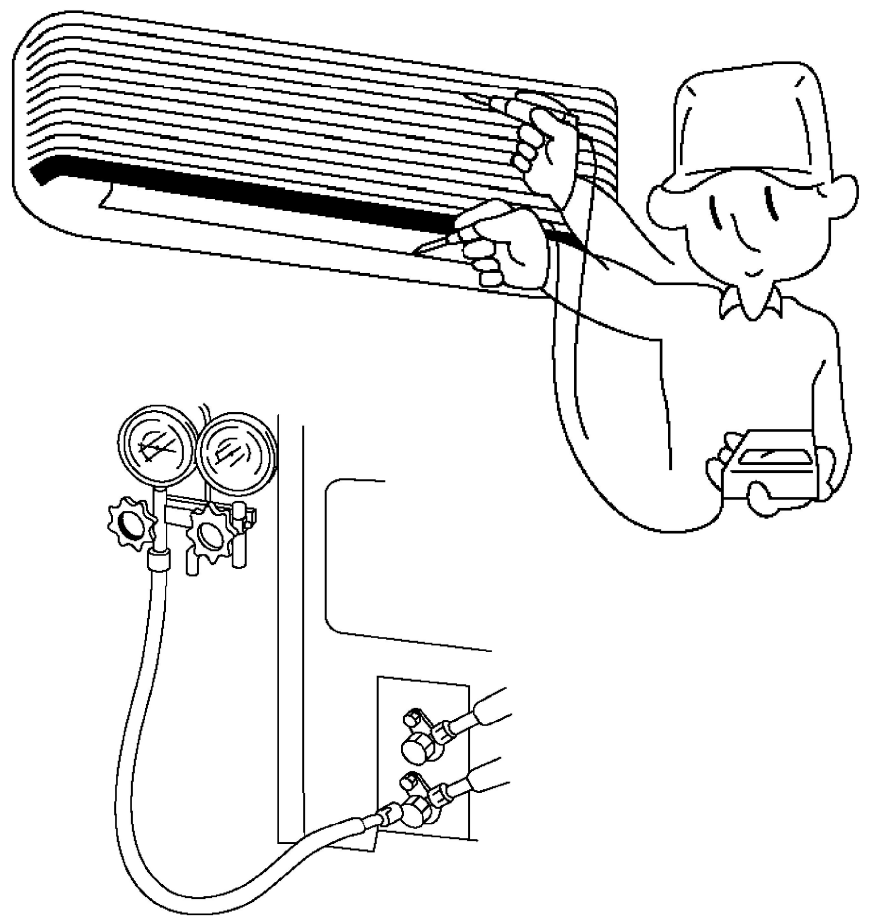


Guía de Consulta

Climatizadores

Diagnóstico del
Circuito Frigorífico



2002

Doméstico R22 / R410A

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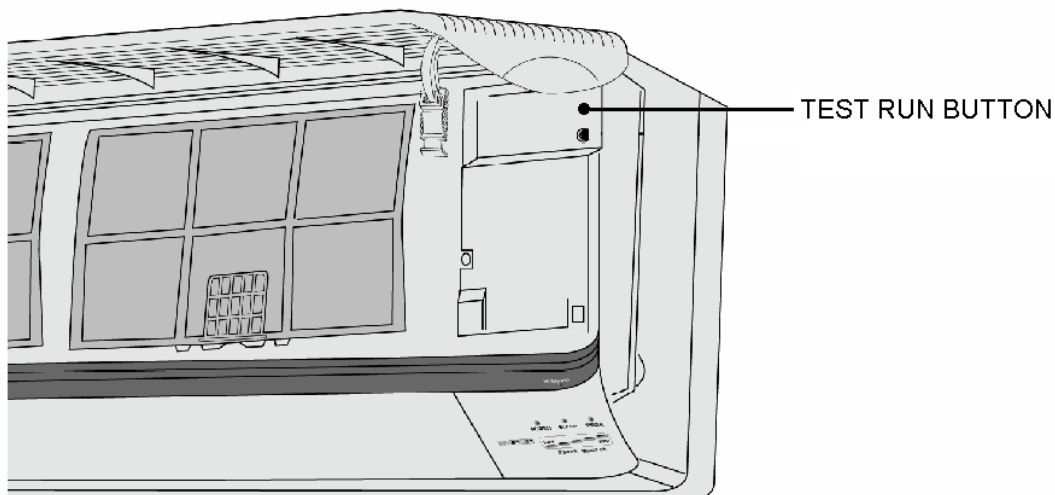
1. FUNCIONAMIENTO EN MODO PRUEBA: EL “TEST RUN”

1.1. Modelos convencionales de las Series “0”, “1” y “3” (p.ej: CS-C123KE, CS-MC71KE, CS-MA90KE...)

En la búsqueda de averías y el mantenimiento, es recomendable operar la unidad en modo TEST RUN para poder comprobar correctamente el funcionamiento del circuito frigorífico. Durante el funcionamiento en TEST RUN la unidad funciona sin responder a las mediciones de las sondas de temperatura, por lo que no efectúa paros termostáticos.

Refrigeración

- Pulsar el botón TEST RUN que está en el frontal de la unidad interior. La unidad comenzará a funcionar en refrigeración. (Se oye un “bip”).

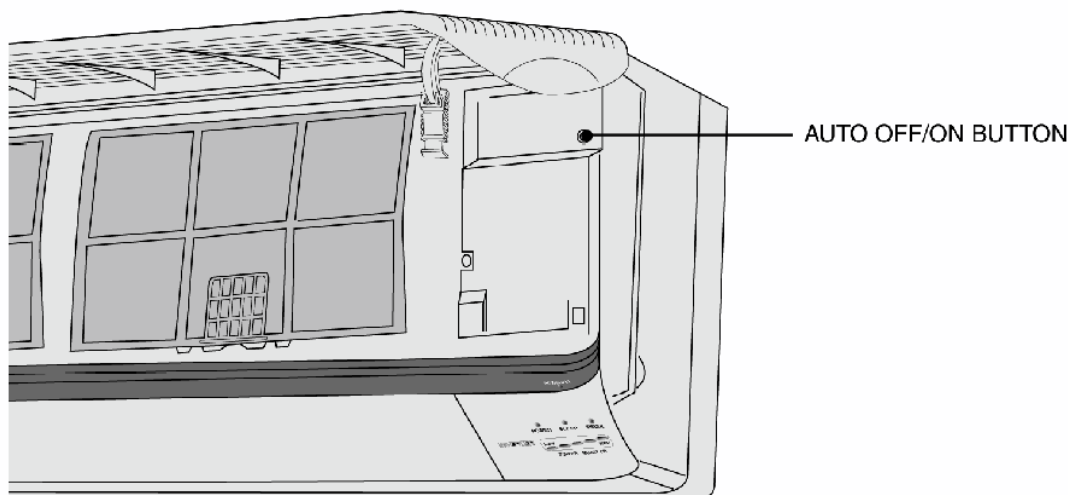


1.2. Modelos convencionales de las Series “5” y “6” (p.ej: CS-C95KE, CS-MC76KE, CS-MA125KE...)

En la búsqueda de averías y el mantenimiento, es recomendable operar la unidad en modo TEST RUN para poder comprobar correctamente el funcionamiento del circuito frigorífico. Durante el funcionamiento en TEST RUN la unidad funciona sin responder a las mediciones de las sondas de temperatura, por lo que no efectúa paros termostáticos.

Refrigeración

- Pulsar el botón AUTO que está en la unidad interior durante más de 5 y menos de 10 segundos. La unidad comenzará a funcionar en refrigeración a frecuencia fija. (En el 5º segundo se oye un “bip”).

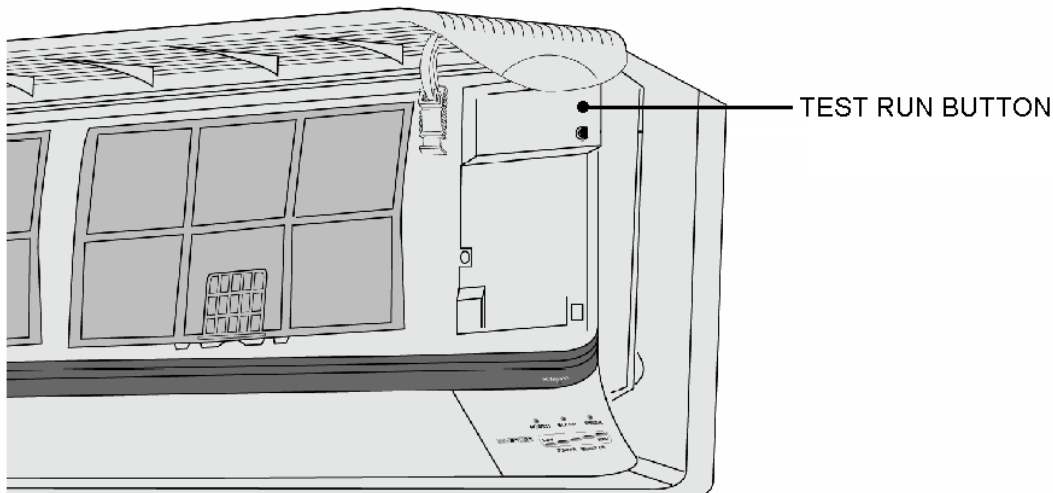


1.3. Modelos Inverter de las Series “0” y “3” (p.ej: CS-G90KE, CS-G123KE, CS-MVG103KE...)

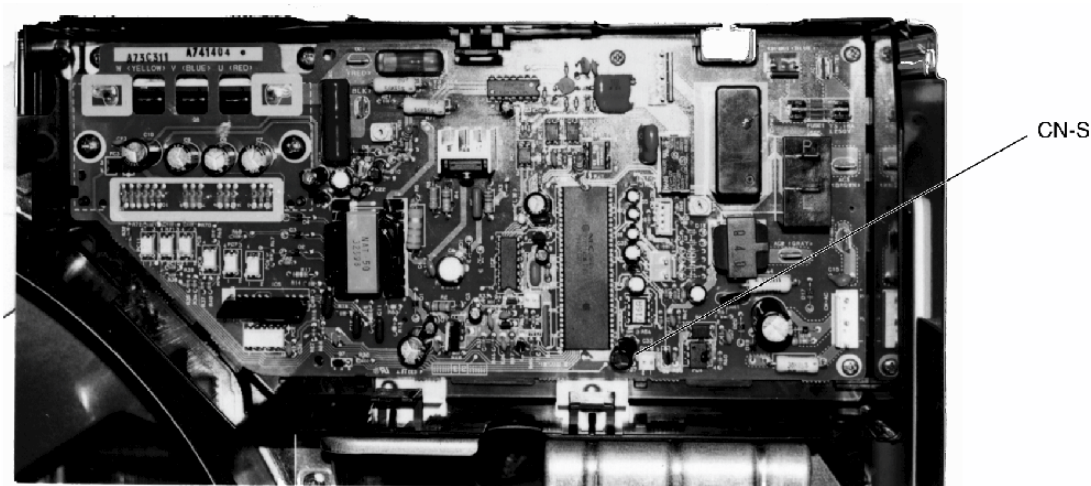
Durante la búsqueda de averías y el mantenimiento, es imprescindible operar el compresor a frecuencia fija para poder comprobar correctamente el funcionamiento de la unidad. Para ello es preciso operar la unidad en modo TEST RUN.

1. Refrigeración

- Pulsar el botón TEST RUN en la unidad interior. La unidad comenzará a funcionar en refrigeración con el compresor a frecuencia nominal fija. (Se oye un “bip”).



- Cortocircuitar el terminal (CN-S) en la placa electrónica de la unidad exterior. La unidad comenzará a funcionar en refrigeración a frecuencia nominal fija. (No aplicable al modelo CU-MVG153KE).



2. Calefacción

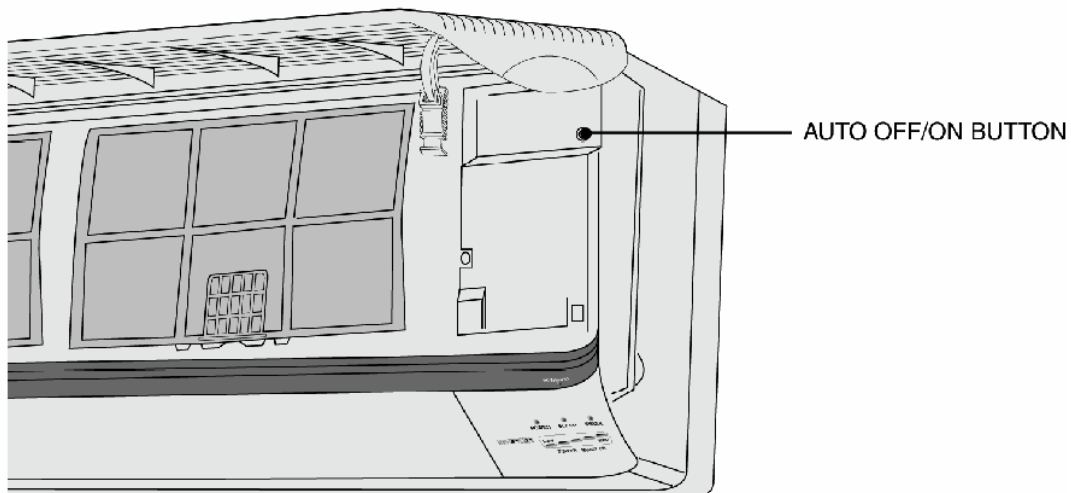
- Mantener pulsado el botón TEST RUN en la unidad interior, desconectar y conectar la alimentación, soltar el botón. La unidad comenzará a funcionar en calefacción a frecuencia nominal fija. (Se oye un “bip”).

1.4. Modelos Inverter de la Serie "5" (CS-G95KE, CS-G125KE)

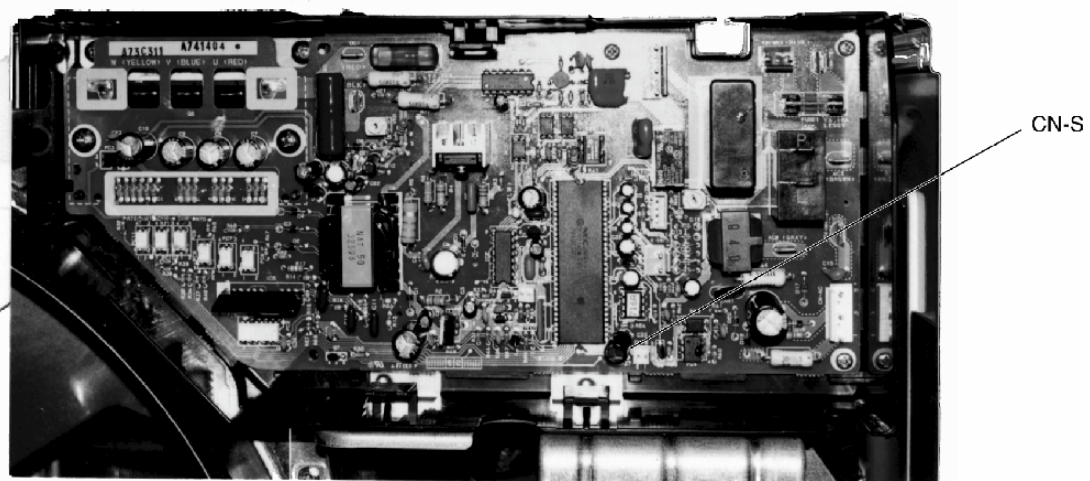
Durante la búsqueda de averías y el mantenimiento, es imprescindible operar el compresor a frecuencia fija para poder comprobar correctamente el funcionamiento de la unidad. Para ello es preciso operar la unidad en modo TEST RUN.

1. Refrigeración

- Pulsar el botón AUTO en la unidad interior durante más de 5 y menos de 8 segundos. La unidad comenzará a funcionar en refrigeración a frecuencia fija. (En el 5º segundo se oye un "bip").



- Cortocircuitar el terminal (CN-S) en la placa electrónica de la unidad exterior. La unidad comenzará a funcionar en refrigeración a frecuencia fija.



3. Calefacción

- Pulsar el botón AUTO en la unidad interior durante más de 8 y menos de 11 segundos. La unidad comenzará a funcionar en calefacción a frecuencia fija. (En el 8º segundo se oyen dos "bips").

2. DIAGNÓSTICO DE AVERÍAS EN EL CIRCUITO FRIGORÍFICO

2.1. Comprobaciones

Antes de diagnosticar problemas en el circuito frigorífico, es necesario comprobar que no hay fallos eléctricos, como pueden ser cortocircuitos, fallos del compresor, del ventilador, alimentación insuficiente, etc.

