715	28361	62526	33224	73245
Weight full Oxygen (kg / lbs) - LOX	10867	23957	17025	37533	23412	51615	29560	65169	35846	79027	42094	92801
Weight full Argon (kg / lbs) - LAR	12339	27203	19548	43096	26982	59485	34178	75350	41510	91515	48807	107600
Continuous flow rate												
For 8 Hours at 8 bar (Nm3/h) - LIN	500		500		500		2000		2000		2000	
For 8 Hours at 8 bar (Nm3/h) - LOX	555		555		555		2225		2225		2225	
For 8 Hours at 8 bar (Nm3/h) - LAR	585		585		585		2345		2345		2345	
∅ Diameter (mm / feet)	2200 / 7.2											
HT height (mm / feet)	4200	13.8	5200	17.1	7660	25.1	8600	28.2	10235	33.6	11740	38.5
H (mm / feet)	520 / 1.7											
G (mm / feet)	1055 / 3.5											
A (mm / feet)	2300 / 7.5											
B (mm / feet)	2500 / 8.2											
C (mm / feet)	1245 / 4.1											

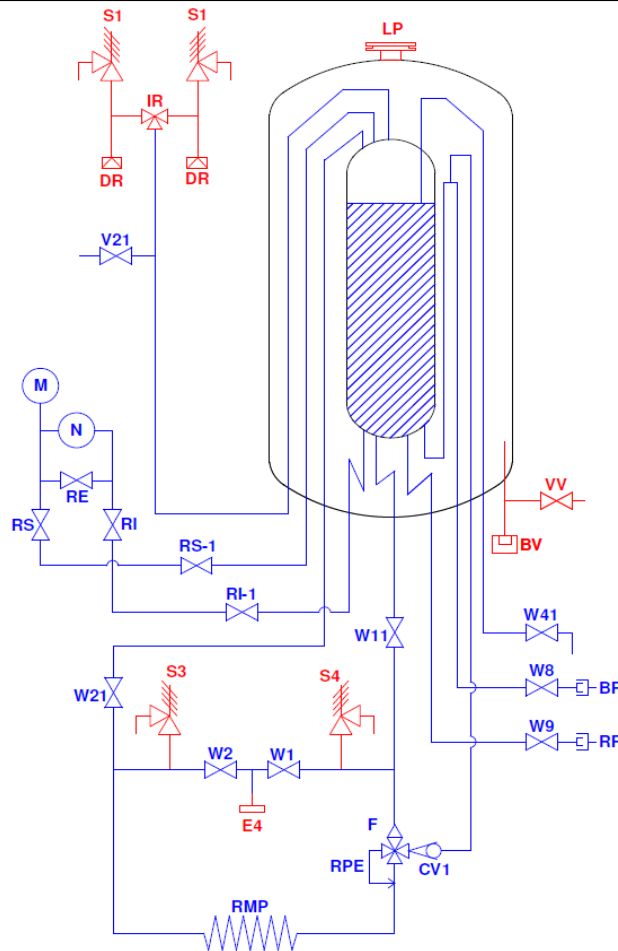
TYPE	CA 33 (9 KUSG)		CA 41 (11 KUSG)		CA 47 (13 KUSG)		CA 53 (15 KUSG)		CA 63 (17 KUSG)	
	Gross capacity (liters / USG) *	34340	9072	41300	10910	47530	12556	56270	14865	63750
Net capacity (liters / USG) *	32623	8618	39235	10365	45154	11928	53457	14122	60563	15999
Boil off Rate O2 (%)	0.18		0.16		0.15		0.15		0.13	
Empty weight (kg / lbs)	14400	31747	16700	36817	19100	42108	21500	47399	23700	52250
Weight full Nitrogen (kg / lbs) - LIN	40759	89859	48402	106708	55584	122543	64693	142624	72635	160133
Weight full Oxygen (kg / lbs) - LOX	51623	113809	61467	135512	70621	155692	82494	181869	92802	204594
Weight full Argon (kg / lbs) - LAR	59844	131933	71354	157309	82000	180778	95966	211568	108064	238241
Continuous flow rate										
For 8 Hours at 8 bar (Nm3/h) - LIN	2000		2000		2000		2000		2000	
For 8 Hours at 8 bar (Nm3/h) - LOX	2225		2225		2225		2225		2225	
For 8 Hours at 8 bar (Nm3/h) - LAR	2345		2345		2345		2345		2345	
∅ Diameter (mm / feet)	2840 / 9.3									
HT height (mm / feet)	8850	29.04	10510	34.48	11543	37.87	13510	44.32	15025	49.29
H (mm / feet)	650 / 2.2								3660 / 12	
G (mm / feet)	1100 / 3.6									
A (mm / feet)	3000 / 9.8									
B (mm / feet)	3350 / 11									
C (mm / feet)	1530 / 5									

