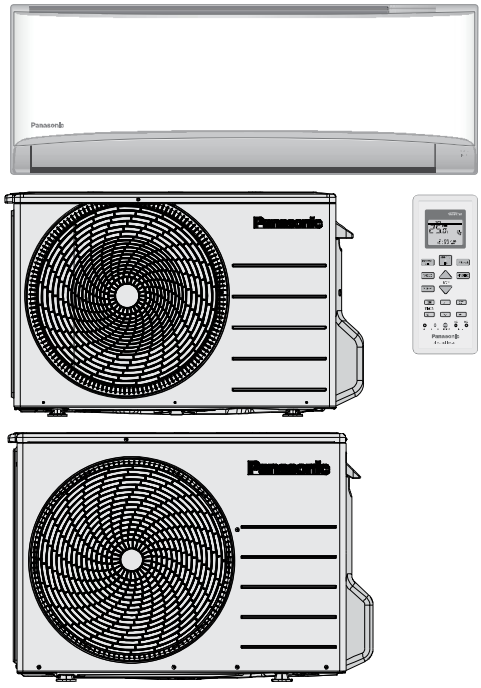
Order No: PAPAMY1703052CE

Service Manual

Air Conditioner



Indoor Unit	Outdoor Unit
CS-TE20TKEW	CU-TE20TKE
CS-TE25TKEW	CU-TE25TKE
CS-TE35TKEW	CU-TE35TKE
CS-TE42TKEW	CU-TE42TKE

Destination
Europe
Turkey

Please file and use this manual together with the service manual for Model No. CU-2E12SBE, CU-2E15SBE, CU-2E18SBE, CU-3E18PBE, CU-3E23SBE, CU-4E23PBE, CU-4E27PBE, CU-5E34PBE, CU-2RE15SBE, CU-2RE18SBE, CU-3RE18SBE, Order No. PAPAMY1601016CE, PAPAMY1601015CE, PAPAMY1301048CE, PAPAMY1303046CE.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

⚠ PRECAUTION OF LOW TEMPERATURE

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigerant circuit.

Panasonic®

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1. Safety Precautions

- Read the following “SAFETY PRECAUTIONS” carefully before perform any servicing.
- Electrical work must be installed or serviced by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below. Incorrect installation or servicing due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

⚠ **WARNING**	This indication shows the possibility of causing death or serious injury.
⚠ **CAUTION**	This indication shows the possibility of causing injury or damage to properties.

- The items to be followed are classified by the symbols:

⃠	This symbol denotes item that is PROHIBITED from doing.

- Carry out test run to confirm that no abnormality occurs after the servicing. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

	⚠ **WARNING**	
1.	Do not modify the machine, part, material during repairing service.	
2.	If wiring unit is supplied as repairing part, do not repair or connect the wire even only partial wire break. Exchange the whole wiring unit.	
3.	Do not wrench the fasten terminal. Pull it out or insert it straightly.	
4.	Engage dealer or specialist for installation and servicing. If installation of servicing done by the user is defective, it will cause water leakage, electrical shock or fire.	
5.	Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electric shock or fire.	
6.	Use the attached accessories parts and specified parts for installation and servicing. Otherwise, it will cause the set to fall, water leakage, fire or electrical shock.	
7.	Install at a strong and firm location which is able to withstand the set’s weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.	
8.	For electrical work, follow the local national wiring standard, regulation and the installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.	
9.	This equipment is strongly recommended to install with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case equipment breakdown or insulation breakdown.	
10.	Do not use joint cable for indoor / outdoor connection cable. Use the specified Indoor/Outdoor connection cable, refer to installation instruction **CONNECT THE CABLE TO THE INDOOR UNIT** and connect tightly for indoor / outdoor connection. Clamp the cable so that no external force will be acted on the terminal. If connecting or fixing is not perfect, it will cause heat up or fire at the connection.	
11.	Wire routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up or fire at the connection point of terminal, fire or electrical shock.	
12.	When install or relocate air conditioner, do not let any substance other than the specified refrigerant, eg. air etc. mix into refrigeration cycle (piping). (Mixing of air etc. will cause abnormal high pressure in refrigeration cycle and result in explosion, injury etc.).	
13.	Do not install outdoor unit near handrail of veranda. When installing air-conditioner unit at veranda of high rise building, child may climb up to outdoor unit and cross over the handrail and causing accident.	
14.	This equipment must be properly earthed. Earth line must not be connected to gas pipe, water pipe, earth of lightning rod and telephone. Otherwise, it may cause electric shock in case equipment breakdown or insulation breakdown.	⃠
15.	Keep away from small children, the thin film may cling to nose and mouth and prevent breathing.	⃠
16.	Do not use unspecified cord, modified cord, joint cord or extension cord for power supply cord. Do not share the single outlet with other electrical appliances. Poor contact, poor insulation or over current will cause electrical shock or fire.	⃠
17.	Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.	⃠
18.	• For R410A model, use piping, flare nut and tools which is specified for R410A refrigerant. Using of existing (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury. • Thickness or copper pipes used with R410A must be more than 0.8 mm. Never use copper pipes thinner than 0.8 mm. • It is desirable that the amount of residual oil less than 40 mg/10 m.	⃠
19.	During installation, install the refrigerant piping properly before run the compressor. (Operation of compressor without fixing refrigeration piping and valves at opened condition will caused suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc).	

	⚠ WARNING
20.	During pump down operation, stop the compressor before remove the refrigeration piping. (Removal of compressor while compressor is operating and valves are opened will cause suck-in of air, abnormal high pressure in refrigeration cycle and result in explosion, injury etc.)
21.	After completion of installation or service, confirm there is no leakage or refrigerant gas. It may generate toxic gas when the refrigerant contacts with fire.
22.	Ventilate if there is refrigerant gas leakage during operation. It may cause toxic gas when refrigerant contacts with fire.
23.	Do not insert your fingers or other objects into the unit, high speed rotating fan may cause injury.
24.	Must not use other parts except original parts described in catalog and manual.
25.	Using of refrigerant other than the specified type may cause product damage, burst and injury etc.

	⚠ CAUTION
1.	Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
2.	Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
3.	Tighten the flare nut with torque wrench according to specified method. If the flare nut is over-tightened, after a long period, the flare may break and cause refrigerant gas leakage.
4.	Do not touch outdoor unit air inlet and aluminium fin. It may cause injury.
5.	Select an installation location which is easy for maintenance.
6.	Pb free solder has a higher melting point than standard solder; typically the melting point is 50°F – 70°F (30°C – 40°C) higher. Please use a high temperature solder iron. In case of the soldering iron with temperature control, please set it to 700 ± 20°F (370 ± 10°C). Pb free solder will tend to splash when heated too high (about 1100°F / 600°C).
7.	Power supply connection to the room air conditioner. Use power supply cord 3 × 1.5 mm² (3/4 ~ 1.75HP) type designation 60245 IEC 57 or heavier cord. Connect the power supply cord of the air conditioner to the mains using one of the following method. Power supply point should be in easily accessible place for power disconnection in case of emergency. In some countries, permanent connection of this air conditioner to the power supply is prohibited. 1) Power supply connection to the receptacle using power plug. Use an approved 15/16A (3/4 ~ 1.75HP) power plug with earth pin for the connection to the socket. 2) Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A (3/4 ~ 1.75HP) circuit breaker for the permanent connection. It must be a double pole switch with a minimum 3.0 mm contact gap.
8.	Do not release refrigerant during piping work for installation, servicing, reinstallation and during repairing a refrigerant parts. Take care of the liquid refrigerant, it may cause frostbite.
9.	Installation or servicing work: It may need two people to carry out the installation or servicing work.
10.	Do not install this appliance in a laundry room or other location where water may drip from the ceiling, etc.
11.	Do not sit or step on the unit, you may fall down accidentally.
12.	Do not touch the sharp aluminium fins or edges of metal parts. If you are required to handle sharp parts during installation or servicing, please wear hand glove. Sharp parts may cause injury.

2. Specifications

Model			Indoor	CS-TE20TKEW			CS-TE25TKEW		
			Outdoor	CU-TE20TKE			CU-TE25TKE		
Performance Test Condition				EUROVENT			EUROVENT		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	230			230		
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	0.75	2.00	2.40	0.85	2.50	3.00
			BTU/h	2560	6820	8180	2900	8530	10200
			Kcal/h	650	1720	2060	730	2150	2580
	Running Current		A	–	2.40	–	–	3.00	–
	Input Power		W	250	530	640	250	670	910
	Annual Consumption		kWh	–	265	–	–	335	–
	EER		W/W	3.00	3.77	3.75	3.40	3.73	3.30
			BTU/hW	10.24	12.87	12.78	11.60	12.73	11.21
			Kcal/hW	2.60	3.25	3.22	2.92	3.21	2.84
	ErP	Pdesign	kW	2.0			2.5		
		SEER	(W/W)	6.1			6.1		
		Annual Consumption	kWh	115			143		
		Class		A++			A++		
	Power Factor		%	–	96	–	–	97	–
	Indoor Noise (H / L / QLo)		dB-A	37 / 25 / 20			40 / 26 / 20		
			Power Level dB	53 / 41 / 36			56 / 42 / 36		
	Outdoor Noise (H / L / QLo)		dB-A	46 / – / –			47 / – / –		
			Power Level dB	61 / – / –			62 / – / –		
Heating	Capacity		kW	0.70	2.70	3.60	0.80	3.30	4.10
			BTU/h	2390	9210	12300	2730	11300	14000
			Kcal/h	600	2320	3100	690	2840	3530
	Running Current		A	–	3.05	–	–	3.60	–
	Input Power		W	185	680	1.05k	195	810	1.15k
	COP		W/W	3.78	3.97	3.43	4.10	4.07	3.57
			BTU/hW	12.92	13.54	11.71	14.00	13.95	12.17
			Kcal/hW	3.24	3.41	2.95	3.54	3.51	3.07
	ErP	Pdesign	kW	1.9			2.4		
		Tbivalent	°C	-10			-10		
		SCOP	(W/W)	4.0			4.1		
		Annual Consumption	kWh	665			820		
		Class		A+			A+		
	Power Factor		%	–	97	–	–	98	–
	Indoor Noise (H / L / QLo)		dB-A	38 / 26 / 22			40 / 27 / 22		
			Power Level dB	54 / 42 / 38			56 / 43 / 38		
	Outdoor Noise (H / L / QLo)		dB-A	47 / – / –			48 / – / –		
			Power Level dB	62 / – / –			63 / – / –		
Low Temp. : Capacity (kW) / I.Power (W) / COP				2.61 / 930 / 2.81			2.97 / 1.02k / 2.91		
Extr Low Temp. : Capacity (kW) / I.Power (W) / COP				2.14 / 870 / 2.46			2.70 / 1.07k / 2.52		
Max Current (A) / Max Input Power (W)				4.7 / 1.05k			5.1 / 1.15k		
Starting Current (A)				3.05			3.60		

Model				Indoor	CS-TE20TKEW	CS-TE25TKEW
				Outdoor	CU-TE20TKE	CU-TE25TKE
Compressor	Type				Hermetic Motor (Rotary)	Hermetic Motor (Rotary)
	Motor Type				Brushless (6 poles)	Brushless (6 poles)
	Output Power			W	500	500
Indoor Fan	Type				Cross-Flow Fan	Cross-Flow Fan
	Material				ASG20K1	ASG20K1
	Motor Type				DC / Transistor (8-poles)	DC / Transistor (8-poles)
	Input Power			W	47.3	47.3
	Output Power			W	30	30
	Speed	QLo	Cool	rpm	630	630
			Heat	rpm	730	730
		Lo	Cool	rpm	770	800
			Heat	rpm	820	850
		Me	Cool	rpm	940	1010
			Heat	rpm	1020	1070
		Hi	Cool	rpm	1120	1220
			Heat	rpm	1220	1290
		SHi	Cool	rpm	1170	1270
			Heat	rpm	1270	1340
Outdoor Fan	Type				Propeller Fan	Propeller Fan
	Material				PP	PP
	Motor Type				DC (8-poles)	DC (8-poles)
	Input Power			W	–	–
	Output Power			W	40	40
	Speed	Hi	Cool	rpm	840	830
			Heat	rpm	800	800
Moisture Removal				L/h (Pt/h)	1.3 (2.7)	1.5 (3.2)
Indoor Airflow		QLo	Cool	m^3/min (ft^3/min)	5.27 (186)	5.27 (186)
			Heat	m^3/min (ft^3/min)	6.23 (220)	6.23 (220)
		Lo	Cool	m^3/min (ft^3/min)	6.62 (234)	6.90 (244)
			Heat	m^3/min (ft^3/min)	7.10 (251)	7.38 (261)
		Me	Cool	m^3/min (ft^3/min)	8.25 (291)	8.92 (315)
			Heat	m^3/min (ft^3/min)	9.02 (319)	9.50 (335)
		Hi	Cool	m^3/min (ft^3/min)	10.00 (350)	10.90 (385)
			Heat	m^3/min (ft^3/min)	10.90 (385)	11.60 (410)
		SHi	Cool	m^3/min (ft^3/min)	10.46 (369)	11.42 (403)
			Heat	m^3/min (ft^3/min)	11.42 (403)	12.09 (427)
Outdoor Airflow		Hi	Cool	m^3/min (ft^3/min)	31.20 (1100)	30.00 (1060)
			Heat	m^3/min (ft^3/min)	29.70 (1050)	28.90 (1020)
Refrigeration Cycle	Control Device				Expansion Valve	Expansion Valve
	Refrigerant Oil			cm^3	FV50S (250)	FV50S (250)
	Refrigerant Type			g (oz)	R410A, 660 (23.3)	R410A, 770 (27.2)
F-Gas	GWP				2088	2088
	CO2eq (ton) (Precharged Amount / Maximum Charged Amount)				1.378 / 1.613	1.608 / 1.843
Dimension	Height (I/D / O/D)			mm (inch)	290 (11-7/16) / 542 (21-11/32)	290 (11-7/16) / 542 (21-11/32)
	Width (I/D / O/D)			mm (inch)	799 (31-15/32) / 780 (30-23/32)	799 (31-15/32) / 780 (30-23/32)
	Depth (I/D / O/D)			mm (inch)	197 (7-25/32) / 289 (11-13/32)	197 (7-25/32) / 289 (11-13/32)
Weight	Net (I/D / O/D)			kg (lb)	8 (18) / 26 (57)	8 (18) / 27 (60)