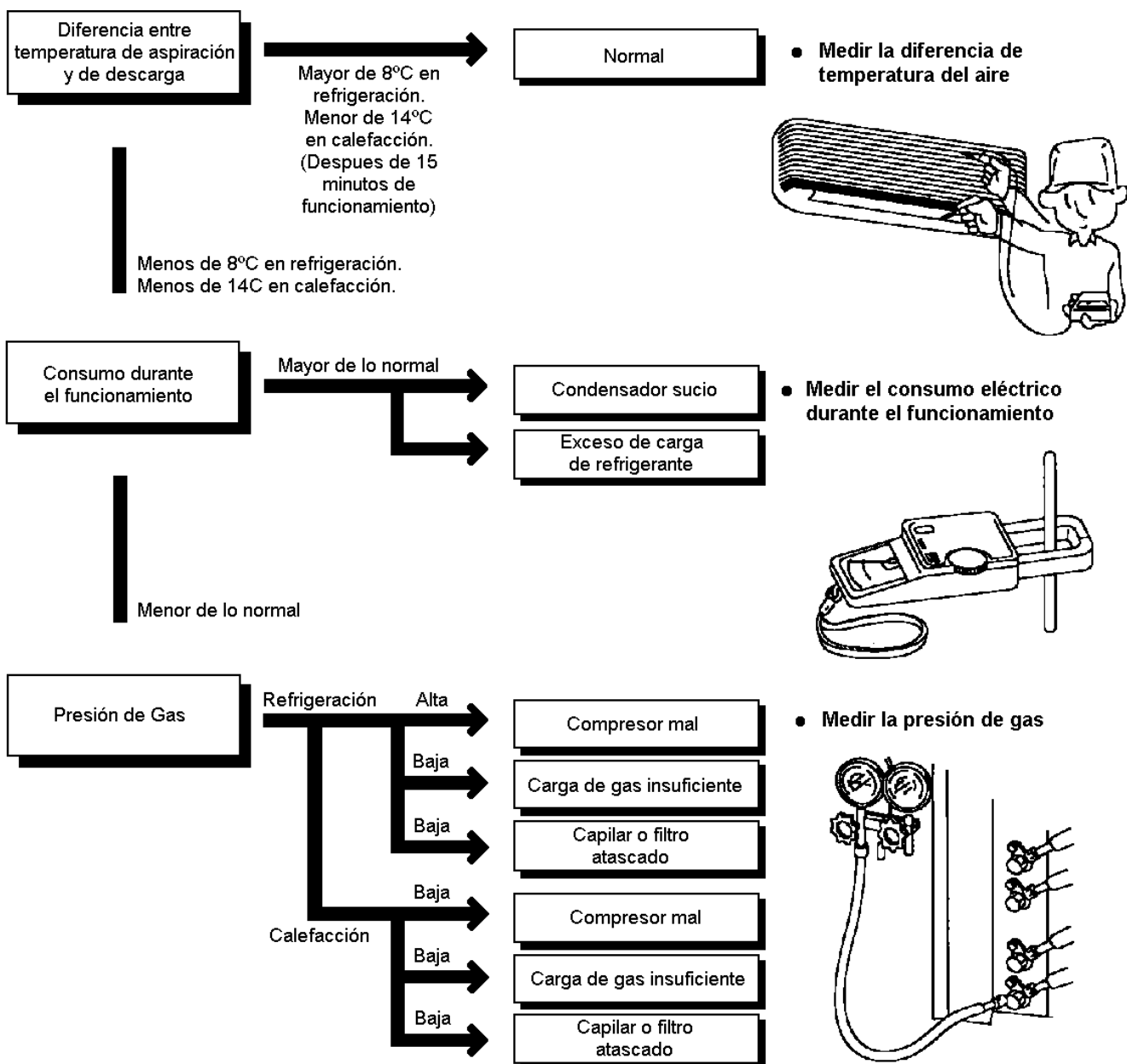
Las presiones y temperaturas de descarga de aire de la unidad interior, dependen de varios factores; los valores estándar, son los que se indican en las siguientes tablas para los distintos refrigerantes.

Modelos con R22	Presión de Gas MPa (kg/cm ² G)	Temperatura de descarga del aire (°C)
Refrigeración	0.4 ~ 0.6 (4 ~ 6)	12 ~ 16
Calefacción	1.5 ~ 2.1 (15 ~ 21)	36 ~ 45

Modelos con R410A	Presión de Gas MPa (kg/cm ² G)	Temperatura de descarga del aire (°C)
Refrigeración	0.9 ~ 1.2 (9 ~ 12)	12 ~ 16
Calefacción	2.3 ~ 2.9 (23 ~ 29)	36 ~ 45

Condiciones:

- Velocidad de ventilador: High.
- Temperatura exterior 35°C en refrigeración y 7°C en calefacción.
- Compresor funcionando a frecuencia fija en los modelos Inverter.



2.2. Relación entre las condiciones del equipo, la presión y el consumo eléctrico

Condiciones del equipo Diagnóstico	Refrigeración			Calefacción		
	Presión de baja (gas)	Presión de alta (líquido)	Consumo eléctrico	Presión de baja (gas)	Presión de alta (líquido)	Consumo eléctrico
Falta refrigerante. <i>Buscar posibles fugas.</i>	↘	↘	↘	↘	↘	↘
Obstrucción del capilar o del filtro. <i>Impurezas, humedad (tapón de hielo).</i>	↘	↘	↘	↗	↗	↘
Mal intercambio de calor en ud. interior. <i>Recirculación de aire.</i> <i>Filtros o batería interior sucios.</i>	↘	↘	↘	↗	↗	↗
Mal intercambio de calor en ud. exterior. <i>Recirculación de aire.</i> <i>Batería exterior sucia.</i>	↗	↗	↗	↘	↘	↘
Falta de compresión. <i>Compresor agotado.</i> <i>Bypass en válvula 4 vías.</i>	↗	↘	↘	↗	↘	↘

- Realice las mediciones de presión, consumo y temperatura después de 15 minutos de funcionamiento.

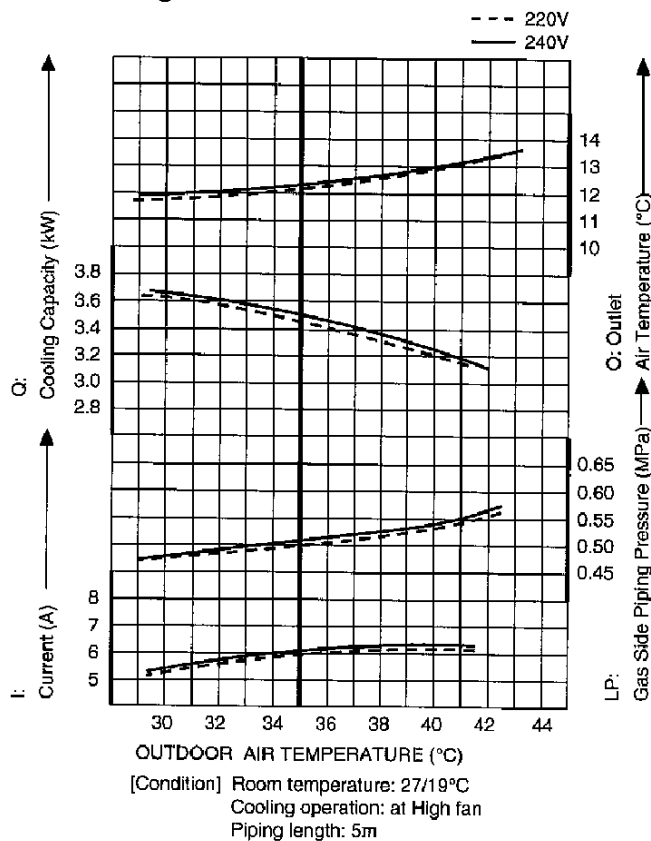
2.3. Diagnóstico de averías de compresor y de válvula de 4 vías

Avería	Síntoma
Falta de compresión	<ul style="list-style-type: none"> • El consumo eléctrico es un 20% inferior de lo normal. • El tubo de descarga de compresor está anormalmente caliente (entre 70 y 90°C). • La diferencia entre la presión de alta y de baja tiende a cero.
Compresor bloqueado	<ul style="list-style-type: none"> • El consumo aumenta anormalmente. En algunos casos salta el limitador. • El compresor hace un zumbido.
Bypass en la válvula de 4 vías	<ul style="list-style-type: none"> • El consumo eléctrico es un 80% inferior de lo normal. • La diferencia de temperatura entre los tubos de aspiración y descarga de la válvula de 4 vías tiende a cero.

