B COOL MANUFACTURERS OF AIR-CONDITIONING EQUIPMENT LTD

BRT C/H Series

PACKAGED AIR TO AIR UNITS
COOLING / HEATING APPLICATIONS
OUTDOOR INSTALLATION

Ver. 3.02 01_18

CE

ISO 9001
BUREAU VERITAS
Certification

COOLING CAPACITY

11,6 kW - 90,0 kW **(R407C)**
13,7 kW - 92,2 kW **(R410a)**
11,9 kW - 99,4 kW **(R134a)**

HEATING CAPACITY

11,7 kW - 92,8 kW **(R407C)**
13,8 kW - 92,6 kW **(R410a)**
12,0 kW - 101,6 kW **(R134a)**

Engineering Data

The **BCOOL BRT C/H** series includes packaged air to air units for cooling and heating applications and outdoor installation. They are available in several types and models, with nominal capacities ranging from 11,6 to 99,4 kW in cooling and 11,7 to 101,6 kW in heating.

The **BCOOL BRT C/H series** is ideal for air-conditioning of medium and large halls, such as exhibition centers, shopping centers, entertainment centers, convention centers, supermarkets, warehouses, industries, etc.

Optimized design for R407C, R410a and R134a refrigerant

Casing: Galvanized Steel plate with polyesteric coating
Assembly: Fully bolted/welding free
Compressor: Hermetically sealed scroll type
Air heat exchanger: Cross finned coil, internally grooved copper tubes and louvered aluminium fins
Direct drive propeller fan: Low rpm, quiet operation
Double inlet centrifugal fan: quiet operation, with available E.S.P.
Safety and functional devices:
High/low pressure switch
Phase sequence - phase failure - reverse phase and voltage monitoring device
Evaporator low temperature protection
Electronic microprocessor control with digital display
High and low pressure manometers
Linear fan speed regulation, according to coil temperatures
Various optional capabilities

Nomenclature

B - R T - X - X X - X

1 2 3 4 5

1 **BCOOL**

2 **R**oof **T**op Packaged Unit

3 **C**-Cooling only, **H**-Heat Pump

4 **Capacity (kW)**

5 **Refrigerant Liquid**
R407C, R410a, R134a

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Generally

The new tendency in air-conditioning of large surface buildings, such as exhibition centers, shopping centers, entertainment centers, convention centers, supermarkets, industries, warehouses,etc., is the installation of a ROOFTOP PACKAGED AIR TO AIR UNIT for Cooling and Heating, instead of the typical installation of a chiller / heat pump and a central air-handling unit, or VRV system.
Comparatively, the advantages are:

1. Less expensive installation cost
   One machine instead of two
   No need for hydraulic circuit
   No need for refrigerant circuit
2. Simpler and easier installation
   Electrical and air-duct installations are only required
3. Less engaged surface for installation
   Smaller footprint / Saving space for other usage
4. More economical operation of the whole installation
5. Easy maintenance and service

The BCOOL BRT C/H series, including ROOFTOP PACKAGED AIR TO AIR UNITS for cooling and heating, consists of 10 basic models covering capacities from 11,6 up to 99,4 kW in cooling and 11,7 up to 101,6 kW in heating. It is the end result of a thorough study and accurate design by experienced BCOOL research and development teams, to develop a small / mid size packaged air to air series with compact shape, high performance and reliability of the highest quality standards. This series meets the highest levels of aesthetic and technical requirements, using the latest technological innovations, including environmentally friendly R407C, R410a or R134a refrigerant, that is chlorine-free and has zero ozone depletion potential. BRT C/H units are therefore ideal for installation in commercial and industrial applications, due to their robust construction, high-efficiency performance, reliability, selected materials and low operating sound levels.

Casing

All units use metal parts that are fabricated from heavy gauge galvanized steel sheets, formed to ensure maximum rigidity that guarantees and preserves the unit's operation during the years. After fabrication these are degreased, phosphatised and electrostatically powder coated with an epoxy-polyester RAL 9002 coating of a thickness of 60-70 μm. This fully automatic process ensures superior corrosion resistance against the most aggressive ambient conditions. This treatment can successfully withstand a salt spray test of 500 hours, according to ASTM B-117.
All components are assembled together using bolts, thus avoiding the need for welding which may harm the galvanization of the steel and ensuring that the whole assembly can fully withstand adverse weather conditions.
The compact footprint of the unit arises from detailed study and design by our engineering teams and results in a machine which fits easily in restricted areas, is simple and easy to install and maintain and has been designed with special fittings for easy transportation and lifting. Removable side panels with special locks are used to permit access only to authorized personnel to internal components of the unit, for inspection and maintenance. Electrical and electronic equipment and components for proper unit's operation are located inside a weather proof (IP 55) electrical panel, with access via special key.

Compressors

All units use low-noise, maintenance free, Hermetic Scroll compressors with low vibration levels, especially optimized for use with R407C, R410a or R134a refrigerant, provided from world class suppliers. They are equipped with a crankcase electrical heater for oil and are internally protected against potential overloading or electrical spikes.
The compressors are mounted on special anti-vibration rubber mounts, to absorb and eliminate any vibrations from the unit's operation.

Axial type fans

Axial type fans of all units are single phase, 6 poles, internally protected against potential overheating, silent and suitable for outdoor installation. Due to the sophisticated aerodynamic design of the blades and inlet cones, as well as the perfect static and dynamic balancing, their operation is completely vibration-free. The fan-motor assembly has a protective grid against accidental contact with moving parts, which is designed according to ISO regulations.
Fan motors are of the external rotor type, aerodynamically shaped so as not to interfere with the airflow and have permanently lubricated bearings that to do not require service. Continuous linear fan speed regulation control is achieved according to coil temperatures, resulting in fan silent mode operation.
This standard feature for BCOOL BRT C/H units saves energy and reduces sound levels dramatically, optimizing capacity.

