

FRIGA-BOHN®

# CO2LD SubLine

CO2 compressor rack  
Cascade installation on glycol water loop

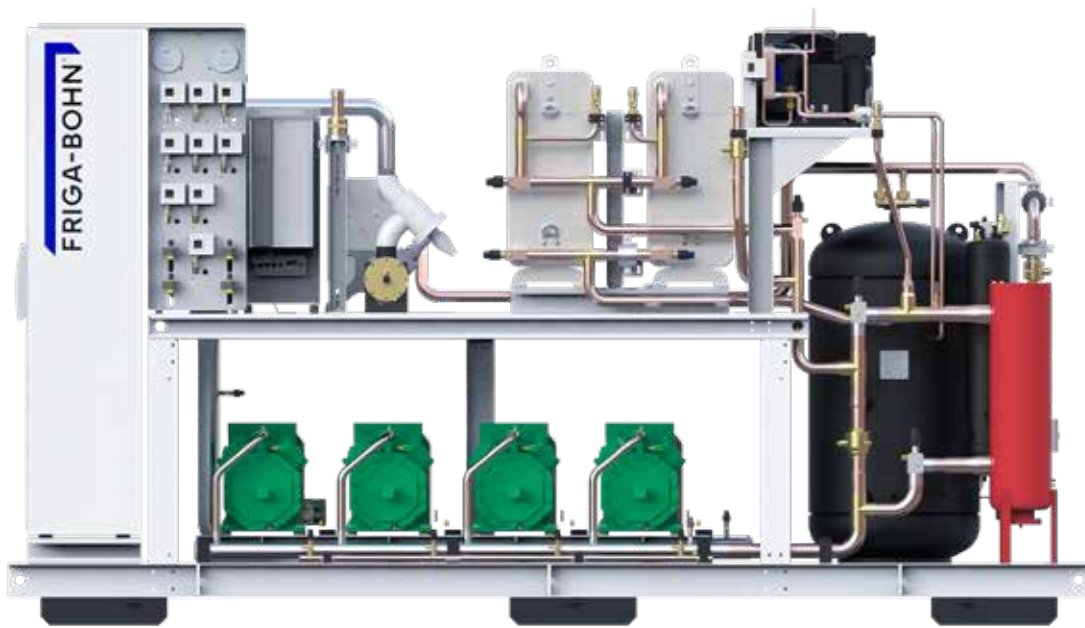
CO2



|||| LT 4 - 340 kW



- # **Modular unit** to best meet the needs of your application, available in two versions:
  - encased outdoor **CO**,
  - machine room **MR**.
- # **Compact** to save space.
- # Use of CO2, a natural refrigerant, for **more environmentally friendly** refrigeration.



## OIL LINE (2 compressors or more)

- # Oil receiver with high and low indicator, shut-off valves and relief valve from 2 compressors.
- # Return with filter and oil indicator from 2 compressors.
- # Electronic level controller with shut-off valve per compressor from 2 compressors.
- # Non-adjustable differential valve for degassing the receiver connected to the LP manifold from 2 compressors.
- # Flexible connection for each compressor (copper oil collector starting from 3 compressors)

Size	Liquid Shock Absorber	Liquid-Vapor Heat Exchanger	Oil Separator	Oil Separator Bypass
XS	With internal heat exchanger	Not assigned	TURBOIL	Not available
S	With internal heat exchanger	Not assigned	TURBOIL	Not available
M	Standard	External heat exchanger	COALESCENT	Yes
L	With internal heat exchanger	Not assigned	TURBOIL	Not available
XL	Standard	External heat exchanger	COALESCENT	Yes

## COMPRESSORS

- # Semi-hermetic reciprocating technology compressors equipped with:
  - Crankcase heater.
  - Suction and delivery shut-off valves.
  - HP and LP pressure ports with Schrader connector.
  - 4 cylinders with integrated IQ module

## MANIFOLDS

- # A general filter unit or per compressor.
- # Aspiration:
  - Compressors 1 and 2, in copper
  - Compressors 3 and 4, stainless steel collector
- # Discharge:
  - Compressors 1 and 2, in copper
  - Compressors 3 and 4, copper collector

## CONNECTION

- # 1 connecting valve on the suction side and the liquid outlet.

## ELECTRICAL BOX

- # Factory-assembled with anti-vibration mounts
- # CAREL or DANFOSS control system
- # Emergency operation via pressure switch

## CONTROL AND SAFETY DEVICES

- # Per compressor:
  - 1 HP cartridge pressure switch(s) with automatic reset per compressor.
  - INT safety thermistor box.
- # Per rack:
  - LP general safety pressure switch.
  - HP general safety pressure switch.
  - LP support pressure switches.
  - HP and LP pressure gage set diameter 100 mm class 1.
  - LP and HP sensors for normal operation regulator.
  - LP and HP sensors for back-up mode regulator.
- # Tank pressure maintenance unit (optional):  
Condensing unit charged with R134a and connected to the CO2 liquid receiver via a plate unit exchanger.

