

# BOHN

THE COLD STANDARD

BN-TSSTB  
July 2009

## 5-30 HP TWO STAGE CONDENSING UNITS AND SYSTEMS

Technical Guide

With Bitzer Compressors



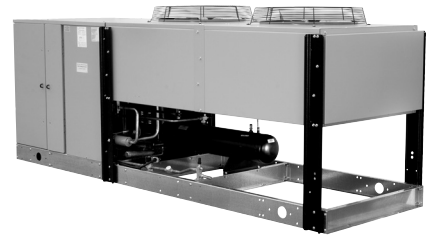
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## STANDARD FEATURES

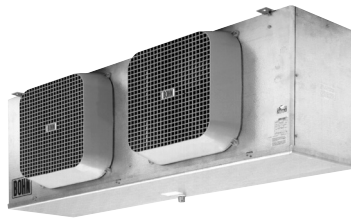
### Condensing Unit

- Bitzer two stage compressor
- Discharge and suction vibration eliminators
- Discharge muffler
- Encapsulated high pressure switch
- Adjustable low pressure switch with superhose
- Crankcase heater
- Compressor contactor w/circuit breaker
- Floating Tube™ coil design
- Flooded head pressure controls
- Pressure fan cycling (multiple fan units)
- Oil separator - return line solenoid valve and time delay
- Mechanical subcooler
- Replaceable core liquid line filter drier
- Replaceable core suction filter
- Suction accumulator
- Crankcase pressure regulator
- Defrost timer
- Evaporator fan contactor with fusing
- Defrost heater contactor with fusing
- Anti short cycle timer
- Phase monitor
- Pumpdown switch



### Evaporator

- Thermo-Flex™ coil design
- Thermostatic expansion valve factory installed
- Liquid line solenoid valve factory installed
- Low temperature motors
- Double wall insulated drain pan
- Adjustable defrost termination and fan delay



## NOMENCLATURE

B Model	C Compressor	U Unit Construction	1 Comp. Qty.	005 Total Comp. HP	A Condenser	B Control Voltage	E Defrost	X Temp. Range	6 Refrigerant	D Unit Voltage	2 Application
B = Bohn	C = Compound	R = Remote Condenser U = Attached Condenser (Unit)		005 = 5 HP 008 = 8 HP 012 = 12 HP 016 = 16 HP 020 = 20 HP 025 = 25 HP 030 = 30 HP	A = Air W = Water	A = 115/1/60 B = 208-230/1/60	E = Electric	X = Ultra Low	6 = R-404A/ R-507	C = 208-230/3/60 D = 460/3/60	1 = Indoor 2 = Outdoor

