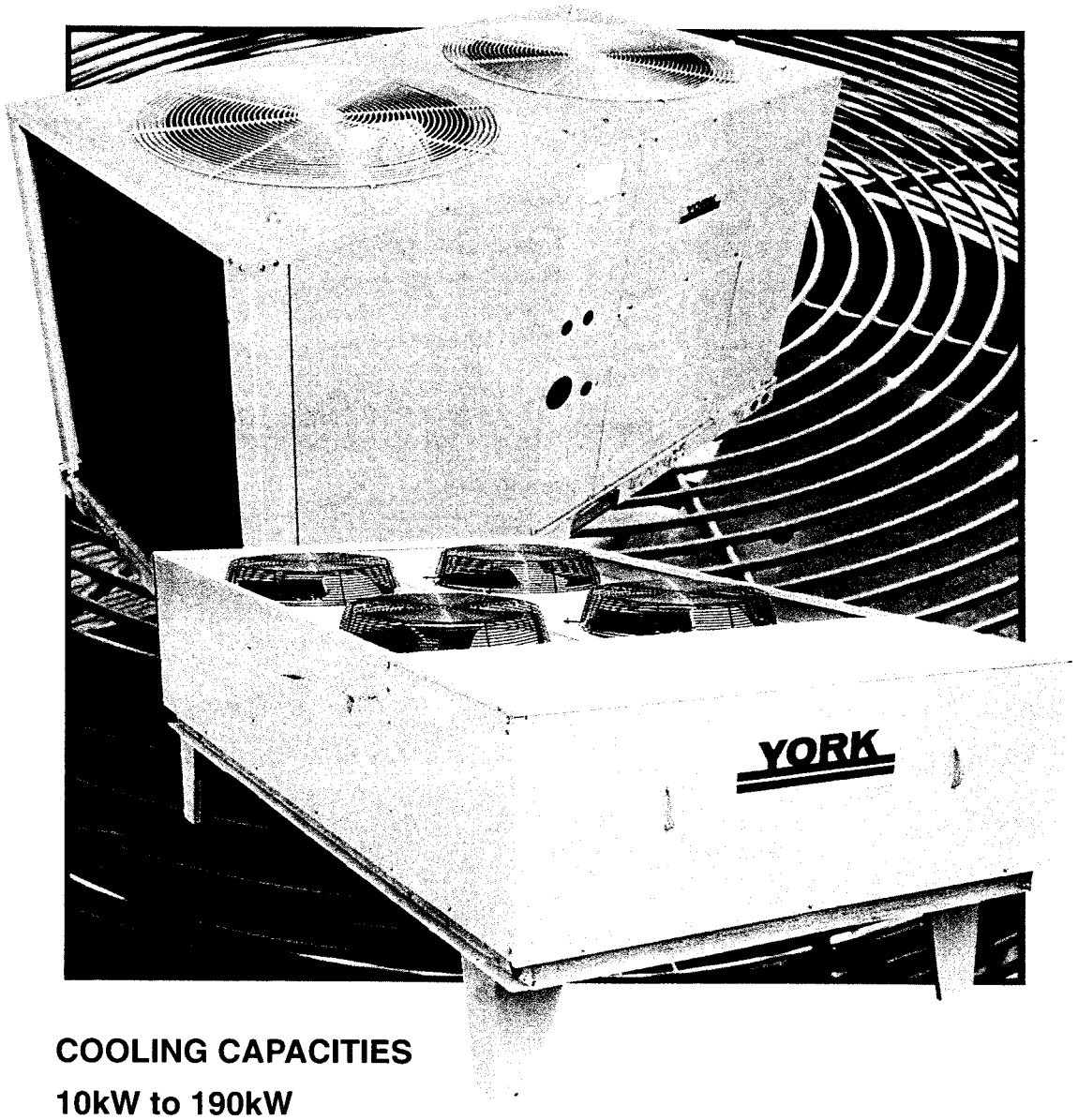
Air Cooled Condensing Unit Selection Guide



COOLING CAPACITIES
10kW to 190kW

York®

UNITARY AIR CONDITIONING

UNITARY AIR CONDITIONING

CONDENSING UNIT

SELECTION GUIDE

MODELS HDA 10 - 25kW

MODELS HCE 28 - 75kW

MODELS HCA 86 - 190kW

York®

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Cooling Capacity and Energy Consumption in kW of HDA Condensing Unit

Model	Suction T/P @ Compr.		Air Temperature on Condenser °C					
			24		35		46	
	T	P	Total Capacity kW	Power Input kW	Total Capacity kW	Power Input kW	Total Capacity kW	Power Input kW
H1DA036	1.5	4.3	9.84	3.07	8.43	3.43	7.02	3.82
	4.5	4.8	10.92	3.09	9.39	3.48	7.90	3.88
	7	5.3	12.00	3.23	10.30	3.60	8.84	4.13
	10	5.8	13.13	3.37	11.45	3.85	9.77	4.35
H1DA048	1.5	4.3	13.58	4.06	11.01	4.48	9.40	4.91
	4.5	4.8	13.74	4.21	12.09	4.68	10.40	4.65
	7	5.3	14.08	4.38	13.28	5.17	11.45	5.45
	10	5.8	16.28	4.54	14.43	5.12	12.57	5.71
H1DA060	1.5	4.3	15.75	5.91	12.49	6.56	11.66	7.23
	4.5	4.8	17.23	6.15	15.09	6.86	12.92	7.60
	7	5.3	18.75	6.41	16.50	7.20	14.19	8.01
	10	5.8	20.36	6.68	17.98	7.51	15.55	8.41
H1DA076	1.5	4.3	21.86	5.72	19.19	6.50	16.47	7.27
	4.5	4.8	24.03	5.90	21.16	6.74	18.25	7.63
	7	5.3	26.28	6.08	23.21	7.02	20.07	8.01
	10	5.8	26.96	6.14	25.29	7.29	21.92	8.40