Model			Indoor	CS-TE20TKEW		CS-TE25TKEW	
			Outdoor	CU-TE20TKE		CU-TE25TKE	
Piping	Pipe Diameter (Liquid / Gas)		mm (inch)	6.35 (1/4) / 9.52 (3/8)		6.35 (1/4) / 9.52 (3/8)	
	Standard length		m (ft)	5.0 (16.4)		5.0 (16.4)	
	Length range (min – max)		m (ft)	3 (9.8) ~ 15 (49.2)		3 (9.8) ~ 15 (49.2)	
	I/D & O/D Height different		m (ft)	15.0 (49.2)		15.0 (49.2)	
	Additional Gas Amount		g/m (oz/ft)	15 (0.2)		15 (0.2)	
	Length for Additional Gas		m (ft)	7.5 (24.6)		7.5 (24.6)	
Drain Hose	Inner Diameter		mm	16.7		16.7	
	Length		mm	650		650	
Indoor Heat Exchanger	Fin Material			Aluminium (Pre Coat)		Aluminium (Pre Coat)	
	Fin Type			Slit Fin		Slit Fin	
	Row × Stage × FPI			2 × 15 × 17		2 × 15 × 17	
	Size (W × H × L)		mm	610 × 315 × 25.4		610 × 315 × 25.4	
Outdoor Heat Exchanger	Fin Material			Aluminium		Aluminium	
	Fin Type			Corrugated Fin (Pre Coat)		Corrugated Fin	
	Row × Stage × FPI			1 × 24 × 17		1 × 24:12 × 17	
	Size (W × H × L)		mm	36.4 × 504 × 710		36.4 × 504 × 713:684	
Air Filter	Material			Polypropelene		Polypropelene	
	Type			One-touch		One-touch	
Power Supply				Outdoor		Outdoor	
Power Supply Cord			A	Nil		Nil	
Thermostat				Electronic Contol		Electronic Contol	
Protection Device				Electronic Contol		Electronic Contol	
				Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb
Indoor Operation Range	Cooling		Maximum °C	32	23	32	23
			Minimum °C	16	11	16	11
	Heating		Maximum °C	30	–	30	–
			Minimum °C	16	–	16	–
Outdoor Operation Range	Cooling		Maximum °C	43	26	43	26
			Minimum °C	-10	–	-10	–
	Heating		Maximum °C	24	18	24	18
			Minimum °C	-15	-16	-15	-16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C DRY BULB (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb)
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)
3. Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C
4. Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C
5. Standby power consumption ≤10.0w (when switched OFF by remote control, except under self protection control).
6. Specifications are subjected to change without prior notice for further improvement.

Model			Indoor	CS-TE35TKEW			CS-TE42TKEW		
			Outdoor	CU-TE35TKE			CU-TE42TKE		
Performance Test Condition				EUROVENT			EUROVENT		
Power Supply			Phase, Hz	Single, 50			Single, 50		
			V	230			230		
				Min.	Mid.	Max.	Min.	Mid.	Max.
Cooling	Capacity		kW	0.85	3.50	3.90	0.85	4.20	4.60
			BTU/h	2900	11900	13300	2900	14300	15700
			Kcal/h	730	3010	3350	730	3610	3960
	Running Current		A	–	4.55	–	–	5.65	–
	Input Power		W	255	1.02k	1.21k	265	1.28k	1.67k
	Annual Consumption		kWh	–	510	–	–	640	–
	EER		W/W	3.33	3.43	3.22	3.21	3.28	2.75
			BTU/hW	11.37	11.67	10.99	10.94	11.17	9.40
			Kcal/hW	2.86	2.95	2.77	2.75	2.82	2.37
	ErP	Pdesign	kW	3.5			4.2		
		SEER	(W/W)	6.1			5.6		
		Annual Consumption	kWh	201			263		
		Class		A++			A+		
	Power Factor		%	–	97	–	–	98	–
	Indoor Noise (H / L / QLo)		dB-A	42 / 30 / 20			44 / 31 / 29		
			Power Level dB	58 / 46 / 36			60 / 47 / 45		
	Outdoor Noise (H / L / QLo)		dB-A	48 / – / –			49 / – / –		
			Power Level dB	63 / – / –			64 / – / –		
Heating	Capacity		kW	0.80	4.00	5.10	0.80	5.00	6.80
			BTU/h	2730	13600	17400	2730	17100	23200
			Kcal/h	690	3440	4390	690	4300	5850
	Running Current		A	–	4.70	–	–	6.05	–
	Input Power		W	200	1.07k	1.44k	200	1.37k	2.07k
	COP		W/W	4.00	3.74	3.54	4.00	3.65	3.29
			BTU/hW	13.65	12.71	12.08	13.65	12.48	11.21
			Kcal/hW	3.45	3.21	3.05	3.45	3.14	2.83
	ErP	Pdesign	kW	2.8			3.6		
		Tbivalent	°C	-10			-10		
		SCOP	(W/W)	4.1			3.8		
		Annual Consumption	kWh	956			1326		
		Class		A+			A		
	Power Factor		%	–	99	–	–	98	–
	Indoor Noise (H / L / QLo)		dB-A	42 / 33 / 22			44 / 35 / 28		
			Power Level dB	58 / 49 / 38			60 / 51 / 44		
	Outdoor Noise (H / L / QLo)		dB-A	50 / – / –			51 / – / –		
			Power Level dB	65 / – / –			66 / – / –		
Low Temp. : Capacity (kW) / I.Power (W) / COP				3.70 / 1.27k / 2.91			4.93 / 1.83k / 2.69		
Extr Low Temp. : Capacity (kW) / I.Power (W) / COP				3.30 / 1.37k / 2.41			3.90 / 1.72k / 2.27		
Max Current (A) / Max Input Power (W)				6.4 / 1.44k			9.2 / 2.07k		
Starting Current (A)				4.70			6.05		

Model				Indoor	CS-TE35TKEW	CS-TE42TKEW
				Outdoor	CU-TE35TKE	CU-TE42TKE
Compressor	Type				Hermetic Motor (Rotary)	Hermetic Motor (Rotary)
	Motor Type				Brushless (6 poles)	Brushless (6 poles)
	Output Power			W	700	700
Indoor Fan	Type				Cross-Flow Fan	Cross-Flow Fan
	Material				ASG20K1	ASG20K1
	Motor Type				DC / Transistor (8-poles)	DC / Transistor (8-poles)
	Input Power			W	47.3	47.3
	Output Power			W	30	30
	Speed	QLo	Cool	rpm	630	870
			Heat	rpm	730	920
		Lo	Cool	rpm	900	930
			Heat	rpm	1020	1100
		Me	Cool	rpm	1100	1170
			Heat	rpm	1200	1280
		Hi	Cool	rpm	1310	1410
			Heat	rpm	1380	1470
		SHi	Cool	rpm	1360	1460
			Heat	rpm	1430	1500
Outdoor Fan	Type				Propeller Fan	Propeller Fan
	Material				PP	PP
	Motor Type				DC (8-poles)	DC (8-poles)
	Input Power			W	–	–
	Output Power			W	40	40
	Speed	Hi	Cool	rpm	830	900
			Heat	rpm	880	910
Moisture Removal				L/h (Pt/h)	2.0 (4.2)	2.4 (5.1)
Indoor Airflow		QLo	Cool	m^3/min (ft^3/min)	5.27 (186)	7.21 (255)
			Heat	m^3/min (ft^3/min)	6.23 (220)	7.69 (272)
		Lo	Cool	m^3/min (ft^3/min)	7.86 (278)	7.78 (275)
			Heat	m^3/min (ft^3/min)	9.02 (319)	9.40 (332)
		Me	Cool	m^3/min (ft^3/min)	9.78 (345)	10.06 (355)
			Heat	m^3/min (ft^3/min)	10.74 (379)	11.11 (392)
		Hi	Cool	m^3/min (ft^3/min)	11.80 (415)	12.30 (435)
			Heat	m^3/min (ft^3/min)	12.50 (440)	12.90 (455)
		SHi	Cool	m^3/min (ft^3/min)	12.28 (434)	12.82 (453)
			Heat	m^3/min (ft^3/min)	12.95 (457)	13.20 (466)
Outdoor Airflow		Hi	Cool	m^3/min (ft^3/min)	28.70 (1015)	33.60 (1185)
			Heat	m^3/min (ft^3/min)	30.40 (1075)	34.00 (1200)
Refrigeration Cycle	Control Device				Expansion Valve	Expansion Valve
	Refrigerant Oil			cm^3	FV50S (320)	FV50S (320)
	Refrigerant Type			g (oz)	R410A, 950 (33.5)	R410A, 1.01k (35.7)
F-Gas	GWP				2088	2088
	CO2eq (ton) (Precharged Amount / Maximum Charged Amount)				1.984 / 2.297	2.109 / 2.422
Dimension	Height (I/D / O/D)			mm (inch)	290 (11-7/16) / 542 (21-11/32)	290 (11-7/16) / 619 (24-3/8)
	Width (I/D / O/D)			mm (inch)	799 (31-15/32) / 780 (30-23/32)	799 (31-15/32) / 824 (32-15/32)
	Depth (I/D / O/D)			mm (inch)	197 (7-25/32) / 289 (11-13/32)	197 (7-25/32) / 299 (11-25/32)
Weight	Net (I/D / O/D)			kg (lb)	8 (18) / 32 (71)	8 (18) / 32 (71)

Model			Indoor	CS-TE35TKEW		CS-TE42TKEW	
			Outdoor	CU-TE35TKE		CU-TE42TKE	
Piping	Pipe Diameter (Liquid / Gas)		mm (inch)	6.35 (1/4) / 9.52 (3/8)		6.35 (1/4) / 12.70 (1/2)	
	Standard length		m (ft)	5.0 (16.4)		5.0 (16.4)	
	Length range (min – max)		m (ft)	3 (9.8) ~ 15 (49.2)		3 (9.8) ~ 15 (49.2)	
	I/D & O/D Height different		m (ft)	15.0 (49.2)		15.0 (49.2)	
	Additional Gas Amount		g/m (oz/ft)	20 (0.2)		20 (0.2)	
	Length for Additional Gas		m (ft)	7.5 (24.6)		7.5 (24.6)	
Drain Hose	Inner Diameter		mm	16.7		16.7	
	Length		mm	650		650	
Indoor Heat Exchanger	Fin Material			Aluminium (Pre Coat)		Aluminium (Pre Coat)	
	Fin Type			Slit Fin		Slit Fin	
	Row × Stage × FPI			2 × 15 × 17		2 × 15 × 21	
	Size (W × H × L)		mm	610 × 315 × 25.4		610 × 315 × 25.4	
Outdoor Heat Exchanger	Fin Material			Aluminium		Aluminium	
	Fin Type			Corrugated Fin		Corrugated Fin	
	Row × Stage × FPI			2 × 24 × 17		2 × 28 × 17	
	Size (W × H × L)		mm	36.4 × 504 × 713:684		36.38 × 588 × 606.6	
Air Filter	Material			Polypropelene		Polypropelene	
	Type			One-touch		One-touch	
Power Supply				Outdoor		Outdoor	
Power Supply Cord			A	Nil		Nil	
Thermostat				Electronic Contol		Electronic Contol	
Protection Device				Electronic Contol		Electronic Contol	
				Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb
Indoor Operation Range	Cooling		Maximum °C	32	23	32	23
			Minimum °C	16	11	16	11
	Heating		Maximum °C	30	–	30	–
			Minimum °C	16	–	16	–
Outdoor Operation Range	Cooling		Maximum °C	43	26	43	26
			Minimum °C	-10	–	-10	–
	Heating		Maximum °C	24	18	24	18
			Minimum °C	-15	-16	-15	-16

1. Cooling capacities are based on indoor temperature of 27°C Dry Bulb (80.6°F Dry Bulb), 19.0°C Wet Bulb (66.2°F Wet Bulb) and outdoor air temperature of 35°C DRY BULB (95°F Dry Bulb), 24°C Wet Bulb (75.2°F Wet Bulb)
2. Heating capacities are based on indoor temperature of 20°C Dry Bulb (68°F Dry Bulb) and outdoor air temperature of 7°C Dry Bulb (44.6°F Dry Bulb), 6°C Wet Bulb (42.8°F Wet Bulb)
3. Heating low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor 2/1°C
4. Heating extreme low temperature capacity, Input Power and COP measured at 230 V, indoor temperature 20°C, outdoor -7/-8°C
5. Standby power consumption ≤10.0w (when switched OFF by remote control, except under self protection control).
6. Specifications are subjected to change without prior notice for further improvement.