# CONDENSING UNIT CAPACITY

## Two Stage

Unit Model Number	Compressor Model	Suction Temp.	90°F Amb.	95°F Amb.	100°F Amb.	105°F Amb.	110°F Amb.
		°F					
BCU1005ABEX6*2	S4T-5.2Y	-40	18,730	18,450	18,170	17,900	17,640
		-45	16,520	16,260	16,000	15,740	15,490
		-50	14,500	14,260	14,010	13,770	13,530
		-55	12,650	12,420	12,190	11,960	11,740
		-60	10,960	10,740	10,520	10,310	10,100
		-65	9,410	9,200	9,000	8,800	**
BCU1008ABEX6*2	S4N-8.2Y	-40	26,600	26,200	25,800	25,400	25,000
		-45	23,500	23,100	22,800	22,400	22,000
		-50	20,600	20,300	19,960	19,610	19,240
		-55	18,030	17,710	17,390	17,050	16,700
		-60	15,630	15,340	15,030	14,710	14,380
		-65	13,440	13,150	12,860	12,560	**
BCU1012ABEX6*2	S4G-12.2Y	-40	42,500	41,800	41,100	40,400	39,700
		-45	37,800	37,100	36,500	35,900	35,300
		-50	33,400	32,800	32,300	31,700	31,200
		-55	29,300	28,800	28,300	27,800	27,300
		-60	25,600	25,100	24,700	24,200	23,700
		-65	22,100	21,700	21,300	20,800	**
BCU1016ABEX6*2	S6J-16.2Y	-40	59,500	56,800	57,600	56,700	55,700
		-45	53,100	52,200	51,300	50,500	49,600
		-50	47,100	46,300	45,500	44,700	43,900
		-55	41,500	40,800	40,100	39,400	38,600
		-60	36,300	35,700	35,100	34,400	33,700
		-65	31,600	31,000	30,400	29,700	**
BCU1020ABEX6*2	S6H-20.2Y	-40	68,700	67,600	66,400	65,300	64,200
		-45	61,300	60,200	59,200	58,200	57,200
		-50	54,300	53,400	52,500	51,600	50,700
		-55	47,900	47,100	46,300	40,500	35,100
		-60	42,000	41,200	40,500	39,700	38,900
		-65	36,500	35,800	35,100	34,400	**
BCU1025ABEX6*2	S6G-25.2Y	-40	78,500	77,100	75,800	74,500	73,200
		-45	70,000	68,800	67,600	66,400	65,200
		-50	62,100	61,000	60,000	58,900	57,800
		-55	54,800	53,800	52,900	51,900	50,900
		-60	48,000	47,200	46,300	45,400	44,400
		-65	41,800	41,000	40,200	39,300	**
BCU1030ABEX6*2	S6F-30.2Y	-40	93,000	91,400	89,700	88,100	86,500
		-45	83,000	81,600	80,100	78,700	77,200
		-50	73,700	72,400	71,200	69,900	68,600
		-55	65,100	64,000	62,800	61,700	60,400
		-60	57,100	56,100	55,100	54,000	52,800
		-65	49,700	48,800	47,800	46,800	**

NOTE: All capacities listed include liquid subcooling and are based upon sea level elevation pressure.

\* C for 208-230/3/60, D for 460/3/60

\*\* Out of Application Range

## TWO STAGE SYSTEM CAPACITY

### -40° F Room

Unit Model Number	Compressor Model	Evaporator	90°F Amb.	TD	95°F Amb.	TD	100°F Amb.	TD	105°F Amb.	TD	110°F Amb.	TD
BCU1005ABEX6*2	S4T-5.2Y	BML 220	13,871	9.7	13,683	9.6	13,489	9.4	13,299	9.3	13,112	9.2
BCU1008ABEX6*2	S4N-8.2Y	BML 330	19,935	9.3	19,689	9.2	19,419	9.1	19,138	8.9	18,842	8.8
BCU1012ABEX6*2	S4G-12.2Y	BML 530	32,277	9.4	31,812	9.2	31,407	9.1	30,936	9.0	30,528	8.9
BCU1012ABEX6*2	S4G-12.2Y	BHL 560	32,613	9.0	32,137	8.8	31,727	8.7	31,245	8.6	30,833	8.5
BCU1016ABEX6*2	S6J-16.2Y	BHL 710	45,112	9.8	44,495	9.6	43,873	9.5	43,247	9.4	42,596	9.2
BCU1020ABEX6*2	S6H-20.2Y	BHL 840	52,283	9.6	51,578	9.4	50,868	9.3	49,311	9.0	48,147	8.8
BCU1025ABEX6*2	S6G-25.2Y	BHL 1050	60,778	8.9	59,885	8.8	59,070	8.7	58,168	8.5	57,262	8.4
BCU1030ABEX6*2	S6F-30.2Y	BHL 1220	71,871	9.1	70,834	8.9	69,843	8.8	68,793	8.7	67,716	8.5