Centrifugal type fan

The air-handling section of all units is equipped with a belt or direct motor driven, double-inlet, double-width, centrifugal type fan, with forward or backward inclined blades of the fan. Fan and motor sizes are appropriately selected, as to provide the required external static pressure for the air distribution through the ducts, while noiseless operation is ensured. Upon request, the units are equipped with a plug fan with incorporated motor.

Filters

The air-handling section is equipped with washable filters, synthetic type, for easy maintenance.
Other filter types are available upon request.

Air heat exchangers

All units' air heat exchangers are manufactured from high quality seamless inner grooved copper tubes according to ASTM B-280, having an outside diameter of 9,52 mm (3/8''). The fins are manufactured from aluminium and form the secondary extended heat transfer surface. The fins are continuous across the heat exchanger and are fabricated in high precision dedicated press lines. The fin surface is waffle formed, so as to increase the fin rigidity and has special louvers that help to increase heat transfer. The combination of internally grooved copper-tubing and louvered fins has resulted in a heat transfer performance 30% superior to that of a conventional coil for this particular application. The assembly of the finned pack is achieved by mechanical expansion of the tubes in such a way, as to form a perfect mechanical bond with the fins. For this purpose, the fin holes have a peripheral extrusion (collar) of adjustable height. This extrusion serves to define the distance between the fins (and consequently the total heat transfer surface) and to ensure perfect contact of the fins to the tubes.
Alternative fin materials are available upon request, such as epoxy - coated aluminium or copper for applications in especially aggressive environments.

Microprocessor controller

All units are equipped with a sophisticated controller that combines intelligence with operating simplicity. The controller constantly monitors all machine parameters and precisely manages among others:
Automatic compressor control function through return air temperature.
Continuous fan speed control, based on coil heat exchanger temperatures.
Defrost control.
Centrifugal fan control.
Compressor start-up time control function.
Compressor starting order control, to reduce starting current.
Compressor operation control, based on running time.
Compressor running time records.
Over 150 programmable parameters.
Fan motors overload protection.
Auto diagnostic stop function, due to low air circulation, high/low operating pressure and compressor/fan thermal overload.
Auto diagnostic function and digital display of approximately 30 possible error codes, including thermistor faults.
Digital displays of inlet/outlet air, as well as coil temperature of each circuit.
Remote cool/heat and on/off selection.
Phase sequence-phase failure-reverse phase and voltage monitoring.
Various other optional control capabilities (listed in options).

Refrigerant circuits

The units have one or two separate refrigerant circuits. Each circuit has restrictors, thermal expansion valve or electronic expansion valve.
Other components fitted are: suction accumulator, liquid receiver, 4-way reversing valve, check valve, large capacity filter dryer and high/low pressure manometers. Unit protection is provided by a high/low pressure switch with auto reset.

Other unit accessories / options

Compressors with inverter motor drive.
Condenser fins made of copper or prepainted aluminum and Blygold treatment for anti-corrosion protection.
Pressure relief valve on compressor discharge.
A-meter, V-meter.
Electrical heaters.
Compressor noise reduction jacket.
Hot water coil with 3-way valve.
Axial fans with EC motors, for energy saving.
Damper for fresh air, with actuator motor.
Free cooling control, by temperature or enthalpy sensors.
Fresh air damper control, by CO^2 detection sensor.
Heat recovery exchanger.

Optional accessories

Microprocessor controller options:
Remote keyboard.
Dynamic set point program.
BMS module interface kit for Modbus connection.
Microprocessor parameter reprogramming card.

BRT C/H R407C

MODEL		50 Hz	BRT 13	BRT 15	BRT 19	BRT 23	BRT 30	BRT 38	BRT 45	BRT 61	BRT 76	BRT 90
Nominal Cooling capacity		**W**	**11600**	**14550**	**16900**	**23500**	**30800**	**38800**	**47000**	**61600**	**77600**	**90000**
		Kcal/h	9974	12511	14531	20206	26483	33362	40413	52966	66724	77386
		Btu/h	39579	49645	57663	80182	105090	132386	160364	210179	264771	307080
Nominal Heating capacity		**W**	**11750**	**15000**	**17050**	**23600**	**30800**	**38900**	**47200**	**61600**	**77800**	**92800**
		Kcal/h	10103	12898	14660	20292	26483	33448	40585	52966	66896	79794
		Btu/h	40091	51180	58175	80523	105090	132727	161046	210179	265454	316634
Construction		Material/Color	Galvanized steel / Light grey-beige (RAL 9002)									
Compressor			SCROLL									
Quantity			1							**2**		
Capacity steps			0 - 100%							0 - 50 - 100%		
Absorbed power	cooling	kW	3,41	4,25	4,88	6,55	8,45	10,80	13,10	16,90	21,60	25,80
	heating		3,27	4,01	4,65	6,30	8,03	9,61	12,60	16,06	19,22	22,90
Nominal operating current	cooling	A	6,39	7,34	8,66	12,34	15,33	19,64	24,68	30,66	39,28	51,14
	heating		6,27	6,96	8,32	12,03	14,78	18,13	24,06	29,56	36,26	47,84
Starting current		A	50,0	59,0	74,0	95,0	118,0	140,0	107,0	133,0	159,0	225,0
Air handling section												
Fan		type	Centrifugal with forward inclined blades									
Fan motor		kW	0,37	0,57	0,76	1,10	1,50	2,20	2,20	3,00	4,00	5,50
Nominal air flow		m^3/h	2000	2500	3000	4100	5100	6200	7200	9000	11000	15200
Evaporator face area		m^2	1	1	1	1	1	1	1	1,45	1,45	1,45
Available ext.static pressure		Pa	240									
Condensing section												
Fan		type	Axial									
Nominal air flow		m^3/h	5000	5000	9000	9000	18000	18000	18000	36000	36000	36000
Condenser face area		m^2	1	1	1	1	1	2	2	3,4	3,4	3,4
No of fans			1	1	1	1	2	2	2	4	4	4
No of motors x Power input		kW	1X0,24	1X0,24	1X0,57	1X0,57	2X0,42	2X0,57	2X0,57	4X0,57	4X0,57	4X0,57
Speed		RPM	900									
Refrigerant circuits			1							**2**		
Expansion device			Thermal expansion valve / capillary									
Refrigerant type			R407C									
Electrical characteristics			Electric network 400 V / 3 Ph / 50 Hz									
Voltage operating limits		V	360-440									
Noise level @ 5m		db(A)	49	49	52	52	52	56	56	66	66	67
Dimensions		Width mm	1300	1300	1400	1400	1600	1600	1600	1800	1800	1800
		Length mm	1650	1650	1850	1850	2250	2250	2250	2900	2900	2900
		Height mm	1200	1200	1200	1200	1200	1200	1200	1400	1400	1400
Shipping weight		kg	270	280	300	360	460	510	570	930	970	1200