NOTES:
1. For condensing unit only. Does not include effect of evaporator motor or heat.
2. Performance based on 8°C superheat and 8°C sub-cooling at condensing unit.
   a) Increase capacity 1% for each 2° increase in sub-cooling.
   b) Decrease capacity 1% fro each 2° decrease in sub-cooling
3. Sub-cooling in excess of 11°C may result in excessively high condensing temperature with air on condenser above 46°C. Maximum recommended condensing temperature is 60°C.

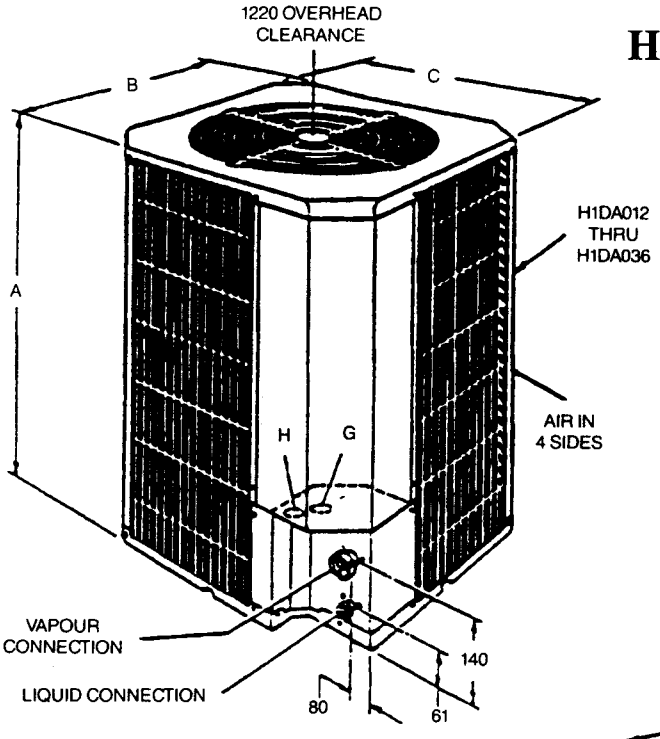
HDA Unit Physical and Electrical Data

Model			H*DA 036	H*DA 048	H*DA 060	H*DA 076
Unit Supply Voltage			380/415-3-50 (S50)			(S50)
Normal Voltage Range (1)			342 - 456			
Min. Circuit Ampacity			8.4	12	16.4	12
Maximum Overcurrent Device Amps (2)			15	15	25	20
Compressor Amps	Rated Load		5.6	7.5	11.8	8.8
	Locked Rotor		39	62	79	89
Crankcase Heater			YES	YES	YES	OPTION
Fan Motor Amps	Rated Load		0.8	0.8	0.6	1
	Locked Rotor		1.8	1.7	1.7	1.8
Min. Field Wire Sizing AWG 60°C Copper Conductors			14	14	12	12
Max. Wire Length in Feet Based on 3% Voltage Drop		230v	-	-	-	-
		380v	240	170	200	225
		415v	262	185	218	245
Fan Diameter Inches			18	24	24	24
Fan Motor 60/50 Hz	Rated HP		1/4	1/4	1/4	1/3
	Nominal RPM		892	705	705	840
	Nominal CFM		1600	2500	2500	3500
Coil	Face Area Sq. Ft.		11.3	20	20	20
	Rows Deep		1	1	1	2
	Fin/Inch		18	13	16	13
Liquid Line OD			5/16	3/8	3/8	1/2
Vapour Line OD			3/4	7/8	7/8	1 - 1/8
Operating Weight LBS			147	206	233	285

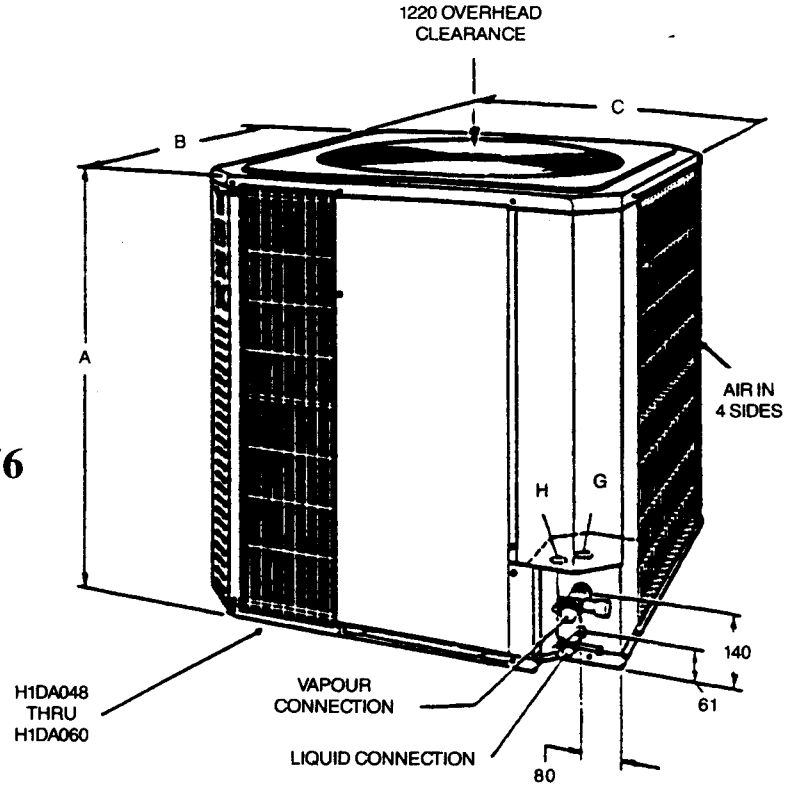
1. Utilization range "A" in accordance with ARI standard 110.
2. Dual element fuses or HACR circuit breaker.

