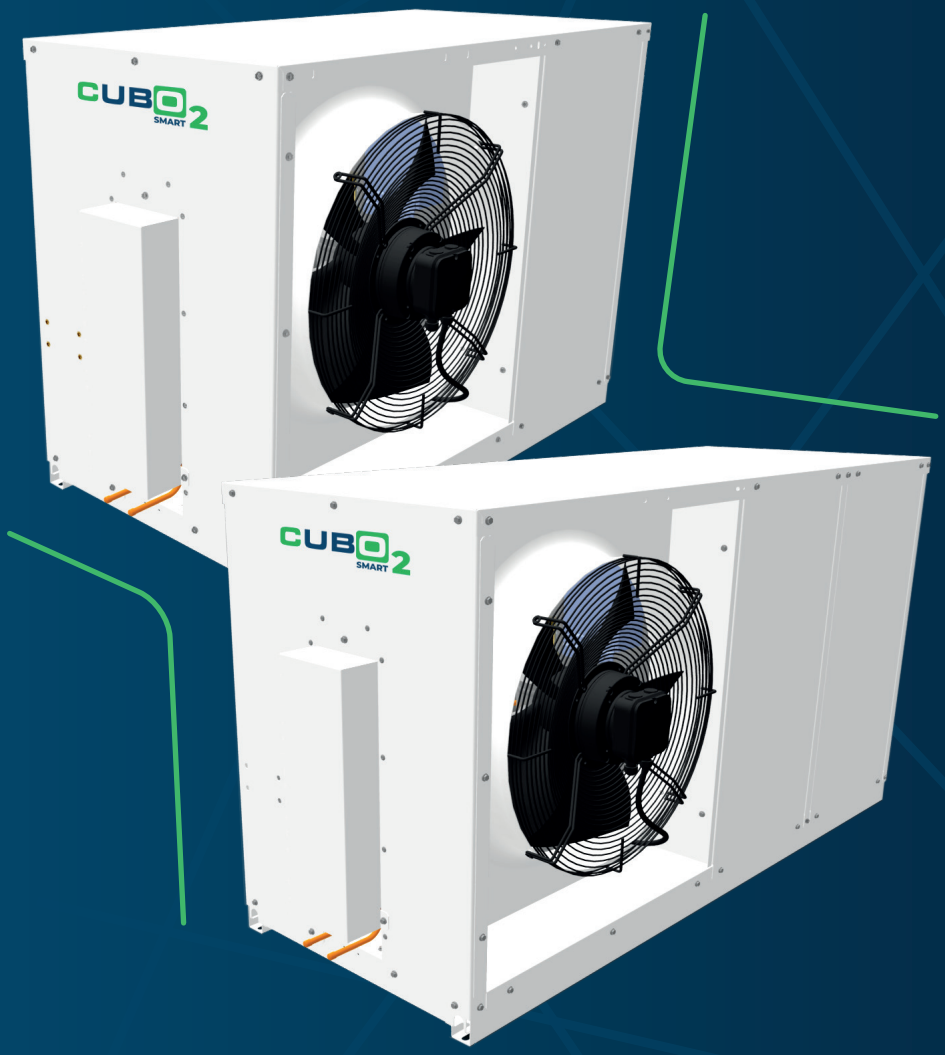
CUBO 2 SMART

SCM FRIGO

Transcritical CO_2 ndensing Units



- CO_2 REFRIGERANT
- Efficiency — EFFICIENT SOLUTION
- LOW NOISE
- SMALL FOOTPRINT
- EASY START-UP
- DC BRUSHLESS ROTARY COMPRESSOR
- GAS COOLER EQUIPPED

BEIJER REF

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a *perfect temperature*.

