

GENESIS

an innovative solution



Precision • Efficiency • Creativity



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“Designed to be as flexible and reliable”

Environment control in mission critical space is a great concern in today’s technology requirements. Therefore, the precision air conditioner plays an important role in this environment.

The higher the temperature, the higher the risk. With today’s high technology, the operation threats are always there. Specific electronics need specific temperature and humidity, and effective air filtration. Citec offers its diverse clients each with their specific needs, a wide range of designs and models. Its services start from design and manufacturing to product and sales support services. A full range of consultancy for customized business needs and solutions are available to users from diverse industries.

Highly critical in the various facets of industry, precision air conditioning equipments specifically allows precise control of air temperature, relative humidity and air quality. Citec’s unique design enables the self-contained unit’s microprocessor control to perform the functions of cooling, heating, humidification, dehumidification and filtration.

The Genesis Series is based on proven design and technology of Citec which supplies precision air conditioning to data centers around the world.

The entire Citec Genesis range is constructed by combining small building blocks of single module of varying capacities and sizes. It is designed to be as flexible and reliable as possible to enhance its functionality and serviceability. Different combinations of modules could be put together to accurately meet the cooling requirements while taking into consideration of space availability.



Genesis could also be broken down into individual module to fit into places where space is a limitation. This modularity also enables the future expansion of existing units by adding additional modules to meet the new requirements of the user without much hassle.

In addition, the scalable design enables users to meet their changing needs of today’s environmentally sensitive equipment areas where the temperature and humidity have to be controlled with high precision.



- 1) Coil
- 2) Electronic Expansion Valve
- 3) Electrical and Control Panel
- 4) Scroll Compressor
- 5) Humidifier
- 6) Microprocessor Control with In-house Program
- 7) Heater
- 8) Fan Blower





Benefits

True Modular Design

Constructed by combining small building blocks of single module of varying capacities and sizes to accurately meet the cooling requirements while taking into consideration of space availability for specific needs in installation and delivery requirement.

Due to the modular concept, larger models could be broken down into smaller modules, thus allowing the unit to fit through places where space is limited and then reassembled at the final location.

Similarly, a smaller model can be expanded to a larger model in the future by adding more modules thus enabling the same unit to be upgraded instead of changing to a whole new unit. This allows to the user to have more options when the load or equipment at a site increases in the future.

In addition, for models with refrigerant systems, each module has its own compressor and operates in a separate & independent circuit. This provides redundancy within the unit as each module can continue to operate on its own in the rare event of failure of a compressor or a circuit.

Full Front Access

All key components are visible and accessible from the front for easy maintenance and removal. The unit can be placed against the wall. Our informative and user-friendly display interface allows for easy troubleshooting and makes all vital readings easily available.

Compact Foot Print

High cooling capacity in a small footprint (42kW in 1m²) due to large coil face area which provides higher efficiency and can be located in areas where space is a constraint.

High Performance and Efficiency

Use of highly efficient scroll compressors together with the precise control of the electronic expansion valve (EEV) and our special control algorithm, as well as the enhanced heat transfer capabilities of our cooling coil, allows our models to achieve high levels of efficiency and performance. This translate to lower power consumption.



- Capacity ranges from 15kW to 110kW
- Air Cooled, Chilled Water and Water Cooled systems
- Available in both upflow and downflow configuration
- Cooling, humidification, dehumidification, reheating, filtration
- Factory pre-piped, wired and tested
- Precise control of temperature and humidity to $\pm 1^{\circ}\text{C}$ and $\pm 5\% \text{RH}$

Features

Scroll Compressor

Highly efficient hermetic scroll compressors in 2 separate refrigerant circuits provide superior cooling performance as well as redundancy. The compressors come equipped with service valves that allows it to be easily isolated and replaced in the field. In the rare event of failure, the other compressor can still continue to operate to provide cooling

In addition, the scroll compressor is more reliable and durable as there are less moving parts. The quiet operation of the compressors also fits perfectly with the use of Citec precision air conditioning within data centers, laboratories & clean rooms, providing smooth, quiet and efficient operation. The compressors come protected from high & low pressures through pressure switches & pressure transducers located in the unit

Coil

Large face area/low face velocity design for precise control of cooling and dehumidification, allowing higher performance and efficiency while at the same time minimizing air side losses

Electronic Expansion Valve

Provide fast and precise response to changes in room condition which gives more stable unit operation and save energy at low load condition. The real time superheat monitoring enable early detection on refrigerant leakage, at the same time ensuring proper refrigerant charge

Fan Blower

Direct driven forward curved centrifugal blower fan are used to provide quiet and efficient operation. A differential pressure switch is provided to detect airflow failure