- **Multi Split Combination Possibility:**
  - A single outdoor unit enables air conditioning of up to two separate rooms for CU-2RE15SBE, CU-2RE18SBE.
  - A single outdoor unit enables air conditioning of up to three separate rooms for CU-3RE18SBE.

CONNECTABLE INDOOR UNIT			OUTDOOR UNIT						
			CU-2RE15SBE*		CU-2RE18SBE*		CU-3RE18SBE*		
TYPE \ ROOM			A	B	A	B	A	B	C
Wall	2.0kW	CS-TE20TKEW	●	●	●	●	●	●	●
	2.5kW	CS-TE25TKEW	●	●	●	●	●	●	●
	3.5kW	CS-TE35TKEW	●	●	●	●	●	●	●
	4.2kW	CS-TE42TKEW	–	–	●	●	●	●	●
	5.0kW	CS-TE50TKEW	–	–	●	●	●	●	●
Capacity range of connectable indoor units			From 4.0kW to 5.7kW		From 4.0kW to 7.5kW		From 4.5kW to 9.0kW		
Pipe length	1 room maximum pipe length (m)		20		20		25		
	Allowable elevation (m)		10		10		15		
	Total allowable pipe length (m)		30		30		50		
	Total pipe length for maximum chargeless length (m)		20		20		30		
	Additional gas amount over chargeless length (g/m)		15		15		20		

Note: "●" : Available

Remarks for CU-2RE15SBE / CU-2RE18SBE

1. The total nominal cooling capacity of indoor units that will be connected to outdoor unit must be within connectable capacity range of indoor unit. (as shown in the table above)
   Example: The indoor units' combination below is possible to connect to CU-2RE15SBE. (Total nominal capacity of indoor units is between 4.0kW to 5.7kW)
   1) Two CS-TE20TKEW only. (Total nominal cooling capacity is 4.0kW)

Remarks for CU-3RE18SBE

1. The total nominal cooling capacity of indoor units that will be connected to outdoor unit must be within connectable capacity range of indoor unit. (as shown in the table above)
   Example: The indoor units' combination below is possible to connect to CU-3RE18SBE. (Total nominal capacity of indoor units is between 4.5kW to 9.0kW)
   1) Two CS-TE25TKEW only. (Total nominal cooling capacity is 5.0kW)

Note*: Above outdoor unit is contains and operates with refrigerant R410A gas.

- **Multi Split Combination Possibility:**
  - A single outdoor unit enables air conditioning of up to two separate rooms for CU-2E12SBE, CU-2E15SBE, CU-2E18SBE.
  - A single outdoor unit enables air conditioning of up to three separate rooms for CU-3E23SBE.

CONNECTABLE INDOOR UNIT			CU-2E12SBE*		CU-2E15SBE*		CU-2E18SBE*		CU-3E23SBE*		
ROOM			A	B	A	B	A	B	A	B	C
Wall	2.0kW	CS-TE20TKEW	●	●	●	●	●	●	●	●	●
	2.5kW	CS-TE25TKEW	●	●	●	●	●	●	●	●	●
	3.5kW	CS-TE35TKEW	●	●	●	●	●	●	●	●	●
	4.2kW	CS-TE42TKEW	–	–	–	–	●	●	●	●	●
	5.0kW	CS-TE50TKEW	–	–	–	–	●	●	●	●	●
	6.0kW	CS-TE60TKEW	–	–	–	–	–	–	●	●	●
Capacity range of connectable units			From 3.2kW to 5.7kW		From 3.2kW to 5.7kW		From 3.2kW to 7.5kW		From 4.5kW to 11.0kW		
Pipe length	1 room maximum pipe length (m)		20		20		20		25		
	Allowable elevation (m)		10		10		10		15		
	Total allowable pipe length (m)		30		30		30		60		
	Total pipe length for maximum chargeless length (m)		20		20		20		30		
	Additional gas amount over chargeless length (g/m)		15		15		15		20		

Note: "●" : Available

Remarks for CU-2E12SBE / CU-2E15SBE / CU-2E18SBE

1. The total nominal cooling capacity of indoor unit that will be connected to outdoor unit must be within connectable capacity range of indoor unit. (as shown in the table above)
   Example: The indoor units' combination below is possible to connect to CU-2E15SBE. (Total nominal capacity of indoor units is between 3.2kW to 5.7kW)
   1) Two CS-TE20TKEW only. (Total nominal cooling capacity is 4.0kW)

Remarks for CU-3E23SBE

1. The total nominal cooling capacity of indoor unit that will be connected to outdoor unit must be within connectable capacity range of indoor unit. (as shown in the table above)
   Example: The indoor units' combination below is possible to connect to CU-3E23SBE. (Total nominal capacity of indoor units is between 4.5kW to 11.0kW)
   1) Two CS-TE25TKEW only. (Total nominal cooling capacity is 5.0kW)

Note*: Above outdoor unit is contains and operates with refrigerant R410A gas.

- **Multi Split Combination Possibility:**
  - A single outdoor unit enables air conditioning of up to three separate rooms for CU-3E18PBE.
  - A single outdoor unit enables air conditioning of up to four separate rooms for CU-4E23PBE, CU-4E27PBE.
  - A single outdoor unit enables air conditioning of up to five separate rooms for CU-5E34PBE.

CONNECTABLE INDOOR UNIT			CU-3E18PBE*			CU-4E23PBE*				CU-4E27PBE*				CU-5E34PBE*				
ROOM			A	B	C	A	B	C	D	A	B	C	D	A	B	C	D	E
Wall	2.0kW	CS-TE20TKEW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	2.5kW	CS-TE25TKEW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	3.5kW	CS-TE35TKEW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	4.2kW	CS-TE42TKEW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	5.0kW	CS-TE50TKEW	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	6.0kW	CS-TE60TKEW	–	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●
Capacity range of connectable units			From 4.5kW to 9.0kW			From 4.5kW to 11.0kW				From 4.5kW to 13.6kW				From 4.5kW to 17.5kW				
Pipe length	1 room maximum pipe length (m)		25			25				25				25				
	Allowable elevation (m)		15			15				15				15				
	Total allowable pipe length (m)		50			60				70				80				
	Total pipe length for maximum chargeless length (m)		30			30				45				45				
	Additional gas amount over chargeless length (g/m)		20			20				20				20				

Note: "●" : Available

Remarks for CU-3E18PBE / CU-4E23PBE / CU-4E27PBE / CU-5E34PBE

1. The total nominal cooling capacity of indoor unit that will be connected to outdoor unit must be within connectable capacity range of indoor unit. (as shown in the table above)
   Example: The indoor units' combination below is possible to connect to CU-4E27PBE. (Total nominal capacity of indoor units is between 4.5kW to 13.6kW)
   1) Two CS-TE25TKEW only. (Total nominal cooling capacity is 5.0kW)

Note*: Above outdoor unit is contains and operates with refrigerant R410A gas.

3. Features

- **Inverter Technology**
  - Wider output power range
  - Energy saving
  - Quick Cooling
  - Quick Heating
  - More precise temperature control

- **Environment Protection**
  - Non-ozone depletion substances refrigerant (R410A)

- **Long Installation Piping**
  - Long piping up to 15 meters (3/4 ~ 1.75HP) and 20 meters (2.0HP) during single split connection only

- **Easy to use remote control**

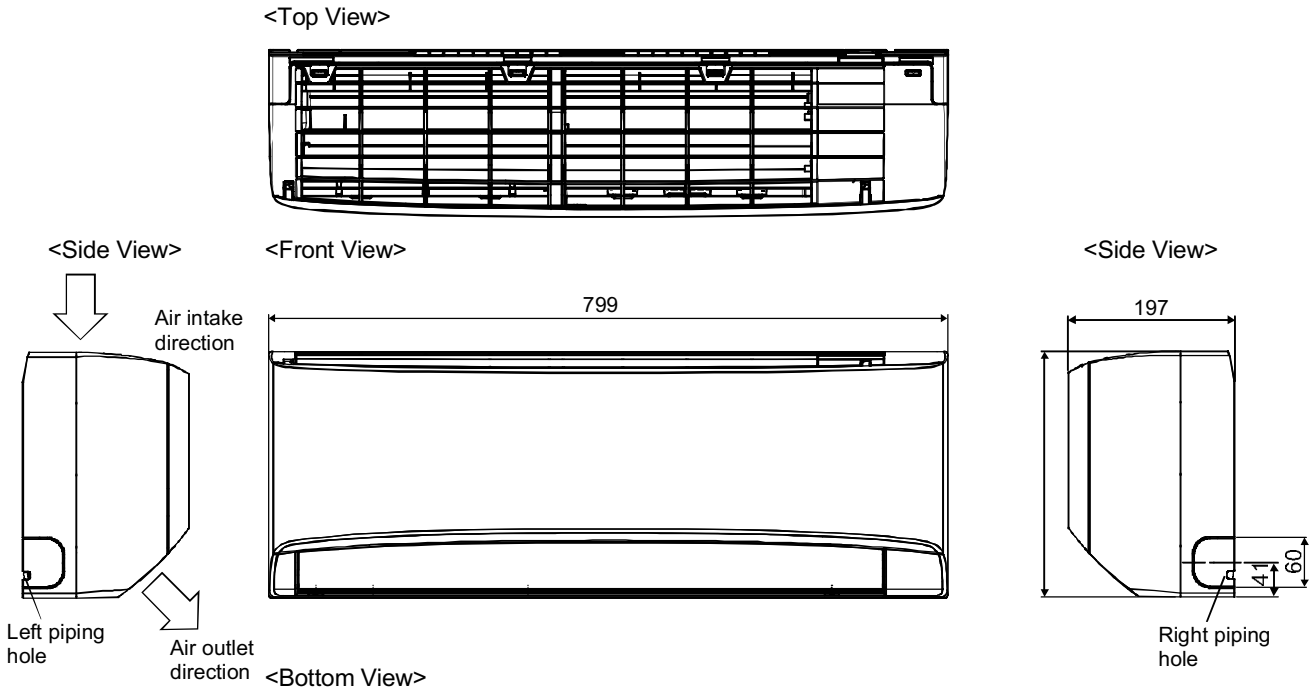
- **Quality Improvement**
  - Random auto restart after power failure for safety restart operation
  - Gas leakage protection
  - Prevent compressor reverse cycle
  - Inner protector to protect compressor
  - Noise prevention during soft dry operation

- **Operation Improvement**
  - Quiet mode to reduce the indoor unit operating sound
  - Powerful mode to reach the desired room temperature quickly
  - 24-hour timer setting

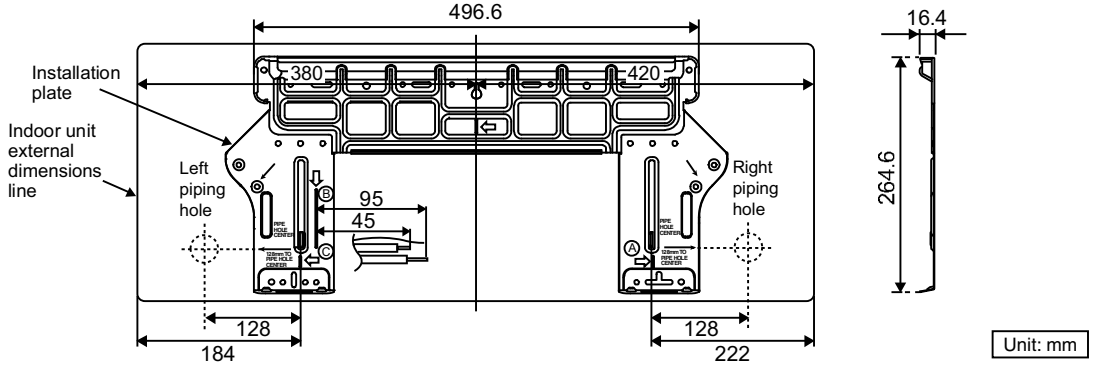
- **Serviceability Feature**
  - Breakdown Self Diagnosis function