HDA Unit Dimensions

H*DA036



H*DA048, 060 & 076



Model	Dimensions			Wiring K. O.'s*		Refrigerant Connections	
	A	B	C	G	H	Line Size	
	Height	Width	Depth	Power	Control	Liquid	Vapour
H1DA036	613	610	610	22 28	22	5/16	3/4
H1DA048	810	877	877				
H1DA060	810	877	877			3/8	7/8
H1DA076	810	877	877				

*Use the 22mm KO with a 1/2" conduit fitting for #8 AWG wire or smaller
Use the 28mm KO with a 3/4" conduit fitting for #6 AWG wire or smaller

H*DA Condensing Units

General Specification for H*DA036S, H*DA048S, H*DA060S (10kW to 17kW)

- Weatherised casing
- Hermetic compressor with internal pressure relief and high torque refrigerant - cooled motor.
- Low operating sound levels .
- System operating charge of R22.
- Factory wired line and low - voltage controls.
- Quality copper tube - aluminium fin coil.
- Standard liquid line filter - drier.
- Top air discharge.
- Crankcase heater.
- Sweat refrigerant connections.
- Service valves.
- Coil grill on all models.
- Mains isolator.

Optional Extras

- Low ambient kit/head pressure control.
- High and low pressure controls.
- Coil treatment - anti - corrosion.

General Specification for H*DA076 (22kW)

- Weatherised casing.
- Inherently protected sleeve bearing fan motors.
- High efficiency four cylinder compressor with anti-cycle.
- Sweat connections with re-usable service valves.
- High and low pressure controls.
- Refrigerant holding charge.
- Low operating sound level.
- Factory wired - line and low voltage controls.
- Quality copper tube - aluminium fin coil.
- Standard liquid line filter drier.
- Top air discharge.
- Coil guard standard.
- Mains isolator.
- Crank case heater - Model AMC02A.

Optional Extras

- Low ambient kit - Head Pressure Control.
- Coil treatment, anti-corrosion.

Cooling Capacity and Energy Consumption in kW of HCE Condensing Units

Model	Suction Pressure & Corresponding Temp. @ Saturation		Temperature of Air on Condenser Coil, °C											
			20		25		30		35		40		45	
	kPa	°C	kW Thermal	kW* Input	kW Thermal	kW* Input	kW Thermal	kW* Input	kW Thermal	kW* Input	kW Thermal	kW* Input	kW Thermal	kW* Input
H5CE 090	365	-2	29.0	6.6	28.0	6.9	27.0	7.2	25.0	7.5	24.0	7.7	23.0	7.9
	413	1	32.0	6.9	31.0	7.2	29.0	7.5	28.0	7.8	27.0	8.1	26.0	8.4
	465	4	35.0	7.2	33.0	7.5	32.0	7.9	31.0	8.2	29.0	8.6	28.0	8.8
	520	7	38.0	7.5	36.0	7.9	35.0	8.2	34.0	8.6	32.0	9.0	31.0	9.3
	580	10	41.0	7.8	39.0	8.2	38.0	8.6	37.0	9.1	35.0	9.5	34.0	9.9
H3CE 120	365	-2	40.0	8.4	38.0	8.8	36.0	9.2	35.0	9.6	33.0	10.0	32.0	10.4
	413	1	43.0	8.7	42.0	9.1	40.0	9.6	39.0	10.0	37.0	10.5	35.0	10.9
	465	4	47.0	9.0	46.0	9.5	44.0	10.0	43.0	10.5	41.0	10.9	39.0	11.4
	520	7	52.0	9.3	50.0	9.8	48.0	10.4	47.0	10.9	45.0	11.4	43.0	11.9
	580	10	56.0	9.6	54.0	10.2	53.0	10.7	51.0	11.4	49.0	12.0	47.0	12.5
H1CE 150	365	-2	44.0	11.5	43.0	12.2	41.0	12.9	40.0	13.5	38.0	14.2	37.0	14.9
	413	1	48.0	11.9	47.0	12.6	45.0	13.4	44.0	14.1	42.0	14.9	41.0	15.6
	465	4	53.0	12.3	51.0	13.0	50.0	13.9	48.0	14.7	46.0	15.5	45.0	16.4
	520	7	58.0	12.6	56.0	13.5	54.0	14.4	52.0	15.3	50.0	16.2	49.0	17.1
	580	10	63.0	13.0	61.0	14.0	59.0	14.9	57.0	15.9	55.0	16.9	53.0	17.9
H2CE 180	365	-2	48.0	12.1	47.0	12.9	45.0	13.7	44.0	14.5	42.0	15.3	41.0	16.1
	413	1	53.0	12.6	51.0	13.4	50.0	14.3	48.0	15.1	47.0	16.0	45.0	16.9
	465	4	58.0	13.0	56.0	13.9	55.0	14.8	53.0	15.8	51.0	16.7	49.0	17.7
	520	7	63.0	13.4	62.0	14.4	60.0	15.4	58.0	16.4	56.0	17.5	54.0	18.5
	580	10	69.0	13.9	67.0	14.9	65.0	16.0	63.0	17.2	61.0	18.3	59.0	19.4
H2CE 240	365	-2	62.0	16.8	58.0	17.7	54.0	18.9	51.0	19.4	47.0	20.3	43.0	21.2
	413	1	68.0	17.3	64.0	18.3	60.0	19.3	56.0	20.3	52.0	21.3	47.0	22.3
	465	4	74.0	17.9	70.0	19.0	65.0	20.0	61.0	21.2	56.0	22.2	52.0	23.2
	520	7	80.0	18.5	76.0	19.7	71.0	20.8	66.0	22.0	61.0	23.2	57.0	24.4
	580	10	87.0	19.2	82.0	20.5	77.0	21.7	72.0	22.9	67.0	24.3	62.0	25.6