Heater

Multi stage stainless steel finned electric heaters balanced over 3 phases and rated to operate at black heat are provided. The heater elements come with low watt density and a sheathed element with integral high efficiency fins thus reducing sheath temperatures and eliminating ionization and extending life span of the elements

Electrical and Control Panel

High and Low voltage cable segregation and each component are protected by individual MCB. High voltage compartment contains the contactor, miniature circuit breaker, transformer and terminal isolator. All cabling are colour coded and numbered

Air Filter

Protect against airborne contaminants within the critical environment which can damage storage media and charged electronics components

Touch Screen Display

It comes with user friendly menu for easy navigation, capable of displaying graphical information and trend graph for both temperature and humidity as well as alarm event logs. Three selectable languages: English, Chinese and Thai are available

Microprocessor Control with In-house Program

The Genius 3 controller is loaded with our in-house program featuring special control algorithm dedicated for precision air conditioning use. Built-in auto sequencing function enables multiple units in a network to perform duty-standby task, thus reducing and preventing unit down time and increasing reliability. With optional interface card, our units can be integrated into most commonly used BMS system, such as Modbus, BACnet, LonWorks, etc

Remote Control and Supervisory System

A variety of solutions, such as TeleMon, pCOWeb, Plant Watch Pro, etc is available to meet different customer needs. With supervisory system, user can be notified if there is any alarm activated from the unit. All trend data, such as temperature and humidity shall be logged by the system for further analysis and even be accessed from off site. This is an effective tool to prevent and minimized any costly down time of precision air conditioning unit



Electronic Expansion Valve



Touch Screen Display



Scroll Compressor



Technical Specifications

Models	GD / U	A / C / W	15	18	20	25	30	35	40	45	50
Airflow	m³/s		1.50	1.50	1.50	2.78	2.78	2.78	3.00	4.28	4.28
	m³/hr		5400	5400	5400	10000	10000	10000	10800	15400	15400
"A" Version											
Total Capacity	kW		17.82	20.24	22.77	30.91	34.10	41.03	45.54	51.92	56.87
Sensible Capacity	kW		17.27	19.69	20.79	29.70	33.33	38.06	41.58	49.61	54.01
S.H.R			0.97	0.97	0.91	0.96	0.98	0.93	0.91	0.96	0.95
No. of Compressor(s)			1	1	1	1	1	1	2	2	2
Air Cooled Condenser(s)	CACR		216	216	266	326	326	506	266	216 + 326	266 + 326
No. of CACR(s)			1	1	1	1	1	1	2	2	2
SPL*	dB(A)		62	62	62	64	64	64	65	66	66
Connections:											
Liquid Line	inch		5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	5/8"	5/8", 3/4"	5/8", 3/4"
Discharge Line	inch		7/8"	7/8"	7/8"	1 1/8"	1 1/8"	1 1/8"	7/8" x 2	7/8", 1 1/8"	7/8", 1 1/8"
"W" Version											
Total Capacity	kW		18.69	21.64	23.61	32.29	36.27	42.25	47.78	53.92	59.86
Sensible Capacity	kW		18.50	20.13	21.25	31.00	33.37	36.76	43.00	51.22	54.47
S.H.R			0.99	0.93	0.90	0.96	0.92	0.87	0.90	0.95	0.91
No. of Compressor(s)			1	1	1	1	1	1	2	2	2
WC Condenser(s) Model			B10/40	B10/40	B10/40	B10/60	B10/60	B10/80	B10/40	B10/40+B10/60	B10/40+B10/60
No. of WC Condenser(s)			1	1	1	1	1	1	2	2	2
SPL*	dB(A)		62	62	62	64	64	64	65	66	66
Connections:											
Water In / Out	mm		35	35	35	42	42	54	35 x 2	35, 42	35, 42
"C" Version											
Total Capacity	kW		22.26		26.98			43.20	53.96		
Sensible Capacity	kW		18.70		22.22			36.20	44.44		
S.H.R			0.84		0.82			0.84	0.82		
SPL*	dB(A)		62		62			64	65		
Connections:											
Water In / Out	mm		28		35			35	42		
Electric Reheat											
No. of Step(s)	-		1	1	1	2	2	2	2	2	2
Capacity	kW		9	9	9	18	18	18	18	18	18
Humidifier											
Humidifier Capacity	kg / hr		8	8	8	8	8	8	8	8	8
Capacity Power	kW		6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Humidifier Feed	mm		15	15	15	15	15	15	15	15	15
Drain	mm		22	22	22	22	22	22	22	22	22
Dimension											
Unit Depth	mm		800	800	800	800	800	800	800	800	800
Width	mm		800	800	800	1250	1250	1250	1550	2000	2000
Height	mm		1954	1954	1954	1954	1954	1954	1954	1954	1954
Weight - A Version	kgs		316	319	321	512	517	522	631	826	833
Weight - W Version	kgs		322	325	327	520	525	533	643	840	847
Weight - C Version	kgs		255		280			440	532		

