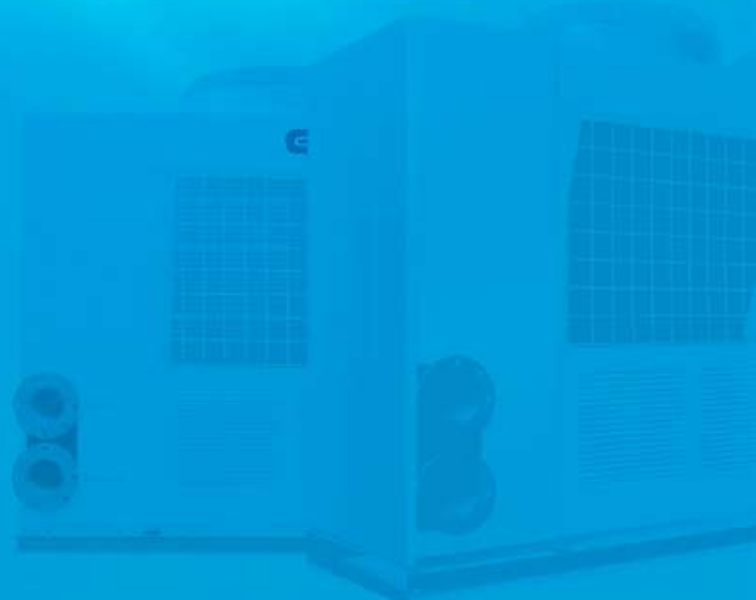


Air cooled Digital Scroll Chiller



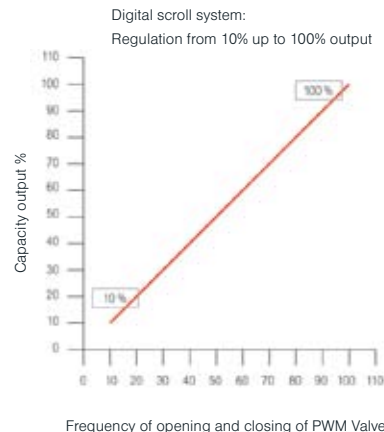
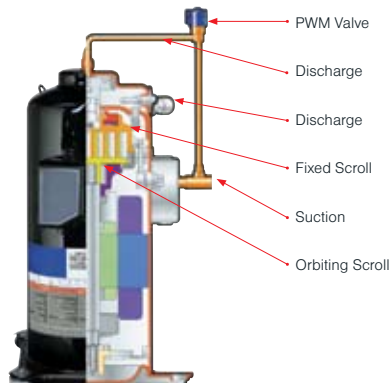
Digital Scroll Compressor

From 10 to 100% heating and cooling capacity modulation.

Real stepless energy adjustment.

Long life span: PWM solenoid valve can be used 40 billion times on average, equal to 30 years life.

High efficiency and stability of the refrigerant compressed by applying the axial compliant sealing technology.



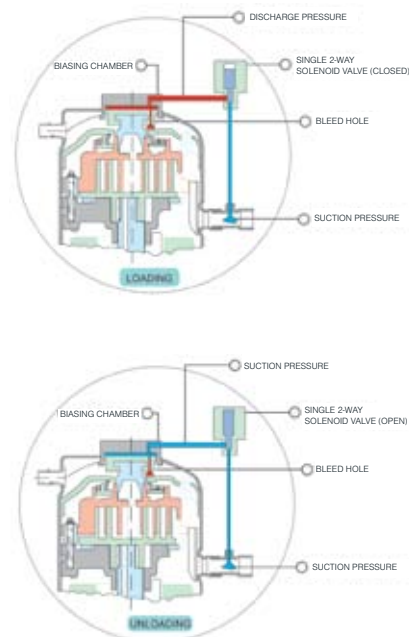
Operation Principle Of Digital Scroll Compressor

The digital scroll compressor which utilizes the axial compliant sealing technology precisely adjusts the axial moving range of the stator scroll pan. And there is an additional connecting by-pass between the suction inlet and the pressure bore at the floating sealing point of axial stator.

When the PWM solenoid valve is open, the pressure in the pressure bore is released. The pressure in the compression is higher than that top of the stator, than the stator axis of the compressor will move upward a little. So high pressure bore and low pressure inlet is connected and the unloading is achieved.

When the PWM solenoid valve is closed, two stators engaged. Then the airproof and loading is achieved.

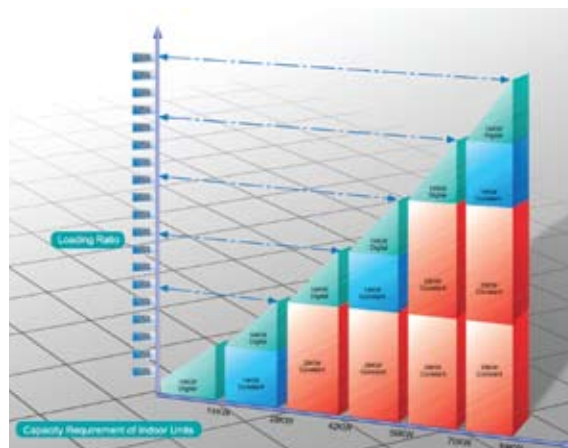
The compressor can adjust the ratio of ON's to OFF's freely to control the refrigerant output of the compressor.