* Includes compressor and Condenser fan motor(s)

HCE Unit Application Data

Model		090/120		150/180/240	
Limitation		Min	Max	Min	Max
Voltage Variation	380/415-3-50	342V	456V	342V	456V
Ambient Air on Condenser Coil		7.2°C	46°C (1)	-4°C	46°C (1)
Suction Pressure at Compressor		400kPa	626kPa	400kPa	626kPa
Corresponding Temp. at Saturation		0.5°C	12°C	0°C	12°C

1 These units can operate at a maximum temperature of 52°C providing the wet bulb temperature of the air entering the evaporator does not exceed 23°C.

HCE Physical Data

Model H*CE	Compressor (Tandem)		Condenser											Unit Weight kg		Charge kg Refrigerant 22		
			Fan (Propeller)					Fan Motor				Coil (3)						
	Rating kW	Cap. (Stages)	Qty	Dia. mm	Nom l/s	Blades Qty	Blades Pitch	Qty	kW	RPM	Rotation (2)	Face Area sq. m.	Rows High	Ship	Oper	Holding	Oper	Pump-down
090	26.4	1	1	610	2700	4	34	1 (1a)	0.75	950	CW	1.14	30	143	168	0.79	5	-
120	35.1	1	2	610	3890	4	30	2 (1a)	0.5	950	CCW	2.21	36	231	229	1.25	7.5	-
150	42.7	2	2	610	4900	4	32	2 (1b)	0.75	950	CW	3.39	40	386	390	1.36	7.12 (4)	8.5
180	51.2	2	2	610	5900	5	38	2 (1b)	0.75	950	CW	3.39	40	408	417	1.36	8.4 (4)	8.5
240	68.3	2	2	610	4600	5	38	2 (1b)	0.75	950	CW	3.5	40	467	463	1.36	12.3 (4)	17

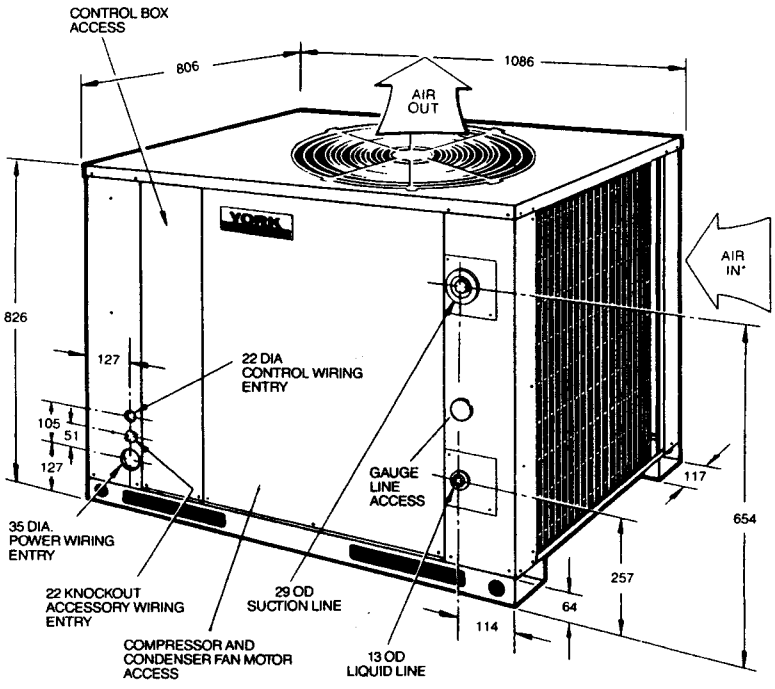
HCE Electrical Data

Model H*CE	Compressor			Condenser Fan Motor				Unit Ampacity (Amps)	Max. Fuse Size (1) (Amps)	Min. Wire Size (2) mm(AWG)
	Power Supply	FLA	LRA	Power Supply	kW	Qty	FLA			
090	380/415-3-50	17.4	138	220/240-1-50	0.75	1	1.9	24.3	40	10 (8)
120	380/415-3-50	20.5	148	220/240-1-50	0.5	2	1.8	29.2	45	10 (8)
150	380/415-3-50	29	138	380/415-3-50	0.75	2	2.1	40.5	60	10 (8)
180	380/415-3-50	33.6	173	380/415-3-50	0.75	2	2.1	46.2	70	10 (8)
240	380/415-3-50	40.6	206	380/415-3-50	0.75	2	2.1	55	90	7.5 (6)