### OPTIONS

- |            |   |
|------------|---|
| <b>GMP</b> | Safety unit (delivered installed and connected) |
|------------|---|

## LIQUID LINE

- # Vertical liquid receiver with shut-off valves.
- # Double safety shut-off valve with inverter switch.
- # Removable cartridge drier with valve for maintenance (1/4" SAE).
- # Optoelectronic level alarm mounted on liquid receiver (high and low level).
- # Plate liquid/steam exchanger.
- # Liquid indicator.
- # Suction valve and filter
- # Liquid separator tank
- # Drier bypass

### OPTIONS

- |            |                                      |
|------------|--------------------------------------|
| <b>DES</b> | Braze plate desuperheater            |
| <b>RLS</b> | Oversized receiver                   |
| <b>BSH</b> | Oil separator bypass (on coalescent) |

HP circuit	45 bars
Liquid receiver	45 bars
Liquid line	45 bars
LT suction	30 bars



## CONDENSER

- # Soldered plate heat exchanger.
- # Delivery in kit form of a flow controller and a glycol water thermostat.
- # Air superheater option (delivered separately) placed upstream of the plate condenser, including a mounted bypass valve.

### OPTIONS

- |            |                   |
|------------|-------------------|
| <b>2CD</b> | 75/75% condensers |
|------------|-------------------|

## INSULATION

- # Thermal insulation of suction line and liquid line.

## FRAME

- # Robust welded mechanical chassis
- # Structural validation carried out in static and dynamic conditions.

# CO2LD MR<sup>(A)</sup> 1N<sup>(B)</sup> 2HSL<sup>(C)</sup>

(A) CO2LD CO = encased outdoor rack - CO2LD MR = machine room rack  
 (B) Number of compressors  
 (C) Model of compressors

## CO2LD Subline

## Negative range

		1N / 2KSL	1N / 2JSL	1N / 3HSL	1N / 2GSL	2N / 2KSL	1N / 2FSL	2N / 2JSL	3N / 2KSL	1N / 2ESL	2N / 2HSL	1N / 2DSL	3N / 2JSL	2N / 2GSL	1N / 2CSL	1N / 2FSL
Power CO <sub>2</sub> *	<b>kW</b>	4,2	5,4	7	8,4	8,4	10,8	10,8	12,6	13,4	14	15,9	16,2	16,7	19,3	20,8
Power consumption*	<b>kW</b>	1,2	1,6	2	2,3	2,4	3	3,3	3,7	3,6	4	4,2	4,9	4,7	5,1	5,5
Compressor	<b>Nb</b>	1	1	1	1	2	1	2	3	1	2	1	3	2	1	1
Size		XS	XS	XS	XS	S	XS	S	L	XS	S	XS	L	S	XS	XS
Max. Input current	<b>A</b>	3,5	4,6	6	6,8	7	8,6	9,2	10,5	9,7	12	11,3	13,8	13,6	13,9	15,7
Receiver volume	<b>l.</b>	45	45	45	45	60	45	60	60	60	60	60	60	60	60	94
Connection	Suction	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 7/8"	Ø 7/8"	Ø 5/8"	Ø 7/8"	Ø 7/8"	Ø 7/8"	Ø 7/8"	Ø 1"1/8"
	Delivery	Ø 1/2"	Ø 1/2"	Ø 1/2"	Ø 1/2"	Ø 5/8"	Ø 1/2"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"
	Liquid	Ø 3/8"	Ø 3/8"	Ø 3/8"	Ø 3/8"	Ø 3/8"	Ø 3/8"	Ø 3/8"	Ø 3/8"	Ø 1/2"	Ø 3/8"	Ø 1/2"	Ø 1/2"	Ø 1/2"	Ø 1/2"	Ø 5/8"
Dimensions	<b>L   D   H</b>	<b>mm</b>														
Weight	<b>kg</b>	<b>kg</b>														

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\* Evaporating temperature: -35 °C / Condensing temperature: -3 °C - Total superheat 20K, useful 10K and subcool 3K, with a 60 Hz head compressor  
 Glycol water: Percentage of glycol = 40% - Regime -8/-4 °C