\* Manufacturing tolerance : ± 4%

Note: Trycock level is 95%

The density of LIN / LOX / LAR is 808 / 1141 / 1393 Kg/m<sup>3</sup> respectively, and has been considered in the weight calculation.

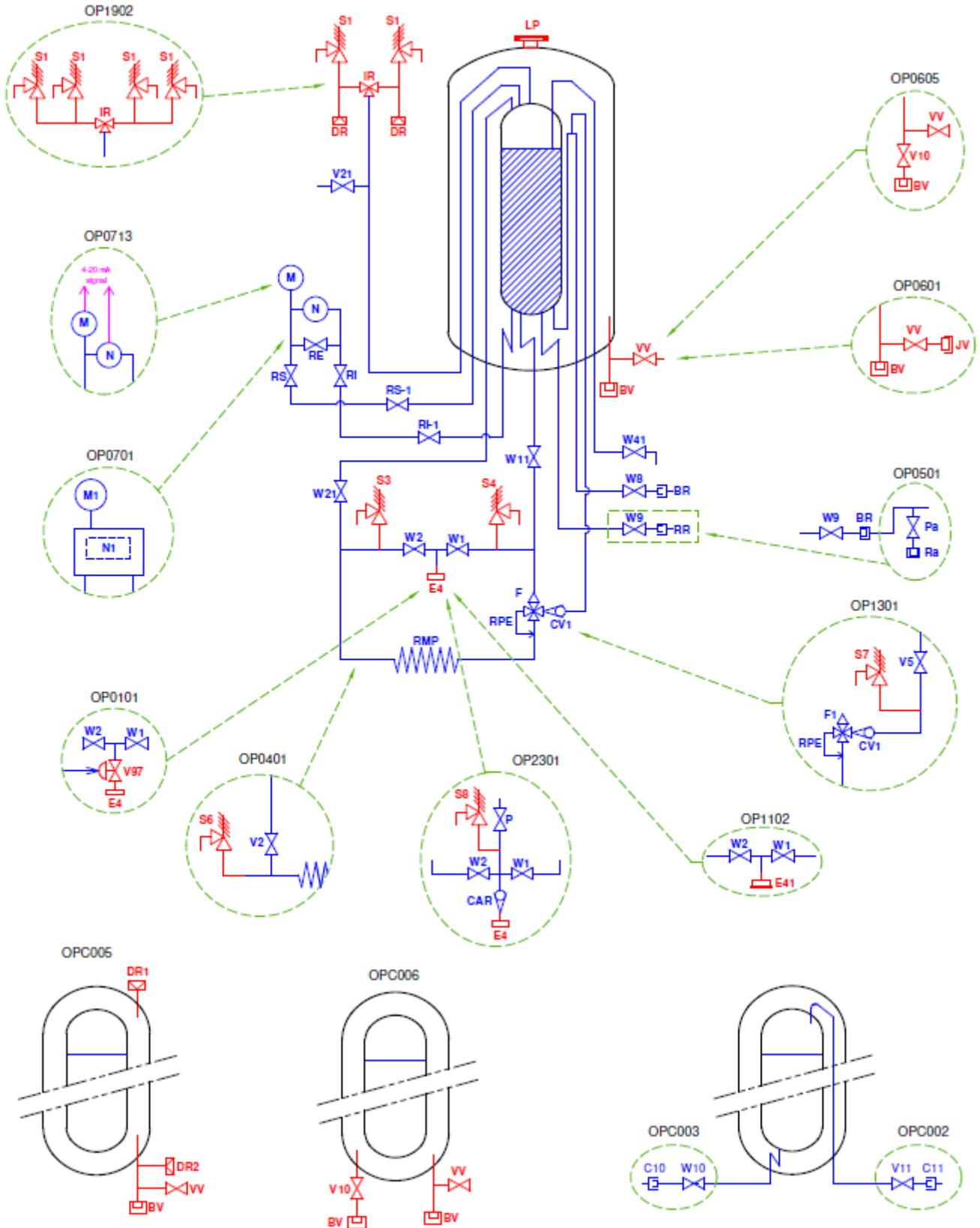
### FLOW DIAGRAM (Standard)