NOTES

Nominal cooling capacities are based on the following operational conditions:
Ambient air temperature 35°C
Air handling section entering air temperature 27/19,5°C (DB/WB)

Nominal heating capacities are based on the following operational conditions:
Ambient air temperature 7/6°C (DB/WB)
Air handling section entering air temperature 20°C

COOLING CAPACITY R407C

Ambient °C		25	30	35	40	45	50
MODEL	Air inlet °C (WB)	Cooling capacity kW					
BRT 13	17	11623	11322	10869	10568	10266	8604
	19	12052	11925	**11600**	11322	10231	9227
	21	12621	12377	12076	11472	10370	9680
	23	13224	12980	12679	12076	10556	9963
BRT 15	17	14579	14201	13633	13255	12877	10793
	19	15117	14957	**14550**	14201	12848	11574
	21	15830	15525	15147	14390	13008	12142
	23	16587	16281	15903	15147	13241	12497
BRT 19	17	16934	16494	15835	15396	14957	12536
	19	17559	17373	**16900**	16494	14838	13443
	21	18387	18032	17593	16714	15109	14103
	23	19266	18911	18472	17593	15379	14515
BRT 23	17	23547	22936	22020	21409	20798	17431
	19	24417	24158	**23500**	22936	20939	18693
	21	25568	25075	24464	23242	21009	19610
	23	26790	26297	25686	24464	21385	20184
BRT 30	17	30862	30061	28860	28059	27258	22846
	19	32001	31662	**30800**	30061	28305	24500
	21	33510	32864	32063	30461	28490	25702
	23	35112	34465	33664	32063	28644	26454
BRT 38	17	38878	37869	36356	35347	34338	28780
	19	40313	39886	**38800**	37869	35657	30863
	21	42214	41400	40391	38373	35890	32378
	23	44232	43417	42408	40391	36084	33325
BRT 45	17	47094	45872	44039	42817	41595	34863
	19	48833	48316	**47000**	45872	41877	37386
	21	51136	50149	48927	46483	42018	39221
	23	53580	52593	51371	48927	42770	40367
BRT 61	17	61723	60122	57719	56118	54516	45692
	19	64002	63325	**61600**	60122	56610	48999
	21	67021	65727	64126	60922	56980	51404
	23	70224	68930	67329	64126	57288	52907
BRT 76	17	77755	75738	72711	70694	68676	57561
	19	80626	79773	**77600**	75738	71314	61726
	21	84429	82799	80782	76746	71780	64756
	23	88464	86834	84817	80782	72168	66649
BRT 90	17	90180	87840	84330	81990	79650	66758
	19	93510	92520	**90000**	87840	83700	74664
	21	97920	96030	93690	89010	84150	76421
	23	102600	100710	98370	93690	84600	78178

HEATING CAPACITY R407C

Air inlet °C		15	18	20	25
MODEL	Ambient °C (WB)	Heating capacity kW			
BRT 13	15	13630	13395	13278	13160
	10	12690	12455	12338	12220
	6	11985	11809	**11750**	11515
	5	11515	11398	11280	11163
	0	10223	10105	9988	9753
	-5	8813	8578	8460	8343
BRT 15	15	17400	17100	16950	16800
	10	16200	15900	15750	15600
	6	15300	15075	**15000**	14700
	5	14700	14550	14400	14250
	0	13050	12900	12750	12450
	-5	11250	10950	10800	10650
BRT 19	15	19778	19437	19267	19096
	10	18414	18073	17903	17732
	6	17391	17135	**17050**	16709
	5	16709	16539	16368	16198
	0	14834	14663	14493	14152
	-5	12788	12447	12276	12106
BRT 23	15	27376	26904	26668	26432
	10	25488	25016	24780	24544
	6	24072	23718	**23600**	23128
	5	23128	22892	22656	22420
	0	20532	20296	20060	19588
	-5	17700	17228	16992	16756
BRT 30	15	35728	35112	34804	34496
	10	33264	32648	32340	32032
	6	31416	30954	**30800**	30184
	5	30184	29876	29568	29260
	0	26796	26488	26180	25564
	-5	23100	22484	22176	21868
BRT 38	15	45124	44346	43957	43568
	10	42012	41234	40845	40456
	6	39678	39095	**38900**	38122
	5	38122	37733	37344	36955
	0	33843	33454	33065	32287
	-5	29175	28397	28008	27619
BRT 45	15	54752	53808	53336	52864
	10	50976	50032	49560	49088
	6	48144	47436	**47200**	46256
	5	46256	45784	45312	44840
	0	41064	40592	40120	39176
	-5	35400	34456	33984	33512
BRT 61	15	71456	70224	69608	68992
	10	66528	65296	64680	64064
	6	62832	61908	**61600**	60368
	5	60368	59752	59136	58520
	0	53592	52976	52360	51128
	-5	46200	44968	44352	43736
BRT 76	15	90248	88692	87914	87136
	10	84024	82468	81690	80912
	6	79356	78189	**77800**	76244
	5	76244	75466	74688	73910
	0	67686	66908	66130	64574
	-5	58350	56794	56016	55238
BRT 90	15	107648	105792	104864	103936
	10	100224	98368	97440	96512
	6	94656	93264	**92800**	90944
	5	90944	90016	89088	88160
	0	80736	79808	78880	77024
	-5	69600	67744	66816	65888