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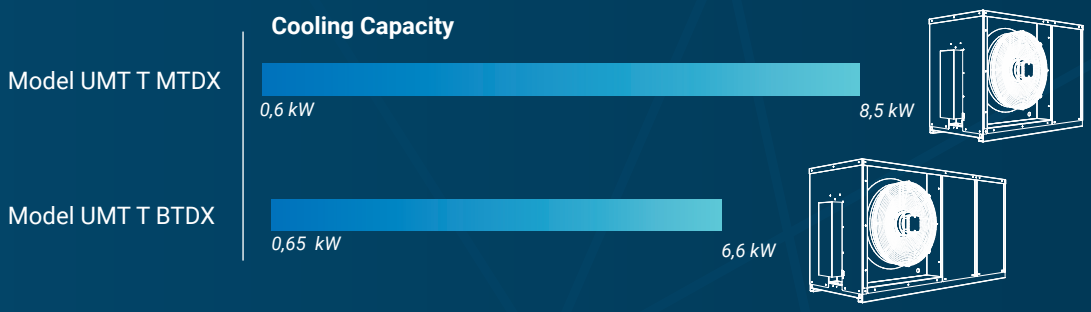
Rev. 05/2021

CO_2 Systems for medium and low temperature applications
Transcritical condensing units DX



Preliminary Data — MEDIUM TEMPERATURE

UMT T 030 MTDX

T amb [°C]	Evaporation Temperature [°C] -15 Cooling Cap. [W] min	-15 Cooling Cap. [W] max	-15 COP	-10 Cooling Cap. [W] min	-10 Cooling Cap. [W] max	-10 COP	-5 Cooling Cap. [W] min	-5 Cooling Cap. [W] max	-5 COP	0 Cooling Cap. [W] min	0 Cooling Cap. [W] max	0 COP	5 Cooling Cap. [W] min	5 Cooling Cap. [W] max	5 COP
40	429	2140	1,38	523	2507	1,58	575	2759	1,59	674	3143	1,79	787	3541	2,04
38	440	2165	1,44	526	2514	1,59	622	2889	1,80	727	3283	2,04	850	3704	2,31
32	455	2181	1,54	551	2548	1,76	653	2939	2,02	768	3362	2,32	905	3826	2,68
20	553	2490	2,25	671	2944	2,67	804	3454	3,20	959	4029	3,88	1145	4678	4,78
MEPS	1,76 (according to Ecodesign Directive EN 2009/125/EC)														
V/Ph/Hz	230/1+N+PE/50														

I Liquid receiver 2x2,4 liters
II Liquid receiver 8 liters

UMT T 045MTDX

T amb [°C]	Evaporation Temperature [°C] -15 Cooling Cap. [W] min	-15 Cooling Cap. [W] max	-15 COP	-10 Cooling Cap. [W] min	-10 Cooling Cap. [W] max	-10 COP	-5 Cooling Cap. [W] min	-5 Cooling Cap. [W] max	-5 COP	0 Cooling Cap. [W] min	0 Cooling Cap. [W] max	0 COP	5 Cooling Cap. [W] min	5 Cooling Cap. [W] max	5 COP
40	648	3233	1,38	789	3785	1,58	868	4165	1,59	1018	4746	1,79	1188	5346	2,01
38	665	3270	1,46	794	3796	1,59	939	4362	1,80	1098	4957	2,04	1283	5593	2,31
32	686	3293	1,54	832	3847	1,76	986	4437	2,02	1160	5077	2,32	1366	5778	2,68
20	836	3761	2,25	1013	4445	2,67	1214	5215	3,20	1449	6084	3,88	1729	7064	4,78
MEPS	1,76 (according to Ecodesign Directive EN 2009/125/EC)														
V/Ph/Hz	230/1+N+PE/50														

I Liquid receiver 2x2,4 liters
II Liquid receiver 8 liters

UMT T 067MTDX

T amb [°C]	Evaporation Temperature [°C] -15 Cooling Cap. [W] min	-15 Cooling Cap. [W] max	-15 COP	-10 Cooling Cap. [W] min	-10 Cooling Cap. [W] max	-10 COP	-5 Cooling Cap. [W] min	-5 Cooling Cap. [W] max	-5 COP	0 Cooling Cap. [W] min	0 Cooling Cap. [W] max	0 COP	5 Cooling Cap. [W] min	5 Cooling Cap. [W] max	5 COP
40	1038	4753	1,4	1242	5489	1,57	1459	6296	1,75	1690	7159	1,96	1822	8063	2,18
38	1061	4755	1,45	1266	5504	1,63	1485	6325	1,83	1721	7205	2,05	1975	8129	2,29
32	1094	4722	1,57	1307	5508	1,79	1541	6385	2,04	1796	7328	2,31	2042	8251	2,51
20	1375	5537	2,35	1647	6553	2,76	1952	7664	3,22	2291	8856	3,76	2581	9829	4,11
MEPS	3,44 (according to Ecodesign Directive EN 2009/125/EC)														
V/Ph/Hz	230/1+N+PE/50														

