

SENNA XTRA SMART

CO₂ TRANSCRITICAL BOOSTER FOR MEDIUM AND LARGE RETAIL STORES

Nominal cooling capacity from 50 kW to 400 kW in **medium temperature**
Nominal cooling capacity from 4 kW to 200 kW in **low temperature**



Enex presents SENNA XTRA SMART, the new range of transcritical CO₂ refrigeration racks, designed to combine simplicity, compactness, efficiency and high reliability. Derived from the well-known Senna range, it offers a fully industrialized design with a wide range of configurations and options.

Enex was among the first to develop transcritical CO₂ solutions since 2004. CO₂ is a natural fluid with ODP=0 and GWP = 1, neither toxic nor flammable. It is not subject to the F-gas regulation and it can be considered the refrigerant of the future.

LEADING SOLUTION IN RETAIL, FOOD STORAGE & PROCESS APPLICATIONS

Senna Xtra Smart range is ideal for medium sized commercial refrigeration systems in food retail, food storage, process cooling and other similar applications. It is available in single temperature (MT only) or dual temperature (MT and LT) configurations, in 4 frames and 16 sizes. It can be provided with a cladding for sound insulation and/or as protection against atmospheric agents for outdoor use.

SENNA XTRA SMART MAIN FEATURES & ADVANTAGES

Robustness

- Strong sheetmetal frame designed with the most stringent vibration & transport criteria

Compactness

- 850 mm width (up to 200 kW)
- 2000 mm height (without cladding)

High reliability

- Leveraging more than two decades of experience
- Double electronic stainless steel stepper valves with double controller and associated sensors
- Emergency cooling unit
- Internal LT suction/liquid HX for anti-liquid protection
- Internal Flash/gas cooler outlet HX to ensure vapor superheating
- All cold vessels insulated with 3-layer protection: vapor barrier, grease band and closed-cell Armaflex
- Industrial type pipe clamps
- PAG oil for longer compressor life
- 3 level sensors in suction accumulator with liquid ejector
- Higher service pressure options: 60 bar LT compressors, 80 bar liquid receiver, 130 bar HP

Efficiency

- Parallel compressors
- Liquid and vapor ejectors
- LSPM compressors

Flexibility

- Optimized pre-selected compressor combinations Dorin or Bitzer
- Up to 2 heat recovery HX for space heating and domestic hot water
- Cladding for outdoor installation and noise reduction
- Wide range of configurations and options

Ease of installation

- K65 connections to gas cooler & intercooler and between receiver & compressors frame
- The unit can be split in 3 pieces (control panel, receiver, compressors) for transport and installation with K65 or stainless steel connections

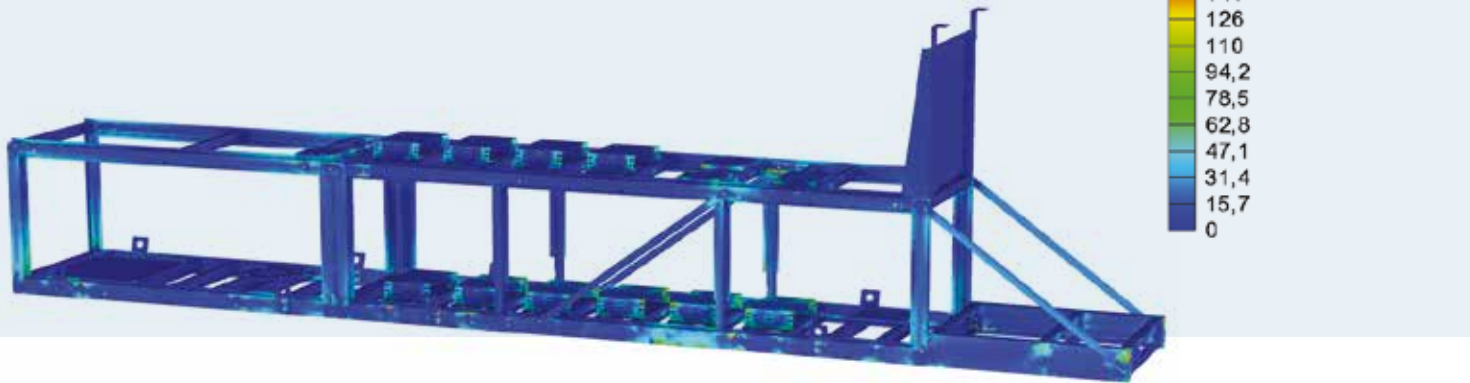
Ease of service

- Full accessibility to all components
- Shut-off valves and bypass on the main components to reduce the downtime
- Generously sized oil separator with replaceable cartridge
- Min and max optical liquid level sensors on receiver