HCE 090 and 120 Unit Dimensions

HCE 090

***Air on 3 sides**



Clearances

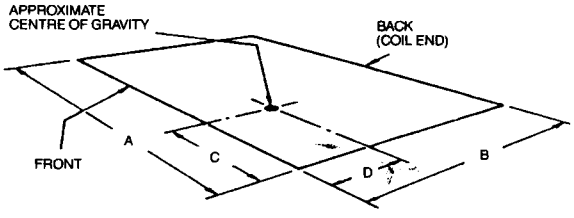
Overhead (Top)[1]	3048
Front (Piping and Access Panels)	762
Left Side	610
Right Side	610
Rear	610
Bottom[2]	0

1 Units must be installed outdoors. Overhanging structures or shrubs should not obstruct the condenser air discharge.

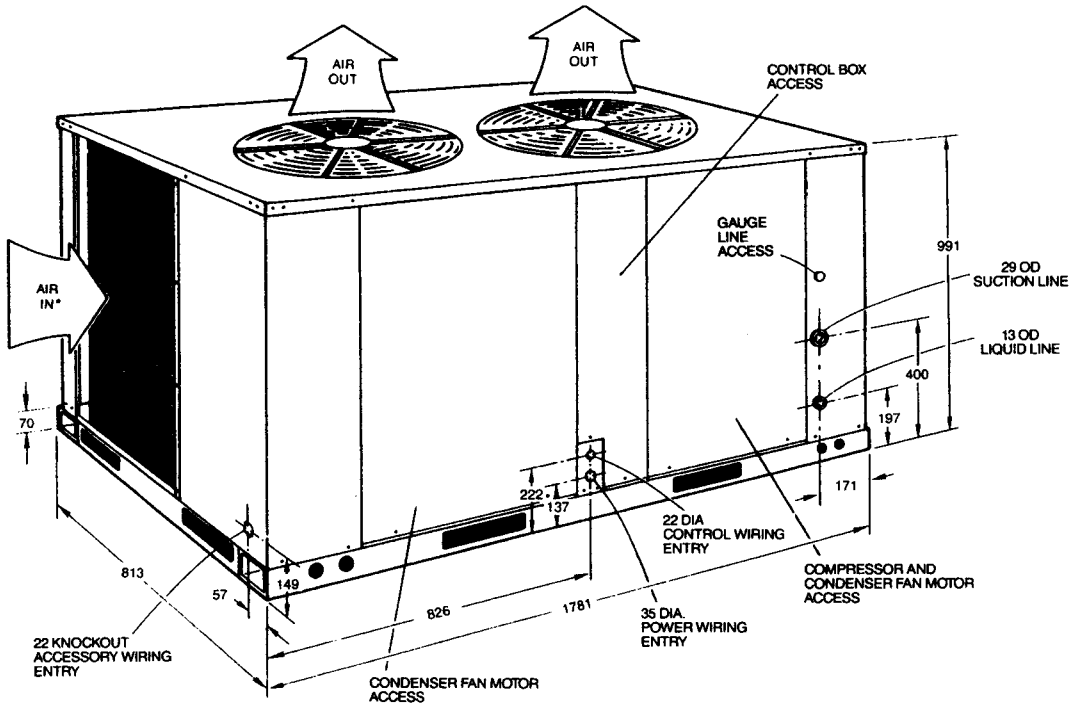
2 Adequate snow clearence must be provided if winter operation is expected.

All dimensions are in millimetres. They are subject to change without notice. Certified dimensions will be provided upon request.

CENTRE OF GRAVITY



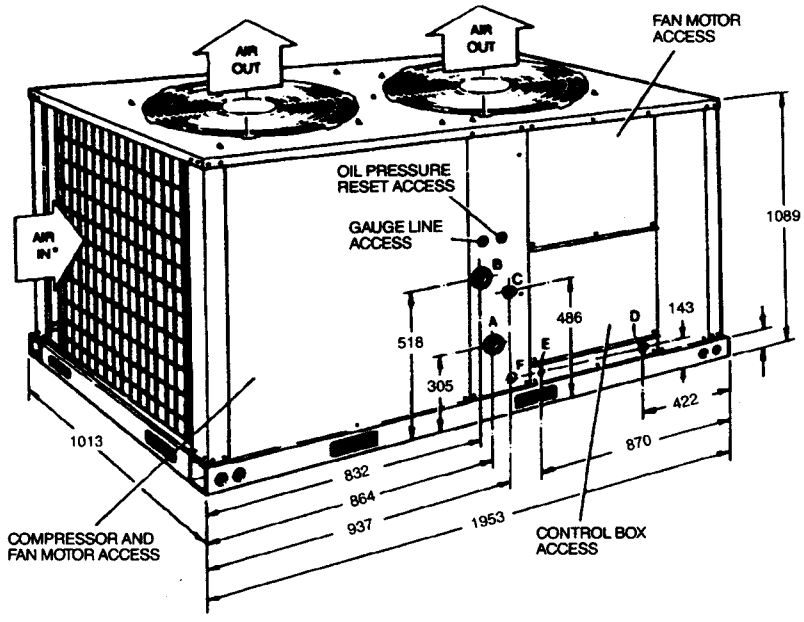
Unit	Dim. (mm)			
	A	B	C	D
90	1086	806	502	292
120	1781	813	752	419