5. Dimensions

5.1 Indoor Unit

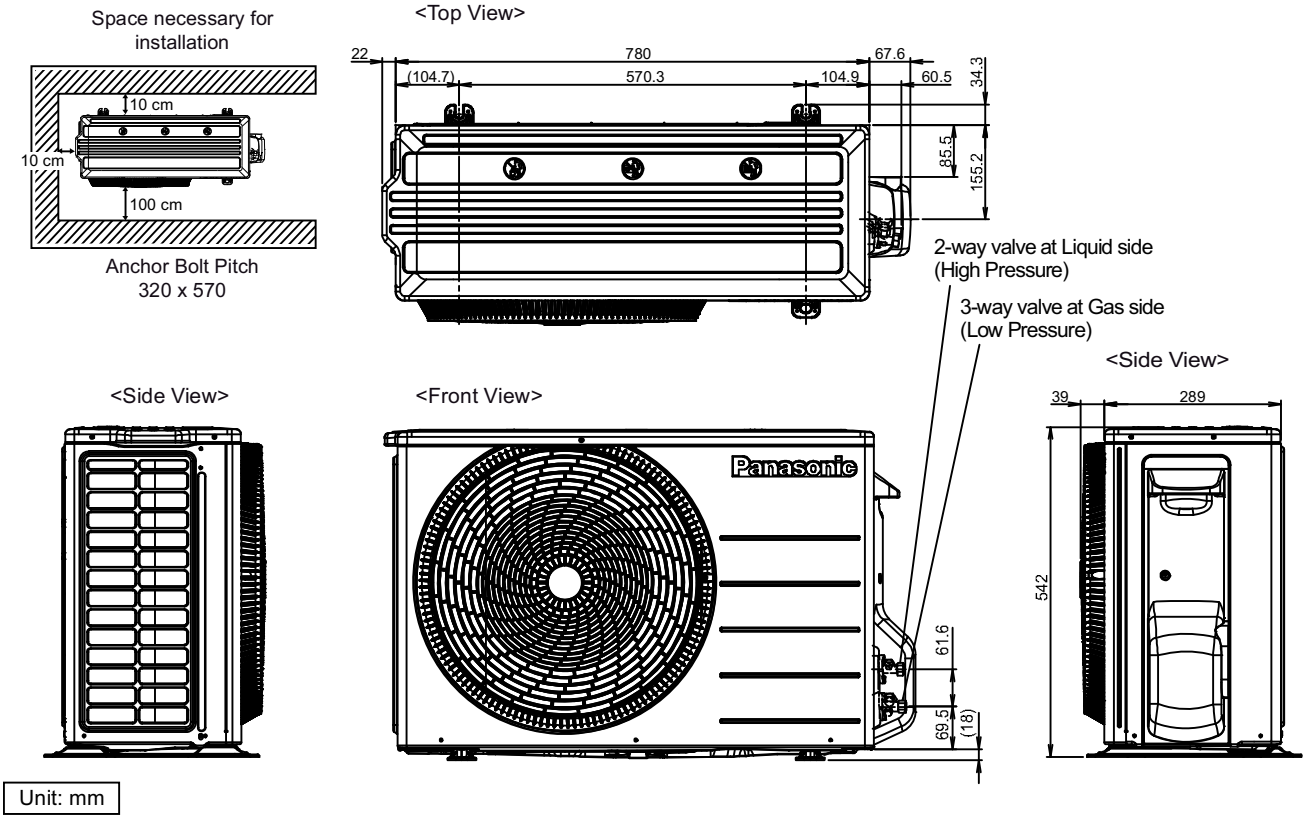


Relative position between the indoor unit and the installation plate <Front View>