Strong sheetmetal frame

Senna XS-XL Fem analysis



Cladding and noise reduction



Compactness



Ease of installation



Liquid Receiver module



Compressor module



Electrical Panel module

TECHNICAL DATA

Frame		S	M		L		XL
Max compressor number MT/AUX		3	3	4	5	6	6
Compressor number AUX		1	1	1	1	2	2
Cooling capacity MT ⁽¹⁾	kW	55 - 100	115-130	150-200	230-265	305 - 320	350-400
Max compressor number LT		2	3	3	4	4	4
Cooling capacity LT ⁽¹⁾	kW	8-30	8-43	8-43	8-43	8-43	8-60
Max condenser capacity ⁽¹⁾	kW	160	210	340	460	580	640
Connections diameters							
Low temperature suction line	mm	16-22	22-35	22-35	22-42	22-42	22-42
MT temperature suction line	mm	35	42	42	48	48	60
Liquid line	mm	28	35	35	42	42	48
MT discharge line	mm	28	35	35	42	42	48
Tanks capacity							
Liquid Receiver		150	300	300	460	460	600
Suction accumulator		35/122	35/122	35/122	35/166	35/166	35/166
Oil receiver		20	30	30	45	45	45
Dimensions							
Lenght	mm	5040	5580	5580	6900	7380	7380
Width	mm	850	850	850	1000	1000	1000
Height ⁽²⁾	mm	2000	2000	2000	2000	2000	2000
Dimensions - Compressor module							
Lenght	mm	2340	2880	2880	3360	3840	3840
Width	mm	850	850	850	1000	1000	1000
Height ⁽²⁾	mm	2000	2000	2000	2000	2000	2000
Dimensions - Liquid Receiver module							
Lenght	mm	1900	1900	1900	2340	2340	2340
Width	mm	850	850	850	1000	1000	1000
Height ⁽²⁾	mm	2000	2000	2000	2000	2000	2000
Dimensions - Electrical Panel module							
Lenght	mm	800	800	800	1200	1200	1200
Width	mm	850	850	850	1000	1000	1000
Height ⁽²⁾	mm	2000	2000	2000	2000	2000	2000
Weights							
Total weight	kg	3500	4000	4000	5500	5500	6000

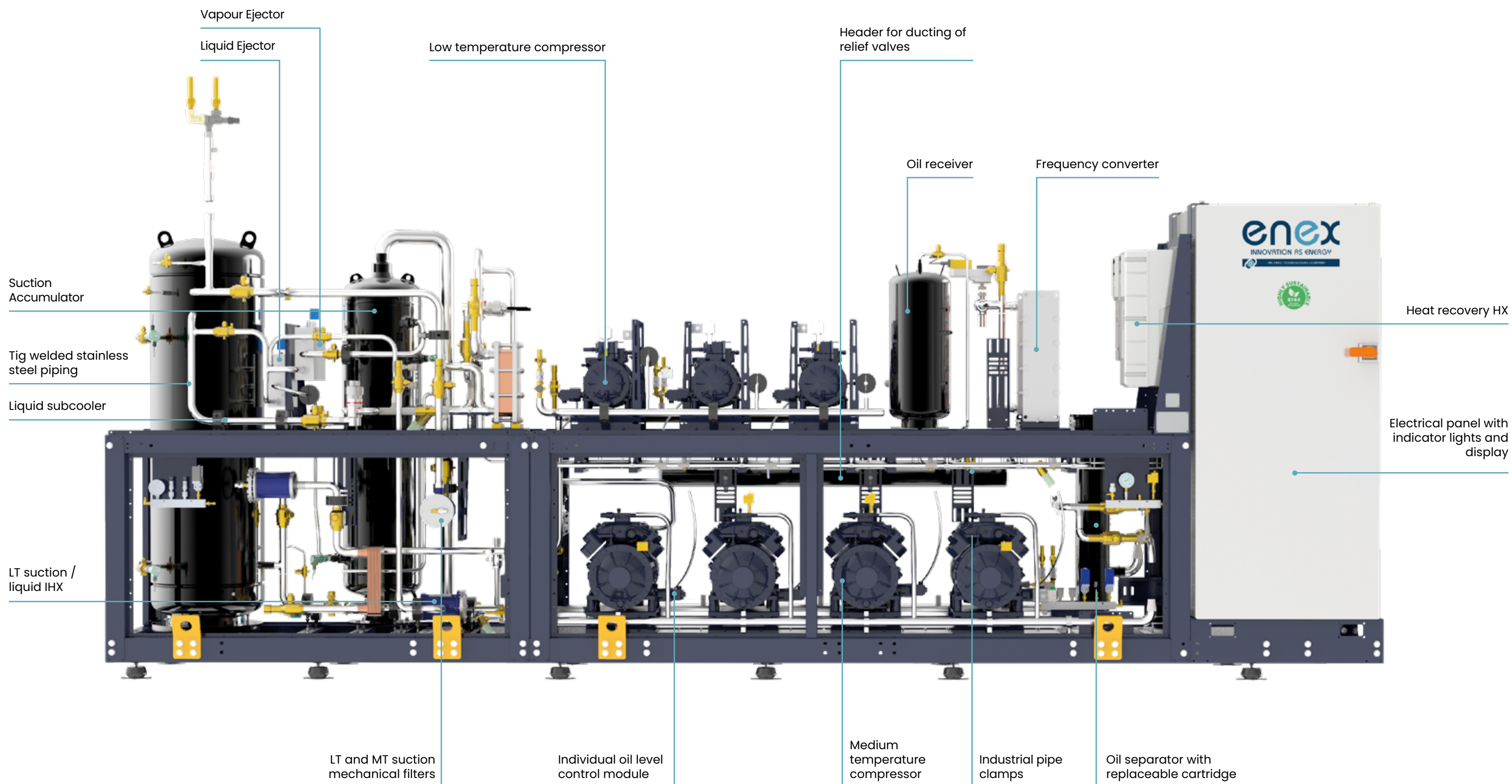
(1) Capacity referred to: 92 bar / 36°C gascooler , -32°C LT, -8°C MT