HCE 120

***Air on 3 sides**

HCE 150, 180 and 240 Unit Dimensions



Connection Entry		Connection Size		
		150	180	240
Suction Line	A	41 OD	41 OD	-
	B	-	-	54 OD
Liquid Line	C	16 OD	16 OD	16 OD
Power Wiring	D	54 Dia.	54 Dia.	54 Dia.
Control Wiring	E	22 Dia.	22 Dia.	22 Dia.
Accessory Wiring	F	22 KO	22 KO	22 KO

Clearances

Overhead (Top)[1]	3048
Front (Piping and Access Panels)	762
Left Side	610
Right Side	610
Rear	610
Bottom[2]	0

1 Units must be installed outdoors. Overhanging structures or shrubs should not obstruct the condenser air discharge.

2 Adequate snow clearence must be provided if winter operation is expected.

HCE Condensing Units

General Specification for H5CE090, H3CE120, H1CE150, H2CE180 & H2CE240

- Weatherised casing.
- Propeller - type condenser fan (s).
- Inherently protected, ball bearing fan Motors (3 phase on HCE 150, 180 and 240).
- Base rails with fork lift slots.
- Anti- cycle protection.
- Refrigerant R22 holding charge.
- 24 volt temperature control circuit.
- Two stage control on all HCE150, 180 and 240 models 100%, 50%.
- Mains isolator.
- Crankcase heaters.
- Copper tube - aluminium fin coil.
- Coil guards.
- High and low pressure controls.
- Back seating suction and liquid line service valves.
- Filter drier for field installation.
- Moisture indicating site glass for field installation.

Optional extras

- Low ambient kit - Head pressure control - all models.
- Coil treatment - Anti corrosion.
- BMS interface.

Cooling Capacity and Energy Consumption in kW of HCA Condensing Units

Model	Suction Temperature at Saturation	Temperature of Air on Condenser Coil, °C									
		25		28		30		32		35	
	°C	kW Thermal	kW Input	kW Thermal	kW Input	kW Thermal	kW Input	kW Thermal	kW Input	kW Thermal	kW Input
H*CA 360	0	89.5	24.5	86.1	25.5	83.8	26.1	81.6	26.6	78.3	27.2
	2	95.6	25.8	92.0	26.6	89.7	27.1	87.3	27.5	83.8	28.2
	4	102.0	26.7	98.1	27.6	95.5	28.1	93.0	28.3	89.4	28.7
	6	108.1	27.5	104.0	28.5	101.4	29.1	98.8	29.5	94.9	30.1
	8	114.4	28.3	110.2	29.3	107.4	30.0	104.7	30.6	100.6	31.5
	10	121.1	29.2	116.6	30.2	113.6	30.9	110.8	31.5	106.5	32.4
H*CA 480	0	121.0	34.8	116.0	35.7	112.9	36.3	109.9	36.8	105.4	37.7
	2	129.4	36.0	124.3	36.9	121.0	37.5	117.8	38.1	113.1	39.1
	4	138.2	37.1	133.0	38.1	129.5	38.7	126.0	39.4	120.7	40.4
	6	148.2	38.3	144.3	39.3	141.0	40.0	136.3	40.7	129.2	41.8
	8	158.3	39.4	154.3	40.5	150.8	41.3	145.6	42.0	137.8	43.2
	10	168.0	40.6	161.4	41.8	157.0	42.6	152.8	43.4	146.4	44.6
H*CA 600	0	147.4	42.6	141.8	43.7	138.1	44.4	134.5	45.2	129.0	46.3
	2	157.5	44.0	151.7	45.2	147.8	46.1	143.9	46.8	138.0	48.0
	4	168.2	45.4	161.9	46.8	157.6	47.7	153.5	48.5	147.2	49.7
	6	178.9	46.9	172.1	48.4	167.7	49.3	163.3	50.2	156.9	51.5
	8	190.1	48.4	182.9	49.8	178.2	50.9	173.6	52.0	166.7	53.7
	10	201.9	49.8	194.3	51.3	189.3	52.5	184.2	54.1	176.6	56.6

Above kW input includes compressor motor and condenser fan motors. The energy consumption of the condenser fan motors are:

HCA360 : 2kW HCA480 : 3kW HCA600 : 3.5kW

HCA Unit Physical Data

Model H*CA	Compressor		Condenser							Unit Weight kg	
			610 mm Fans (Propeller)			Fan Motors		Coil			
	Rating kW	Capacity Stages	Qty	Pitch (Deg)	Nom Cu. m/h	Power kW	RPM	Face Area sq. m.	Rows Wide	Ship	Operating
360	98	3	4	30	37,350	0.56	1075	4.1	67	804	717
480 System 1	68	2	3	30	27,555	0.56	1075	2.8	36	1100	1035
480 System2	68	2	3	30	27,555	0.56	1075	2.8	36		
600 System 1	68	2	3	30	24,450	0.56	1075	2.3	30	1258	1180
600 System2	98	3	4	30	32,640	0.56	1075	3.2	42		

All units have semi-hermetic compressors. HCA480/600 are dual refrigerant circuit condensing units.