BRT C/H R410a

MODEL		50 Hz	BRT 13	BRT 15	BRT 19	BRT 23	BRT 30	BRT 38	BRT 45	BRT 61	BRT 76	BRT 90
Nominal Cooling capacity		**W**	**13700**	**15550**	**18050**	**23000**	**31400**	**39200**	**46000**	**62800**	**78400**	**92200**
		Kcal/h	11780	13371	15520	19776	26999	33706	39553	53998	67412	79278
		Btu/h	46744	53057	61587	78476	107137	133750	156952	214274	267501	314586
Nominal Heating capacity		**W**	**13800**	**15600**	**18350**	**23100**	**31450**	**39400**	**46200**	**62900**	**78800**	**92600**
		Kcal/h	11866	13414	15778	19862	27042	33878	39725	54084	67756	79622
		Btu/h	47086	53227	62610	78817	107307	134433	157634	214615	268866	315951
Construction		Material/Color	Galvanized steel / Light grey-beige (RAL 9002)									
Compressor			SCROLL									
Quantity			1							**2**		
Capacity steps			0 - 100%							0 - 50 - 100%		
Absorbed power	cooling	kW	3,76	4,30	5,10	6,27	8,31	10,50	12,54	16,62	21,00	24,06
	heating		3,84	4,45	5,09	6,25	8,29	10,40	12,50	16,58	20,80	24,30
Nominal operating current	cooling	A	6,07	7,62	8,91	10,78	16,00	18,20	21,56	32,00	36,40	46,64
	heating		6,19	7,85	8,89	10,75	15,96	18,00	21,50	31,92	36,00	46,26
Starting current		A	52,5	64,0	75,0	98,0	118,0	140,0	108,0	134,0	158,0	220,0
Air handling section												
Fan		type	Centrifugal with forward inclined blades									
Fan motor		kW	0,37	0,57	0,76	1,10	1,50	2,20	2,20	3,00	4,00	5,50
Nominal air flow		m^3/h	2000	2500	3000	4100	5100	6200	7200	9000	11000	15200
Evaporator face area		m^2	1	1	1	1	1	1	1	1,45	1,45	1,45
Available ext.static pressure		Pa	240									
Condensing section												
Fan		type	Axial									
Nominal air flow		m^3/h	5000	5000	9000	9000	18000	18000	18000	36000	36000	36000
Condenser face area		m^2	1	1	1	1	1	2	2	3,4	3,4	3,4
No of fans			1	1	1	1	2	2	2	4	4	4
No of motors x Power input		kW	1X0,24	1X0,24	1X0,57	1X0,57	2X0,42	2X0,57	2X0,57	4X0,57	4X0,57	4X0,57
Speed		RPM	900									
Refrigerant circuits			1							**2**		
Expansion device			Electronic expansion valve									
Refrigerant type			R410a									
Electrical characteristics			Electric network 400 V / 3 Ph / 50 Hz									
Voltage operating limits		V	360-440									
Noise level @ 5m		db(A)	49	49	52	52	52	56	56	66	66	67
Dimensions		Width mm	1300	1300	1400	1400	1600	1600	1600	1800	1800	1800
		Length mm	1650	1650	1850	1850	2250	2250	2250	2900	2900	2900
		Height mm	1200	1200	1200	1200	1200	1200	1200	1400	1400	1400
Shipping weight		kg	270	280	300	360	460	510	570	930	970	1200

NOTES

Nominal cooling capacities are based on the following operational conditions:
Ambient air temperature 35°C
Air handling section entering air temperature 27/19,5°C (DB/WB)

Nominal heating capacities are based on the following operational conditions:
Ambient air temperature 7/6°C (DB/WB)
Air handling section entering air temperature 20°C

COOLING CAPACITY R410a

Ambient °C		25	30	35	40	45	50
MODEL	Air inlet °C (WB)	Cooling capacity kW					
BRT 13	17	13727	13371	12837	12481	12125	10162
	19	14234	14084	**13700**	13371	12083	10898
	21	14906	14618	14262	13549	12248	11432
	23	15618	15330	14974	14262	12467	11767
BRT 15	17	15581	15177	14570	14166	13762	11534
	19	16156	15985	**15550**	15177	13731	12369
	21	16918	16592	16188	15379	13902	12976
	23	17727	17400	16996	16188	14151	13356
BRT 19	17	18086	17617	16913	16444	15974	13389
	19	18754	18555	**18050**	17617	15848	14358
	21	19638	19259	18790	17851	16137	15062
	23	20577	20198	19729	18790	16426	15503
BRT 23	17	23046	22448	21551	20953	20355	17060
	19	23897	23644	**23000**	22448	20493	18295
	21	25024	24541	23943	22747	20562	19193
	23	26220	25737	25139	23943	20930	19754
BRT 30	17	31463	30646	29422	28605	27789	23291
	19	32625	32279	**31400**	30646	28857	24977
	21	34163	33504	32687	31055	29045	26203
	23	35796	35137	34320	32687	29202	26969
BRT 38	17	39278	38259	36730	35711	34692	29077
	19	40729	40298	**39200**	38259	36025	31181
	21	42650	41826	40807	38769	36260	32712
	23	44688	43865	42846	40807	36456	33668
BRT 45	17	46092	44896	43102	41906	40710	34121
	19	47794	47288	**46000**	44896	40986	36590
	21	50048	49082	47886	45494	41124	38386
	23	52440	51474	50278	47886	41860	39508
BRT 61	17	62926	61293	58844	57211	55578	46583
	19	65249	64558	**62800**	61293	57713	49954
	21	68326	67008	65375	62109	58090	52405
	23	71592	70273	68640	65375	58404	53938
BRT 76	17	78557	76518	73461	71422	69384	58154
	19	81458	80595	**78400**	76518	72050	62362
	21	85299	83653	81614	77538	72520	65423
	23	89376	87730	85691	81614	72912	67336
BRT 90	17	92384	89987	86391	83994	81597	68390
	19	95796	94782	**92200**	89987	85746	76489
	21	100314	98377	95980	91186	86207	78289
	23	105108	103172	100775	95980	86668	80089