### -50° F Room

Unit Model Number	Compressor Model	Evaporator	90°F Amb.	TD	95°F Amb.	TD	100°F Amb.	TD	105°F Amb.	TD	110°F Amb.	TD
BCU1005ABEX6*2	S4T-5.2Y	BML 220	10,699	8.8	10,525	8.7	10,351	8.6	10,184	8.4	**	-
BCU1008ABEX6*2	S4N-8.2Y	BML 330	15,414	8.5	15,181	8.4	14,932	8.2	14,674	8.1	**	-
BCU1012ABEX6*2	S4G-12.2Y	BML 530	25,159	8.6	24,763	8.5	24,439	8.4	24,034	8.2	**	-
BCU1012ABEX6*2	S4G-12.2Y	BHL 560	25,422	8.3	25,017	8.1	24,689	8.0	24,280	7.9	**	-
BCU1016ABEX6*2	S6J-16.2Y	BHL 710	35,318	9.0	34,835	8.9	34,351	8.8	33,787	8.7	**	-
BCU1020ABEX6*2	S6H-20.2Y	BHL 840	41,031	8.9	40,397	8.7	39,829	8.6	38,608	8.4	**	-
BCU1025ABEX6*2	S6G-25.2Y	BHL 1050	47,649	8.3	47,023	8.1	46,283	8.0	45,540	7.9	**	-
BCU1030ABEX6*2	S6F-30.2Y	BHL 1220	56,482	8.4	55,668	8.3	54,846	8.2	53,943	8.0	**	-

NOTE: All capacities listed include liquid subcooling and are based upon sea level elevation pressure.

\* C for 208-230/3/60, D for 460/3/60

\*\* Out of Application Range

## TWO STAGE ELECTRICAL SPECIFICATIONS

### -40° F Room

Unit Model Number	Condensing Unit						Model	Evaporator				System	
	Compressor Model	Voltage	Compressor			Cond. Fan Motor		Fan		Defrost Heater		MCA	MOPD
			60 Hz	RLA	LRA			MCC	FLA	Voltage 60 Hz	Amps		
BCU1005ABEX6C2	S4T-5.2Y	208-230/3	17.9	150.0	28.0	2.7	BML 220	208-230/1	3.6	208-230/3	16.0	28.7	45.0
BCU1005ABEX6D2	S4T-5.2Y	460/3	9.4	75.0	14.7	1.9		460/1	2.0	460/3	8.3	20.0	25.0
BCU1008ABEX6C2	S4N-8.2Y	208-230/3	25.1	180.0	39.2	5.4	BML 330	208-230/1	5.4	208-230/3	23.2	42.2	60.0
BCU1008ABEX6D2	S4N-8.2Y	460/3	13.2	90.0	20.6	3.8		460/1	3.0	460/3	12.0	23.3	35.0
BCU1012ABEX6C2	S4G-12.2Y	208-230/3	35.9	252.0	56.0	8.0	BML 530	208-230/1	9.0	208-230/3	34.7	61.9	90.0
BCU1012ABEX6D2	S4G-12.2Y	460/3	18.8	126.0	29.4	4.0		460/1	5.0	460/3	18.1	32.5	50.0
BCU1012ABEX6C2	S4G-12.2Y	208-230/3	35.9	252.0	56.0	8.0	BHL 560	208-230/3	13.8	208-230/3	35.8	66.7	100.0
BCU1012ABEX6D2	S4G-12.2Y	460/3	18.8	126.0	29.4	4.0		460/3	6.9	460/3	18.1	34.4	50.0
BCU1016ABEX6C2	S6J-16.2Y	208-230/3	53.8	294.0	84.0	8.0	BHL 710	208-230/3	18.4	208-230/3	47.8	93.7	125.0
BCU1016ABEX6D2	S6J-16.2Y	460/3	28.3	147.0	44.1	4.0		460/3	9.2	460/3	24.3	48.6	70.0
BCU1020ABEX6C2	S6H-20.2Y	208-230/3	61.0	352.0	95.2	8.0	BHL 840	208-230/3	18.4	208-230/3	47.8	102.7	150.0
BCU1020ABEX6D2	S6H-20.2Y	460/3	32.1	176.0	50.0	4.0		460/3	9.2	460/3	24.3	53.3	80.0
BCU1025ABEX6C2	S6G-25.2Y	208-230/3	74.4	436.0	116.0	14.0	BHL 1050	208-230/3	13.8	208-230/3	64.2	120.8	175.0
BCU1025ABEX6D2	S6G-25.2Y	460/3	38.7	218.0	60.3	7.0		460/3	6.9	460/3	32.1	62.3	100.0
BCU1030ABEX6C2	S6F-30.2Y	208-230/3	86.2	490.0	134.4	14.0	BHL 1220	208-230/3	19.8	208-230/3	64.2	141.6	225.0
BCU1030ABEX6D2	S6F-30.2Y	460/3	45.3	245.0	70.6	7.0		460/3	9.9	460/3	32.1	73.5	110.0