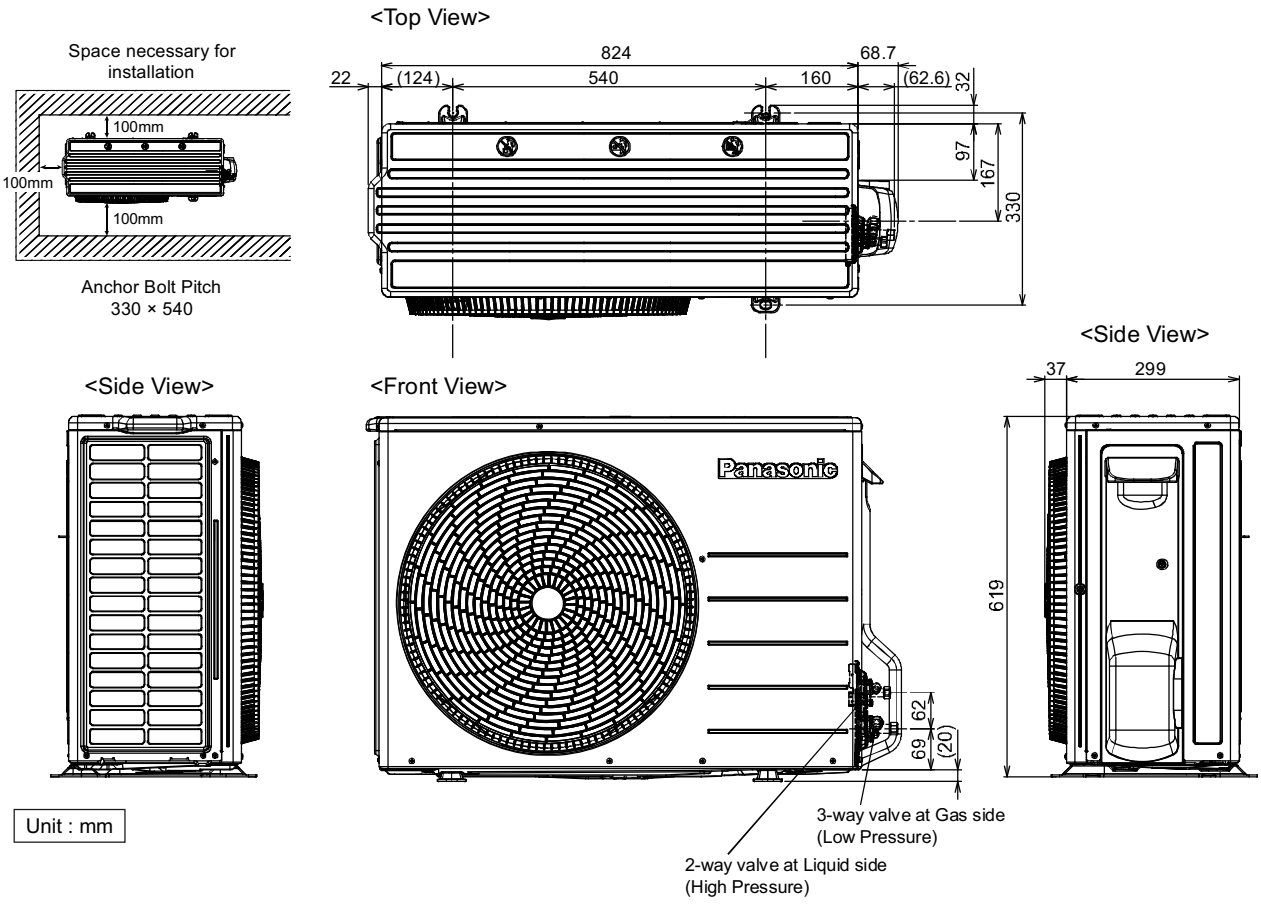
5.2 Outdoor Unit

5.2.1 CU-TE20TKE CU-TE25TKE CU-TE35TKE



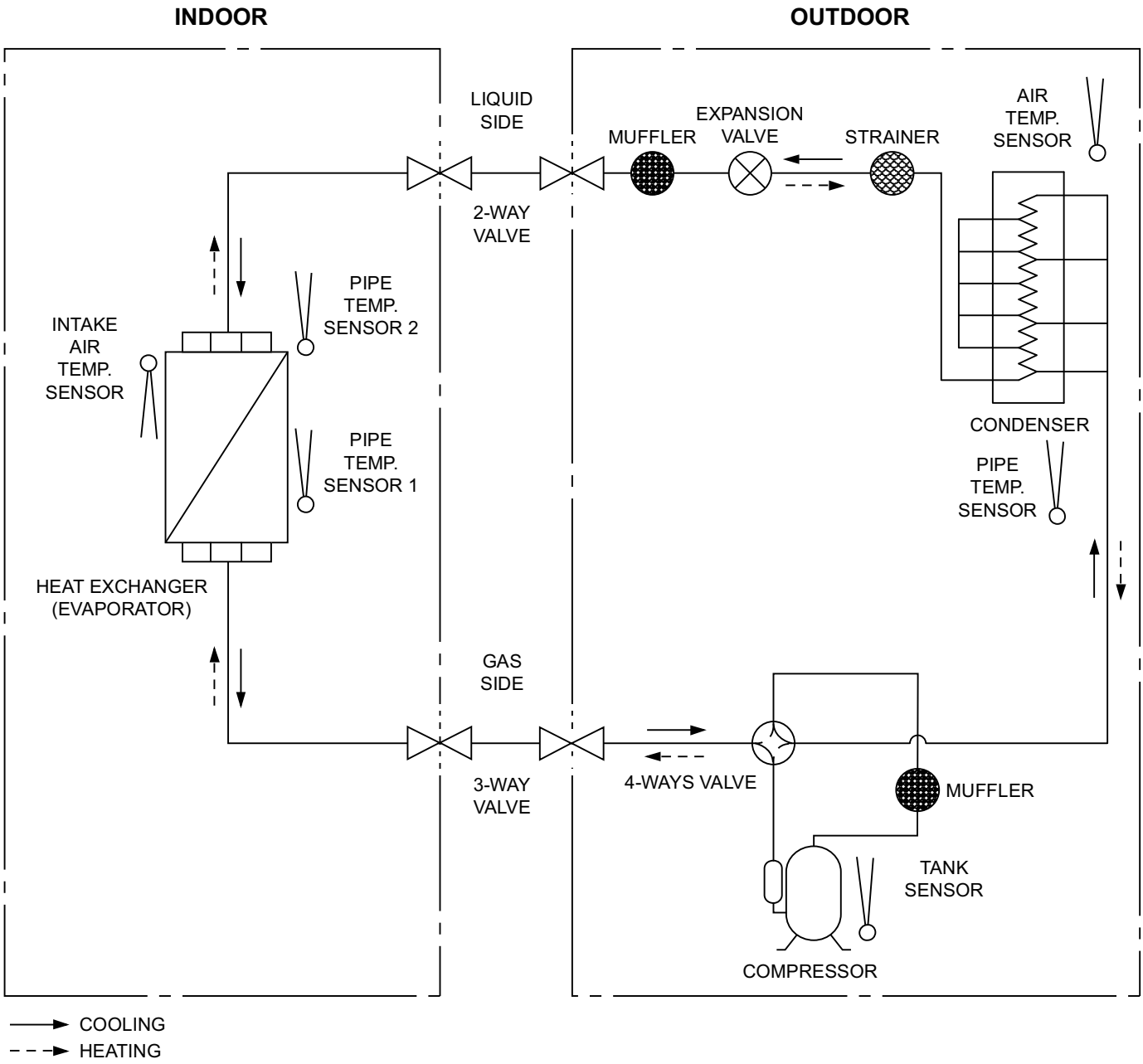
Unit: mm

5.2.2 CU-TE42TKE



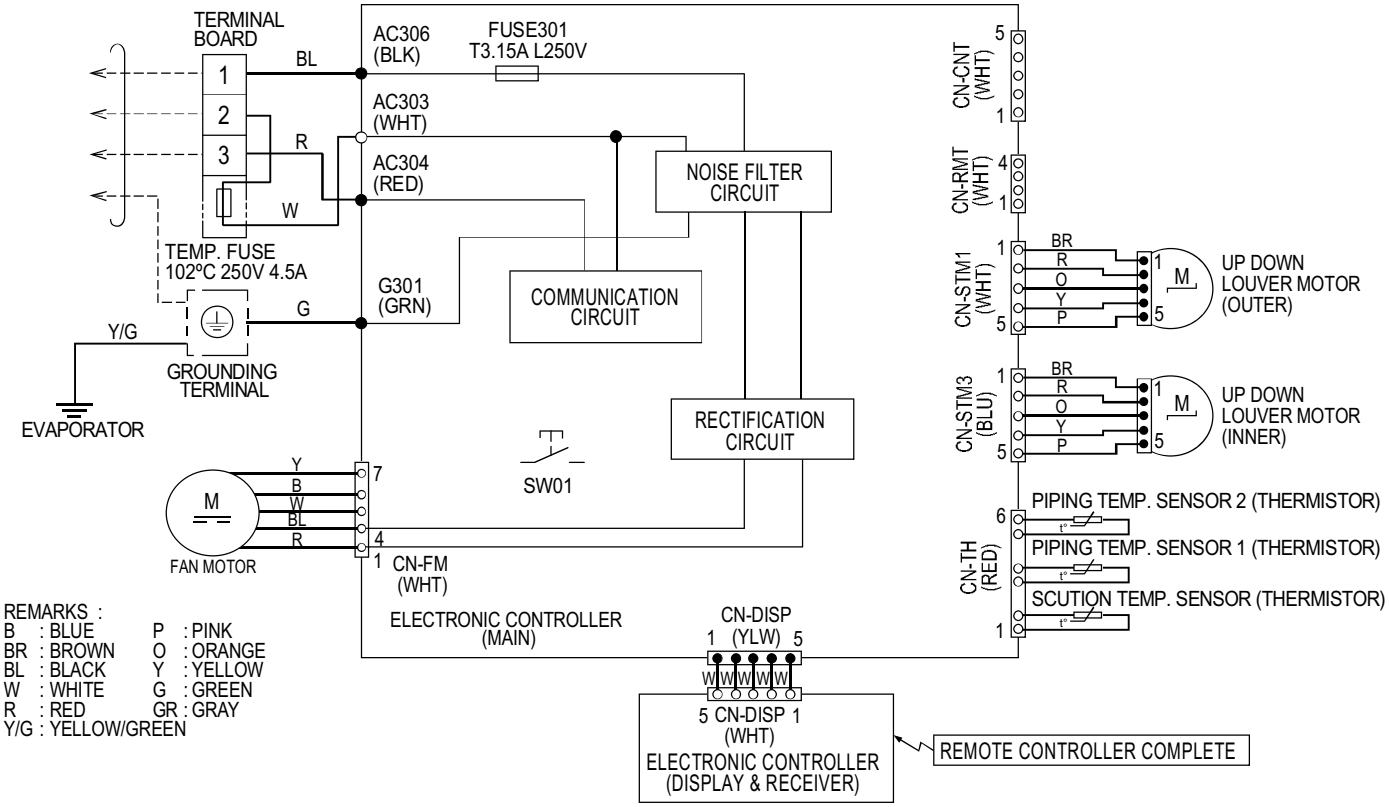
Unit : mm

6. Refrigeration Cycle Diagram



8. Wiring Connection Diagram

8.1 Indoor Unit

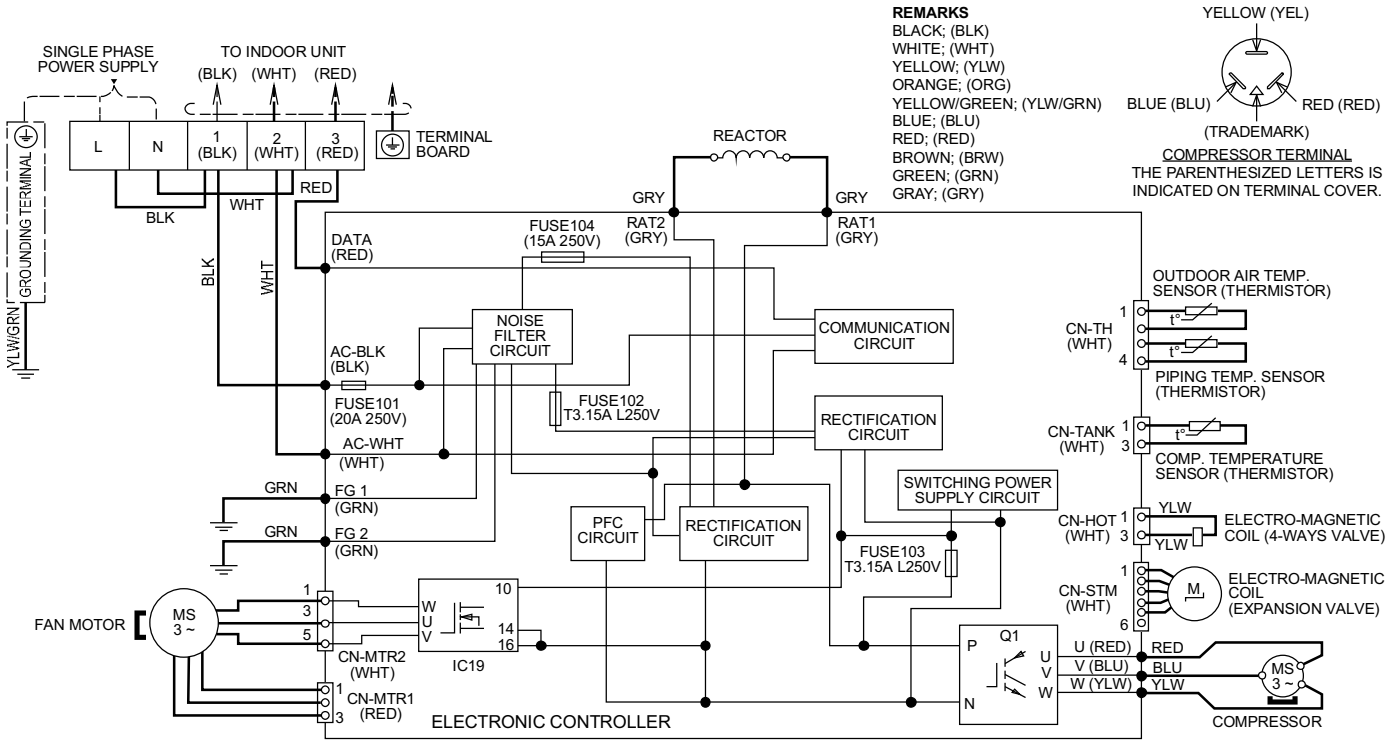


REMARKS :

B	: BLUE	P	: PINK
BR	: BROWN	O	: ORANGE
BL	: BLACK	Y	: YELLOW
W	: WHITE	G	: GREEN
R	: RED	GR	: GRAY
Y/G	: YELLOW/GREEN		

8.2 Outdoor Unit

8.2.1 CU-TE20TKE CU-TE25TKE

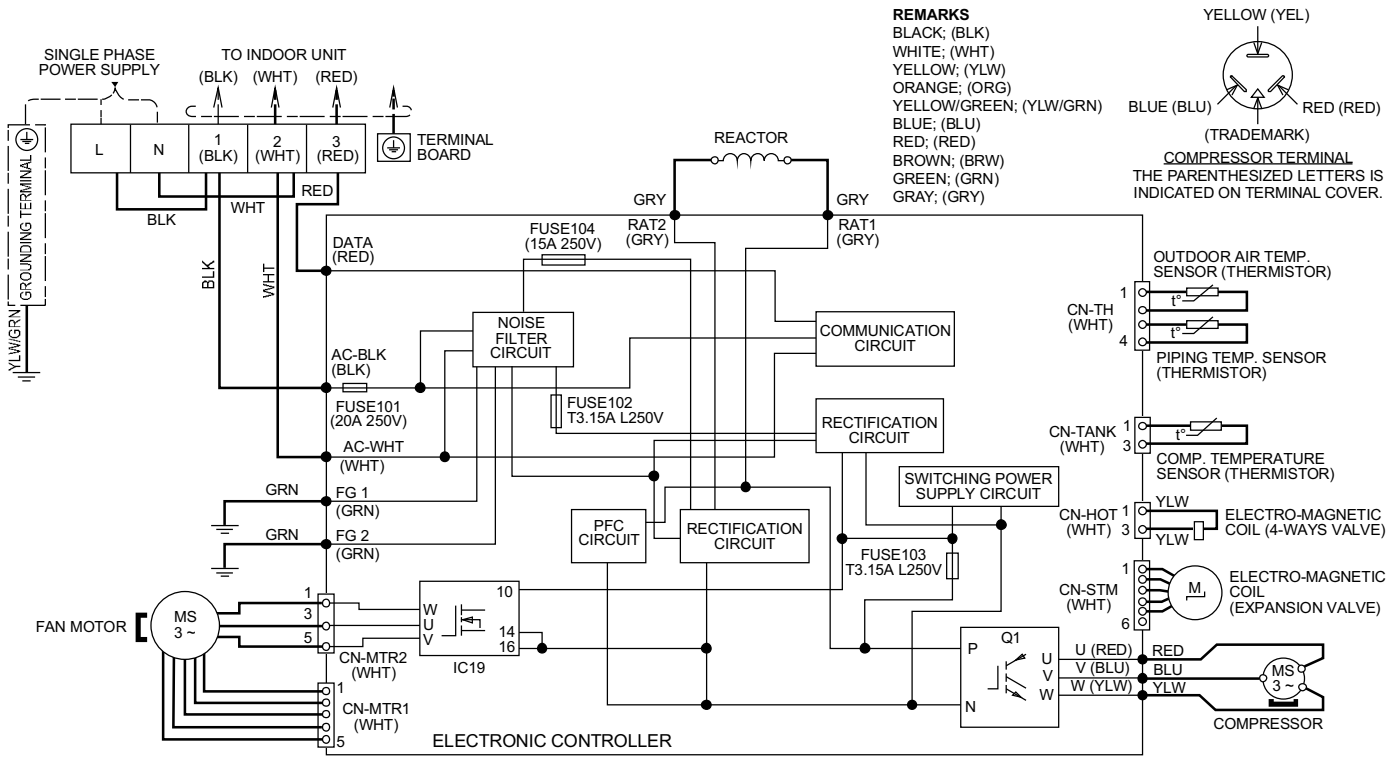


Resistance of Compressor Windings

MODEL	CU-TE20TKE / CU-TE25TKE
CONNECTION	5SS072XGA21 (Ω)
U-V	3.034
U-W	3.021
V-W	3.009

Note: Resistance at 20°C of ambient temperature.

8.2.2 CU-TE35TKE

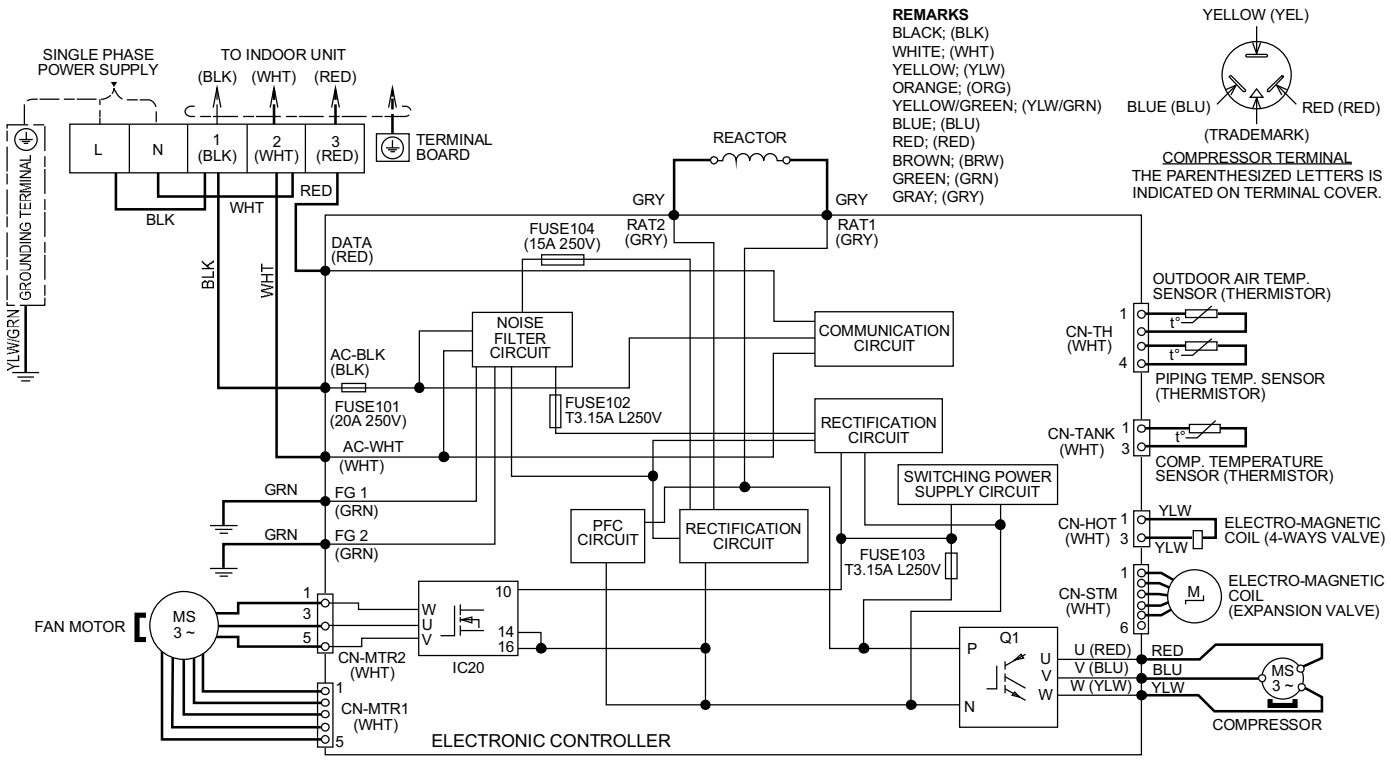


Resistance of Compressor Windings

MODEL	CU-TE35TKE
CONNECTION	5RS102XNA21 (Ω)
U-V	1.211
U-W	1.211
V-W	1.211

Note: Resistance at 20°C of ambient temperature.

8.2.3 CU-TE42TKE



Resistance of Compressor Windings

MODEL	CU-TE42TKE
CONNECTION	5RS102XNA21 (Ω)
U-V	1.211
U-W	1.211
V-W	1.211

Note: Resistance at 20°C of ambient temperature.

18. Technical Data

Technical data provided are based on the air conditioner running under free frequency.