## CO2LD Subline

## Negative range

		3N / 2HSL	2N / 2FSL	3N / 2GSL	1N / 4ESL	2N / 2ESL	1N / 4DSL	2N / 2DSL	3N / 2FSL	1N / 4CSL	2N / 2CSL	3N / 2ESL	2N / 4FSL	3N / 2DSL	1N / 4VSL	2N / 4ESL
Power CO <sub>2</sub> *	<b>kW</b>	21	21,6	25,1	26,4	26,9	31,4	31,8	32,4	38,2	38,7	40,3	41,7	47,7	49,1	52,8
Power consumption*	<b>kW</b>	6	6	7	6,9	7,2	8,2	8,4	9	10	10,2	10,7	11	12,6	12,8	13,9
Compressor	<b>Nb</b>	3	2	3	1	2	1	2	3	1	2	3	2	3	1	2
Size		L	S	L	XS	S	XS	S	L	XS	S	L	S	L	XS	S
Max. Input current	<b>A</b>	18	17,2	20,4	18,9	19,4	22	22,6	25,8	26,7	27,8	29,1	31,4	33,9	33,5	37,8
Receiver volume	<b>l.</b>	60	60	60	94	94	94	94	60	94	94	94	94	94	158	94
Connection	Suction	Ø 7/8"	Ø 7/8"	Ø 7/8"	Ø 1"1/8"	Ø 1"1/8"	Ø 1"1/8"	Ø 1"1/8"	Ø 7/8"	Ø 1"1/8"	Ø 1"1/8"	Ø 1"1/8"	Ø 1"3/8"	Ø 1"1/8"	Ø 1"3/8"	Ø 1"3/8"
	Delivery	Ø 5/8"	Ø 7/8"	Ø 5/8"	Ø 5/8"	Ø 7/8"	Ø 7/8"	Ø 7/8"	Ø 5/8"	Ø 7/8"	Ø 7/8"	Ø 7/8"	Ø 7/8"	Ø 7/8"	Ø 1"1/8"	Ø 7/8"
	Liquid	Ø 1/2"	Ø 1/2"	Ø 1/2"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 1/2"	Ø 5/8"	Ø 5/8"	Ø 5/8"	Ø 7/8"	Ø 5/8"	Ø 7/8"	Ø 7/8"
Dimensions	<b>L   D   H</b>	<b>mm</b>														
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(A) CO2LD CO = encased outdoor rack - CO2LD MR = machine room rack

(B) Number of compressors

(C) Model of compressors

## CO2LD Subline

## Negative range

		4N / 2ESL	3N / 2CSL	1N / 2TSL	3N / 4FSL	2N / 4DSL	4N / 2DSL	1N / 4PSL	2N / 4CSL	4N / 2CSL	3N / 4ESL	1N / 4NSL	4N / 4FSL	3N / 4DSL	2N / 4VSL	4N / 4ESL
Power CO2*	kW	53,7	58	58,8	62,5	62,7	63,6	69,5	76,4	77,3	79,2	81,2	83,3	94,1	98,2	105,6
Power consumption*	kW	14,3	15,3	15,3	16,4	16,5	16,9	18	20	20,4	20,8	21	21,9	24,7	25,5	27,7
Compressor	Nb	4	3	1	3	2	4	1	2	4	3	1	4	3	2	4
Size		L	L	XS	XL	S	L	XS	S	L	XL	XS	XL	XL	M	XL
Max. Input current	A	38,8	41,7	40	47,1	44	45,2	48,3	53,4	55,6	56,7	55,5	62,8	66	67	75,6
Receiver volume	l.	94	94	158	158	94	94	158	94	94	158	158	158	158	158	158
Connection	Suction	Ø	1"3/8	1"1/8	1"3/8	1"5/8	1"3/8	1"3/8	1"3/8	1"3/8	1"5/8	1"3/8	1"5/8	1"5/8	1"5/8	1"5/8
	Delivery	Ø	1"1/8	7/8"	1"1/8	1"1/8	7/8"	1"1/8	1"1/8	1"1/8	1"1/8	1"1/8	1"3/8	1"3/8	1"3/8	1"3/8
	Liquid	Ø	7/8"	5/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	1"1/8	1"1/8	1"1/8	1"1/8
Dimensions	L   D   H	mm														
Weight		kg														
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## CO2LD Subline

## Negative range

		3N / 4CSL	2N / 2CSL	4N / 4DSL	2N / 4PSL	3N / 4VSL	4N / 4CSL	2N / 4NSL	3N / 3TSL	4N / 4VSL	3N / 4PSL	4N / 4TSL	3N / 4NSL	4N / 4PSL	4N / 4NSL	
Power CO2*	kW	114,6	117,7	125,4	139	147,3	152,8	162,5	176,5	196,5	208,5	235,4	243,7	278	325	
Power consumption*	kW	30	30,6	32,9	36,1	38,3	40,1	42,1	45,8	51	54,1	61,1	63,1	72,1	84,2	
Compressor	Nb	3	2	4	2	3	4	2	3	4	3	4	3	4	4	
Size		XL	M	XL	M	XL	XL	M	XL	XL	XL	XL	XL	XL	XL	
Max. Input current	A	80,1	80	88	96,6	100,5	106,8	111	120	134	144,9	160	166,5	193,2	222	
Receiver volume	l.	158	158	158	158	300	158	158	300	300	300	300	300	300	300	
Connection	Suction	Ø	1"5/8	1"5/8	1"5/8	2"1/8	2"1/8	1"5/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	2"1/8	76,1	76,1
	Delivery	Ø	1"3/8	1"3/8	1"3/8	1"3/8	1"5/8	1"3/8	1"3/8	1"5/8	1"5/8	1"5/8	1"5/8	2"1/8	2"1/8	
	Liquid	Ø	1"1/8	1"1/8	1"1/8	1"1/8	1"1/8	1"1/8	1"1/8	1"1/8	1"3/8	1"3/8	1"3/8	1"3/8	1"3/8	
Dimensions	L   D   H	mm														
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