### -50° F Room

Unit Model Number	Condensing Unit						Model	Evaporator				System	
	Compressor Model	Voltage	Compressor			Cond. Fan Motor		Fan		Defrost Heater		MCA	MOPD
			60 Hz	RLA	LRA			MCC	FLA	Voltage 60 Hz	Amps		
BCU1005ABEX6C2	S4T-5.2Y	208-230/3	17.9	150.0	28.0	2.7	BML 220	208-230/1	3.6	208-230/3	16.0	28.7	45.0
BCU1005ABEX6D2	S4T-5.2Y	460/3	9.4	75.0	14.7	1.9		460/1	2.0	460/3	8.3	20.0	25.0
BCU1008ABEX6C2	S4N-8.2Y	208-230/3	25.1	180.0	39.2	5.4	BML 330	208-230/1	5.4	208-230/3	23.2	42.2	60.0
BCU1008ABEX6D2	S4N-8.2Y	460/3	13.2	90.0	20.6	3.8		460/1	3.0	460/3	12.0	23.3	35.0
BCU1012ABEX6C2	S4G-12.2Y	208-230/3	35.9	252.0	56.0	8.0	BML 530	208-230/1	9.0	208-230/3	34.7	61.9	90.0
BCU1012ABEX6D2	S4G-12.2Y	460/3	18.8	126.0	29.4	4.0		460/1	5.0	460/3	18.1	32.5	50.0
BCU1012ABEX6C2	S4G-12.2Y	208-230/3	35.9	252.0	56.0	8.0	BHL 560	208-230/3	13.8	208-230/3	35.8	66.7	100.0
BCU1012ABEX6D2	S4G-12.2Y	460/3	18.8	126.0	29.4	4.0		460/3	6.9	460/3	18.1	34.4	50.0
BCU1016ABEX6C2	S6J-16.2Y	208-230/3	53.8	294.0	84.0	8.0	BHL 710	208-230/3	18.4	208-230/3	47.8	93.7	125.0
BCU1016ABEX6D2	S6J-16.2Y	460/3	28.3	147.0	44.1	4.0		460/3	9.2	460/3	24.3	48.6	70.0
BCU1020ABEX6C2	S6H-20.2Y	208-230/3	61.0	352.0	95.2	8.0	BHL 840	208-230/3	18.4	208-230/3	47.8	102.7	150.0
BCU1020ABEX6D2	S6H-20.2Y	460/3	32.1	176.0	50.0	4.0		460/3	9.2	460/3	24.3	53.3	80.0
BCU1025ABEX6C2	S6G-25.2Y	208-230/3	74.4	436.0	116.0	14.0	BHL 1050	208-230/3	13.8	208-230/3	64.2	120.8	175.0
BCU1025ABEX6D2	S6G-25.2Y	460/3	38.7	218.0	60.3	7.0		460/3	6.9	460/3	32.1	62.3	100.0
BCU1030ABEX6C2	S6F-30.2Y	208-230/3	86.2	490.0	134.4	14.0	BHL 1220	208-230/3	19.8	208-230/3	64.2	141.6	225.0
BCU1030ABEX6D2	S6F-30.2Y	460/3	45.3	245.0	70.6	7.0		460/3	9.9	460/3	32.1	73.5	110.0