18.1 Cool Mode Performance Data

Unit setting: Standard piping length, Hi Fan, Cool mode at 16°C
Voltage: 230V

18.1.1 CS-TE20TKEW CU-TE20TKE

Indoor (°C)		Outdoor DB (°C)																				
DB	WB	-10			-7			0			5			16			25			35		
		TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
27	19	2161	1977	389	2171	1990	387	2180	1961	389	2118	1973	453	2384	2129	309	2223	2082	410	2000	1921	530
	22	2384	1591	393	2346	1590	428	2357	1586	416	2452	1626	360	2626	1729	296	2436	1634	405	2172	1532	532
23	15.7	1930	1911	416	1945	1925	398	1925	1906	435	1937	1918	424	2148	2127	319	1992	1973	414	1762	1745	530
	18.4	2134	1578	389	2150	1575	376	2164	1585	389	2083	1558	443	2283	1649	311	2174	1627	411	1954	1526	531
20	13.3	1714	1697	476	1699	1682	398	1834	1816	416	1779	1762	434	2021	2001	326	1835	1817	416	1637	1621	529
	15.8	1947	1557	415	1942	1554	394	1931	1535	437	1894	1513	456	2125	1640	319	1979	1577	413	1776	1483	530

(Dry bulb value based on 46% humidity)

18.1.2 CS-TE25TKEW CU-TE25TKE

Indoor (°C)		Outdoor DB (°C)																				
DB	WB	-10			-7			0			5			16			25			35		
		TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
27	19	2632	2311	491	2644	2325	489	2655	2291	491	2579	2305	572	2903	2488	391	2707	2432	518	2500	2244	670
	22	2903	1859	497	2857	1857	540	2871	1853	526	2986	1900	455	3198	2021	374	2966	1910	512	2645	1790	673
23	15.7	2351	2327	526	2368	2278	503	2345	2257	550	2359	2336	536	2616	2590	404	2426	2331	523	2146	2125	670
	18.4	2599	1844	492	2618	1841	476	2635	1853	492	2536	1820	560	2780	1927	394	2647	1902	519	2379	1784	671
20	13.3	2088	2067	601	2069	2048	503	2233	2211	526	2167	2164	549	2461	2436	412	2235	2212	525	1994	1974	669
	15.8	2372	1820	525	2365	1816	498	2351	1793	552	2306	1768	577	2588	1916	403	2411	1843	523	2162	1733	671

(Dry bulb value based on 46% humidity)

18.1.3 CS-TE35TKEW CU-TE35TKE

Indoor (°C)		Outdoor DB (°C)																				
DB	WB	-10			-7			0			5			16			25			35		
		TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
27	19	3782	2949	748	3800	2968	744	3815	2924	748	3707	2942	871	4172	3176	595	3890	3104	789	3500	2864	1020
	22	4172	2373	757	4105	2371	823	4125	2365	800	4291	2425	693	4596	2579	569	4262	2437	780	3801	2285	1024
23	15.7	3378	3345	801	3403	2908	765	3369	2880	837	3390	3356	817	3759	3722	614	3487	2975	797	3084	2849	1020
	18.4	3735	2353	748	3762	2349	724	3787	2365	749	3645	2323	853	3995	2460	599	3840	2427	790	3419	2277	1021
20	13.3	3000	2970	916	2973	2695	765	3209	2862	801	3114	2762	836	3537	3501	628	3212	2901	800	2865	2718	1018
	15.8	3408	2322	799	3399	2317	758	3379	2289	841	3314	2256	878	3719	2445	613	3464	2352	796	3108	2211	1021

(Dry bulb value based on 46% humidity)

18.1.4 CS-TE42TKEW CU-TE42TKE

Indoor (°C)		Outdoor DB (°C)																				
DB	WB	-10			-7			0			5			16			25			35		
		TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
27	19	4421	3213	939	4442	3233	934	4460	3186	939	4333	3205	1093	4878	3460	746	4547	3382	990	4200	3120	1280
	22	4877	2585	950	4799	2583	1033	4823	2577	1004	5016	2642	870	5373	2810	715	4983	2655	978	4443	2489	1285
23	15.7	3949	3910	1005	3979	3167	960	3939	3138	1051	3963	3924	1025	4395	4351	771	4076	3241	1000	3606	3104	1280
	18.4	4367	2564	939	4398	2559	908	4428	2576	939	4261	2531	1070	4671	2680	752	4447	2644	992	3997	2480	1281
20	13.3	3507	3472	1149	3476	2936	961	3752	3117	1005	3641	3009	1049	4134	4093	788	3754	3161	1004	3349	2961	1277
	15.8	3984	2530	1003	3974	2525	961	3950	2493	1055	3874	2458	1102	4347	2664	770	4050	2563	998	3633	2409	1281

(Dry bulb value based on 46% humidity)

TC - Total Cooling Capacity (W)
SHC - Sensible Heat Capacity (W)
IP - Input Power (W)

18.2 Heat Mode Performance Data

Unit setting: Standard piping length, Hi Fan, Heat mode at 30°C
Voltage: 230V

18.2.1 CS-TE20TKEW CU-TE20TKE

Indoor (°C)	Outdoor WB (°C)									
DB	-15		-7		2		7		12	
	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
24	1637	839	1928	876	2510	908	2496	681	2657	678
20	1639	794	2140	870	2610	930	2700	680	2764	678
16	1545	752	2185	833	2601	885	2854	679	2930	676

18.2.2 CS-TE25TKEW CU-TE25TKE

Indoor (°C)	Outdoor WB (°C)									
DB	-15		-7		2		7		12	
	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
24	1802	888	2433	1077	2856	996	3051	811	3248	807
20	1805	840	2700	1070	2970	1020	3300	810	3379	807
16	1701	795	2757	1024	2959	971	3488	809	3581	805

18.2.3 CS-TE35TKEW CU-TE35TKE

Indoor (°C)	Outdoor WB (°C)									
DB	-15		-7		2		7		12	
	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
24	2527	1208	2974	1379	3558	1240	3586	1072	3817	1066
20	2530	1143	3300	1370	3700	1270	4000	1070	3971	1066
16	2385	1082	3369	1312	3687	1209	4100	1069	4209	1064

18.2.4 CS-TE42TKEW CU-TE42TKE

Indoor (°C)	Outdoor WB (°C)									
DB	-15		-7		2		7		12	
	TC	IP	TC	IP	TC	IP	TC	IP	TC	IP
24	3089	1528	3514	1731	4526	1787	4623	1372	4921	1365
20	3094	1446	3900	1720	4930	1830	5000	1370	5119	1365
16	2916	1369	3982	1647	4689	1742	5285	1369	5426	1362

TC - Total Cooling Capacity (W)
IP - Input Power (W)

19. Service Data

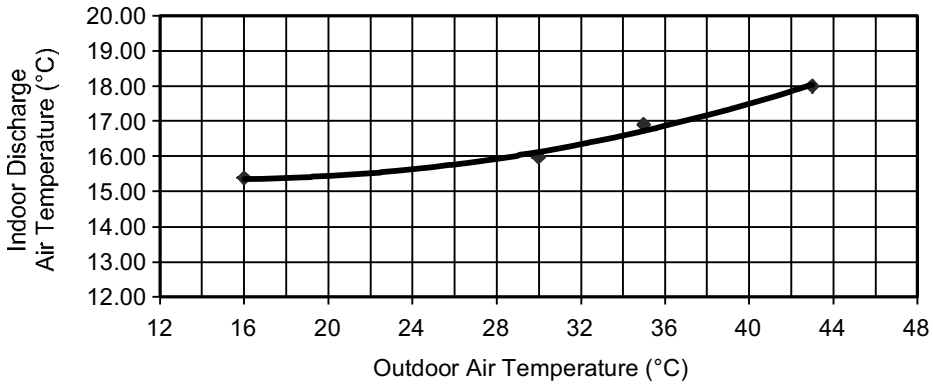
Service data provided are based on the air conditioner running under rated frequency during forced cooling / forced heating mode.

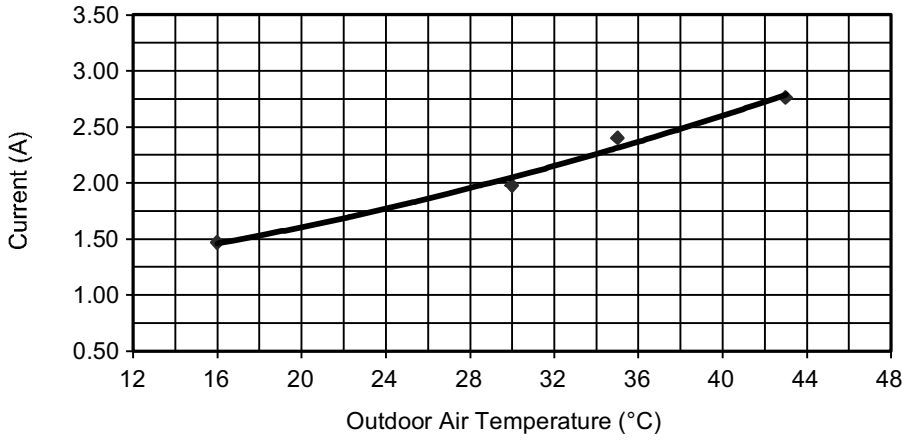
19.1 Cool Mode Outdoor Air Temperature Characteristic

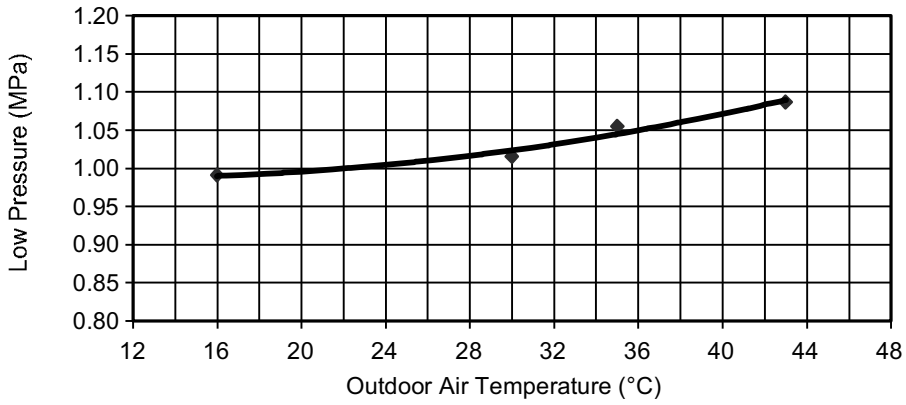
Condition

- Indoor room temperature: 27°C Dry Bulb/19°C Wet Bulb
- Unit setting: Standard piping length, forced cooling at 16°C, Hi fan
- Compressor frequency: Rated for cooling operation
- Piping length: 5m
- Voltage: 230V

