Datasheet

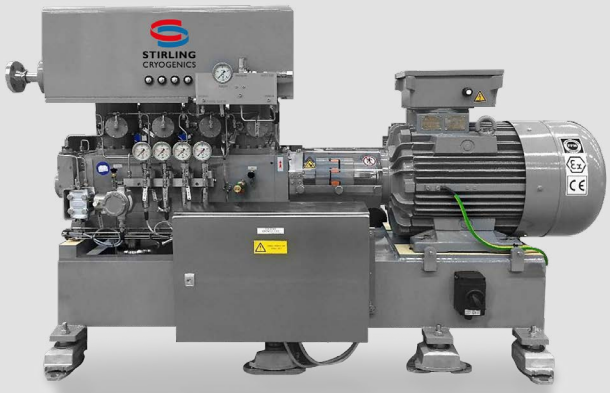
StirLNG-4 Cryogenerator

Subcooler for maritime LNG conditioning

STIRLING CRYOGENICS

Stirling Technology

For over seventy years Stirling Cryogenics has been designing and manufacturing gas liquefaction systems, serving customers all over the world under all possible conditions. This experience is incorporated in our Methane liquefiers called StirLNG.



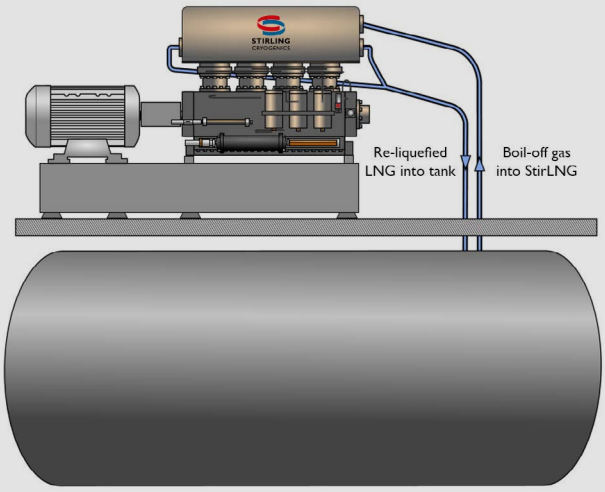
They have four specific fields of application:

- Micro scale production of LNG from a purified gas source such as pipe line or biogas.
- Re-liquefaction of boil off gas to compensate for losses in a cryogenic (storage) system (fuel stations, storage tanks, etc.).
- Re-liquefaction of boil-off gas on vessels.
- The StirLNG-4 is available in an adapted version specifically for maritime use.

The cooling power of the StirLNG is created by the reversed Stirling cycle: compression and expansion of helium gas in a closed cycle by mechanical pistons. The process gas to be liquefied has no contact with the working of the Stirling Cycle, maintaining a contamination free flow. The process gas flows through the cold head where thermal energy is extracted causing the gas to liquefy. The gas only encounters a phase change, and there is no pressure difference between the gas inlet and the liquid outlet.

LNG conditioning with the StirLNG-4 Maritime

The StirLNG-4 is our SPC-4 Cryogenerator specifically modified for micro scale LNG re-liquefaction in maritime conditions. Depending on the gas pressure, the StirLNG-4 (+) can re-liquefy 1.000-2.900 kg/day of LNG (2,9 metric tpd, 1.850 gal/day) per single unit (multiple units possible).



The Stirling Cryogenerator operates stand-alone, with automatic controls and is powered by an electric motor. Boil-off gas can be taken from a storage tank, re-liquefied by the StirLNG cooler, and returned into the storage tank.

As an alternative, liquid can be taken from the bottom of the storage tank, subcooled and sprayed back in the tank, reducing the overall pressure of the system and eliminating boil off gas.

For maritime applications, such as on-board LNG bunker vessels or vessels using LNG as fuel, the Stirling Cryogenics StirLNG cryogenerator can be certified according the required regulations.

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StirLNG-4 Maritime Features and Options

- Certification/approval by notified body (ABS, DNV, BV, RINA, Lloyds, a.o. regulations)
- Optimized cryogenerator technology for roll and pitch requirements
- Corrosion prevention for maritime conditions
- Two output levels available to better meet the BOG management requirements
- Flexible set-up (multiple units) to fulfill customers' demands in output and redundancy

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StirLNG-4 Maritime Subcooler Specifications

Liquid Pressure	Temp. Liquid in	LNG flow	Delta T	Temp. Liquid out	Input power	Cooling power	Capacity		
Barg	K	L/min	K	K	kW	kW	kg/hr	l/hr	Nm_3/hr
0,0	111	50	4,9	106,1	37,1	6,1	42,5	100,7	59,3
0,2	114	50	5,1	108,9	36,4	6,3	44,0	105,7	61,7
0,5	117	50	5,3	111,7	35,8	6,5	46,2	111,4	64,4
1,3	123	50	5,7	117,3	34,6	6,9	50,4	124,1	70,1
2,5	129	50	6,2	122,8	33,5	7,3	55,0	139,1	76,6
4,0	135	50	6,7	128,3	32,3	7,7	60,5	157,3	84,3

StirLNG-4 Maritime+ Subcooler Specifications

Liquid Pressure	Temp. Liquid in	LNG flow	Delta T	Temp. Liquid out	Input power	Cooling power	Capacity		
Barg	K	L/min	K	K	kW	kW	kg/hr	l/hr	Nm_3/hr
0,0	111	50	5,5	105,5	44,5	7,0	49,0	115,9	68,2
0,2	114	50	5,8	108,2	43,7	7,2	51,0	121,6	71,1
0,5	117	50	6,0	111,0	43,0	7,5	53,2	128,3	74,2
1,3	123	50	6,5	116,5	41,5	7,9	58,0	142,9	80,8
2,5	129	50	7,1	121,9	40,1	8,4	63,3	160,1	88,2
4,0	135	50	7,7	127,3	38,8	8,9	69,7	181,1	97,1

Classification		Cooling water and foodprint	
Explosion proof classification	ATEX Zone 2 or 1	Water Consumption (Excl. 20% EG)	4.000 l/hr @ 15°C
	Nec 500, Class 1	Water Consumption (Incl. 20% EG)	4.800 l/hr @ 15°C
	Div 1 or 2, gas group D	System size	1,75 m x 0,75 m x 1,22 m
	Others upon request		

Other certifications available upon request

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