(2) Without feet, no cladding

OPTIONS

	STANDARD	OPTION
Compressors		
Permanent magnet compressors on MT & AUX (all compressors)		●
Permanent magnet compressors on 1st MT / 1st AUX		●
Compressor brand	Dorin	Bitzer
Bitzer Varistep capacity control on 1st MT and/or 1st parallel		●
Parallel compressors		●
Refrigerant system		
Vapor ejector (only with Danfoss controller)		●
Liquid ejector with large MT suction accumulator		●
1st heat recovery HX with bypass		●
2nd heat recovery HX with bypass		●
Backup R513A cooling unit (spare to be installed on site, except with cladding)		●
Backup R290 cooling unit (spare to be installed on site, except with cladding)		●
Liquid auto subcooler		●
Oil separator bypass		●
Mechanical water-cooled subcooler (spare to be installed on site)		●
Gas cooler bypass with V-port (spare to be installed on site)		●
Backup electronic stepper valves		●
Ducting of relief valves (except liquid receiver)		●
Double safety relief valves with changeover valve	only on receiver	all valves
Level sensor (mounted on receiver)	low level	low and high level
Muffler for LT discharge (spare to be installed on site)		●
Suction accumulator MT	●	
Oil type	PAG	
First oil charge		●
Filters		
Filter drier	●	
Filter drier bypass		●
MT suction filter	●	
LT suction filter	●	
LT suction/liquid IHX	●	
Frame & cladding		
Cladding for indoor & outdoor installation & noise reduction		●
CO ₂ evaporator (with cladding)		●
Units in 3 pieces (liquid receiver, compressors, electrical panel)		●
Connections to gas cooler / intercooler / unit in multiple pieces		K65
Service pressure		
	stainless steel	
PS LT SUCTION	30 bar (Bitzer) 36 bar (Dorin)	60 bar
PS MT SUCTION	52 bar	
PS receiver	60 bar	
PS HP	120 bar	130 bar with motor-1 MT compressors (not available on all models)
Electrical & controls		
Controller	Danfoss AK-PC782	Carel
Backup controller and sensors (vital functions) and HPV/FG valve with automatic activation		●
Back up controller spare		●
Detachable electrical panel with extra cable length		●
Frequency inverters on 1st MT, 1st LT, 1st aux compressors	ABB IP55	
Ice Smart ready		●
Energy meter		●
Differential circuit breakers 300 mA "Type A" on compressors		●
UPS	●	
Short circuit current Icc	10kA	up to 25 kA
Main switch with MX coil		●

DISTINCTIVE FEATURES AND BENEFITS OF THE RANGE



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