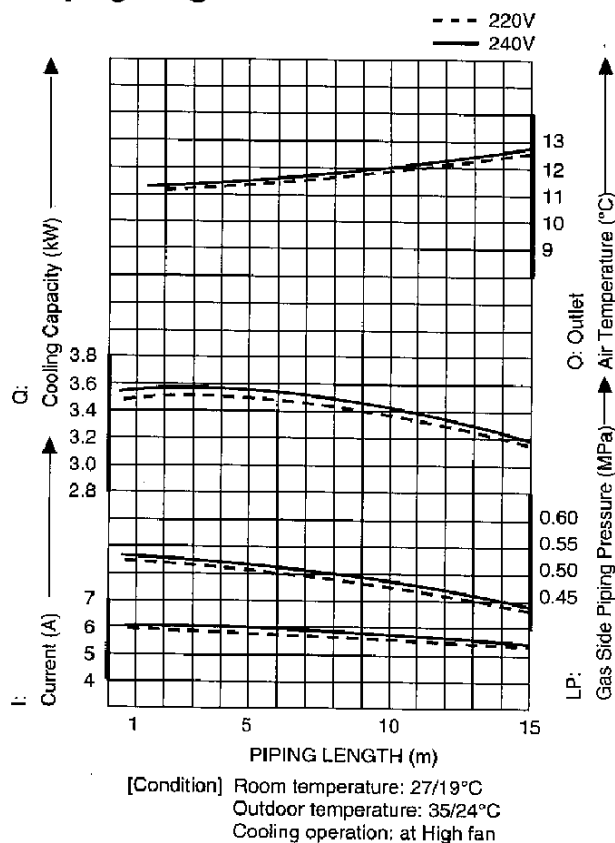
3. CARACTERÍSTICAS DE FUNCIONAMIENTO: SPLIT PARED SÓLO FRÍO

CS-C120KE / CU-C120KE

• Cooling Characteristic

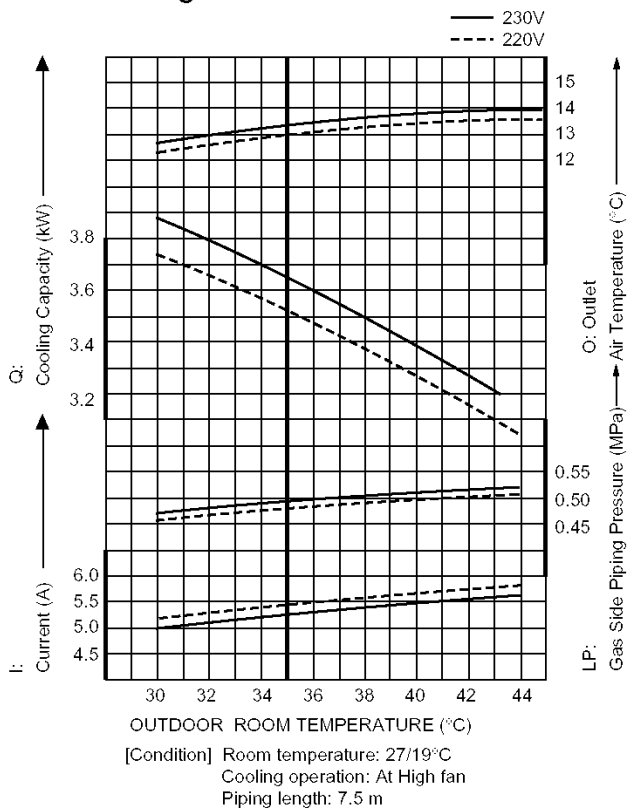


• Piping Length Characteristic

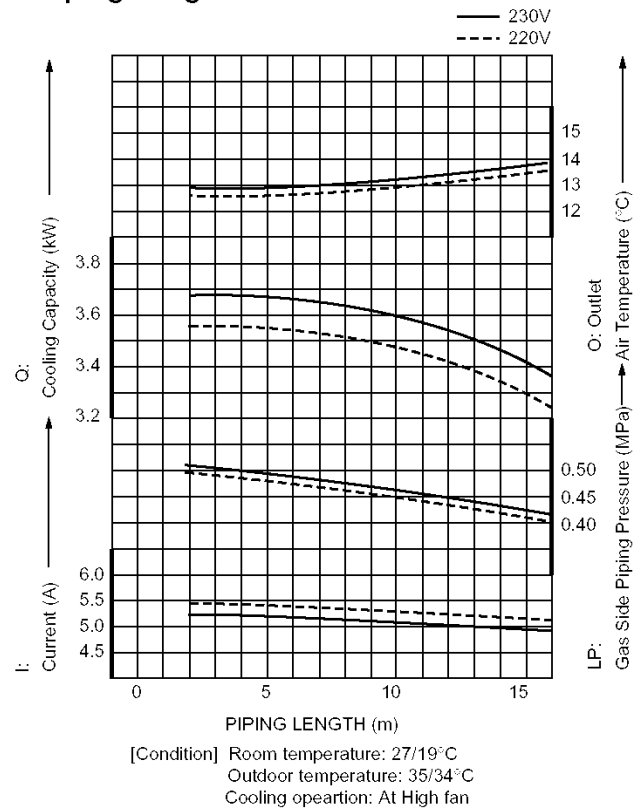


CS-C123KE / CU-C123KE, CS-C125KE / CU-C125KE

• Cooling Characteristic

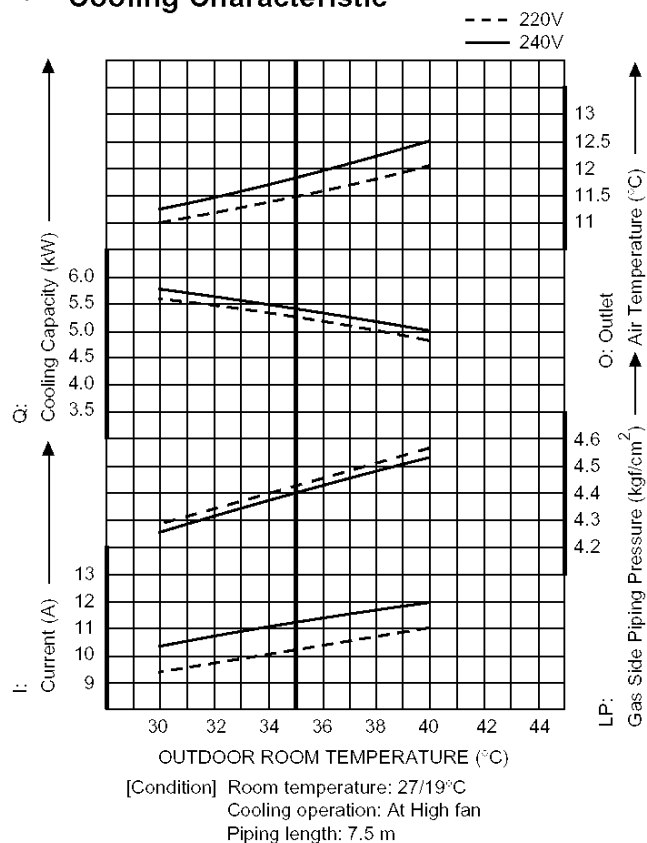


• Piping Length Characteristic

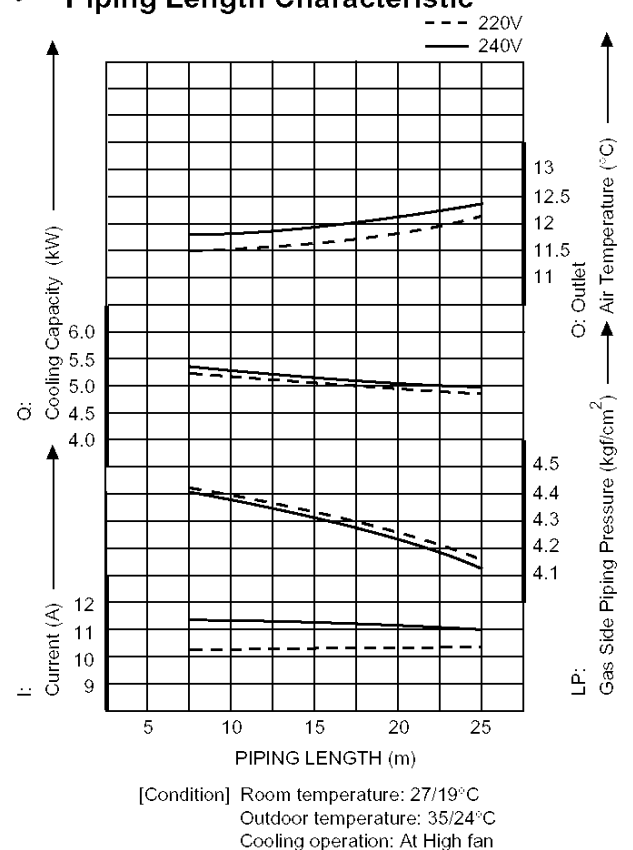


CS-C181K / CU-C181K

• Cooling Characteristic

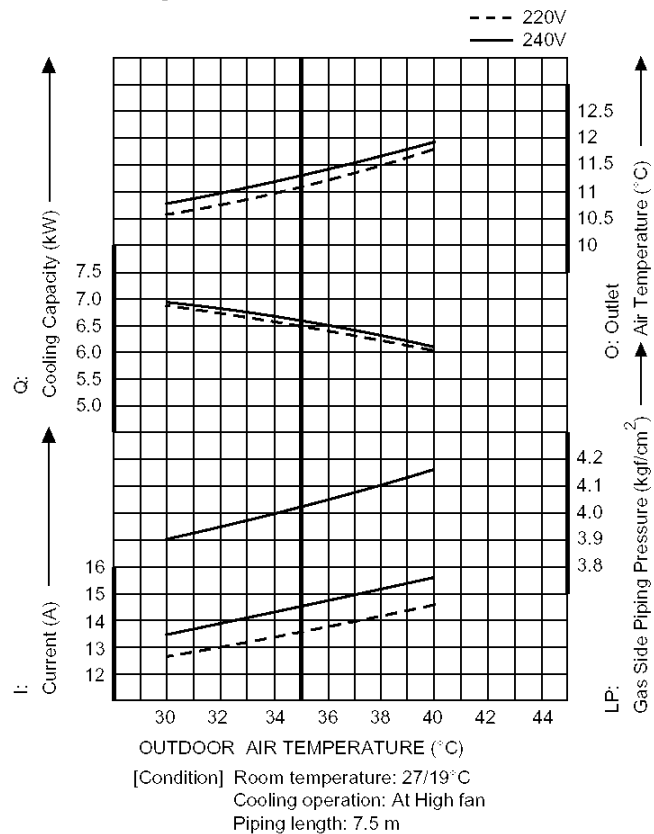


• Piping Length Characteristic

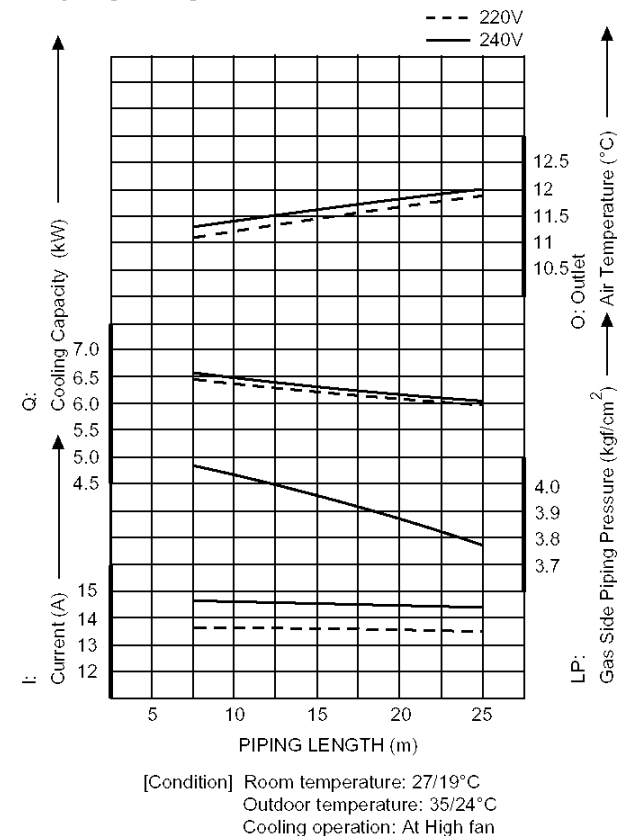


CS-C241K / CU-C241K

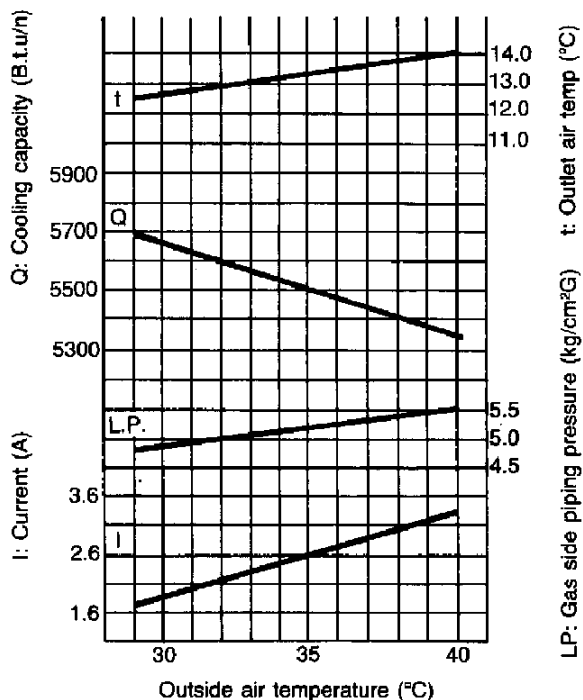
• Cooling Characteristic



• Piping Length Characteristic

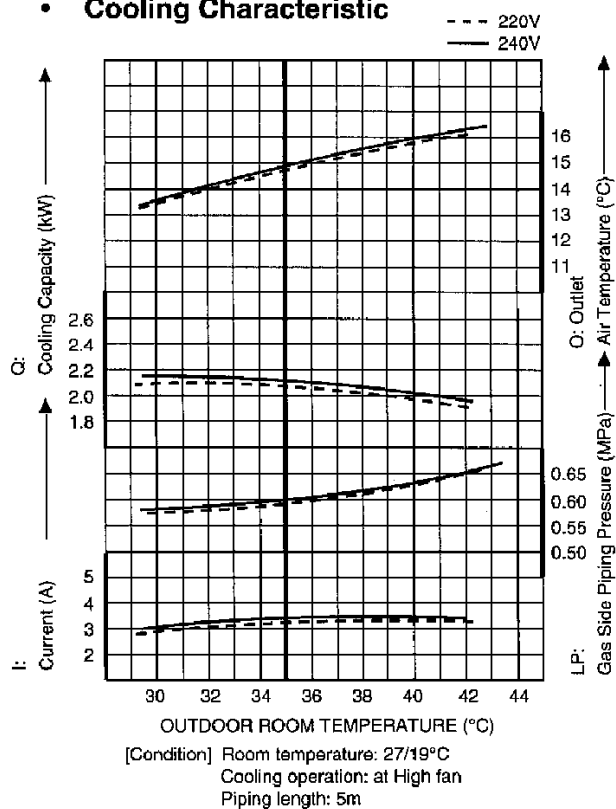


• **CS-C60KE**

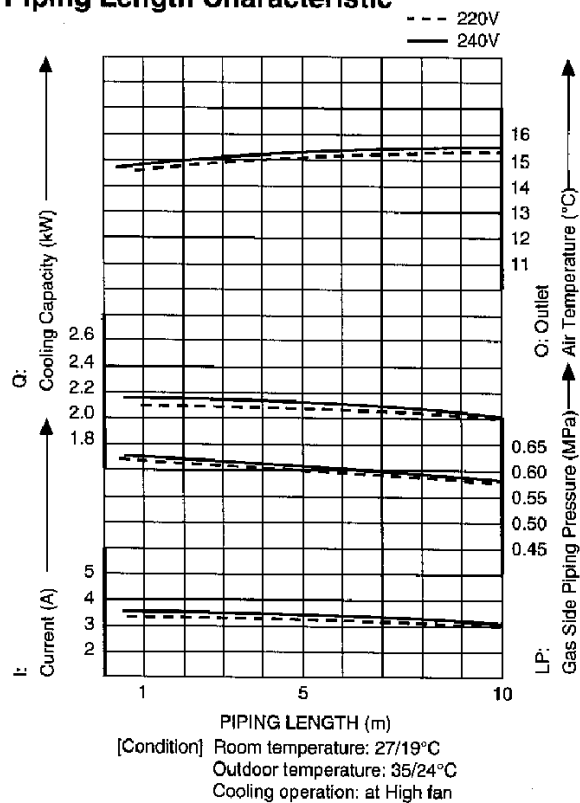


CS-C70KE / CU-C70KE

• **Cooling Characteristic**

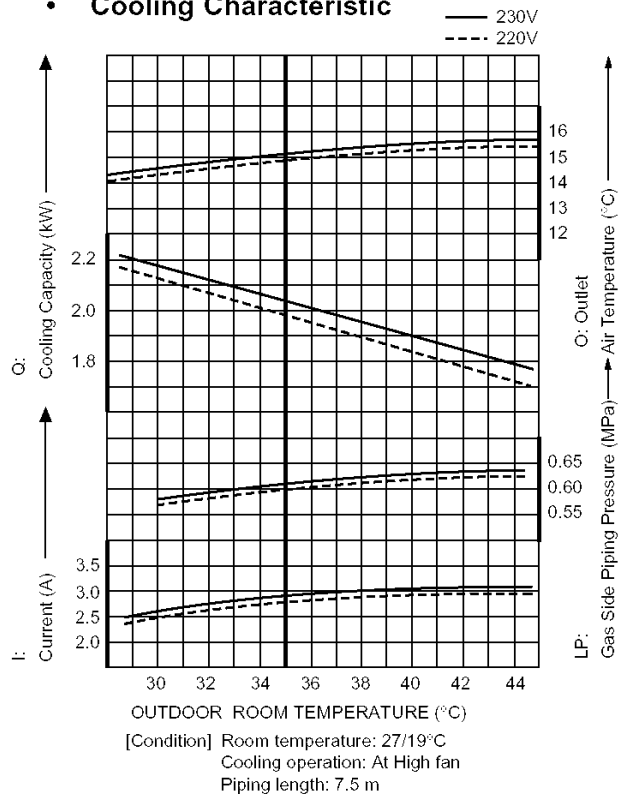


• **Piping Length Characteristic**

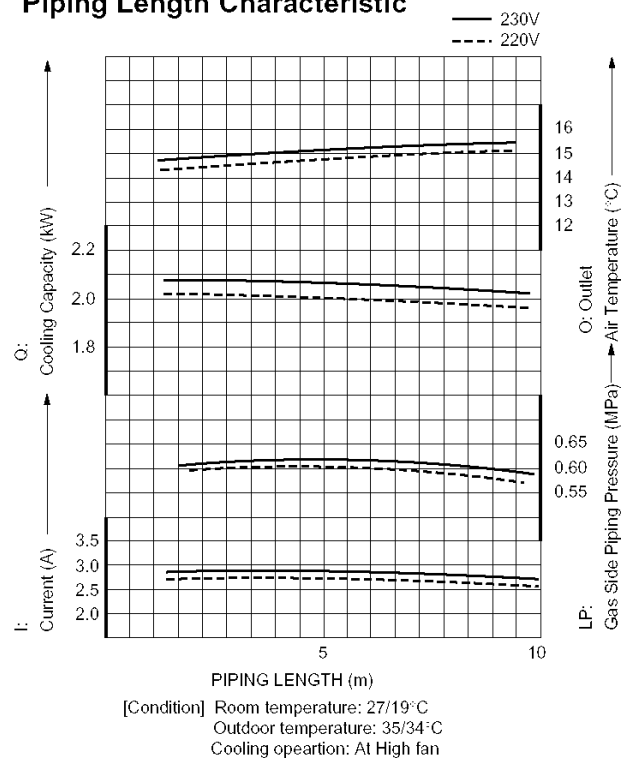


CS-C73KE / CU-C73KE, CS-C75KE /CU-C75KE

Cooling Characteristic

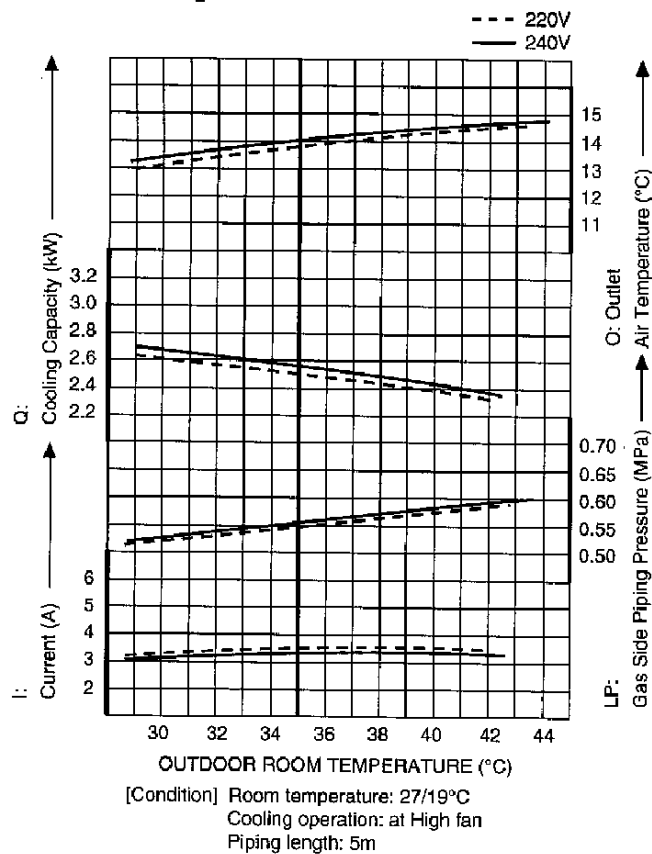


Piping Length Characteristic

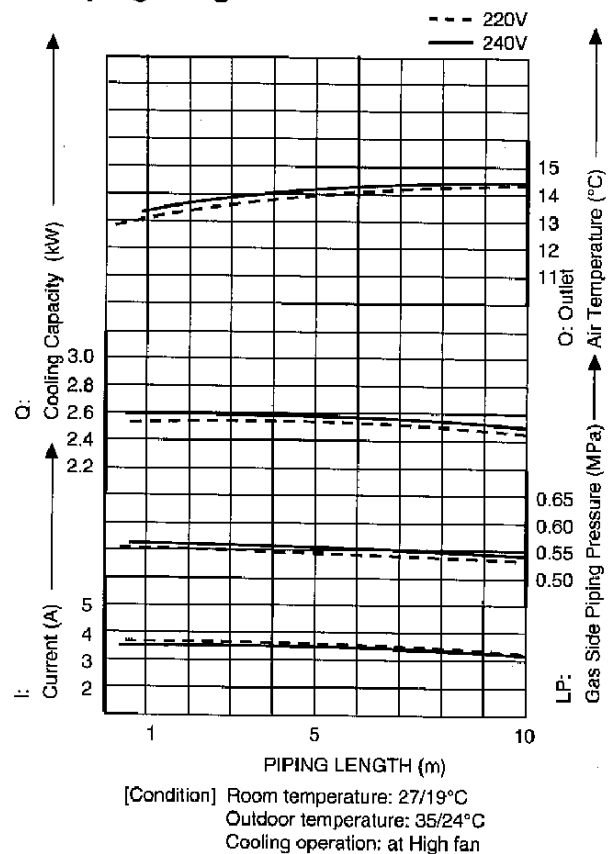


CS-C90KE / CU-C90KE

Cooling Characteristic

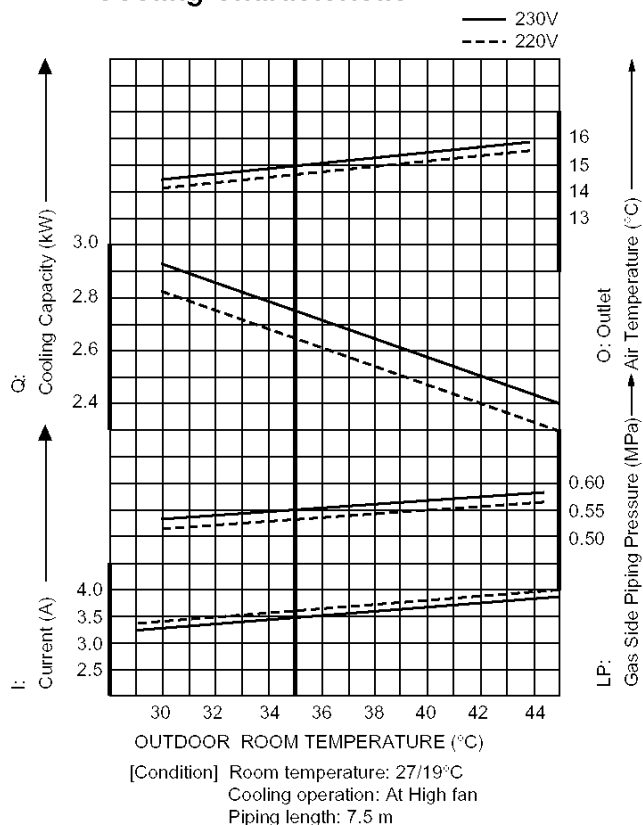


Piping Length Characteristic

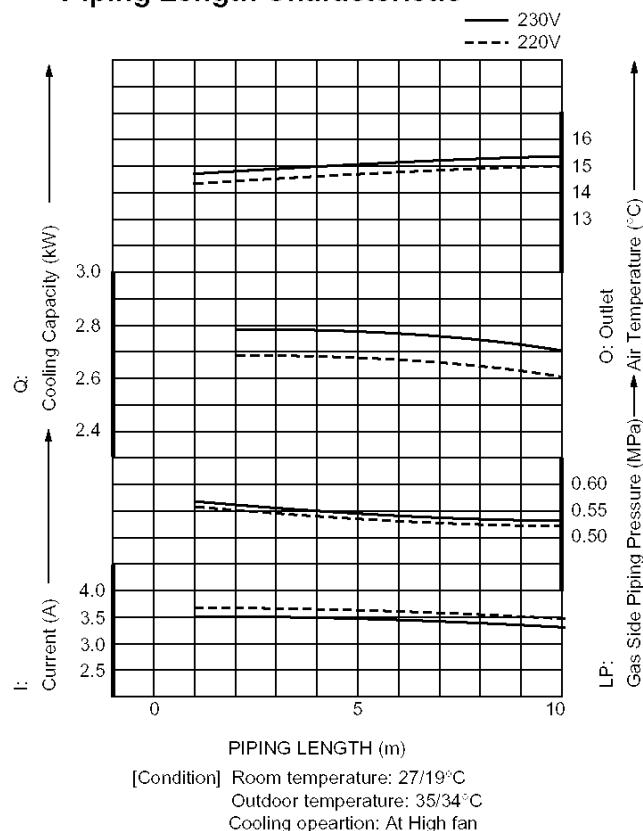