REFERENCE	NOMENCLATURE	SIZE
<b>W1, W11</b>	Bottom Filling Valves	DN 25 < 21 kl Tanks
<b>W2, W21</b>	Top Filling Valves	DN 40 ≥ 21 kl Tanks
<b>S3-S4</b>	Line Safety Valve	1/4"
<b>E4</b>	Filling Connection	DN 40
<b>S1</b>	Inner Vessel Safety Valve	1/2"
<b>DR</b>	Inner Vessel Protection Device	1/2"
<b>IR</b>	3-Way Valve	DN 20
<b>M</b>	Pressure Indicator	
<b>N</b>	Level Indicator	
<b>RI</b>	Level Gauge Manifold, Liquid	-
<b>RE</b>	Level Gauge Manifold, Equalizer	
<b>RS</b>	Level Gauge Manifold, Gas	
<b>W41</b>	Full trycock Valve	DN 15
<b>LP</b>	Lift Plate	As per Cryolor design
<b>BV</b>	Vacuum Connection	-
<b>W8 + BR</b>	Withdrawal Valve - Gas + Connection	DN 25 < 21 kl Tanks
<b>W9 + RR</b>	Withdrawal Valve - Liquid + Connection	DN 40 ≥ 21 kl Tanks
<b>RPE &amp; F</b>	Pressure Regulator / Economizer with Filter	
<b>CV1</b>	Check Valve	-
<b>RMP</b>	Pressure Building Coil	
<b>V21</b>	Vent Valve	DN 25
<b>VV</b>	Vacuum probe isolation valve	-