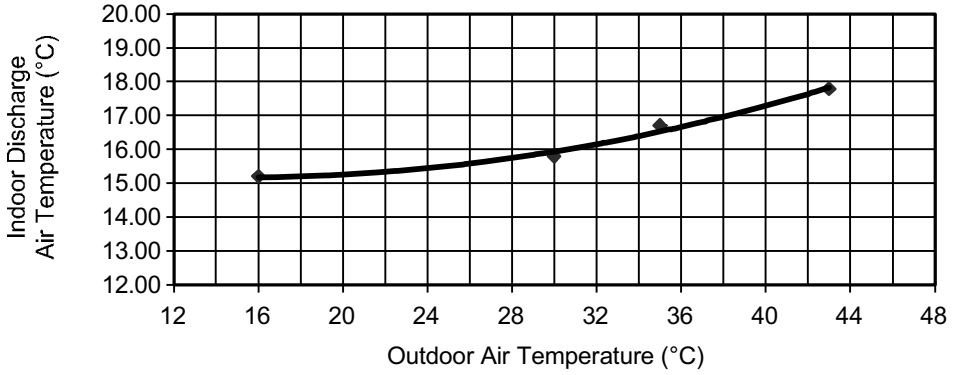
19.1.1 CS-TE20TKEW CU-TE20TKE

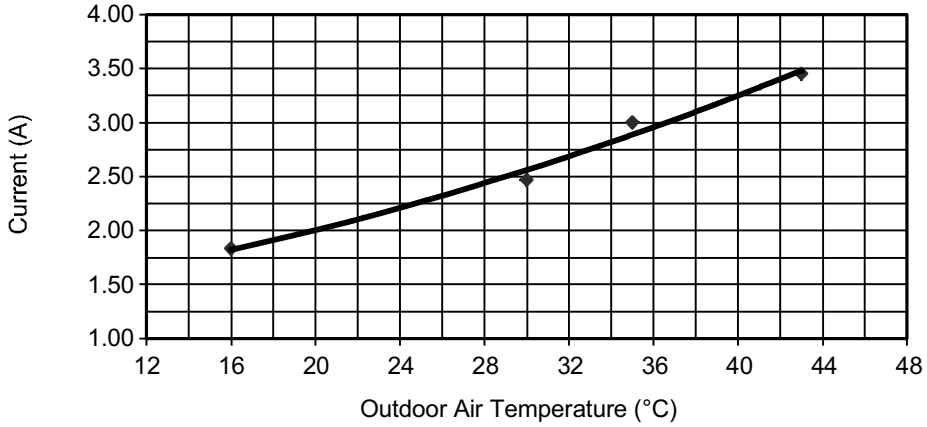


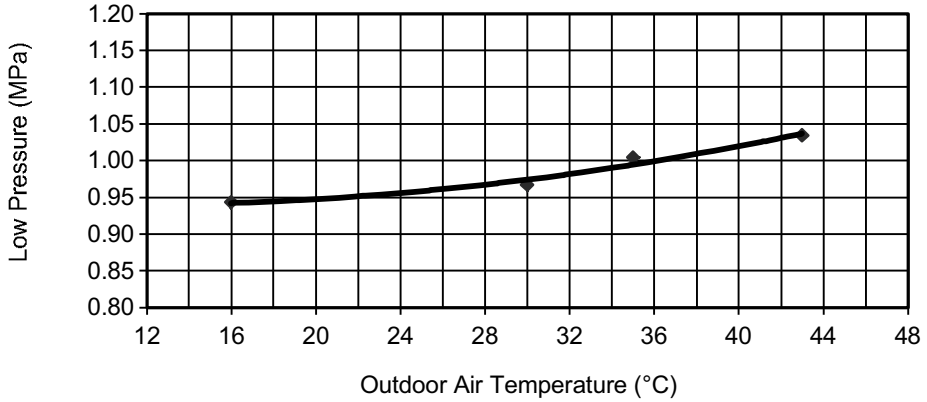




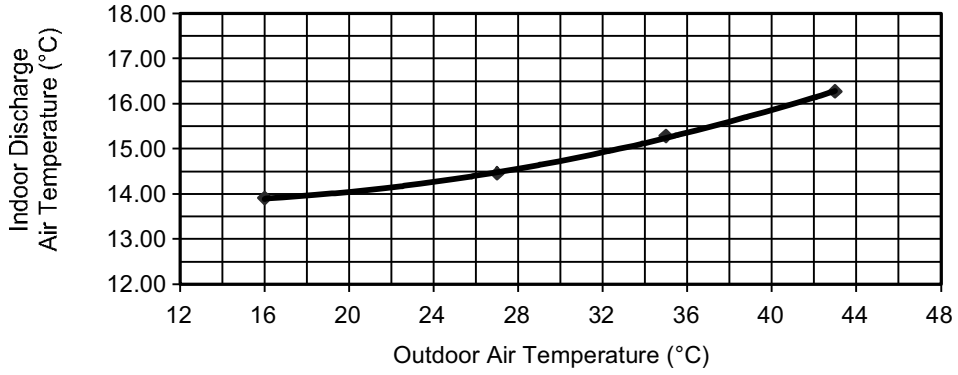
19.1.2 CS-TE25TKEW CU-TE25TKE

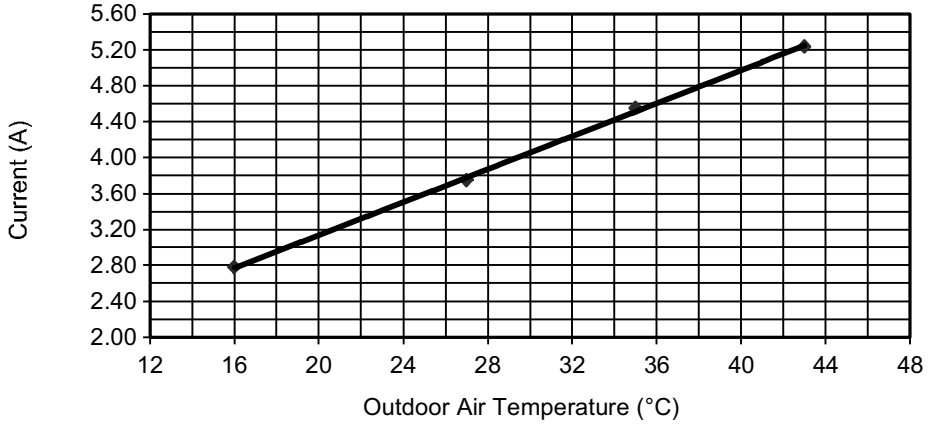


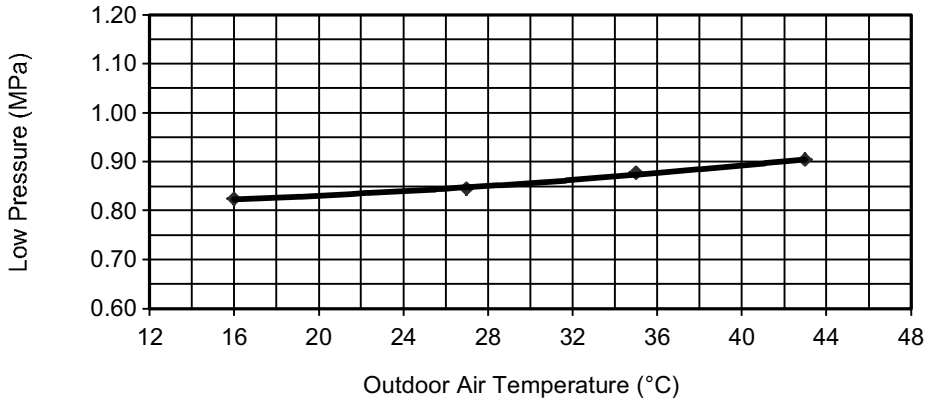




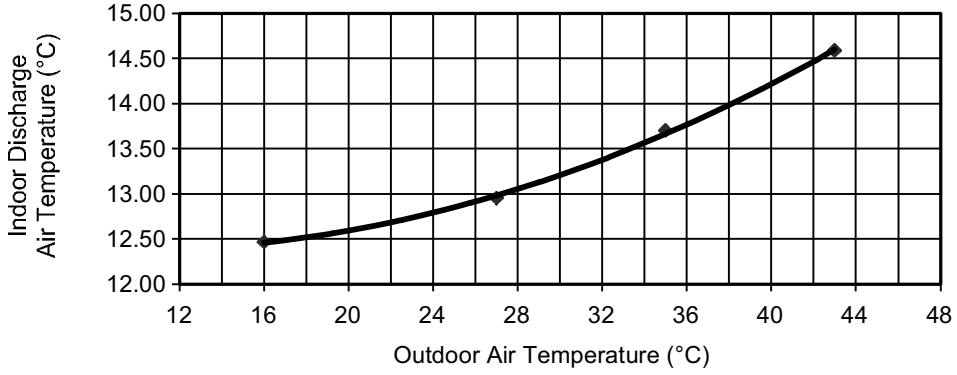
19.1.3 CS-TE35TKEW CU-TE35TKE

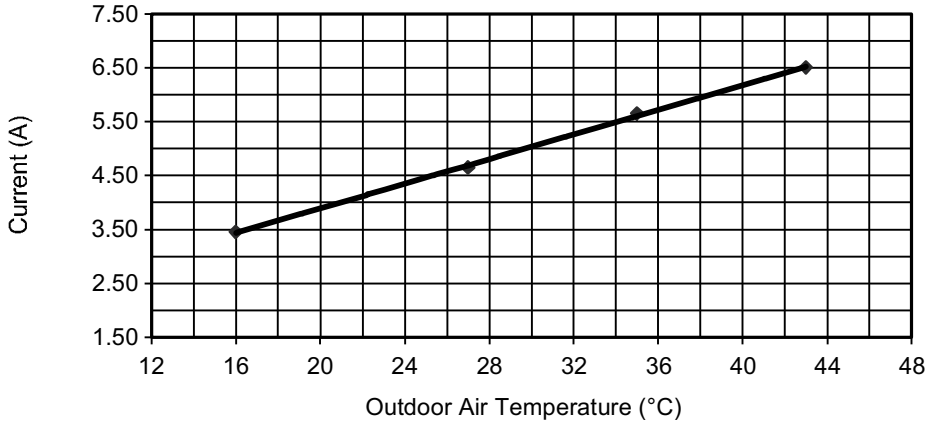


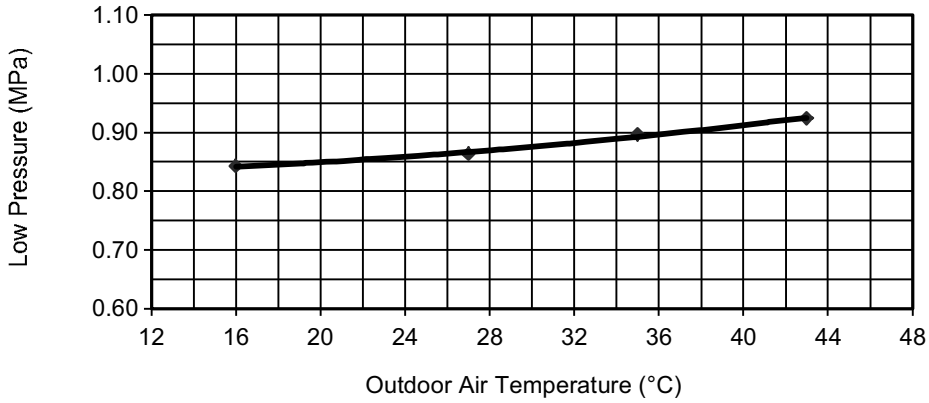




19.1.4 CS-TE42TKEW CU-TE42TKE





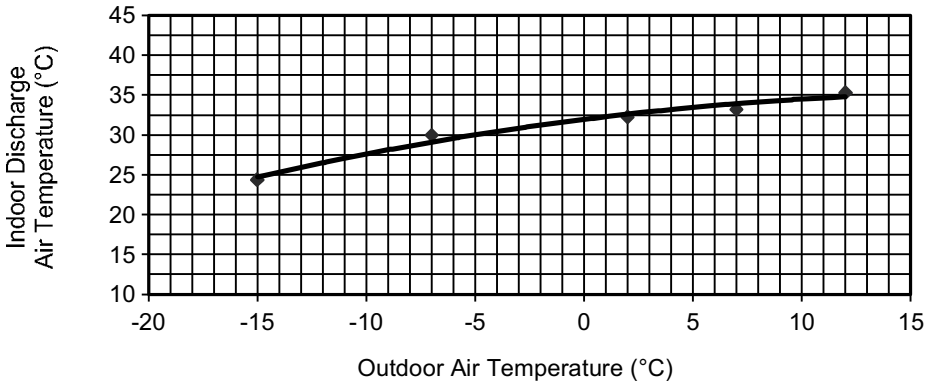


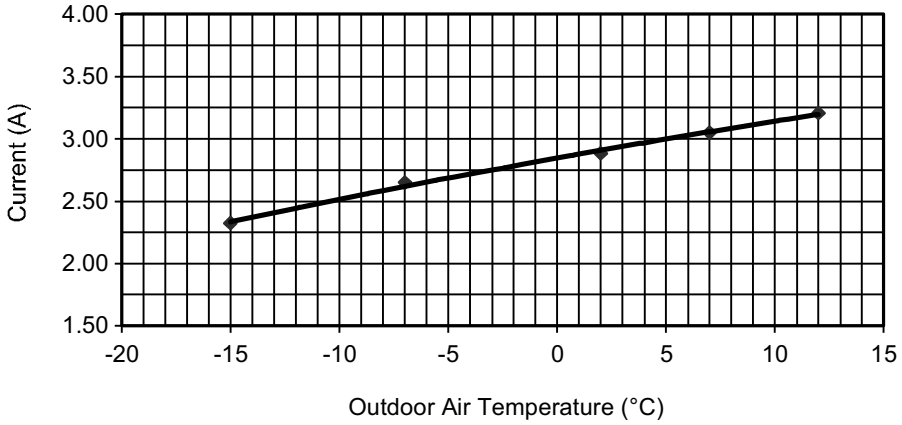
19.2 Heat Mode Outdoor Air Temperature Characteristic

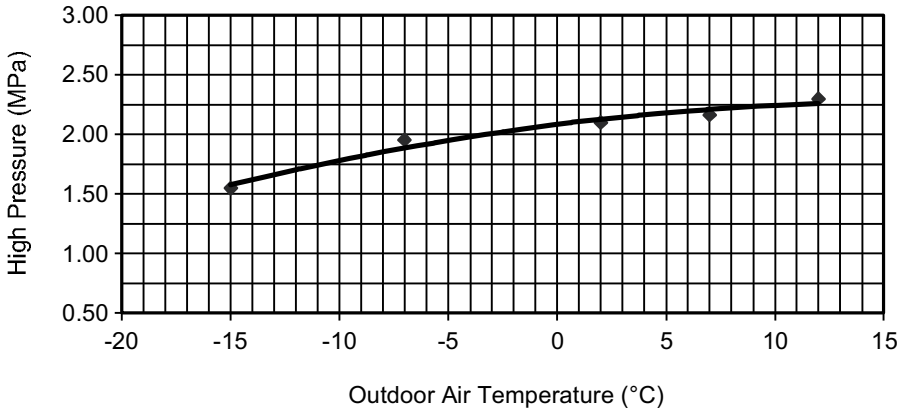
Condition

- Indoor room temperature: 20°C Dry Bulb/ -°C Wet Bulb
- Unit setting: Standard piping length, forced heating at 30°C, Hi fan
- Compressor frequency: Rated for Heating operation
- Piping length: 5m
- Voltage: 230V