Notes:

1. All the cooling performances are based on **Air On: 24°C, 45%RH**. All capacities are GROSS
2. Chilled Water in/out based on 7/12°C, Condenser Water in/out based on 30/35°C
3. * Measured from 1m distance, free field condition, fan and compressor running (as applicable), downflow version

Due to our policy of continuous development and improvement, the specifications and data herein are subject to change without notice. We must therefore reserve the right to supply equipment that may differ from that described and illustrated herein. All information, including illustrations, contained in this brochure, is believed to be accurate and reliable. Users, however, should independently evaluate the suitability of each product for their own application. CITEC makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use.

55	60	65	70	75	80	85	90	95	100	105	110
4.28	4.50	5.56	5.56	5.56	5.78	7.06	7.06	7.06	8.33	8.33	8.33
15400	16200	20000	20000	20000	20800	25400	25400	25400	30000	30000	30000
62.04	68.31	70.95	75.02	82.06	86.57	97.02	103.07	104.83	110.11	116.05	123.09
58.08	62.37	66.66	70.73	76.12	79.53	89.98	96.25	97.02	103.18	108.79	114.18
0.94	0.91	0.94	0.94	0.93	0.92	0.93	0.93	0.93	0.94	0.94	0.93
2	3	2	2	2	3	3	3	3	3	3	3
216 + 506	266	326 + 506	326 + 506	506	2x266 + 506	216 + 326 + 506	2x506 + 216	2x506 + 266	2x326 + 506	2x506 + 326	506
2	3	2	2	2	3	3	3	3	3	3	3
66	67	67	67	68	68	69	69	69	69	69	69
5/8", 3/4"	5/8", x 3	3/4" x 2	3/4" x 2	3/4" x 2	5/8" x 2, 3/4"	5/8", 3/4" x 2	5/8", 3/4" x 2	5/8", 3/4" x 2	3/4" x 3	3/4" x 3	3/4" x 3
7/8", 1 1/8"	7/8" x 3	1 1/8" x 2	1 1/8" x 2	1 1/8" x 2	7/8" x 2, 1 1/8"	7/8", 1 1/8" x 2	7/8", 1 1/8" x 2	7/8", 1 1/8" x 2	1 1/8" x 3	1 1/8" x 3	1 1/8" x 3
63.89	71.39	74.54	78.51	84.50	90.04	100.16	106.14	108.10	114.77	120.76	126.74
56.86	64.25	67.83	71.44	73.52	80.14	90.14	93.40	95.13	103.30	107.48	110.26
0.89	0.90	0.91	0.91	0.87	0.89	0.90	0.88	0.88	0.90	0.89	0.87
2	3	2	2	2	3	3	3	3	3	3	3
B10/40+B10/80	B10/40	B10/60+B10/80	B10/60+B10/80	B10/80	2xB10/40	B10/40+B10/60	2xB10/80	2xB10/80	2xB10/60	2xB10/80	B10/80
					+B10/80	+B10/80	+B10/40	+B10/40	+B10/80	+B10/60	
2	3	2	2	2	3	3	3	3	3	3	3
66	67	67	67	68	68	69	69	69	69	69	69
35, 54	35 x 3	42, 54	42, 54	54 x 2	35 x 2, 54	35, 42, 54	35, 54 x 2	35, 54 x 2	42 x 2, 54	42, 54 x 2	54 x 3
70.12	80.94		86.40		97.12		113.32			129.48	
58.38	66.66		72.40		80.60		94.56			108.48	
0.83	0.82		0.84		0.83		0.83			0.84	
66	67		67		68		68			69	
42	42		54		54		54			54	
2	2	2	2	2	2	2	2	2	3	3	3
18	18	18	18	18	18	18	18	18	27	27	27
8	15	15	15	15	15	15	15	15	15	15	15
6.00	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25
15	15	15	15	15	15	15	15	15	15	15	15
22	22	22	22	22	22	22	22	22	22	22	22
800	800	800	800	800	800	800	800	800	800	800	800
2000	2300	2450	2450	2450	2750	3200	3200	3200	3650	3650	3650
1954	1954	1954	1954	1954	1954	1954	1954	1954	1954	1954	1954
836	947	1029	1034	1039	1147	1347	1352	1355	1562	1567	1572
852	965	1046	1051	1056	1170	1371	1378	1381	1587	1594	1601
760	798		870		960		1120		1300		