HEATING CAPACITY R410a

Air inlet °C		15	18	20	25
MODEL	Ambient °C (WB)	Heating capacity kW			
BRT 13	15	16008	15732	15594	15456
	10	14904	14628	14490	14352
	6	14076	13869	**13800**	13524
	5	13524	13386	13248	13110
	0	12006	11868	11730	11454
	-5	10350	10074	9936	9798
BRT 15	15	18096	17784	17628	17472
	10	16848	16536	16380	16224
	6	15912	15678	**15600**	15288
	5	15288	15132	14976	14820
	0	13572	13416	13260	12948
	-5	11700	11388	11232	11076
BRT 19	15	21286	20919	20736	20552
	10	19818	19451	19268	19084
	6	18717	18442	**18350**	17983
	5	17983	17800	17616	17433
	0	15965	15781	15598	15231
	-5	13763	13396	13212	13029
BRT 23	15	26796	26334	26103	25872
	10	24948	24486	24255	24024
	6	23562	23216	**23100**	22638
	5	22638	22407	22176	21945
	0	20097	19866	19635	19173
	-5	17325	16863	16632	16401
BRT 30	15	36482	35853	35539	35224
	10	33966	33337	33023	32708
	6	32079	31607	**31450**	30821
	5	30821	30507	30192	29878
	0	27362	27047	26733	26104
	-5	23588	22959	22644	22330
BRT 38	15	45704	44916	44522	44128
	10	42552	41764	41370	40976
	6	40188	39597	**39400**	38612
	5	38612	38218	37824	37430
	0	34278	33884	33490	32702
	-5	29550	28762	28368	27974
BRT 45	15	53592	52668	52206	51744
	10	49896	48972	48510	48048
	6	47124	46431	**46200**	45276
	5	45276	44814	44352	43890
	0	40194	39732	39270	38346
	-5	34650	33726	33264	32802
BRT 61	15	72964	71706	71077	70448
	10	67932	66674	66045	65416
	6	64158	63215	**62900**	61642
	5	61642	61013	60384	59755
	0	54723	54094	53465	52207
	-5	47175	45917	45288	44659
BRT 76	15	91408	89832	89044	88256
	10	85104	83528	82740	81952
	6	80376	79194	**78800**	77224
	5	77224	76436	75648	74860
	0	68556	67768	66980	65404
	-5	59100	57524	56736	55948
BRT 90	15	107416	105564	104638	103712
	10	100008	98156	97230	96304
	6	94452	93063	**92600**	90748
	5	90748	89822	88896	87970
	0	80562	79636	78710	76858
	-5	69450	67598	66672	65746

BRT C/H R134a

MODEL		50 Hz	BRT 13	BRT 15	BRT 19	BRT 23	BRT 30	BRT 38	BRT 45	BRT 61	BRT 76	BRT 90
Nominal Cooling capacity		**W**	**11900**	**15350**	**17750**	**23500**	**30800**	**41400**	**47000**	**61600**	**80200**	**99400**
		Kcal/h	10232	13199	15262	20206	26483	35598	40413	52966	68960	85469
		Btu/h	40603	52374	60563	80182	105090	141257	160364	210179	273642	339153
Nominal Heating capacity		**W**	**12050**	**15450**	**18000**	**24600**	**31500**	**41600**	**49200**	**63000**	**82000**	**101600**
		Kcal/h	10361	13285	15477	21152	27085	35770	42304	54170	70507	87360
		Btu/h	41115	52715	61416	83935	107478	141939	167870	214956	279784	346659
Construction		Material/Color	Galvanized steel / Light grey-beige (RAL 9002)									
Compressor			SCROLL									
Quantity			1							**2**		
Capacity steps			0 - 100%							0 - 50 - 100%		
Absorbed power	cooling	kW	3,25	4,23	4,71	6,31	8,61	10,88	12,62	17,22	22,40	27,90
	heating		3,09	4,05	4,49	6,03	8,21	10,40	12,06	16,42	21,20	26,40
Nominal operating current	cooling	A	6,34	9,74	9,88	11,80	21,38	23,26	23,60	42,76	42,60	53,30
	heating		6,15	9,59	9,66	11,35	21,11	22,64	22,70	42,22	41,32	51,70
Starting current		A	74,0	95,0	111,0	95,0	118,0	128,0	141,0	216,0	267,0	325,0
Air handling section												
Fan		type	Centrifugal with forward inclined blades									
Fan motor		kW	0,37	0,57	0,76	1,10	1,50	2,20	2,20	3,00	4,00	5,50
Nominal air flow		m^3/h	2000	2500	3000	4100	5100	6200	7200	9000	11000	16000
Evaporator face area		m^2	1	1	1	1	1	1	1	1,45	1,45	1,45
Available ext.static pressure		Pa	240									
Condensing section												
Fan		type	Axial									
Nominal air flow		m^3/h	5000	5000	9000	9000	18000	18000	18000	36000	36000	36000
Condenser face area		m^2	1	1	1	1	1	2	2	3,4	3,4	3,4
No of fans			1	1	1	1	2	2	2	4	4	4
No of motors x Power input		kW	1X0,24	1X0,24	1X0,57	1X0,57	2X0,42	2X0,57	2X0,57	4X0,57	4X0,57	4X0,57
Speed		RPM	900									
Refrigerant circuits			1							**2**		
Expansion device			Thermal expansion valve / capillary									
Refrigerant type			R134a									
Electrical characteristics			Electric network 400 V / 3 Ph / 50 Hz									
Voltage operating limits		V	360-440									
Noise level @ 5m		db(A)	49	49	52	52	52	56	56	66	66	67
Dimensions		Width mm	1300	1300	1400	1400	1600	1600	1600	1800	1800	1800
		Length mm	1650	1650	1850	1850	2250	2250	2250	2900	2900	2900
		Height mm	1200	1200	1200	1200	1200	1200	1200	1400	1400	1400
Shipping weight		kg	270	280	300	360	460	510	570	930	970	1200