Stepless capacity modulation, more efficiency

The capacity output range of digital scroll compressor is from 10% to 100%. Any capacity can be output by stepless adjustment.

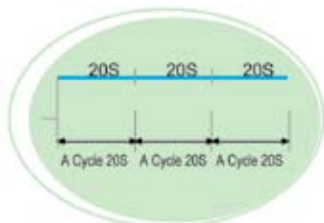
The power consumption: During loading period, 100% power consumption, while during unloading period on 10% power consumption, which guarantees high efficiency of digital scroll system especially during partial load.



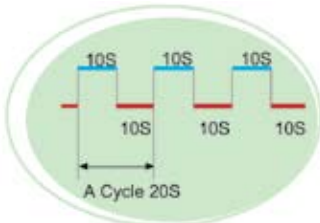
Control principle of variable capacity system

Periodical load and unload of the compressor can control refrigerant volume. One unloading and one loading are called one control cycle. Generally one control cycle takes 10 to 20 seconds. The control of the ratio of the unloading and loading achieve different output of refrigerant.

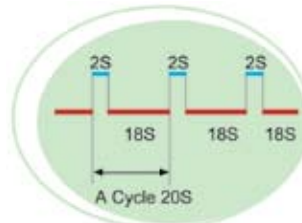
E.g.: Suppose full capacity is 7 kW, and control cycle is 20 seconds. If output needs 3.5 kW (50% of the full capacity), then loading time account for 50% of the total time. That is, 10 seconds respectively for both loading time and unloading time. If you need to output 1.4 kW (20% of the full capacity), then the load time will take up 20% of the total time, that is, 4 seconds for loading and 16 seconds for unloading. This formula applies to other numbers. The schematic diagrams of 10%, 50% and 100% of the full capacity are as follows:



100% Capacity Output



50% Capacity Output



10% Capacity Output

CDC 30-M and CDC 65-M

General description

Air cooled water chiller / heat pump with Copeland Digital scroll compressor and axial fans.

Combining more units for total cooling capacity up to 520 kW.

Ideal solution for cooling and heating capacity modulation.

Capacity modulation – lower cooling and heating costs.

No need for water accumulation tanks – space educement.

Versions:

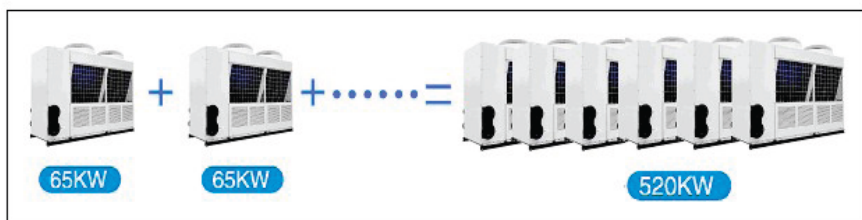
CDC 30-M - Main (master) unit with digital scroll
...works also as auxiliary unit

CDC 65-M - Main (master) unit with digital scroll

CDC 65-A - Auxiliary unit with ON/OFF scroll



Total capacity combinations



Basic unit »Main and Auxiliary« from 30 kW of cooling capacity is equipped with two independent refrigerant circuits, with two compressors (1 digital, 1 fixed), just one plate heat exchanger and just one control main board.

Basic unit »Main« from 65 kW is the melt of two basic units of 30 kW, so it is composed by 4 independent refrigerant circuits, 4 compressors (1 digital, 3 fixed), 2 plate heat exchangers and 2 control main boards.

Basic unit »Auxiliary« from 65 kW is the melt of two basic units of 30 kW, so it is composed by 4 independent refrigerant circuits, 4 fixed compressors, 2 plate heat exchangers and 2 control main boards.