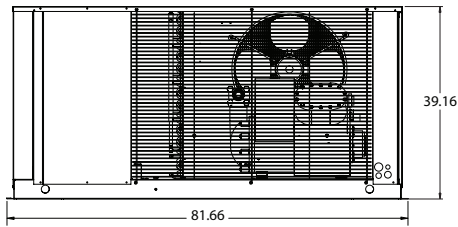
# PHYSICAL SPECIFICATIONS

Unit Model Number	Compressor	Condensing Unit							Evaporator							
		Connections (in.)		Receiver Capacity @90% full (lbs.)	Approx. Dim. (in.)			Approx. Weight (lbs.)	Model	Connections (in.)			Approx. Dim. (in.)			Approx. Weight (lbs.)
		Liquid	Suct.		L	W	H			Liquid	Suct.	Drain FPT	L	W	H	
BCU1005ABEX6*2	S4T-5.2Y	1/2	1-1/8	33	82	36	40	850	BML 220	3/8	1-3/8	3/4	68	23	26	206
BCU1008ABEX6*2	S4N-8.2Y	1/2	1-1/8	67	82	36	40	1,281	BML 330	3/8	1-3/8	3/4	96	23	26	294
BCU1012ABEX6*2	S4G-12.2Y	5/8	1-3/8	81	144	45	56	1,980	BML 530	3/8	1-5/8	3/4	139	23	26	402
BCU1012ABEX6*2	S4G-12.2Y	5/8	1-3/8	81	144	45	56	1,980	BHL 560	1/2	2-1/8	1-1/4	106	30	43	469
BCU1016ABEX6*2	S6J-16.2Y	5/8	1-5/8	81	144	45	56	1,980	BHL 710	1/2	2-1/8	1-1/4	136	30	43	606
BCU1020ABEX6*2	S6H-20.2Y	5/8	1-5/8	81	144	45	56	2,280	BHL 840	1/2	2-1/8	1-1/4	136	30	43	656
BCU1025ABEX6*2	S6G-25.2Y	5/8	2-1/8	123	171	45	56	2,370	BHL 1050	1/2	2-1/8	1-1/4	136	42	51	945
BCU1030ABEX6*2	S6F-30.2Y	5/8	2-1/8	123	171	45	56	2,460	BHL 1220	5/8	(2) 2-1/8	1-1/4	136	42	56	1,019

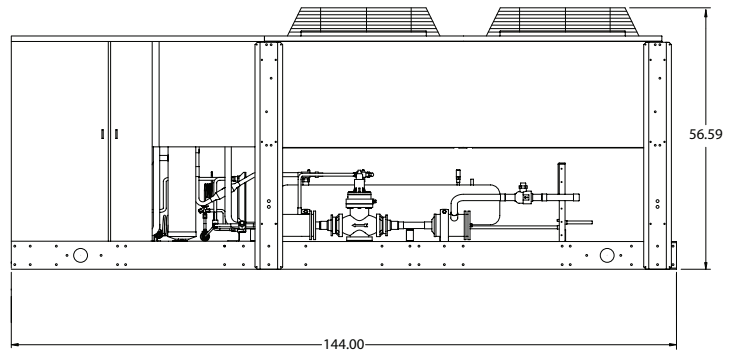
\* C for 208-230/3/60, D for 460/3/60

## DIMENSIONAL DIAGRAMS

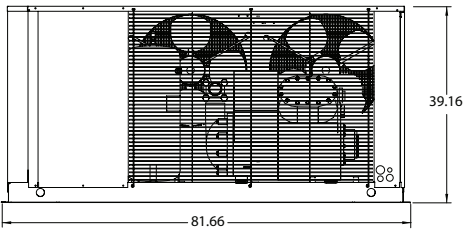
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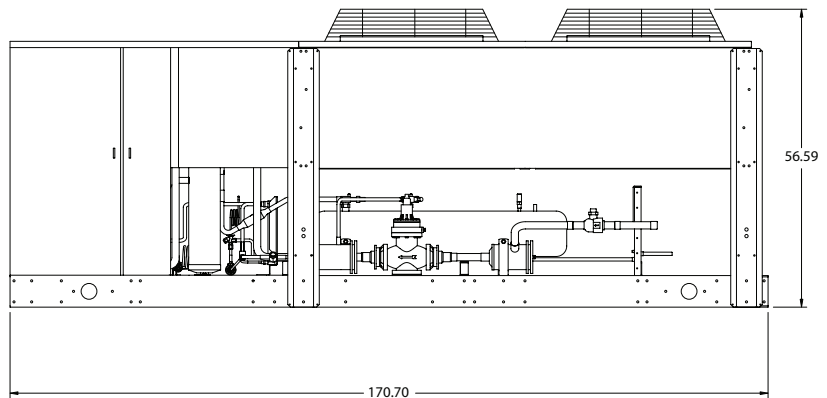
### 12 & 16 HP