NOTES

Nominal cooling capacities are based on the following operational conditions:
Ambient air temperature 35°C
Air handling section entering air temperature 27/19,5°C (DB/WB)

Nominal heating capacities are based on the following operational conditions:
Ambient air temperature 7/6°C (DB/WB)
Air handling section entering air temperature 20°C

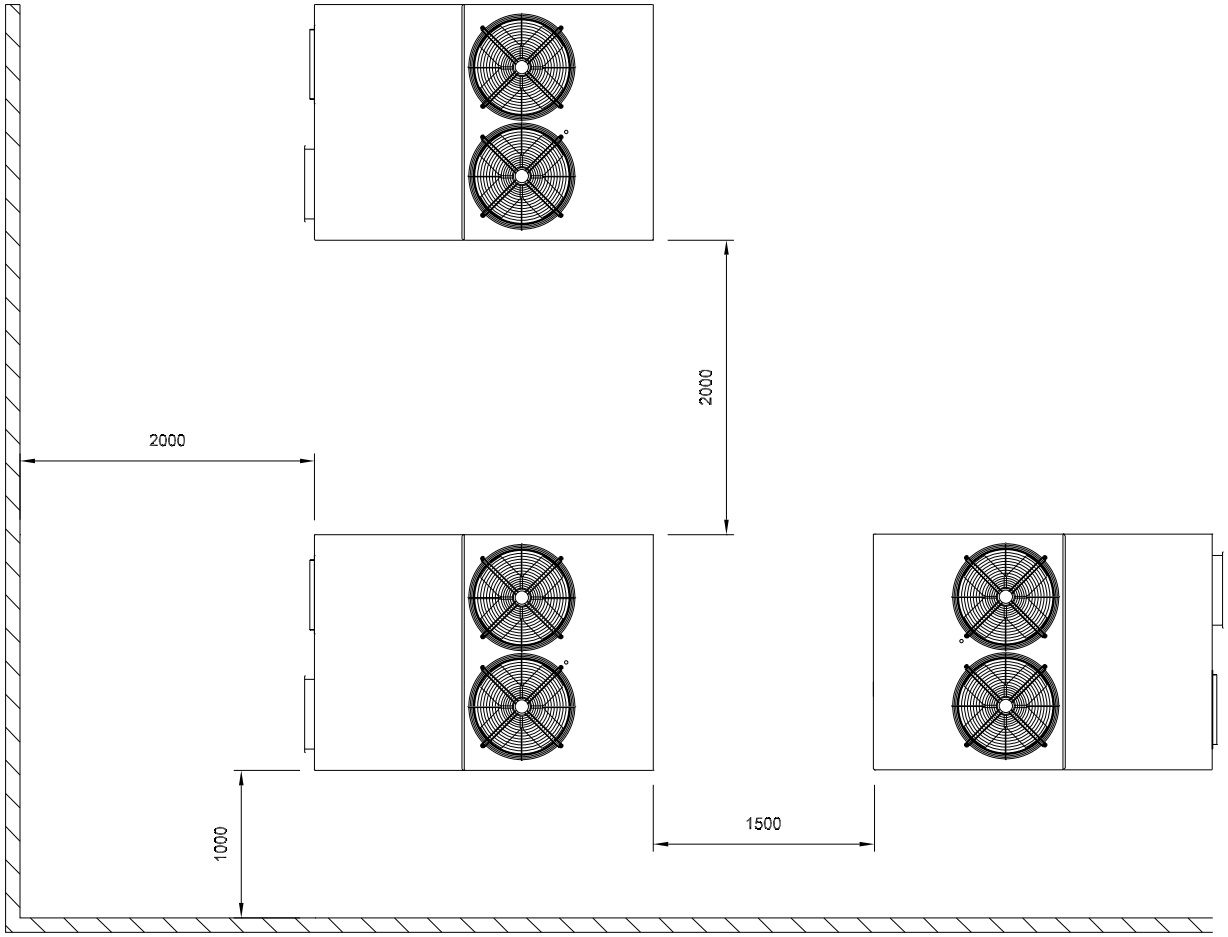
COOLING CAPACITY R134a

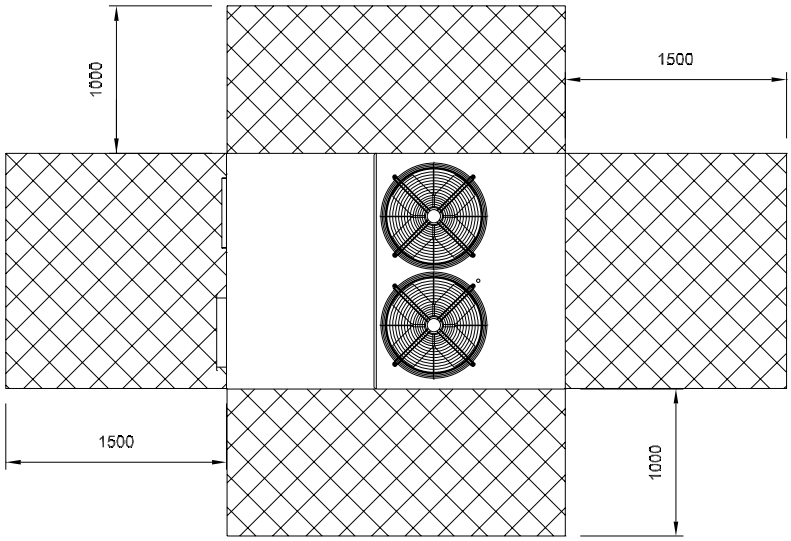
Ambient °C		25	30	35	40	45	50
MODEL	Air inlet °C (WB)	Cooling capacity kW					
BRT 13	17	11924	11614	11150	10841	10532	8827
	19	12364	12233	**11900**	11614	10496	9466
	21	12947	12697	12388	11769	10639	9930
	23	13566	13316	13007	12388	10829	10221
BRT 15	17	15381	14982	14383	13984	13585	11386
	19	15949	15780	**15350**	14982	13554	12210
	21	16701	16378	15979	15181	13723	12809
	23	17499	17177	16778	15979	13969	13184
BRT 19	17	17786	17324	16632	16170	15709	13166
	19	18442	18247	**17750**	17324	15585	14119
	21	19312	18939	18478	17555	15869	14812
	23	20235	19862	19401	18478	16153	15245
BRT 23	17	23547	22936	22020	21409	20798	17431
	19	24417	24158	**23500**	22936	20939	18693
	21	25568	25075	24464	23242	21009	19610
	23	26790	26297	25686	24464	21385	20184
BRT 30	17	30862	30061	28860	28059	27258	22846
	19	32001	31662	**30800**	30061	28305	24500
	21	33510	32864	32063	30461	28490	25702
	23	35112	34465	33664	32063	28644	26454
BRT 38	17	41483	40406	38792	37715	36639	30709
	19	43015	42559	**41400**	40406	38047	32931
	21	45043	44174	43097	40945	38295	34547
	23	47196	46327	45250	43097	38502	35558
BRT 45	17	47094	45872	44039	42817	41595	34863
	19	48833	48316	**47000**	45872	41877	37386
	21	51136	50149	48927	46483	42018	39221
	23	53580	52593	51371	48927	42770	40367
BRT 61	17	61723	60122	57719	56118	54516	45692
	19	64002	63325	**61600**	60122	56610	48999
	21	67021	65727	64126	60922	56980	51404
	23	70224	68930	67329	64126	57288	52907
BRT 76	17	80360	78275	75147	73062	70977	59489
	19	83328	82446	**80200**	78275	73704	63794
	21	87258	85573	83488	79318	74185	66925
	23	91428	89744	87659	83488	74586	68882