CS-C93KE / CU-C93KE, CS-C95KE / CU-C95KE

Cooling Characteristic

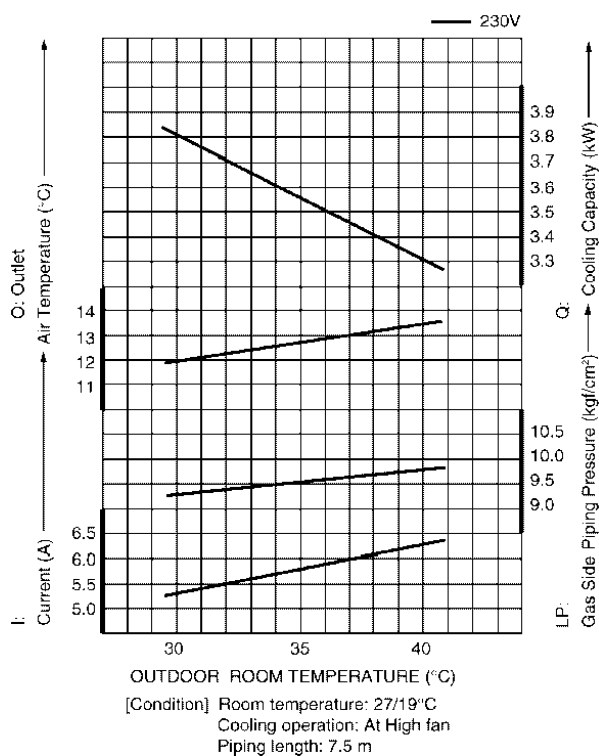


Piping Length Characteristic

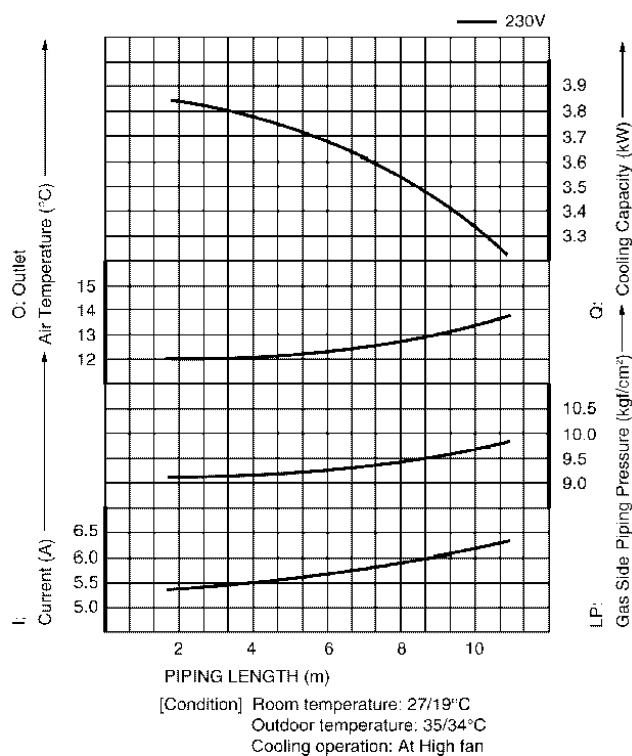


CS-VC125KE / CU-VC125KE

Cooling Characteristic



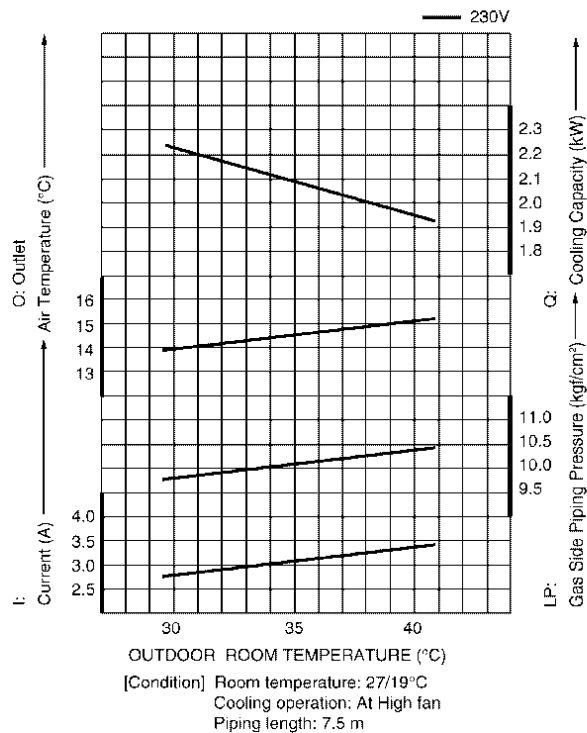
Piping Length Characteristic



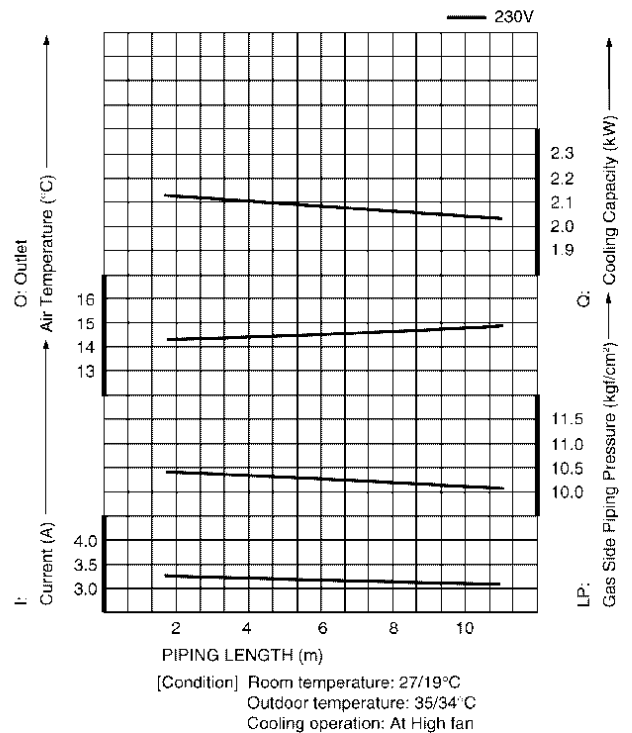
NOTA: Los modelos VC emplean refrigerante R410A.

CS-VC75KE / CU-VC75KE

• Cooling Characteristic

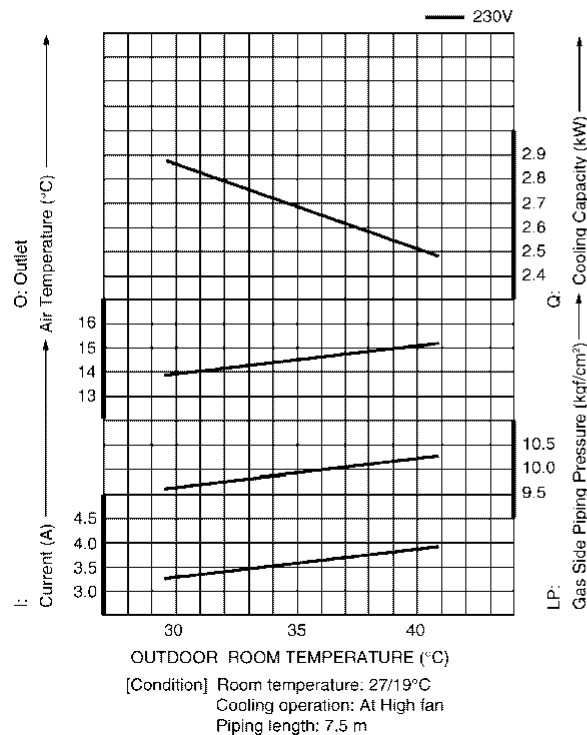


• Piping Length Characteristic

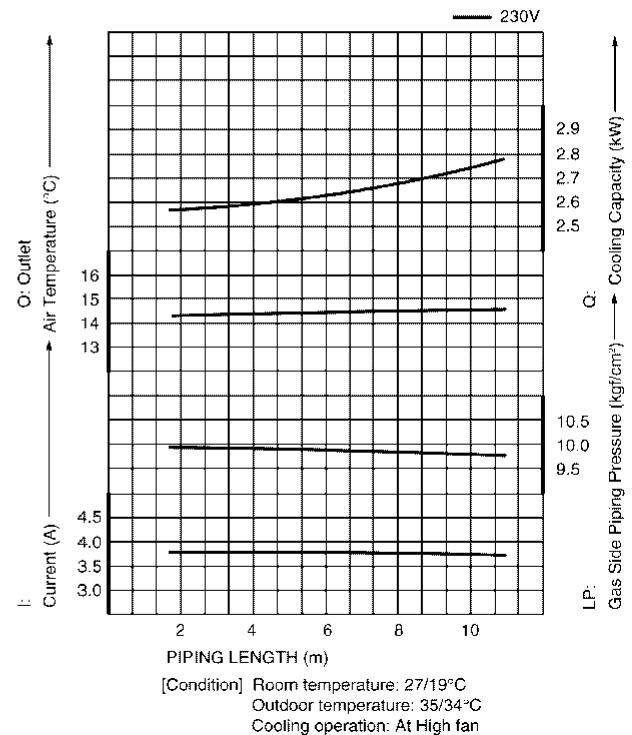


CS-VC95KE / CU-VC95KE

• Cooling Characteristic



• Piping Length Characteristic

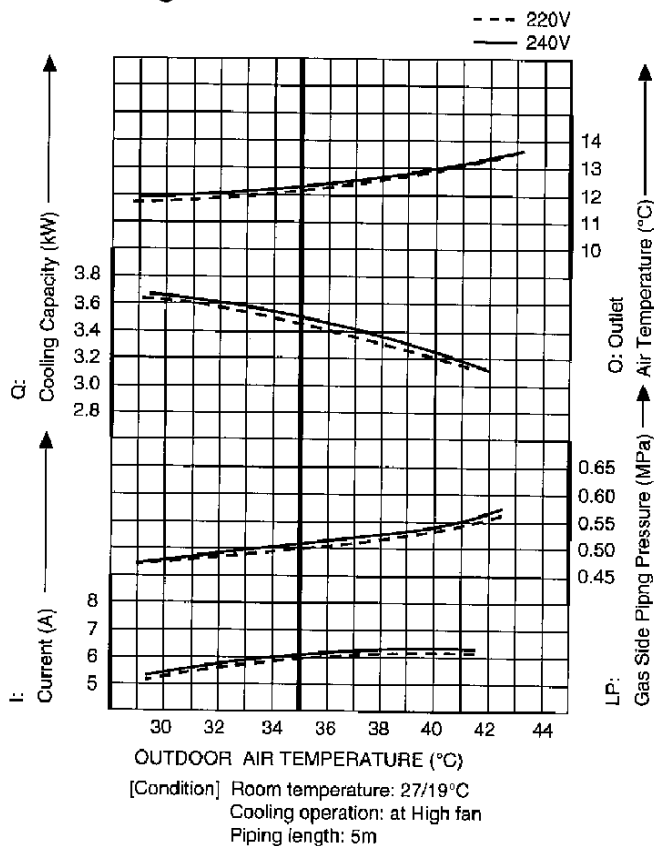


NOTA: Los modelos VC emplean refrigerante R410A.

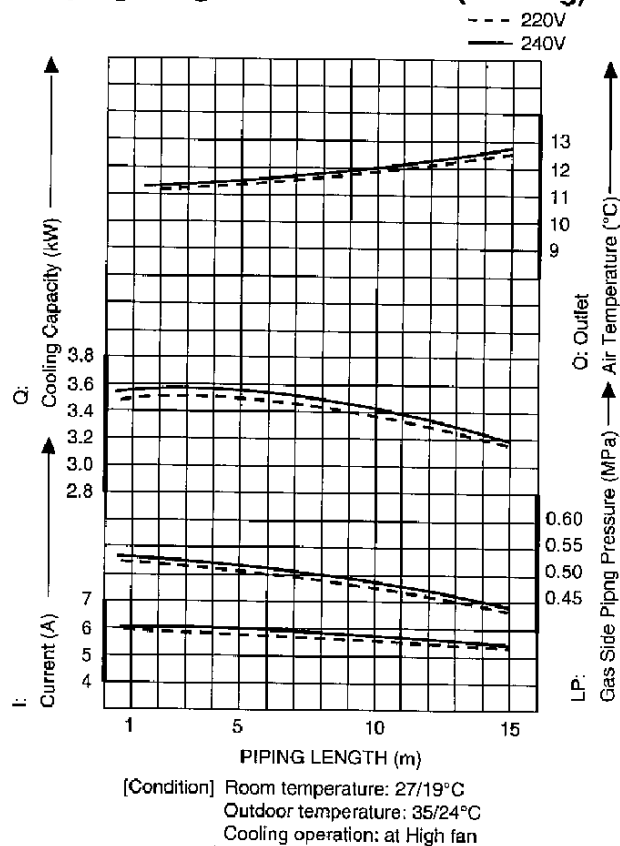
4. CARACTERÍSTICAS DE FUNCIONAMIENTO: SPLIT PARED BOMBA DE CALOR

CS-A120KE / CU-A120KE

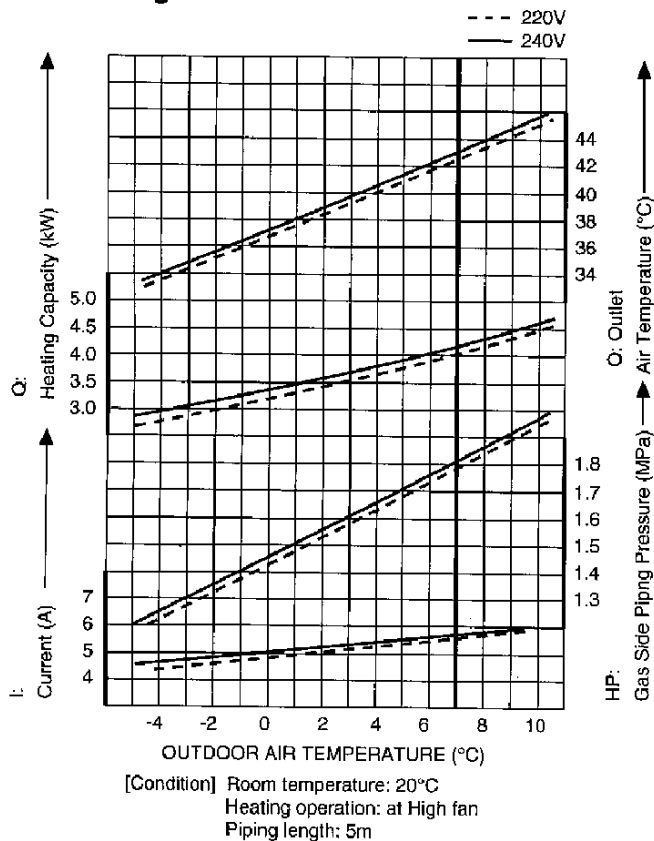
• Cooling Characteristic



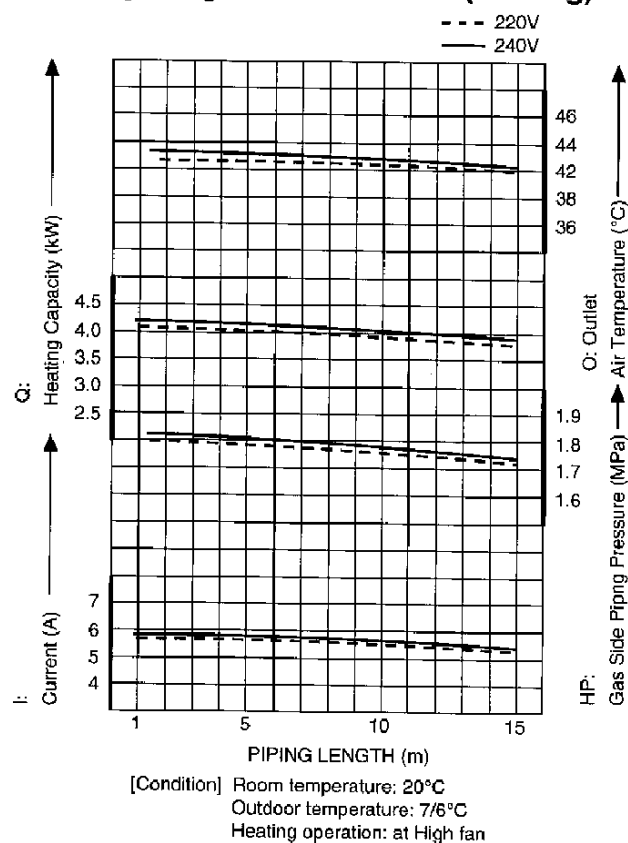
• Piping Length Characteristic (Cooling)



• Heating Characteristic

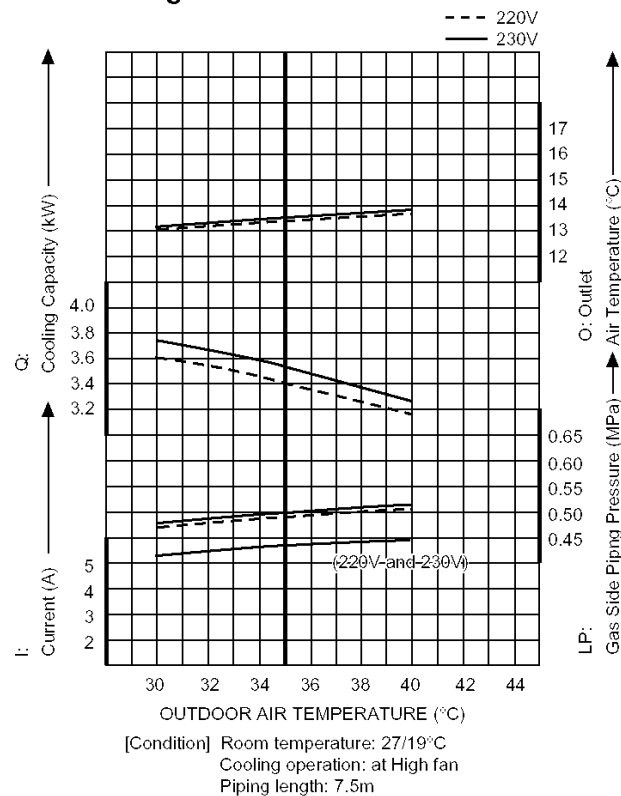


• Piping Length Characteristic (Heating)

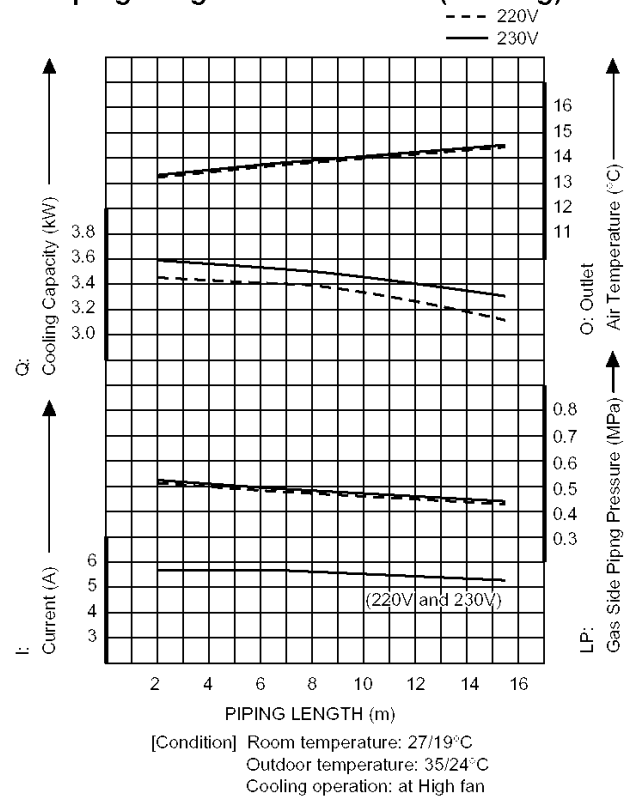


CS-A123KE / CU-A123KE, CS-A125KE / CU-A125KE

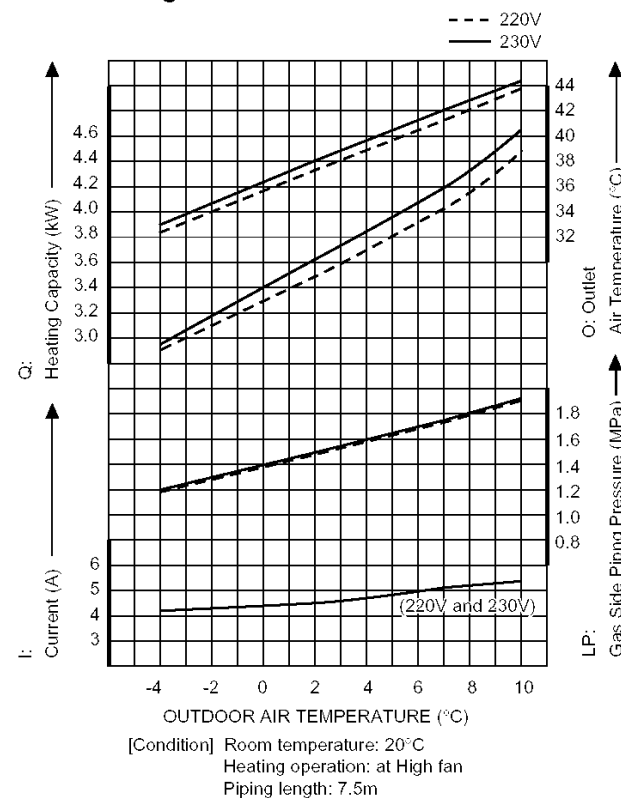
• **Cooling Characteristic**



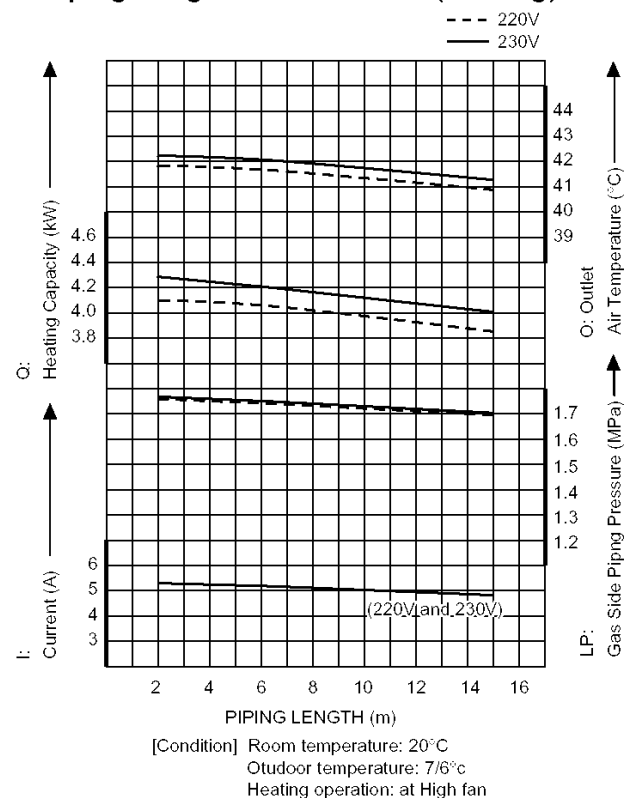
• **Piping Length Characteristic (Cooling)**