I Liquid receiver 2x2,4 liters
II Liquid receiver 8 liters

UMT T 100 MTDX

T amb [°C]	Evaporation Temperature [°C] -15 Cooling Cap. [W] min	-15 Cooling Cap. [W] max	-15 COP	-10 Cooling Cap. [W] min	-10 Cooling Cap. [W] max	-10 COP	-5 Cooling Cap. [W] min	-5 Cooling Cap. [W] max	-5 COP	0 Cooling Cap. [W] min	0 Cooling Cap. [W] max	0 COP	5 Cooling Cap. [W] min	5 Cooling Cap. [W] max	5 COP
40	1549	7904	1,56	1854	8193	1,57	2028	9113	1,57	2365	10366	1,75	2719	11672	1,94
38	1583	7098	1,45	1864	8202	1,58	2188	9411	1,77	2534	10704	1,98	2890	12034	2,18
32	1619	7047	1,53	1933	8211	1,73	2273	9491	1,97	2644	10866	2,25	3048	12314	2,52
20	1976	7997	2,22	2371	11096	3,05	2390	12834	3,52	3306	14670	4,05	3852	15064	4,22
MEPS	3,45 (according to Ecodesign Directive EN 2009/125/EC)														
V/Ph/Hz	400/3+N+PE/50														

II Liquid receiver 8 liters

MTDX Inverter modulation	Dimensions/weight	STANDARD LIQUID RECEIVER	OPTIONAL LIQUID RECEIVER	Refrigeration connection	Sound Pressure
from 25 to 100% (1500 --> 6000 rpm)	**mm 1150x620x805 kg 150**	**PED I Liquid receiver 2x2,4 liters**	**PED II Liquid receiver 8 liters**	**Suction inch 3/8" (exc. UMTT 100: 1/2") Liquid inch 3/8"**	☼ Day Operation: **dB(A) 44** ☾ Night Operation: **dB(A) 35**

(based on freefield area with semi-spherical sound emission in 10 m distance)

Design is compact and units are easy to install and maintain.
Units are equipped with gas cooler and electrical panel, tested and factory programmed for an easy start-up.

- **Inverter modulation 25% - 100%**
- **EC fans**
- **K65 connections**
- **Design pressure:**
  120 bar (high pressure side)
  80 bar (liquid line)
  80 bar (suction)

OPTION ON REQUEST

- **Water cooled gas cooler**
- **Adiabatic System**
  (suggested for ambient temperatures > +35°)

Preliminary Data — LOW TEMPERATURE

UMT T 030 BTDX

T amb [°C]	Evaporation Temperature [°C] -35				-30				-25				-20			
	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP
	min	max	max		min	max	max		min	max	max		min	max	max	
40	579	2315	1937	1,20	704	2814	2117	1,33	780	3119	2160	1,44	890	3558	2247	1,58
38	579	2315	1857	1,25	704	2814	2051	1,37	780	3119	2090	1,49	890	3558	2168	1,64
32	579	2315	1657	1,40	704	2814	1985	1,42	780	3119	2010	1,55	890	3558	2090	1,70
20	579	2315	1167	1,98	704	2814	1332	2,11	780	3119	1358	2,30	890	3558	1362	2,61
MEPS	2,32 (according to Ecodesign Directive EN 2009/125/EC)								**II Liquid receiver 8 liters**							
V/Ph/Hz	230/1+N+PE/50															