**Note :** All operating valve are "Bestobell" make as per standard.

### FLOW DIAGRAM (with Options)



REFERENCE	NOMENCLATURE (OPTIONS)	SIZE
<b>OP0101</b>	<b>Over pressurization protection</b> (To avoid over pressure filling & Ensure vessel safety while filling)	
V97	Over pressurization protection valve	DN 40
C6	MG 97 valve connection	
<b>OP0401</b>	<b>Pressure Building Coil Isolation valve</b>	
S6	Line Safety Valve	1/4"
V2	Pressure Building Coil Isolating Valve	DN 15
<b>OP0501</b>	<b>Liquid Analysis Connection</b>	
Pa	Liquid Analysis Valve	DN 15
Ra	Quick Connection	
<b>OP0601</b>	<b>Annular space vacuum detection / Vacuum sensor / Vacuum measuring probe</b>	
VV	Vacuum Isolation Valve	1/8"
JV	Vacuum Thermocouple Connection	1/8"
<b>OP0605</b>	<b>Vacuum Isolation valve</b>	
V10	Vacuum isolation valve -Edwards Vacuum valve Type SP10K & SP25K	
<b>OP0701</b>	<b>Teleflo Diva</b>	
M1 & N1	Digital Level indicator & Analog Pressure indicator	
<b>OP0713</b>	<b>Wika with Telemetry (4-20mA) option</b> 4-20 mA Telemetry provision with wika gauge	
<b>OP1102</b>	<b>ISO filling connection / Optional adaptor 1 1/2" 300 lbs</b>	
E41	ISO Flange connection for Filling	DN 40
<b>OP1301</b>	<b>Economizer Isolation valve</b>	
V5	Globe Valve With Check	DN 15
S7	Line Safety Valve	1/4"
<b>OP1902</b>	<b>Additional safety relief valves</b> 4 Number of safety relief valves without bursting disc	
<b>OP2301</b>	<b>Filling assembly with Check valve, Check valve &amp; Purge valve</b>	
S8	Line Safety Valve	1/4"
P	Purge Valve	
CAR	Check Valve	
<b>OP5301</b>	<b>Footprint template</b> Footprint drawing available before tank shipment (For foundation work at customer site)	
<b>OPC001</b>	<b>10% Trycock</b> Net capacity of tank with 10% gas phase	
<b>OPC002</b>	<b>Additional Top filling / Gas withdrawal line</b>	
V11	Top filling / Gas withdrawal valve	DN 25 < 21 kl Tanks
C11	Top filling / Gas withdrawal connection	DN 40 ≥ 21 kl Tanks
<b>OPC003</b>	<b>Additional Liquid withdrawal line</b>	
W10	Liquid withdrawal valve	DN 25 < 21 kl Tanks
C10	Liquid withdrawal connection	DN 40 ≥ 21 kl Tanks
<b>OPC005</b>	<b>Rupture disc for Outer vessel safety relief</b>	
DR1 & DR2	Vacuum bursting disc (Instead of lift plate)	
<b>OPC006</b>	<b>Additional vacuum pumping line for vacuum valve</b>	
BV	Vacuum pump down connection	
V10	Vacuum isolation valve -Edwards Vacuum valve Type SP10K & SP25K	

REFERENCE	NOMENCLATURE (OPTIONS)	SIZE
<b>OPC007</b>	<b>ANSI flange connection on withdrawals</b>	
	ANSI flange connection on withdrawals (Instead of 3 part coupling)	
<b>OPC008</b>	<b>Metal P&amp;ID</b>	
	Metal P&ID instead of Laminated sheet P&ID	
<b>OPC009</b>	<b>Upsizing liquid withdrawal valve (W9) to DN 50 / 2"</b>	
	Liquid withdrawal valve size increased to DN50 / 2" (Valve size DN50, Pipe size DN25/DN40)	
<b>OPC010</b>	<b>Liquid withdrawal line (W9) to DN 50 / 2"</b>	
	Liquid withdrawal line size DN50 / 2" (Both Pipe & Valve)	
<b>OPC012</b>	<b>LAR-CGA connection on Filling cluster</b>	
	CGA-Filling connection for Liquid Argon	
<b>OPC013</b>	<b>LOX-CGA connection on Filling cluster</b>	
	CGA-Filling connection for Liquid Oxygen	
<b>OPC014</b>	<b>LIN-CGA connection on Filling cluster</b>	
	CGA-Filling connection for Liquid Nitrogen	
<b>OPC015</b>	<b>MOM Certificate</b>	
	MOM certificate available	
<b>OPC016</b>	<b>Herose valves (Instead of Bestobell valves)</b>	
	Operating valves are Herose make, instead of Bestobell make	
<b>OPC017</b>	<b>Customer LOGO</b>	
	Customer requirement LOGO fixed on tank.	

Note:

- This technical specification is purely an indication, It can't be considered as a contractual document.
- This technical specification is subject to change without prior intimation.