• **Heating Characteristic**

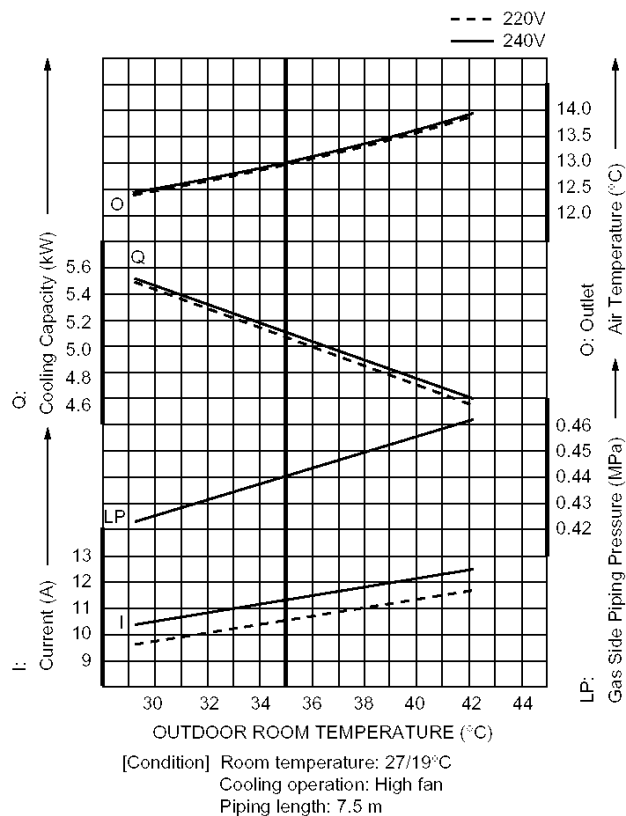


• **Piping Length Characteristic (Heating)**

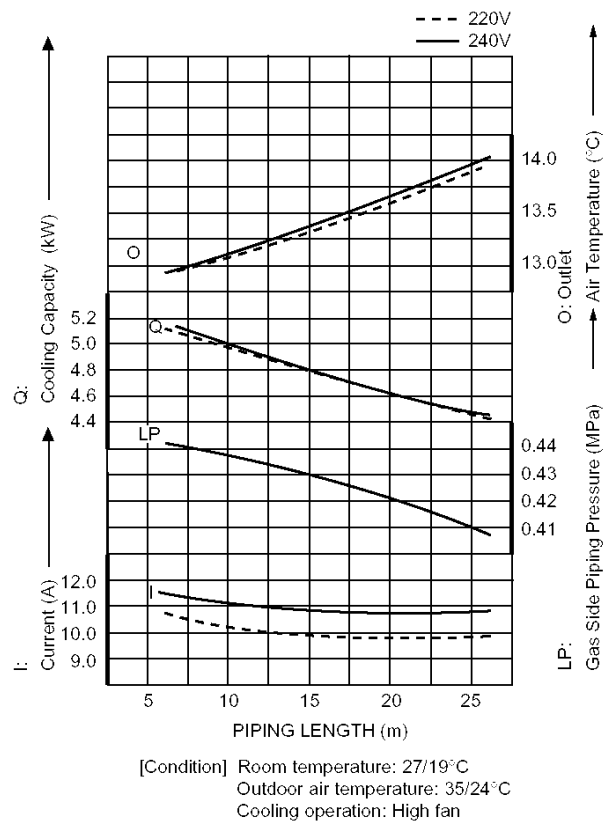


CS-A181K / CU-A181K

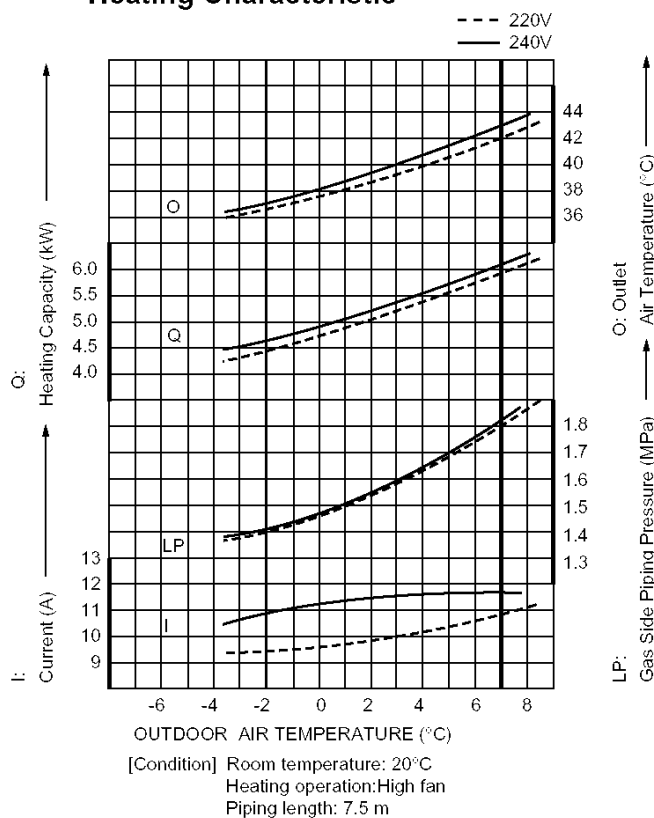
• Cooling Characteristic



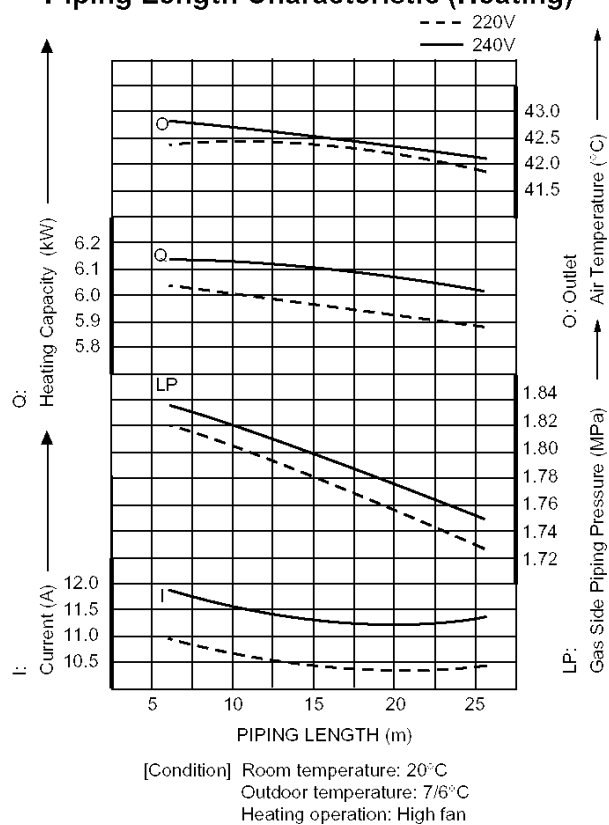
• Piping Length Characteristic (Cooling)



• Heating Characteristic

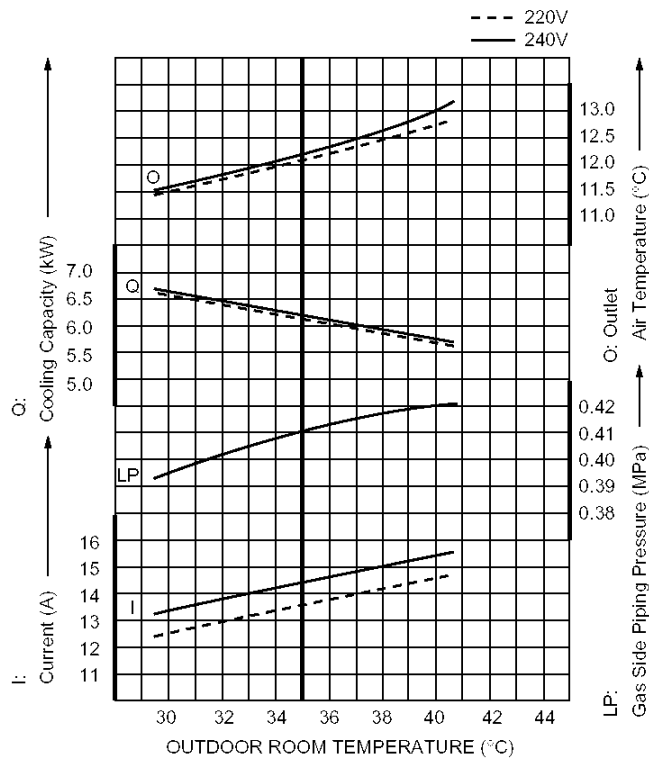


• Piping Length Characteristic (Heating)

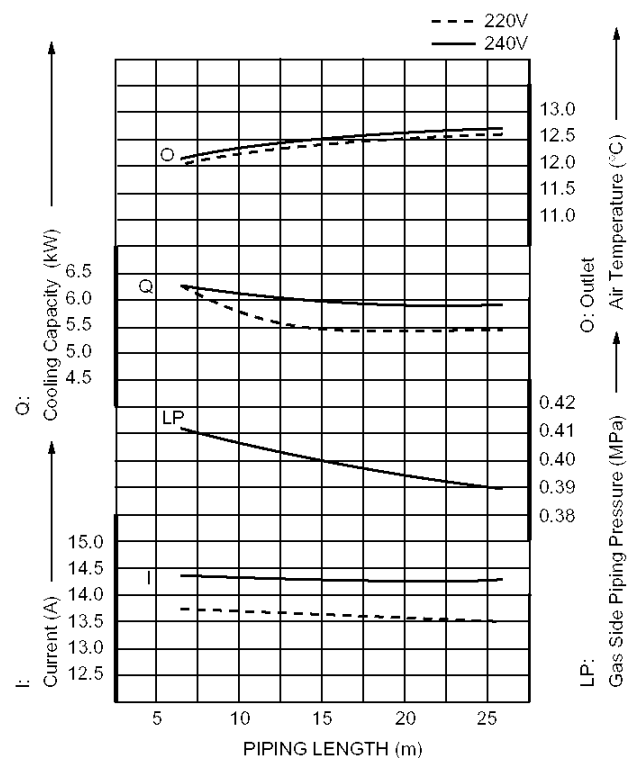


CS-A241K / CU-A241K

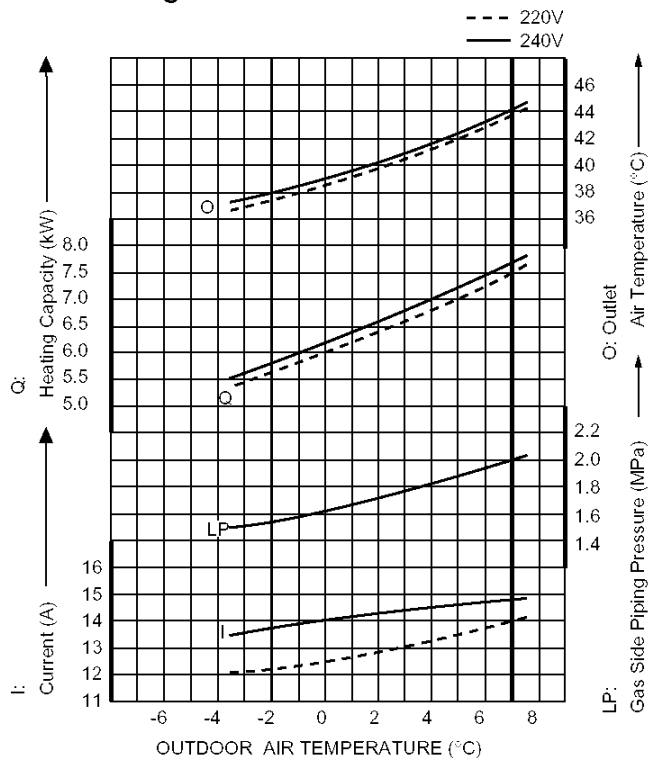
• Cooling Characteristic



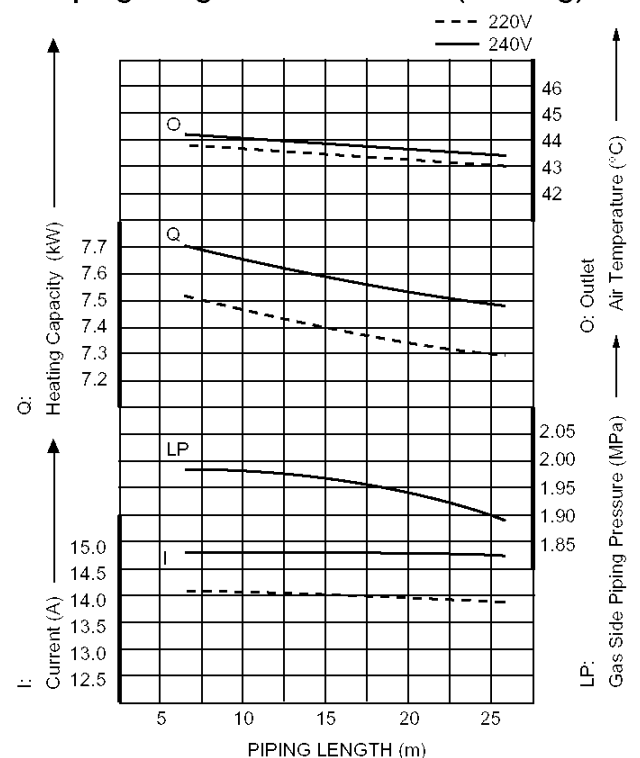
• Piping Length Characteristic (Colling)



• Heating Characteristic

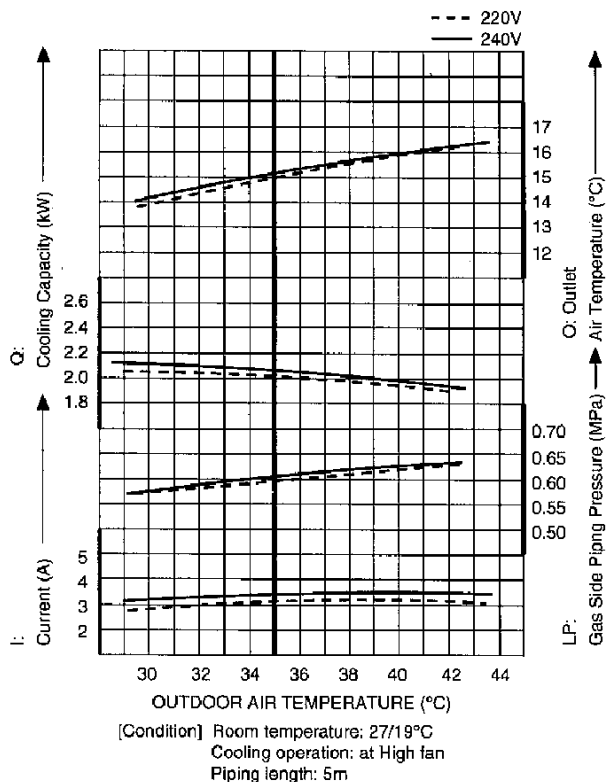


• Piping Length Characteristic (Heating)