UMT T 045 BTDX

T amb [°C]	Evaporation Temperature [°C] -35				-30				-25				-20			
	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP
	min	max	max		min	max	max		min	max	max		min	max	max	
40	877	3507	2930	1,20	1066	4263	3207	1,33	1208	4830	3290	1,47	1342	5369	3370	1,59
38	877	3507	2810	1,25	1066	4263	3086	1,38	1208	4830	3176	1,52	1342	5369	3259	1,65
32	877	3507	2510	1,40	1066	4263	2987	1,43	1208	4830	3067	1,57	1342	5369	3141	1,71
20	877	3507	1770	1,98	1066	4263	2010	2,12	1208	4830	2090	2,31	1342	5369	2053	2,62
MEPS	2,32 (according to Ecodesign Directive EN 2009/125/EC)								**II Liquid receiver 8 liters**							
V/Ph/Hz	230/1+N+PE/50															

UMT T 067 BTDX

T amb [°C]	Evaporation Temperature [°C] -35				-30				-25				-20			
	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP
	min	max	max		min	max	max		min	max	max		min	max	max	
40	1307	5227	4294	1,22	1554	6216	4800	1,30	1725	6899	4787	1,44	1886	7544	4777	1,58
38	1307	5227	4054	1,29	1554	6216	4448	1,40	1725	6899	4621	1,49	1886	7544	4597	1,64
32	1307	5227	3694	1,41	1554	6216	4298	1,45	1725	6899	4458	1,55	1886	7544	4416	1,71
20	1307	5227	2704	1,93	1554	6216	3010	2,07	1725	6899	2990	2,31	1886	7544	2881	2,62
MEPS	2,26 (according to Ecodesign Directive EN 2009/125/EC)								**II Liquid receiver 8 liters**							
V/Ph/Hz	400/3+N+PE/50															

UMT T 100 BTDX

T amb [°C]	Evaporation Temperature [°C] -35				-30				-25				-20			
	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP	Cooling Cap. [W]		Pe [W]	COP
	min	max	max		min	max	max		min	max	max		min	max	max	
40	2019	8075	6634	1,22	2297	9187	7094	1,30	2513	10050	6974	1,44	2705	10818	6847	1,58
38	2019	8075	6263	1,29	2297	9187	6574	1,40	2513	10050	6732	1,49	2705	10818	6597	1,64
32	2019	8075	5707	1,41	2297	9187	6352	1,45	2513	10050	6495	1,55	2705	10818	6326	1,71
20	2019	8075	4177	1,93	2297	9187	4454	2,06	2513	10050	4356	2,31	2705	10818	4129	2,62
MEPS	2,26 (according to Ecodesign Directive EN 2009/125/EC)								**II Liquid receiver 8 liters**							
V/Ph/Hz	400/3+N+PE/50															

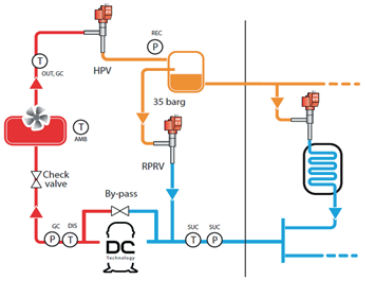
Note: Insterstage SST variable from -10°C to 0°C

BTDX Inverter modulation	Dimensions/weight	STANDARD LIQUID RECEIVER	Refrigeration connection	Sound Pressure
from 25 to 100% (1500 --> 6000 rpm)	**mm 1525x620x805 kg 176**	**PED II Liquid receiver 8 liters**	**Suction inch 3/8" Liquid inch 3/8"**	☼ Day Operation: **dB(A) 44** ☾ Night Operation: **dB(A) 35**

(based on freefield area with semi-spherical sound emission in 10 m distance)

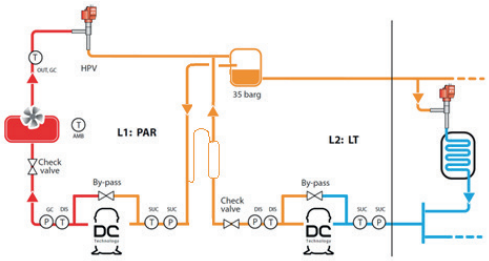
Unit Configuration

Model UMT T MTDX



- Management of one BLDC compressor
- Communication with cabinets (MPXPRO or ULTRACELLA)