BRT 90	17	99599	97014	93138	90553	87969	73731
	19	103277	102183	**99400**	97014	92442	82462
	21	108147	106060	103475	98307	92939	84403
	23	113316	111229	108644	103475	93436	86343

HEATING CAPACITY R134a

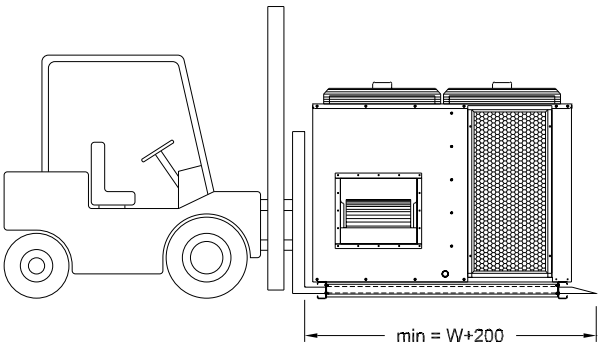
Air inlet °C		15	18	20	25
MODEL	Ambient °C (WB)	Heating capacity kW			
BRT 13	15	13978	13737	13617	13496
	10	13014	12773	12653	12532
	6	12291	12110	**12050**	11809
	5	11809	11689	11568	11448
	0	10484	10363	10243	10002
	-5	9038	8797	8676	8556
BRT 15	15	17922	17613	17459	17304
	10	16686	16377	16223	16068
	6	15759	15527	**15450**	15141
	5	15141	14987	14832	14678
	0	13442	13287	13133	12824
	-5	11588	11279	11124	10970
BRT 19	15	20880	20520	20340	20160
	10	19440	19080	18900	18720
	6	18360	18090	**18000**	17640
	5	17640	17460	17280	17100
	0	15660	15480	15300	14940
	-5	13500	13140	12960	12780
BRT 23	15	28536	28044	27798	27552
	10	26568	26076	25830	25584
	6	25092	24723	**24600**	24108
	5	24108	23862	23616	23370
	0	21402	21156	20910	20418
	-5	18450	17958	17712	17466
BRT 30	15	36540	35910	35595	35280
	10	34020	33390	33075	32760
	6	32130	31658	**31500**	30870
	5	30870	30555	30240	29925
	0	27405	27090	26775	26145
	-5	23625	22995	22680	22365
BRT 38	15	48256	47424	47008	46592
	10	44928	44096	43680	43264
	6	42432	41808	**41600**	40768
	5	40768	40352	39936	39520
	0	36192	35776	35360	34528
	-5	31200	30368	29952	29536
BRT 45	15	57072	56088	55596	55104
	10	53136	52152	51660	51168
	6	50184	49446	**49200**	48216
	5	48216	47724	47232	46740
	0	42804	42312	41820	40836
	-5	36900	35916	35424	34932
BRT 61	15	73080	71820	71190	70560
	10	68040	66780	66150	65520
	6	64260	63315	**63000**	61740
	5	61740	61110	60480	59850
	0	54810	54180	53550	52290
	-5	47250	45990	45360	44730
BRT 76	15	95120	93480	92660	91840
	10	88560	86920	86100	85280
	6	83640	82410	**82000**	80360
	5	80360	79540	78720	77900
	0	71340	70520	69700	68060
	-5	61500	59860	59040	58220
BRT 90	15	117856	115824	114808	113792
	10	109728	107696	106680	105664
	6	103632	102108	**101600**	99568
	5	99568	98552	97536	96520
	0	88392	87376	86360	84328
	-5	76200	74168	73152	72136