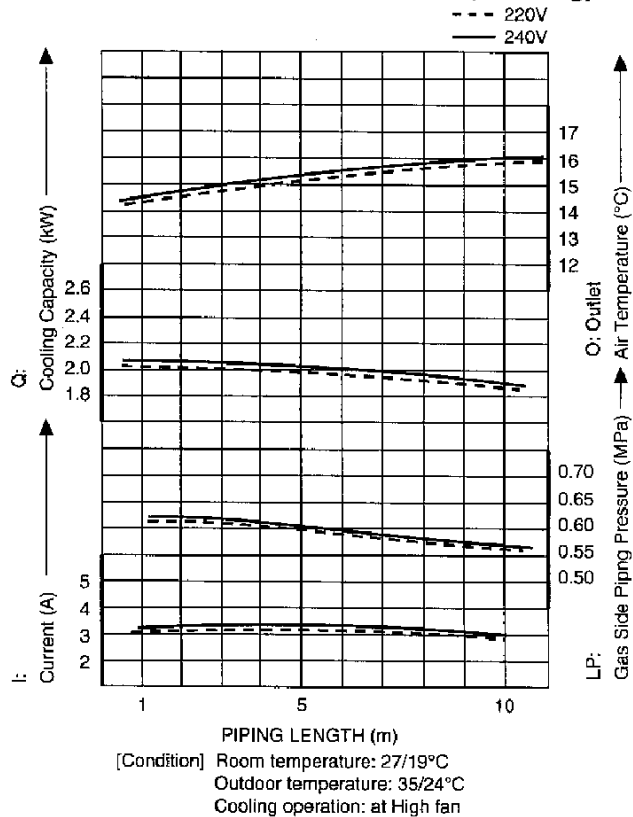


CS-A70KE / CU-A70KE

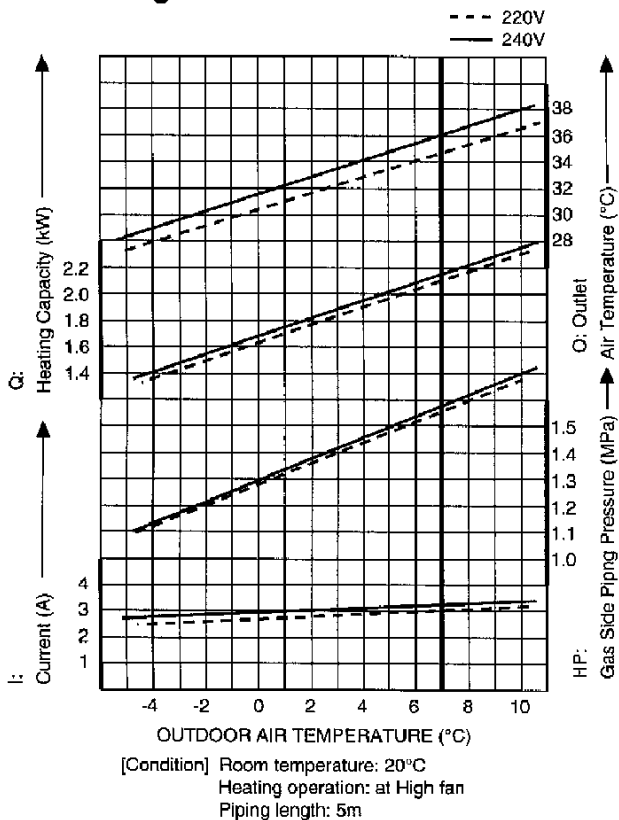
Cooling Characteristic



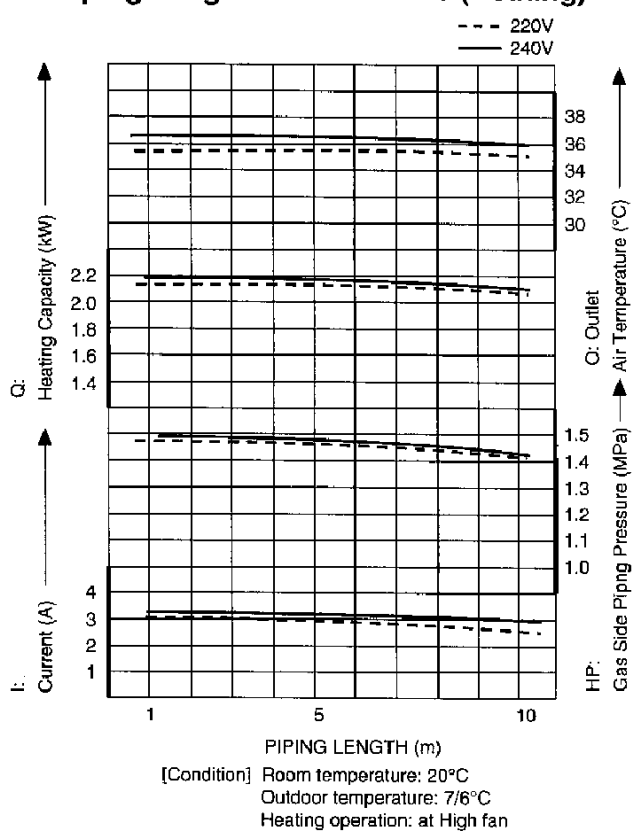
Piping Length Characteristic (Cooling)



Heating Characteristic

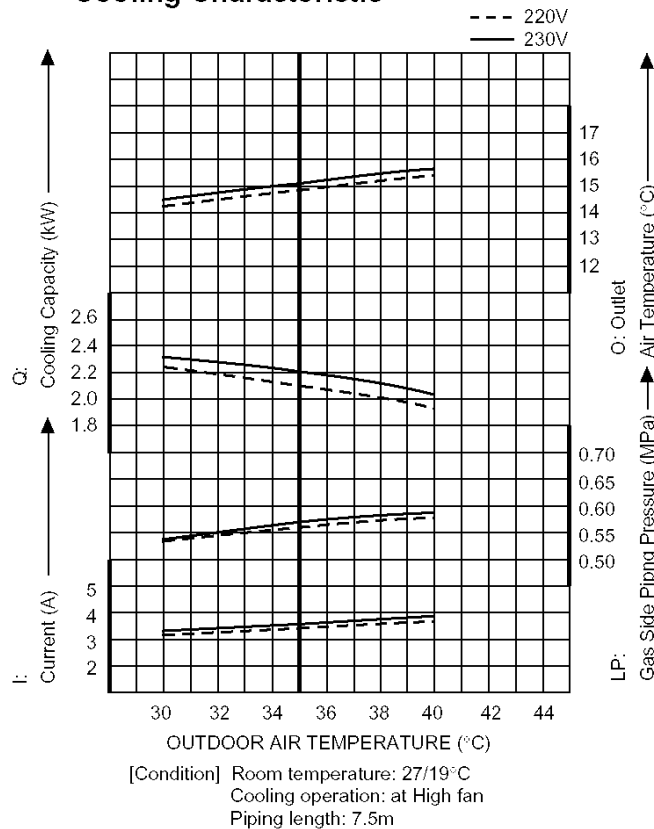


Piping Length Characteristic (Heating)

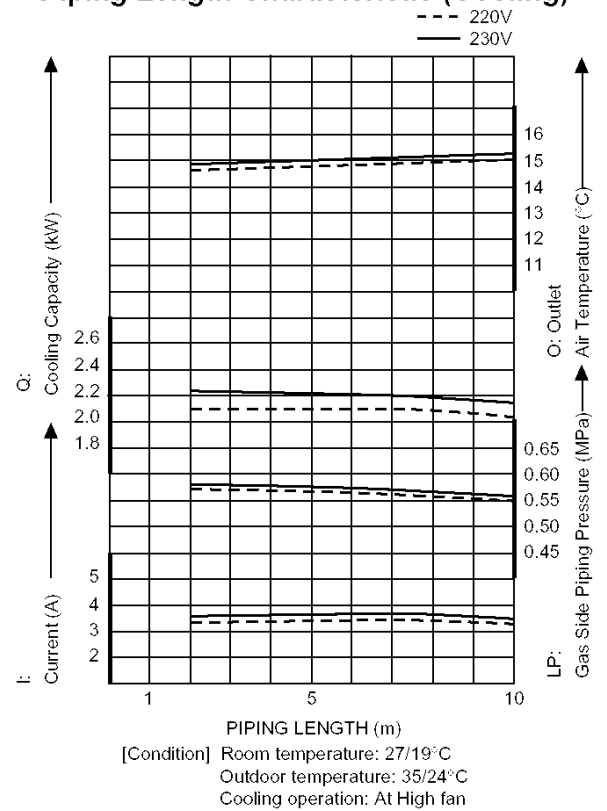


CS-A73KE / CU-A73KE, CS-A75KE / CU-A75KE

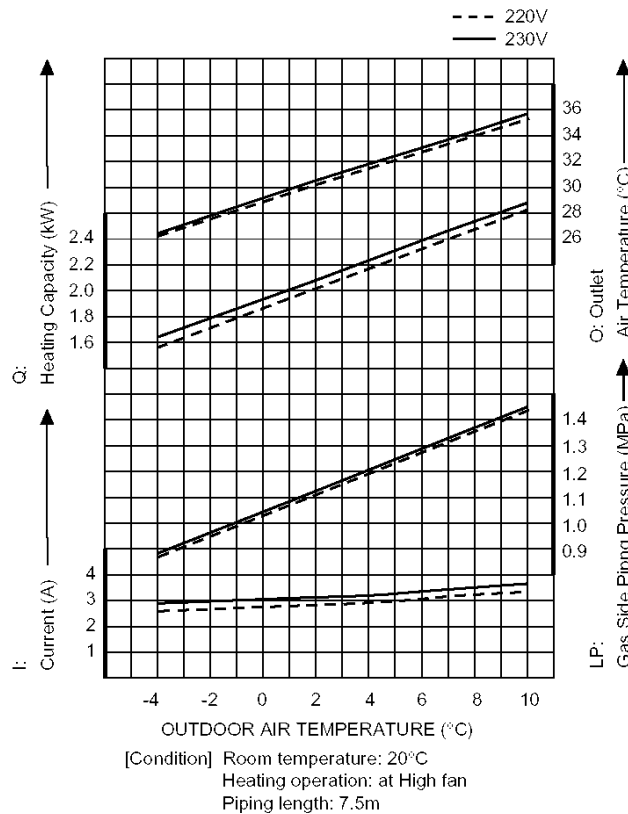
• Cooling Characteristic



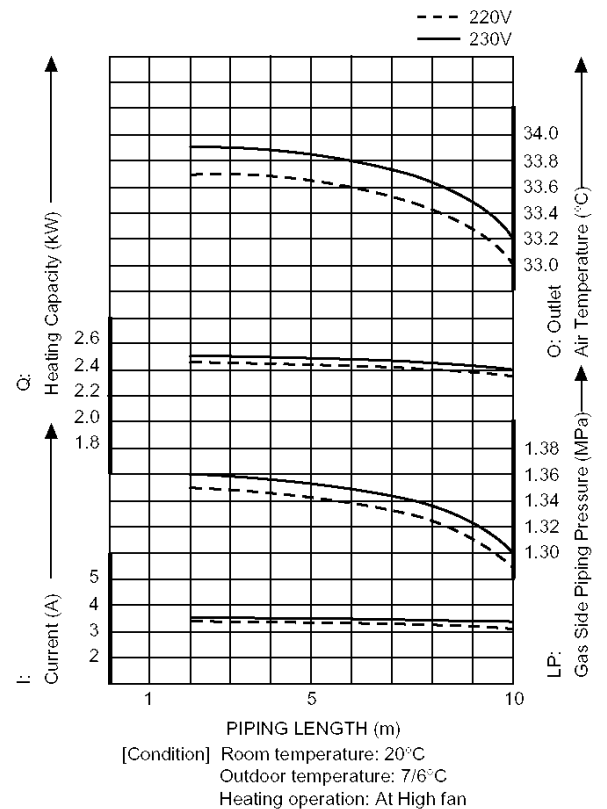
• Piping Length Characteristic (Cooling)



• Heating Characteristic

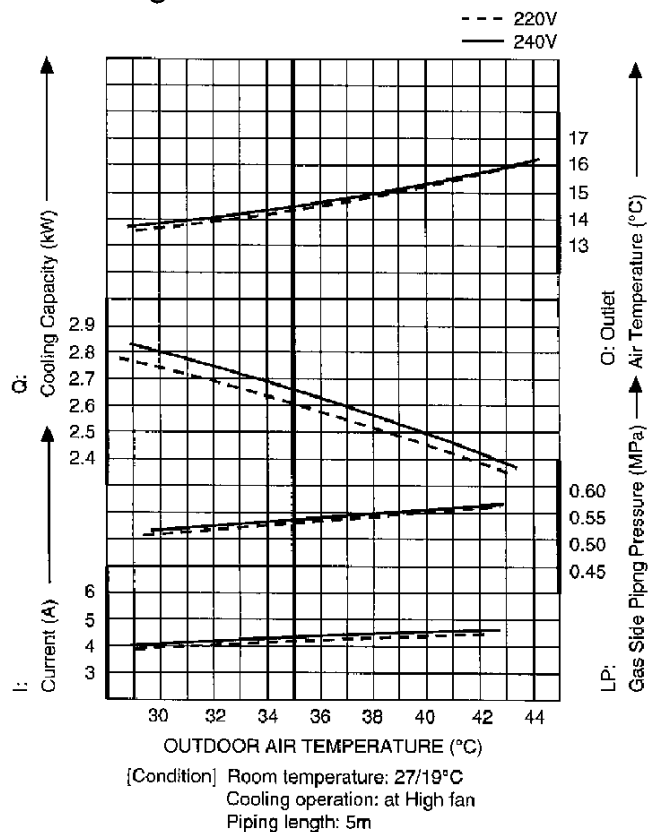


• Piping Length Characteristic (Heating)

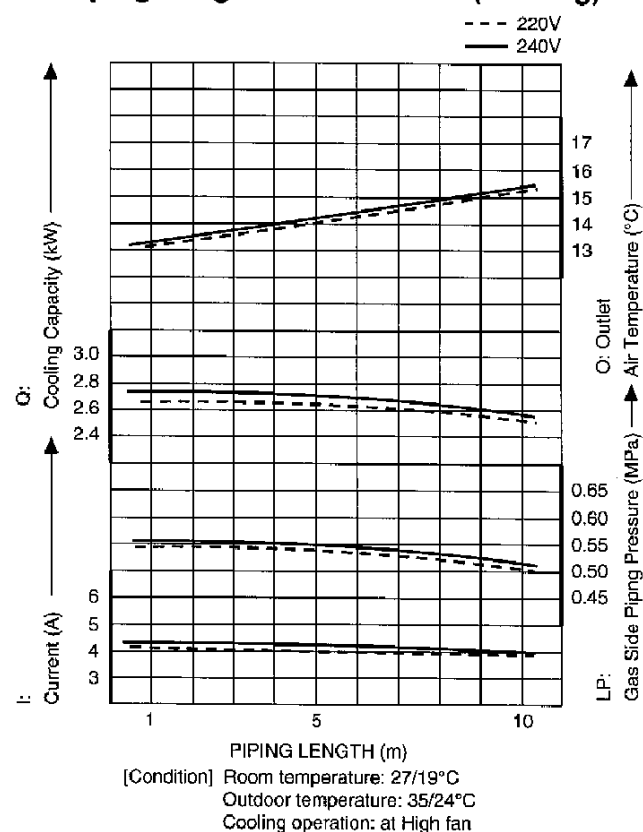


CS-A90KE / CU-A90KE

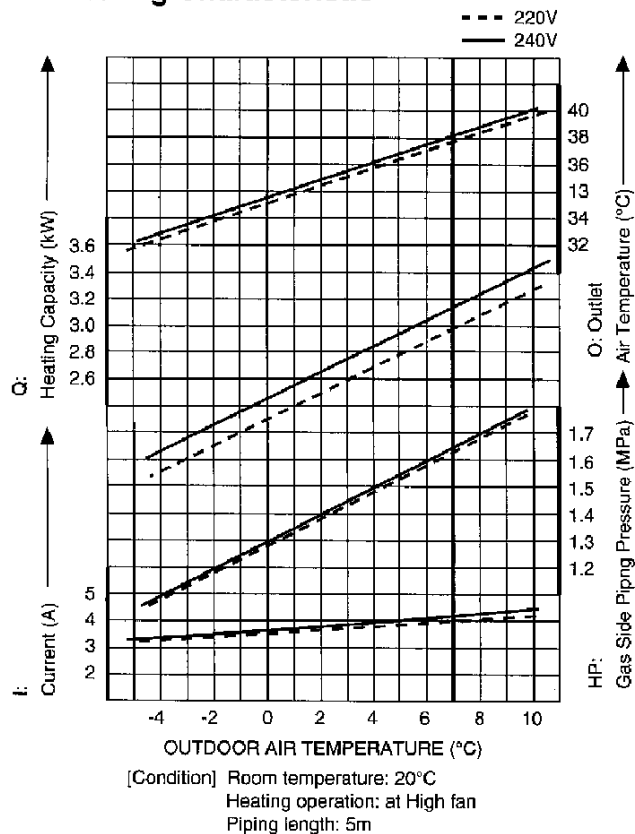
• Cooling Characteristic



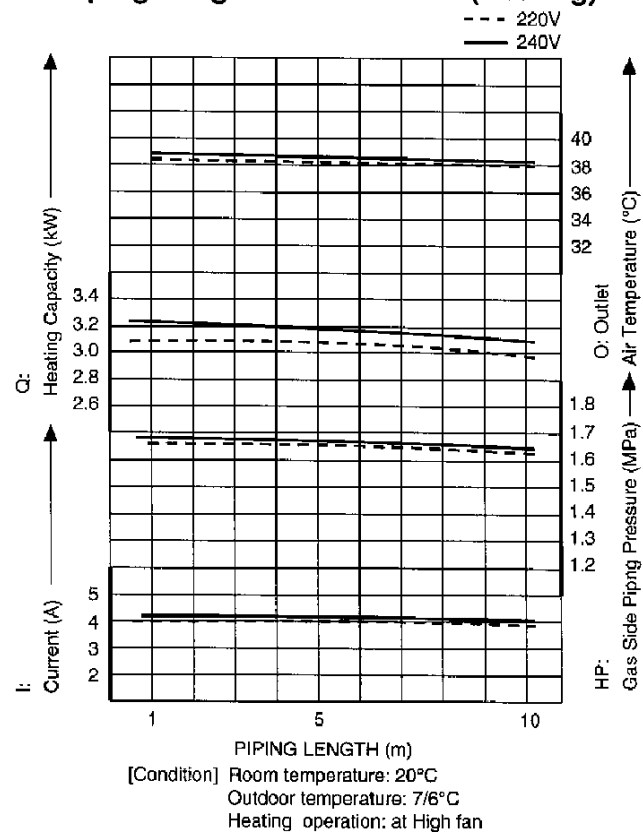
• Piping Length Characteristic (Cooling)



• Heating Characteristic

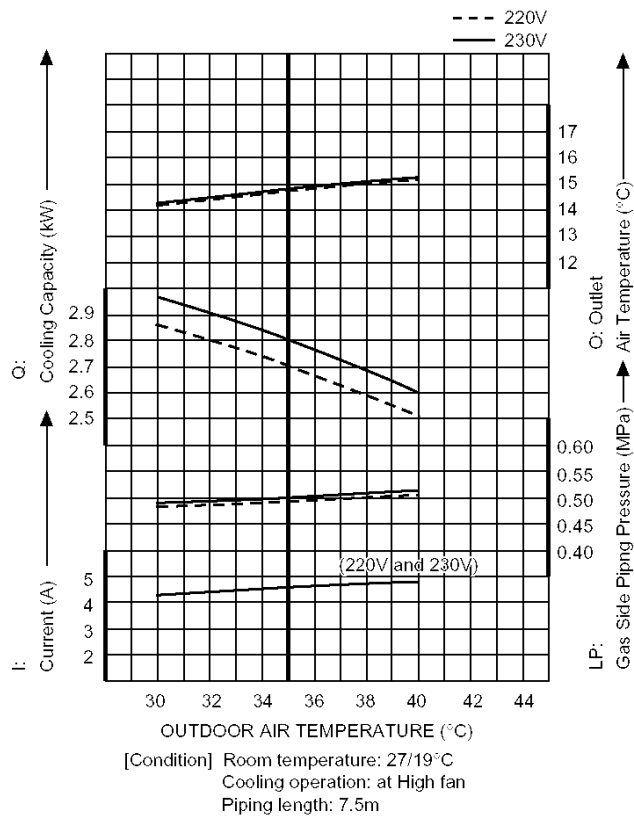


• Piping Length Characteristic (Heating)