Air cooled Digital Scroll Chiller / heat pump

Model		CDC 30	CDC 65	CDC 95	CDC 130	CDC 160	CDC 195	CDC 225	CDC 260
Cooling capacity	kW	30	65	95	130	160	195	225	260
	* 1000 Kcal/h	25,8	55,9	81,7	111,8	137,6	167,7	193,5	223,6
Heating capacity	kW	32	69	101	138	170	207	239	276
	* 1000 Kcal/h	27,5	59,34	86,86	119,68	146,2	178,02	205,54	237,36
Cooling input kW		10	21,5	31,5	43	53	64,5	74,5	86
Heating input kW		9,8	21	30,8	42	51,8	63	72,8	84
Power supply		400 V 3N ~ 50 Hz							
Controler type		Wire controler							
Safety protection device		High/low pressure switch,antifrost switch,waterflow switch,overload protection and power phases sequence protection.							
30 kW master + 65 kW master - 65 kW auxillary modules		1+0+0	0+1+0	1+0+1	0+1+1	1+0+2	0+1+2	1+0+3	0+1+3
Compressor elec. input kW		9	18,5	27,5	37	46	55,5	64,5	74
Refrigerant		R407C							
Refrigerant filling in kg		4,5*2	4,5*4	4,5*6	4,5*8	4,5*10	4,5*2	4,5*14	4,5*16
Water system	Water flow volume m ³ /h	1,45	3,11	4,56	6,62	7,67	9,33	10,78	12,44
	Water resistance loss kPa	29,4							
	Waterside heat-exchanger	Welding, stainless, place exchanger							
	Max. pressure MPa	1,0							
	Water inlet/outlet pipeline diam.	133 mm							
Air side heat exchanger	Type	Fancoils							
	Air flow volume *10 ³ m ³ /h	12	24	36	48	60	72	84	96
	Fan motor input kW	0,7*1	0,7*2	0,7*3	0,7*4	0,7*5	0,7*6	0,7*7	0,7*8
Dimension (mm)	L mm	1514	2492	2492	2492	2492	2492	2492	2492
	W mm	850	850	2300	2300	3750	3750	5200	5200
	H mm	1820	1820	1820	1820	1820	1820	1820	1820
Packaging dimension (mm)	30 kW master	1,62 x 1,034 x 2,041							
	65 kW master	2,612 x 1,034 x 2,041							
	65 kW auxillary	2,612 x 1,034 x 2,041							
Total weight kg		440	700	1140	1400	1840	2100	2540	2800
Optional auxiliary heater	kW	7,5	15	22,5	30	37,5	45	52,6	60

Model		CDC 290	CDC 325	CDC 355	CDC 390	CDC 420	CDC 455	CDC 485	CDC 520
Cooling capacity	kW	290	325	355	390	420	455	485	520
	* 1000 Kcal/h	249,4	279,5	305,3	335,4	361,2	391,3	417,1	447,2
Heating capacity	kW	308	345	377	414	446	483	515	552
	* 1000 Kcal/h	264,88	296,7	324,22	356,04	383,56	415,38	442,9	474,72
Cooling input kW		96	107,5	117,5	129	139	150,5	160,5	172
Heating input kW		93,8	105	114,8	126	135,8	147	156,8	168
Power supply		380 V 3N ~ 50 Hz							
Controler type		Wire control							
Safety protection device		High/low pressure switch,anti fross switch,waterflow switch,overload protection and power phases sequence protection.							
30 kW master + 65 kW master - 65 kW auxillary modules		1+0+4	0+1+4	1+0+5	0+1+5	1+0+6	0+1+6	1+0+7	0+1+7
Compressor elec. input kW		83	92,5	101,5	111	120	129,5	138,5	148
Refrigerant		R407C							
Refrigerant filling in kg		4,5*16	4,5*20	4,5*22	4,5*24	4,5*26	4,5*28	4,5*30	4,5*32
Water system	Water flow volume m ³ /h	13,89	15,56	17	18,67	20,11	21,78	23,22	24,89
	Water resistance loss kPa	29,4							
	Waterside heat-exchanger	Welding, stainless, place exchanger							
	Max. pressure MPa	1,0							
	Water inlet/outlet pipeline diam.	133 mm							
Air side heat exchanger	Type	Fancoil							
	Air flow volume *10 ³ m ³ /h	108	120	132	144	156	168	180	192
	Fan motor input kW	0,7*9	0,7*10	0,7*11	0,7*12	0,7*13	0,7*14	0,7*15	0,7*16
Dimension (mm)	L mm	2492	2492	2492	2492	2492	2492	2492	2492
	W mm	6650	6650	8100	8100	9550	9550	11000	11000
	H mm	1820	1820	1820	1820	1820	1820	1820	1820
Packaging dimension (mm)	30 kW master	1,62 x 1,034 x 2,041							
	65 kW master	2,612 x 1,034 x 2,041							
	65 kW auxillary	2,612 x 1,034 x 2,041							
Total weight kg		3240	3500	3940	4200	4640	4900	5340	5600
Optional auxiliary heater	kW	67,5	75	82,5	90	97,5	105	112,5	120

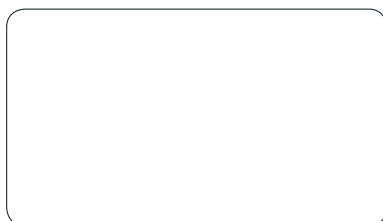


Coolwex group USA

www.coolwex.com


9172

Dealer:



Operation limits

Name	Cooling operation	Heating operation
Water-outlet temperature	7°C - 12°C	45°C - 50°C
Air-side heat-exchanger Air-inlet temperature	17°C - 43°C	(-10°C - 21°C)