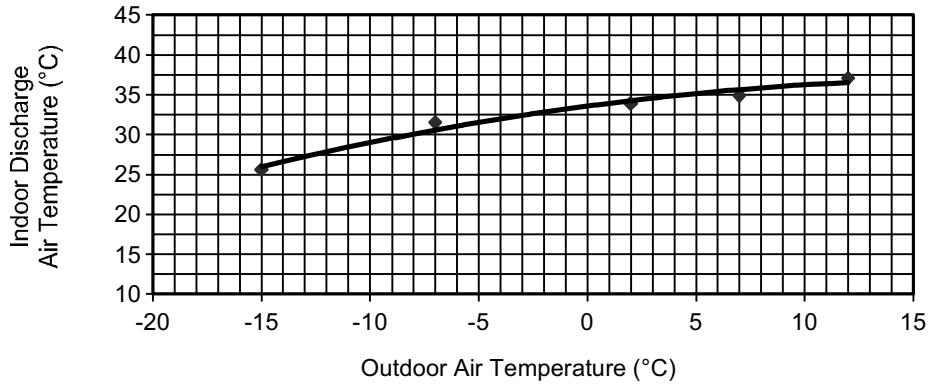
19.2.1 CS-TE20TKEW CU-TE20TKE

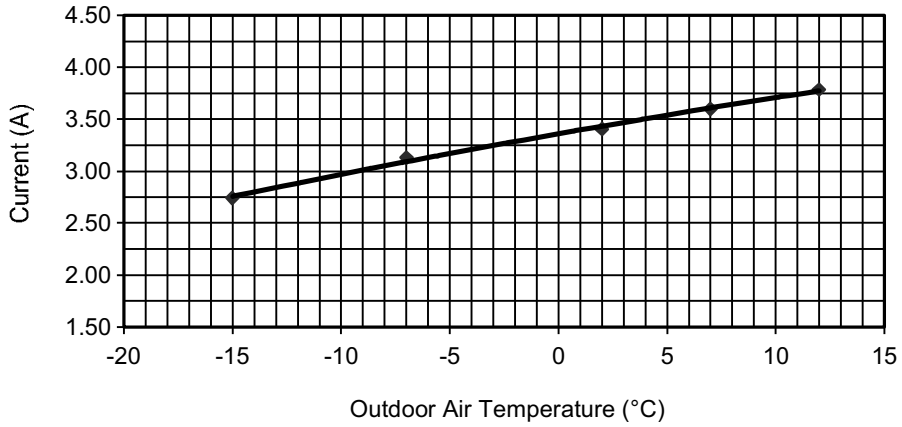


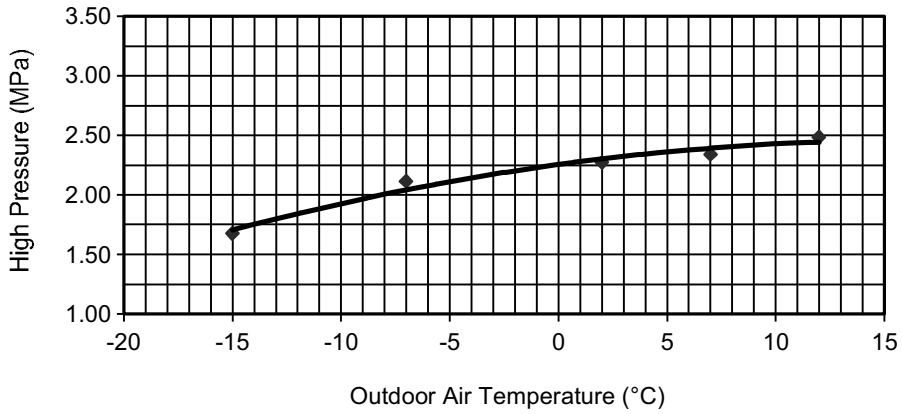




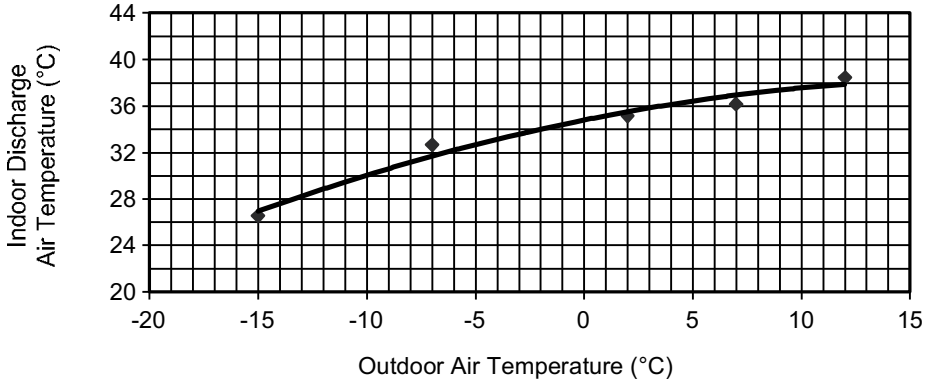
19.2.2 CS-TE25TKEW CU-TE25TKE

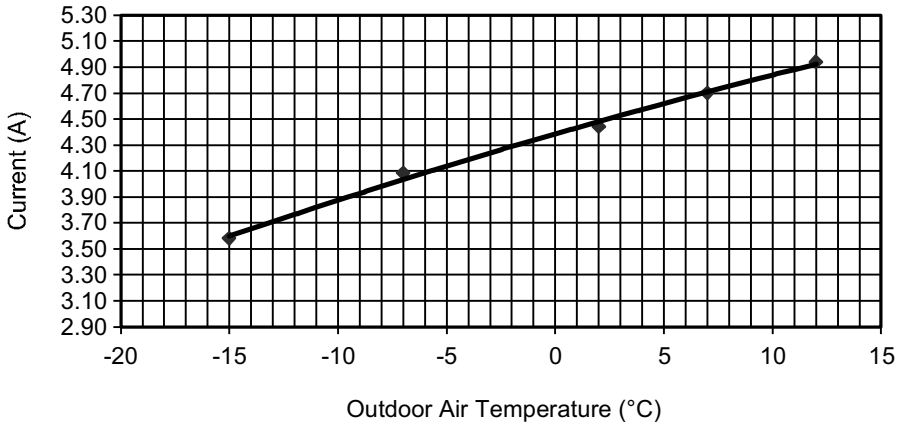


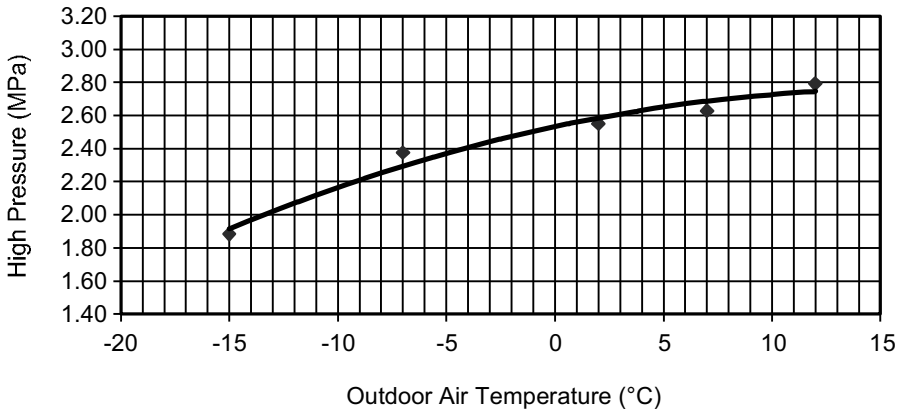




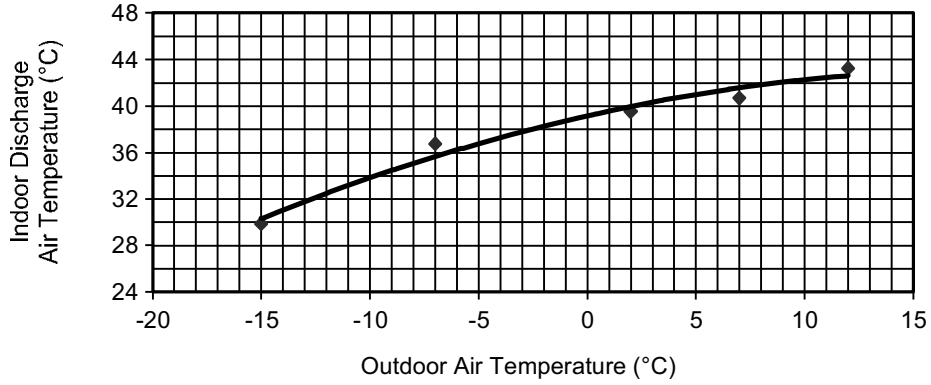
19.2.3 CS-TE35TKEW CU-TE35TKE

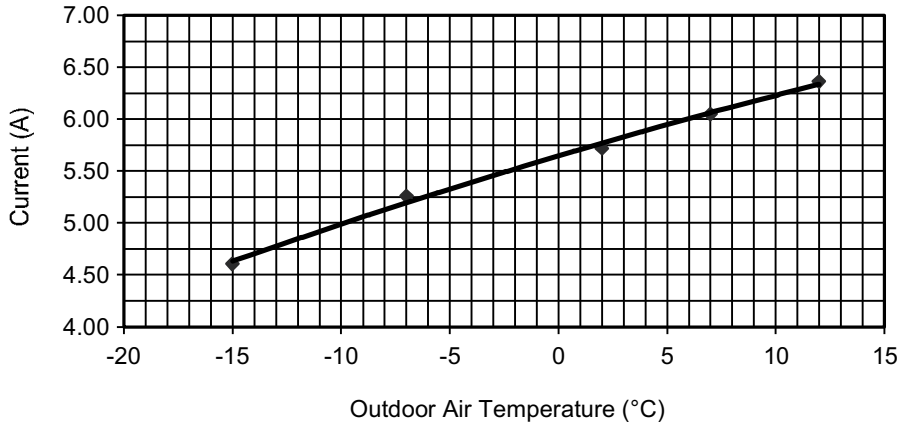


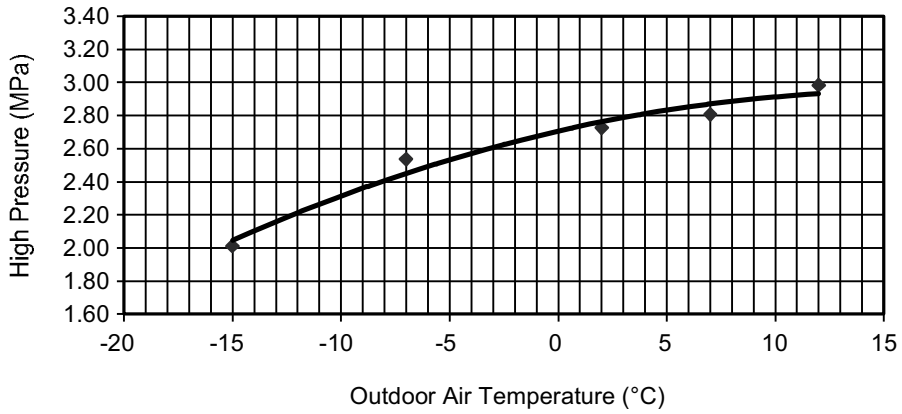




19.2.4 CS-TE42TKEW CU-TE42TKE



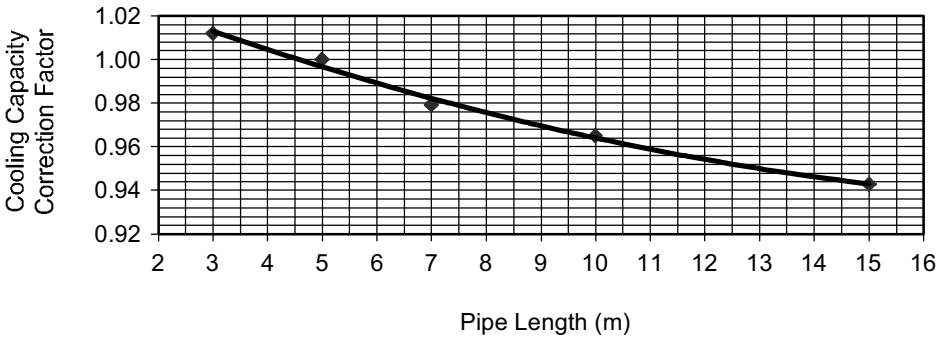


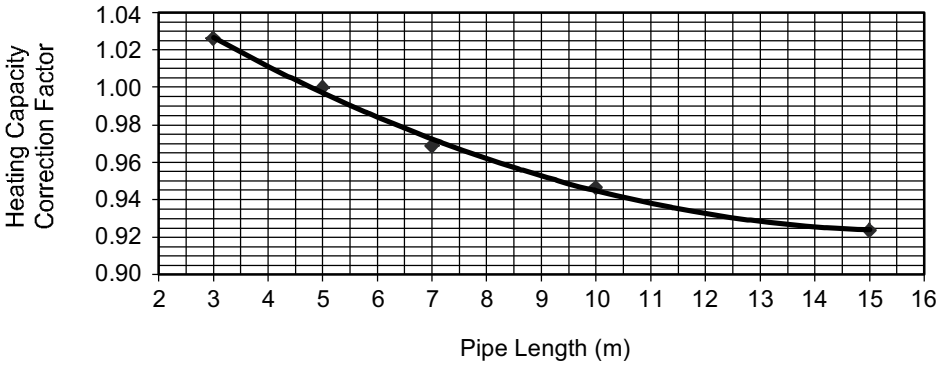


19.3 Piping Length Correction Factor

The characteristic of the unit has to be corrected in accordance with the piping length.

19.3.1 CS-TE20TKEW CU-TE20TKE CS-TE25TKEW CU-TE25TKE CS-TE35TKEW CU-TE35TKE CS-TE42TKEW CU-TE42TKE





Note: The graphs show the factor after added right amount of additional refrigerant.