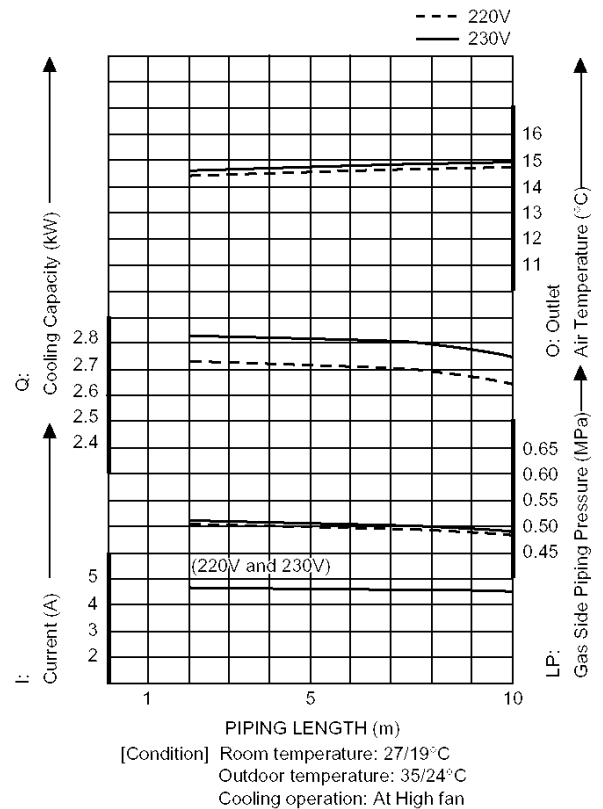


CS-A93KE / CU-A93KE, CS-A95KE / CU-A95KE

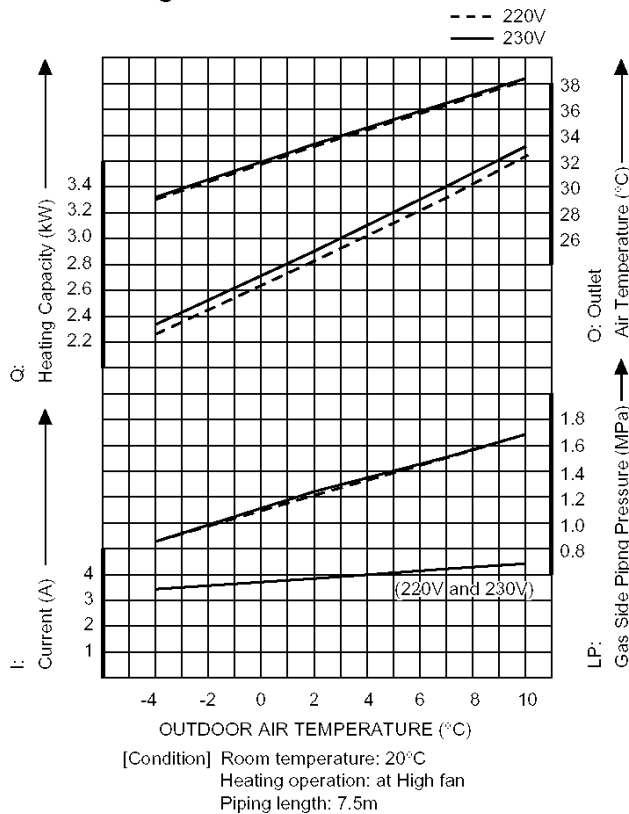
• Cooling Characteristic



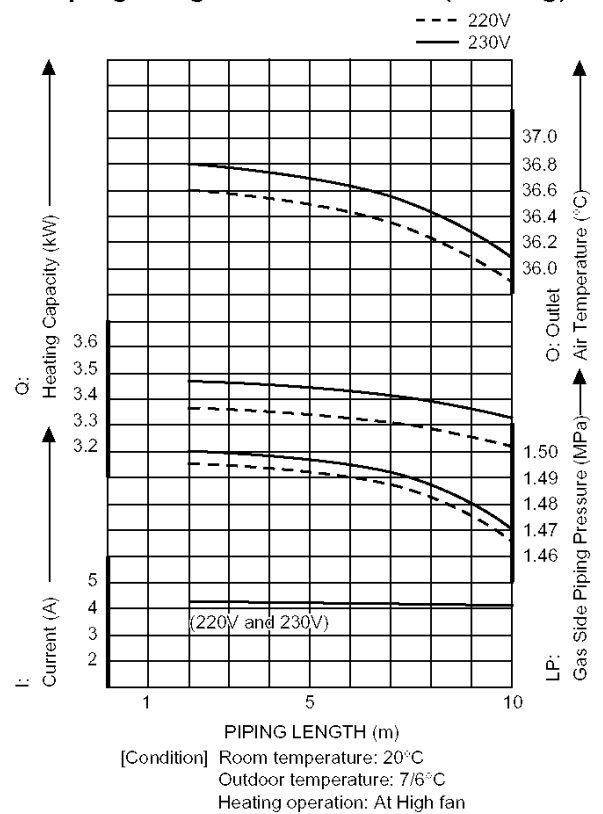
• Piping Length Characteristic (Cooling)



• Heating Characteristic

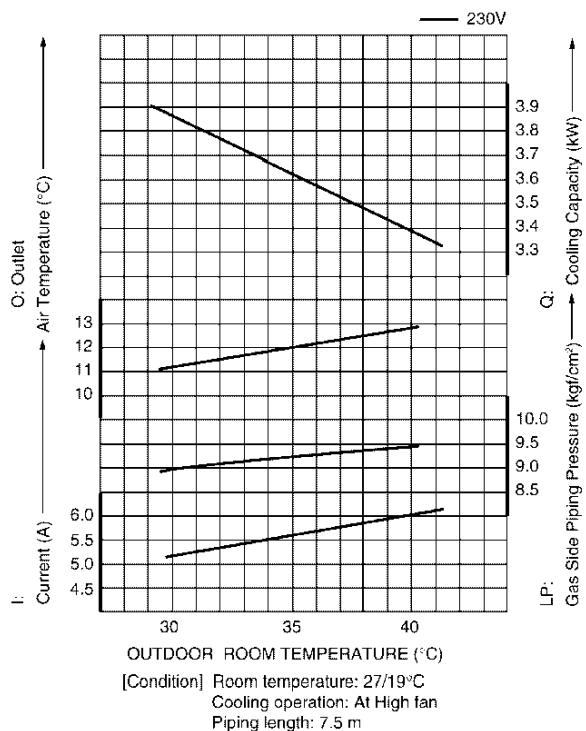


• Piping Length Characteristic (Heating)

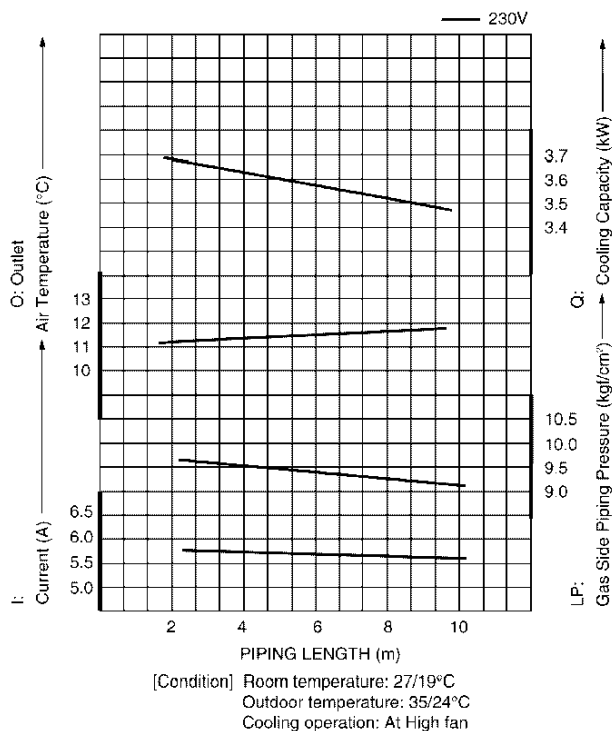


CS-VA125KE / CU-VA125KE

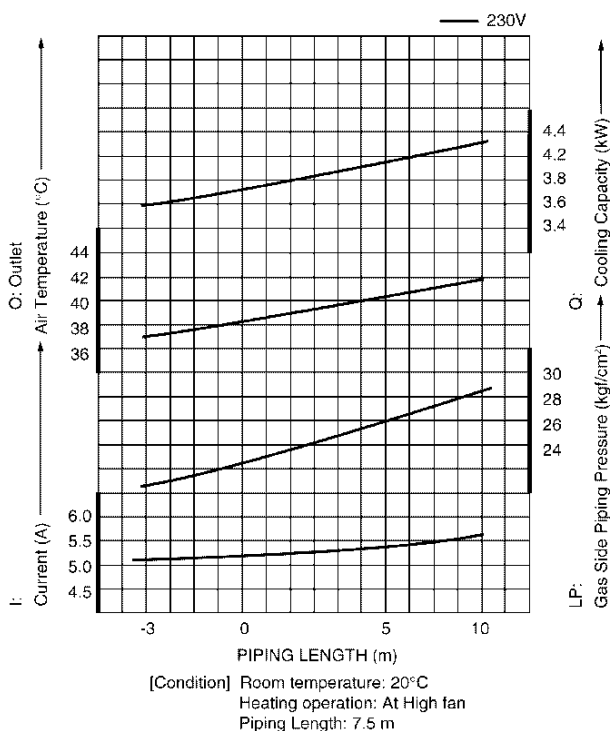
• Cooling Characteristic



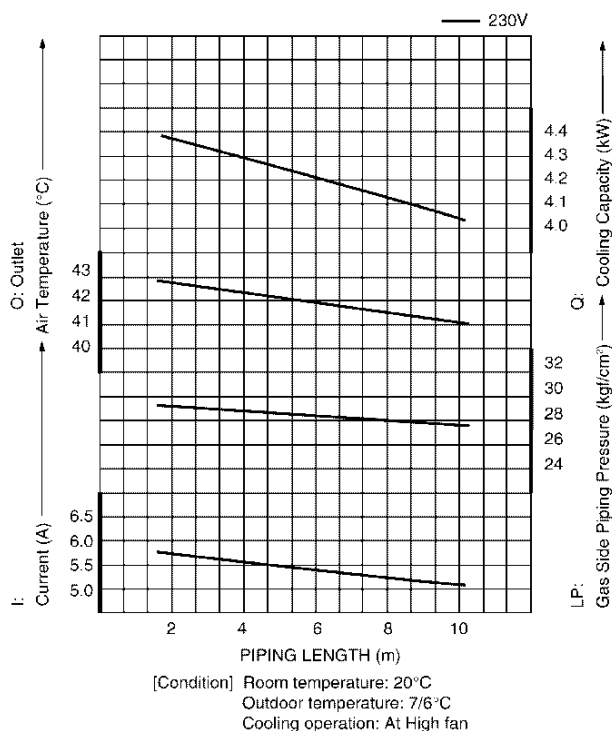
• Piping Length Characteristic (Cooling)



• Heating Characteristic



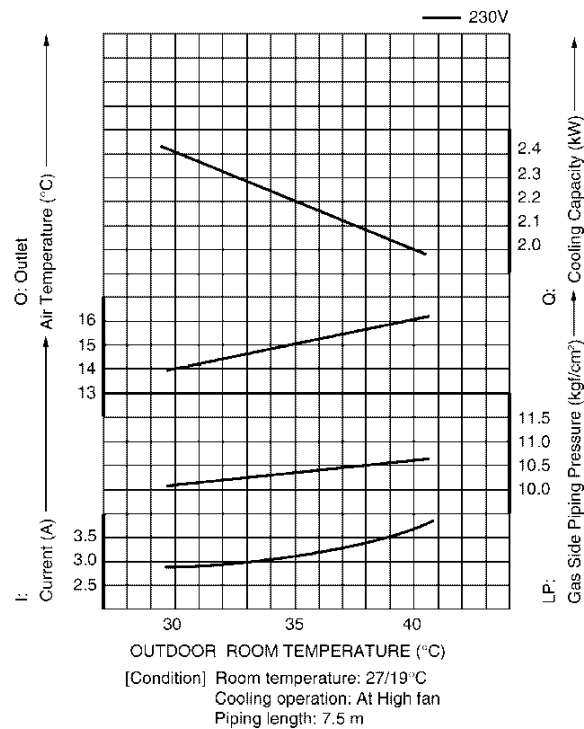
• Piping Length Characteristic (Heating)



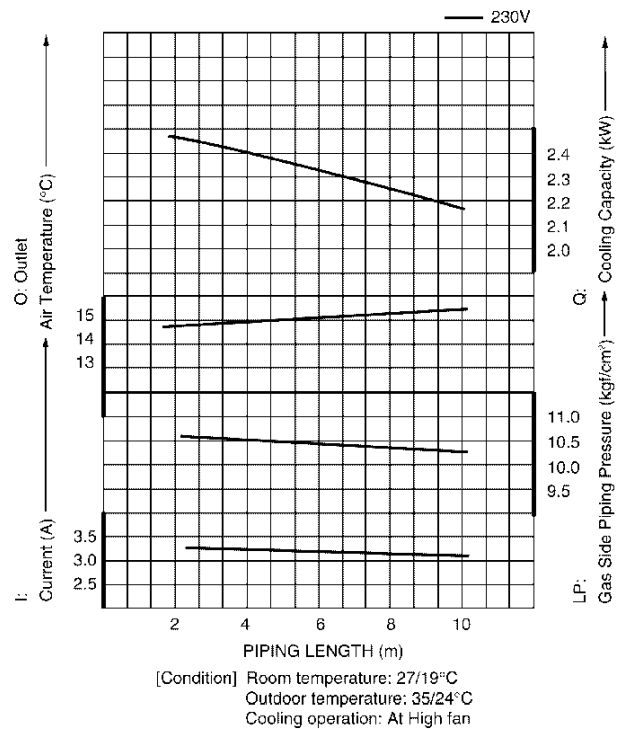
NOTA: Los modelos VA emplean refrigerante R410A.

CS-VA75KE / CU-VA75KE

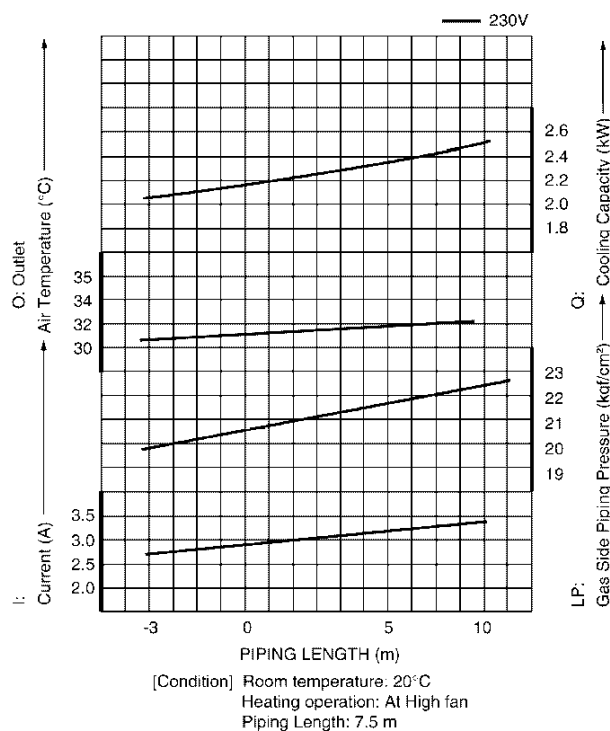
• Cooling Characteristic



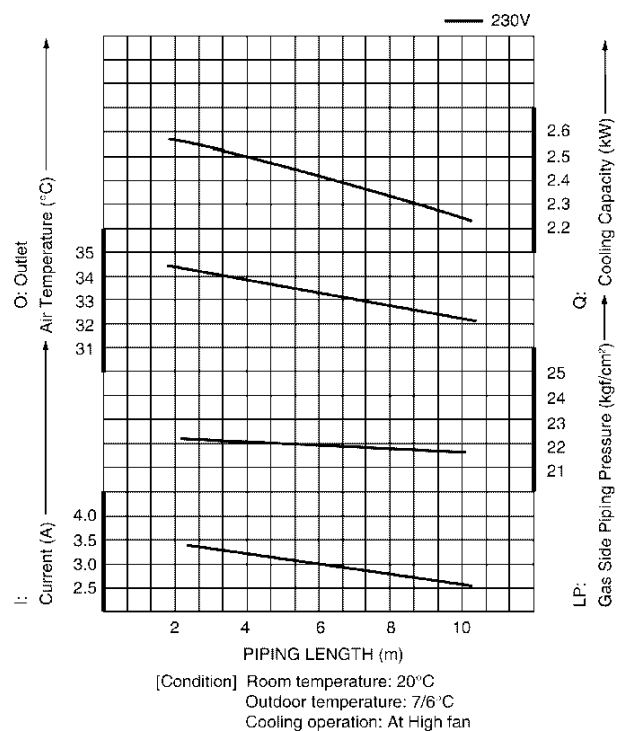
• Piping Length Characteristic (Cooling)



• Heating Characteristic



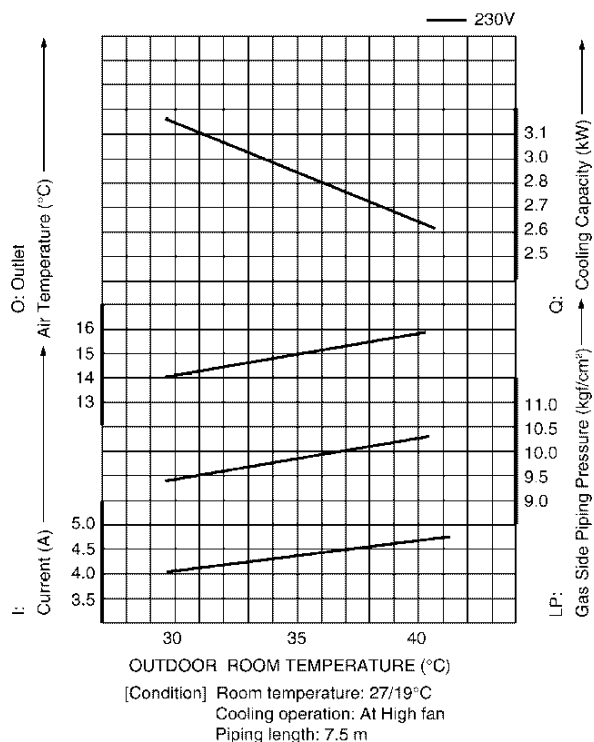
• Piping Length Characteristic (Heating)



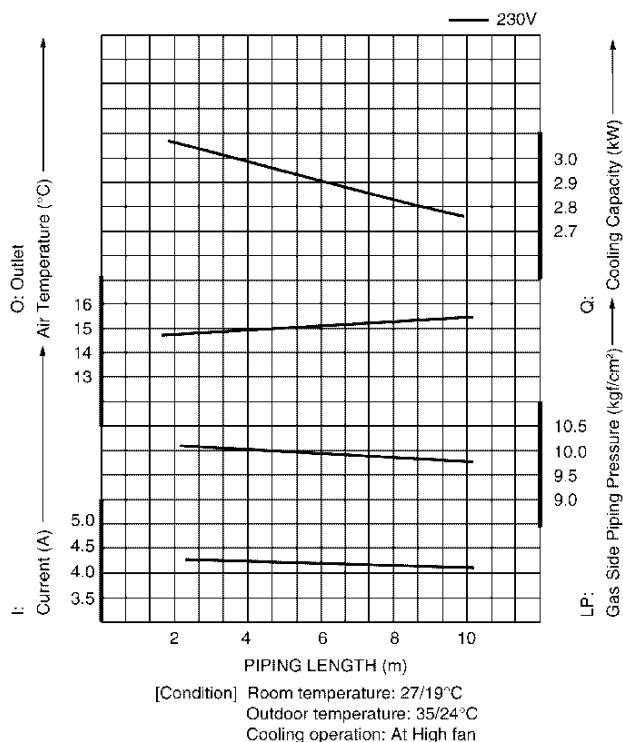
NOTA: Los modelos VA emplean refrigerante R410A.