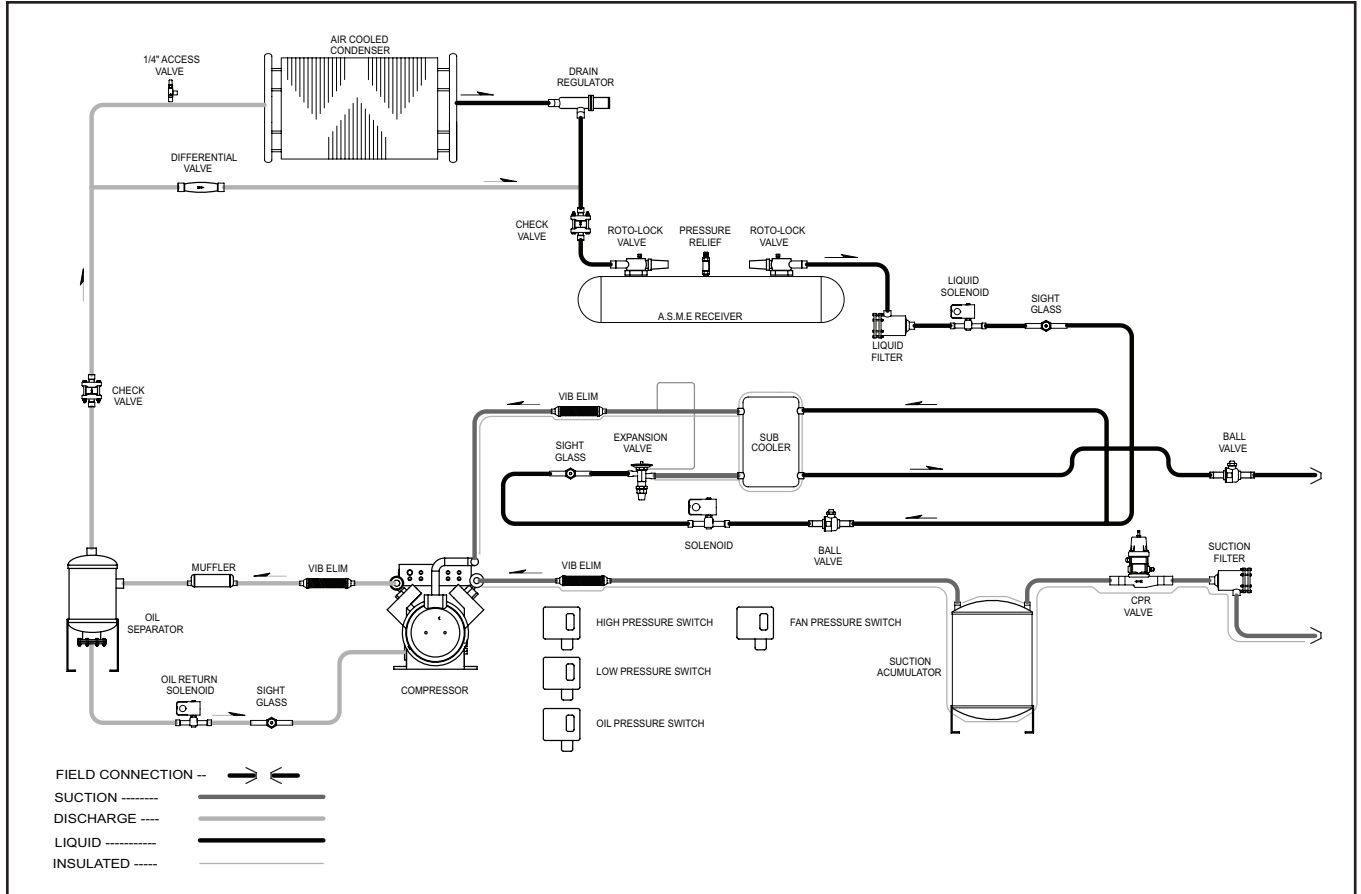
### 8 HP



### 25 & 30 HP



# PIPING DIAGRAM







For more information on Bohn refrigeration products, contact your sales representative or visit us at [www.thecoldstandard.com](http://www.thecoldstandard.com).



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Since product improvement is a continuing effort, we reserve the right to make changes in specifications without notice.

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