HCA Unit Electrical Data

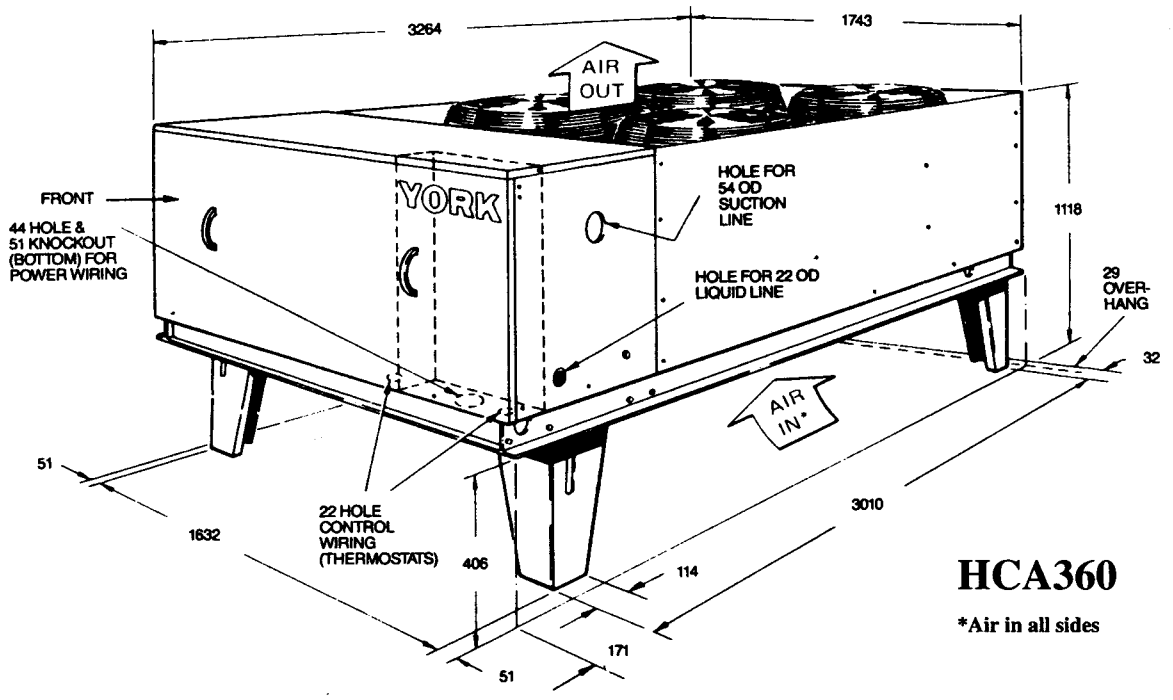
Model H*CA	Compressor Power Supply	Min./Max. Voltage	Compressor*			Cond. Fan Power Supply	Fan Motors**		Min. Circuit Ampacity	Max. Fuse Size
			FLA	LRA	PWS		FLA	LRA		
360	380/415-3-50	342/440	58	225	150	380/415-3-50	2.3/2.5	6.7/6.2	88	100
480 System 1	380/415-3-50	342/440	31	165	100	380/415-3-50	2.3/2.5	6.7/6.2	93	125
480 System2			31	165	100					
600 System 1	380/415-3-50	342/440	31	165	100	380/415-3-50	2.3/2.5	6.7/6.2	134	150
600 System 2			58	225	150					

PWS Part Winding Start Amps.