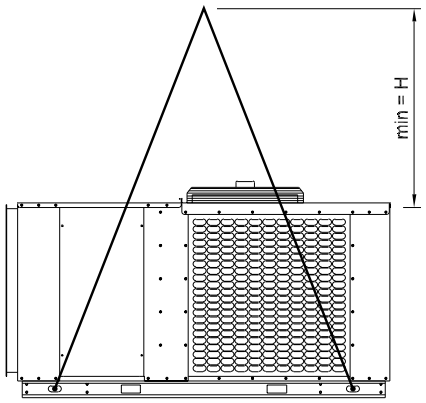
MINIMUM REQUIRED SPACE AROUND THE UNIT

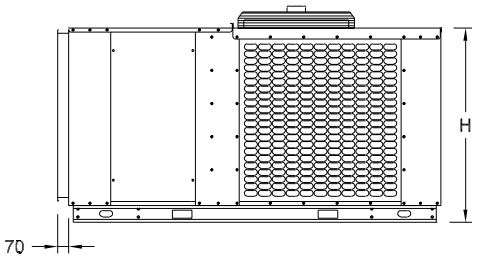


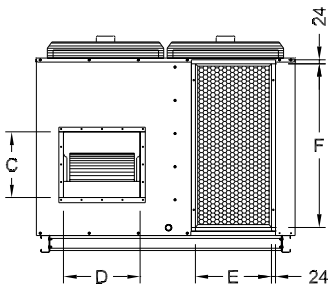


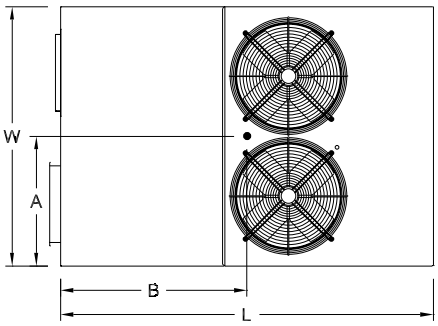
LIFTING INSTRUCTIONS & DIMENSIONS











MODEL	L	W	H	A	B	C	D	E	F	WEIGHT (kg)
BRT C/H 13	1650	1300	1200	750	1050	262	298	470	1010	270
BRT C/H 15	1650	1300	1200	750	1050	262	298	470	1010	280
BRT C/H 19	1850	1400	1200	780	1100	290	333	470	1010	300
BRT C/H 23	1850	1400	1200	780	1150	341	395	470	1010	360
BRT C/H 30	2250	1600	1200	650	1250	341	395	516	1035	460
BRT C/H 38	2250	1600	1200	650	1300	341	395	516	1035	510
BRT C/H 45	2250	1600	1200	750	1350	404	471	516	1035	570
BRT C/H 61	2900	1800	1400	900	1850	478	557	720	1238	930
BRT C/H 76	2900	1800	1400	900	1850	478	557	720	1238	970
BRT C/H 90	2900	1800	1400	900	1800	478	557	720	1238	1200

OPERATING PRESSURE OF THE REFRIGERANT CIRCUIT

It is important to check the high and low pressure of the refrigerant circuit, to ensure the proper operation of the unit and to guarantee that the rated output shall be obtained.

Attention:

The pressures measured shall vary between a maximum and minimum value, depending on the entering air and ambient temperatures at the moment of measurement.

R407C	Cooling mode (region)	Minimum	Nomimal	Maximum
		(Ambient temp. 20°C) (entering air temp. 20°C)	(Ambient temp. 30°C) (entering air temper. 25°C)	(Ambient temp. 40°C) (entering air temp. 30°C)
	low pressure	3,5 - 4,0 bar	4,0 - 5,0 bar	5,5 - 6,0 bar
	high pressure	17,5 - 19,0 bar	18,0 - 20,0 bar	21,0 - 23,0 bar

R407C	Heating mode (region)	Minimum	Nomimal	Maximum
		(Ambient temp. 0°C) (entering air temp.20°C)	(Ambient temp. 7°C) (entering air temp. 23°C)	(Ambient temp. 15°C) (entering air temp.23°C)
	low pressure	2,6 - 2,8 bar	3,5 - 3,9 bar	4,4 - 4,8 bar
	high pressure	19,0 - 21,0 bar	20,0 - 22,0 bar	21,0 - 23,0 bar

R410a	Cooling mode (region)	Minimum	Nomimal	Maximum
		(Ambient temp. 20°C) (entering air temp. 20°C)	(Ambient temp. 30°C) (entering air temper. 25°C)	(Ambient temp. 40°C) (entering air temp. 30°C)
	low pressure	7,0 - 7,2 bar	7,1 - 7,6 bar	9,4 - 10,0 bar
	high pressure	19,0 - 21,0 bar	24,0 - 28,0 bar	31,0 - 34,0 bar

R410a	Heating mode (region)	Minimum	Nomimal	Maximum
		(Ambient temp. 0°C) (entering air temp.20°C)	(Ambient temp. 7°C) (entering air temp. 23°C)	(Ambient temp. 15°C) (entering air temp.23°C)
	low pressure	5,4 - 5,6 bar	6,9 - 7,2 bar	9,2 - 9,6 bar
	high pressure	24,0 - 28,0 bar	29,0 - 31,0 bar	30,0 - 32,0 bar

R134a	Cooling mode (region)	Minimum	Nomimal	Maximum
		(Ambient temp. 20°C) (entering air temp. 20°C)	(Ambient temp. 30°C) (entering air temper. 25°C)	(Ambient temp. 40°C) (entering air temp. 30°C)
	low pressure	1,9 - 2,1 bar	2,0 - 2,5 bar	2,2 - 2,7 bar
	high pressure	9,5 - 10,5 bar	11,0 - 13,0 bar	13,0 - 15,0 bar

R134a	Heating mode (region)	Minimum	Nomimal	Maximum
		(Ambient temp. 0°C) (entering air temp.20°C)	(Ambient temp. 7°C) (entering air temp. 23°C)	(Ambient temp. 15°C) (entering air temp.23°C)
	low pressure	1,2 - 1,5 bar	1,8 - 2,1 bar	2,2 - 2,6 bar
	high pressure	9,5 - 10,5 bar	10,0 - 12,0 bar	12,0 - 14,0 bar

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"BCOOL reserves the right to change specifications without prior notice"