Model UMT T BTDX



- Management of two BLDC compressor (LT and parallel compressors)
- Communication with cabinets (MPXPRO or ULTRACELLA)
- Floating receiver pressure (-10 / 0 °C)

Installation Design

Multi-Split

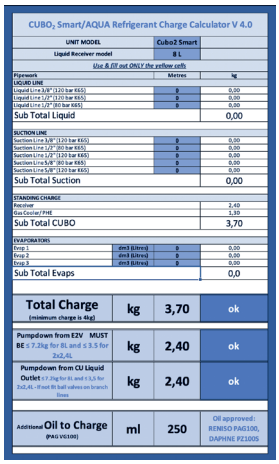
Branch

Pipe Connections (Multi-Split or Branch)
The connection between the Condensing Unit and more remote evaporators can be the same one used for Multi-Split or branch system.
The preferred one is the one is able to guarantee the highest gas velocity in the suction line (for a good oil return) with a low pressure drop.

For Multi-Split layout, the system requires a dedicated suction line for each evaporator that will be collected by a manifold installed close to the condensing unit.
Please refer to the example reported in the below pictures.

- *Liquid line must be properly sized to supply the farther evaporators (liquid velocity < 1 m/s is suggested).*
- *Suction line must be properly sized to have a good oil return with a low pressure drop (gas velocity min 5m/s).*

Check the unit charge/receiver size

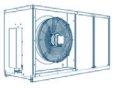


CUBO$_2$ Smart/AQUA Refrigerant Charge Calculator V 4.0

UNIT MODEL	Cubo2 Smart	
Liquid Receiver model	8 L	
Use & fill out ONLY the yellow cells		
Pipework	Metres	kg
LIQUID LINE		
Liquid Line 3/8" (120 bar K65)	0	0,00
Liquid Line 1/2" (120 bar K65)	0	0,00
Liquid Line 1/2" (80 bar K65)	0	0,00
Sub Total Liquid		0,00
SUCTION LINE		
Suction Line 3/8" (120 bar K65)	0	0,00
Suction Line 1/2" (80 bar K65)	0	0,00
Suction Line 1/2" (120 bar K65)	0	0,00
Suction Line 5/8" (80 bar K65)	0	0,00
Suction Line 5/8" (120 bar K65)	0	0,00
Sub Total Suction		0,00
STANDING CHARGE		
Receiver		2,40
Gas Cooler/ PHE		1,30
Sub Total CUBO		3,70
EVAPORATORS		
Evap 1	dm3 (litres) 0	0,00
Evap 2	dm3 (litres) 0	0,00
Evap 3	dm3 (litres) 0	0,00
Sub Total Evaps		0,0
Total Charge (minimum charge is 4kg)	kg	3,70	ok
Pumpdown from E2V MUST BE ≤ 7.2kg for 8L and ≤ 3.5 for 2x2,4L	kg	2,40	ok
Pumpdown from CU Liquid Outlet ≤ 7.2kg for 8L and ≤ 3,6 for 2x2,4L - If not fit ball valves on branch lines	kg	2,40	ok
Additional Oil to Charge (PAG VG100)	ml	250	Oil approved: RENISO PAG100, DAPHNE PZ100S

In our website at the following link:
www.scmfrigo.com/en/products/co2-condensing-unit/

CUBO$_2$ SMART



Cooling Capacity:
MT from 0,6 kW up to 8,5 kW - BT from 0,65 kW up to 6,6 kW

CUBO$_2$ Smart is an high efficiency condensing unit (for CO2 transcritical application) equipped with BLDC variable speed compressor.
It is compact, easy to install and can directly communicate with the refrigerated units.
Thanks to these features it is a very efficient (even at partial load) without any compromise with the food conservation.

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CO2 CHARGE CALCULATION V4.0

F.A.Q. Section

Visit **FAQ section** on the SCM Frigo website:

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