* Compressor 1/2

** Single speed motor amps/choke coil motor amps.

HCA 360, 480 and 600 Unit Dimensions

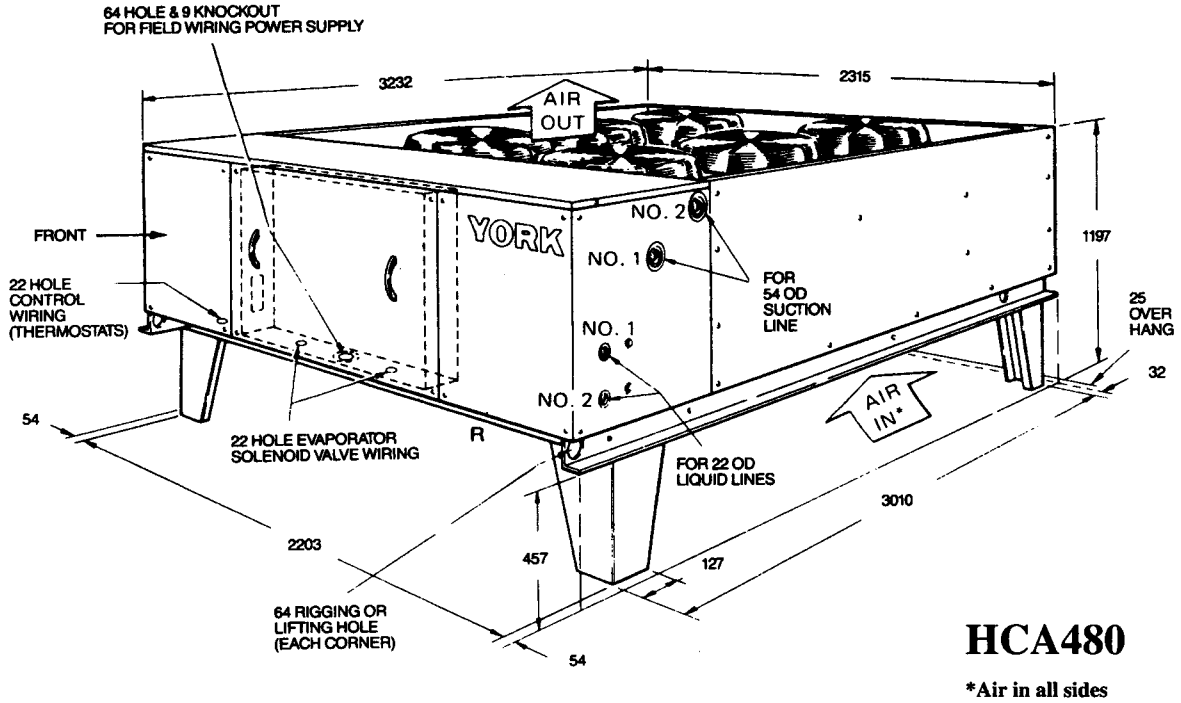


HCA360

*Air in all sides

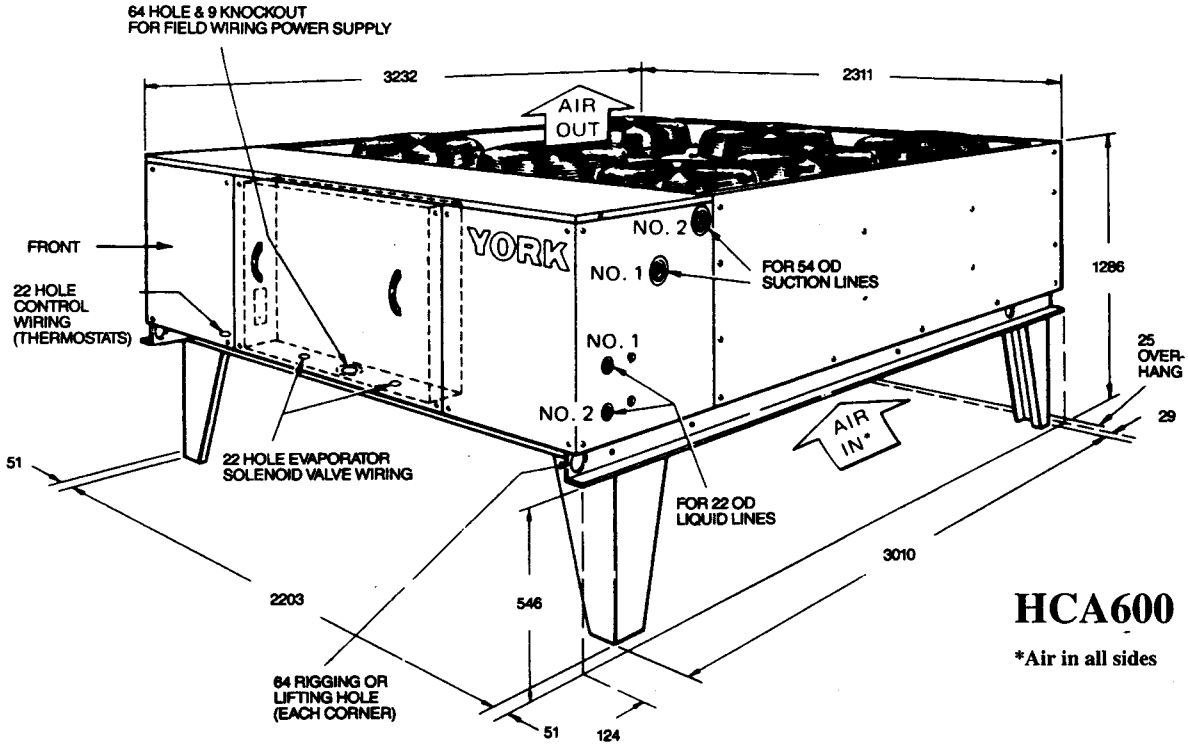
Clearances

Unit	Top m	Front mm	Right Side mm	Left Side mm	Rear mm
HCA360	3	762	305	305	305
HCA480	3	762	457	457	305
HCA600	3	762	457	457	305



HCA480

*Air in all sides



HCA600

***Air in all sides**

HCA Condensing Units

General specification HCA360, HCA480, HCA600 (91 to 153kW)

- Weatherised casing.
- Propellor type condensing fans.
- Inherently protected fan Motors.
- Refrigerant R22 holding charge.
- Line and low voltag controls.
- Crank case heater(s).
- Copper tube - aluminium fin coils.
- Semi-Hermetic compressor with blocked suction capacity control.
- 3 stage control HCA360 100 - 67 - 33%.
- 4 stage control HCA480 100 - 75 - 50 - 25%.
- 5 stage control HCA600 100 - 80 - 60 - 40 - 20%.
- Mains isolator.
- High and low pressure cut out.
- Service valves.
- Filter drier and site glass for field installation.
- Anti short cycle timer.
- Provisions for hot gas bypass.
- Low ambient kit to minus 18° C.
- Part wind start.
- Oil pressure switch.

Optional Extras

- Coil treatment - Anti corrosion
- BMS interface

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