CS-VA95KE / CU-VA95KE

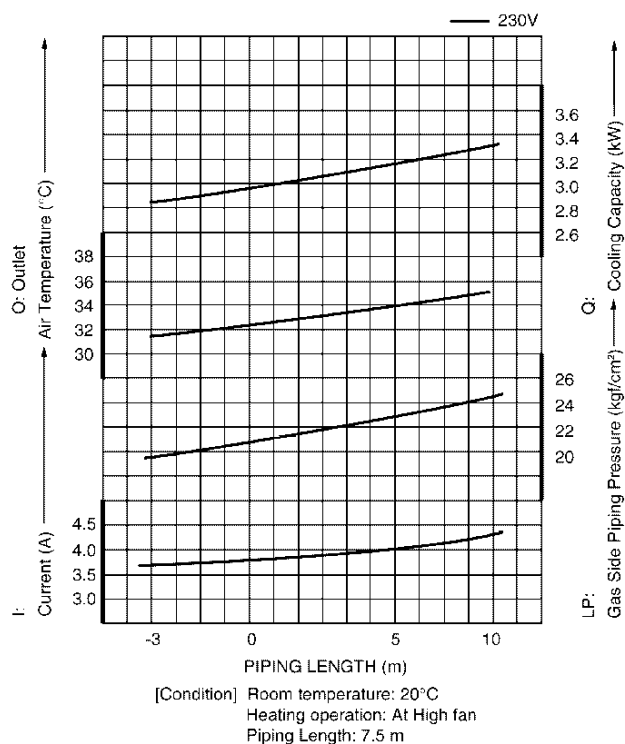
• Cooling Characteristic



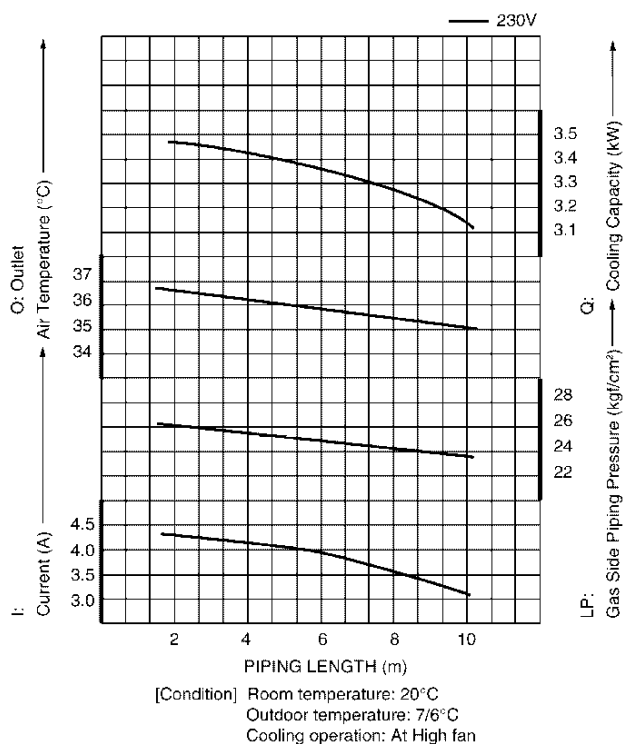
• Piping Length Characteristic (Cooling)



• Heating Characteristic



• Piping Length Characteristic (Heating)



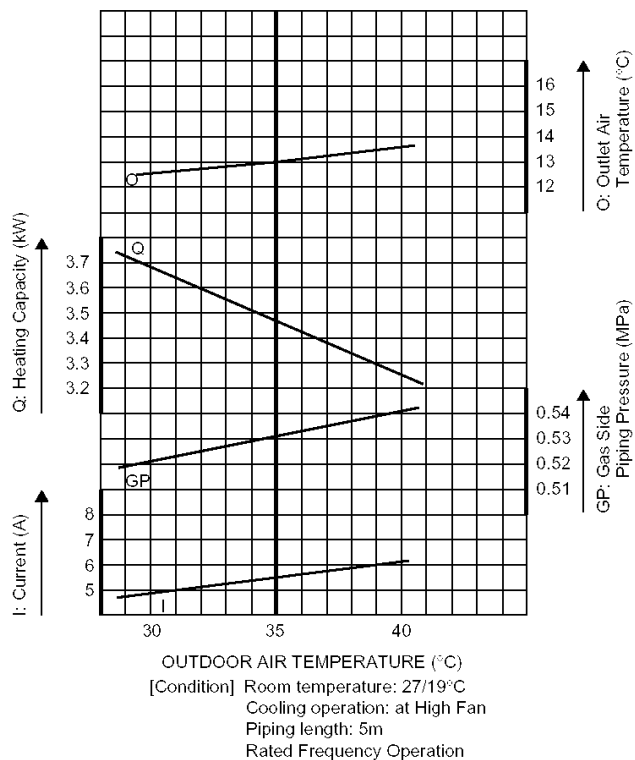
NOTA: Los modelos VA emplean refrigerante R410A.

5. CARACTERÍSTICAS DE FUNCIONAMIENTO: MODELOS INVERTER

CS-G120KE / CU-G120KE

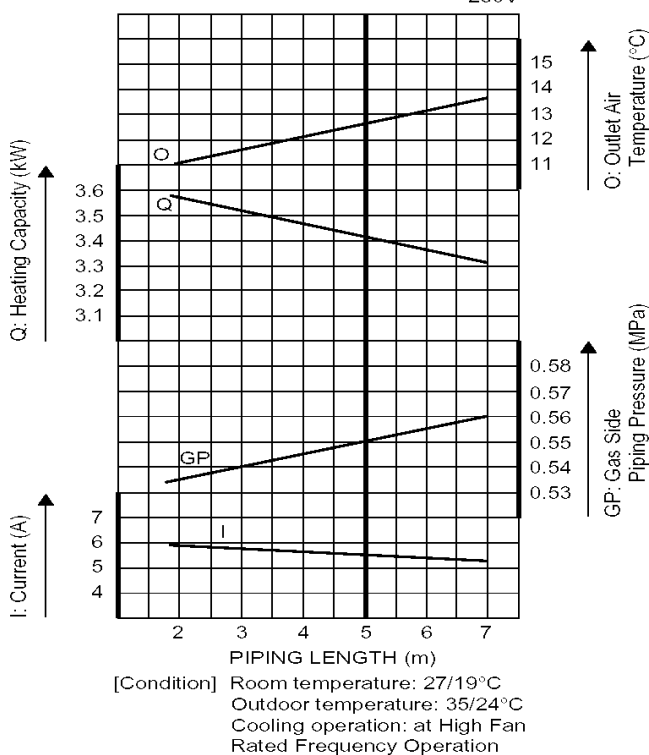
Cooling Characteristic

— 230V



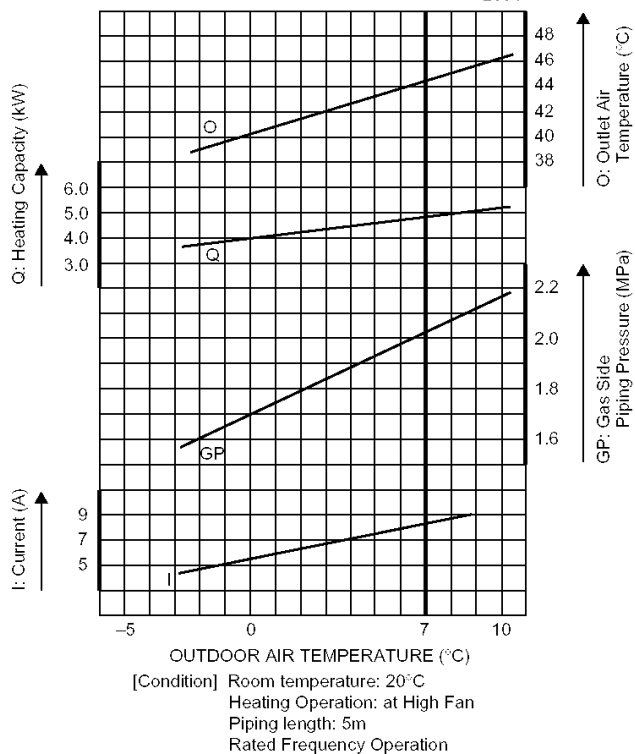
Piping Length Characteristic (Cooling)

— 230V



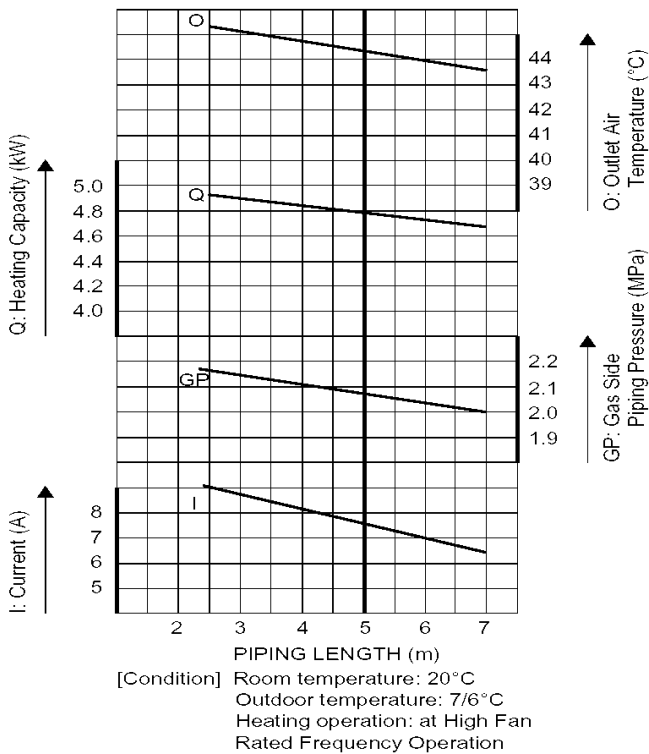
Heating Characteristic

— 230V



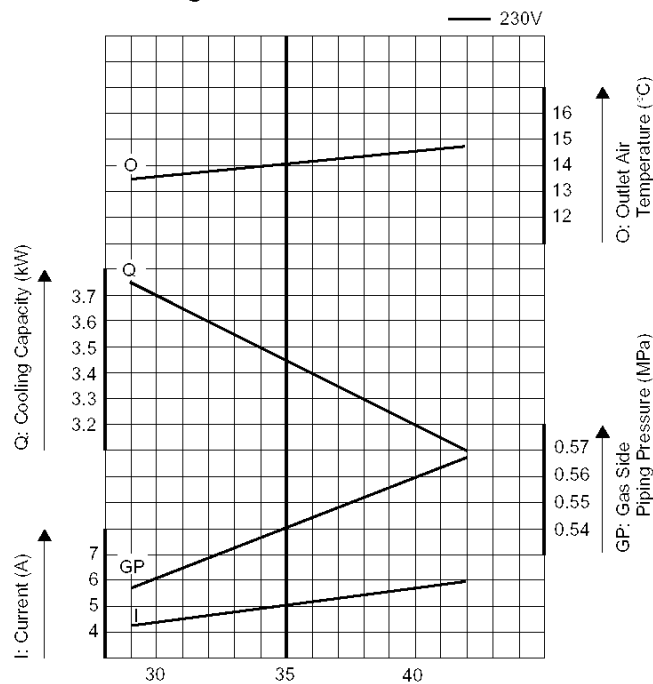
Piping Length Characteristic (Heating)

— 230V



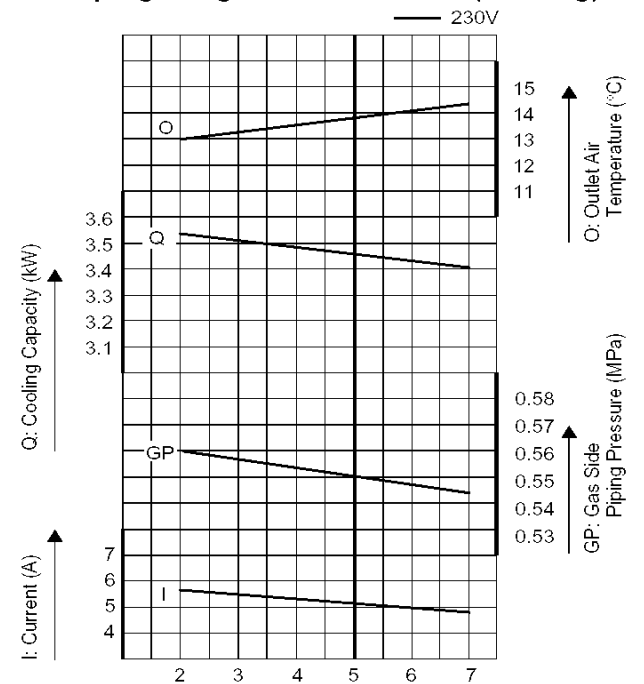
CS-G123KE / CU-G123KE, CS-G125KE / CU-G125KE

• **Cooling Characteristic**



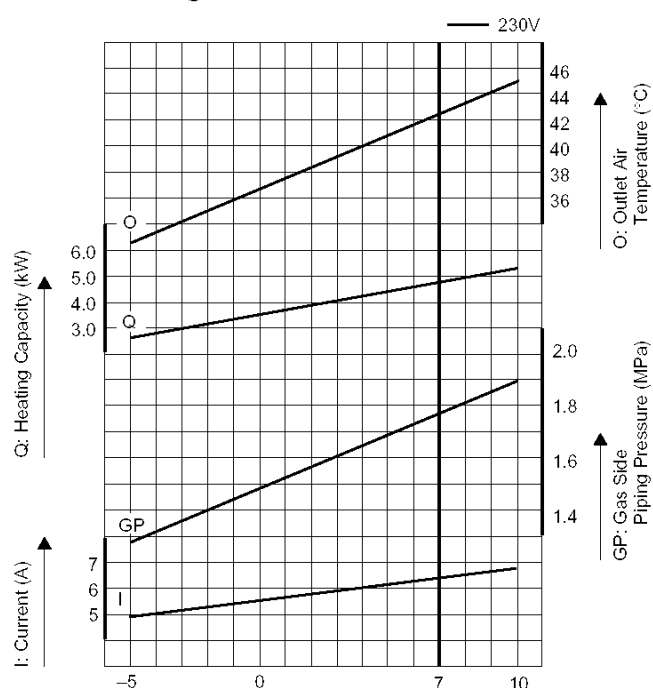
[Condition] Room temperature: 27/19°C
Cooling Operation: at High Fan
Piping length: 5m
Rated Frequency Operation

• **Piping Length Characteristic (Cooling)**



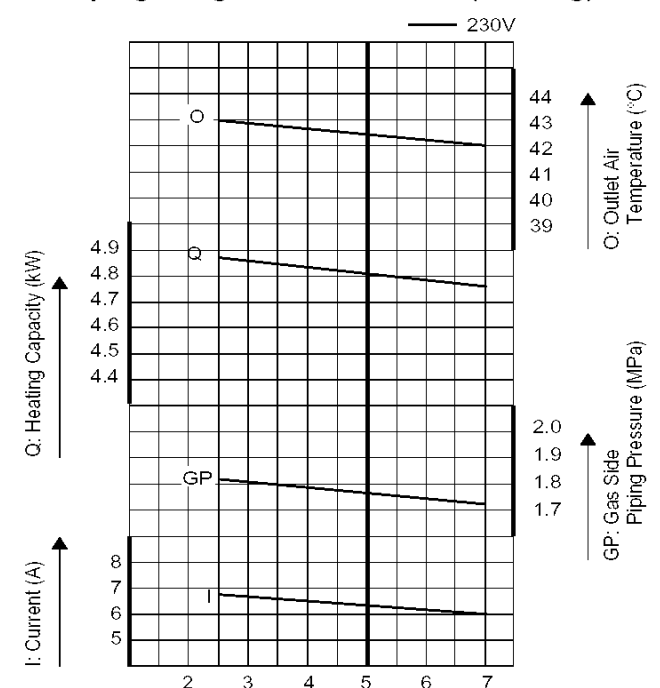
[Condition] Room temperature: 27/19°C
Cooling Operation: 35/24°C
Piping length: at High Fan
Rated Frequency Operation

• **Heating Characteristic**



[Condition] Room temperature: 20°C
Heating Operation: at High Fan
Piping length: 5m
Rated Frequency Operation

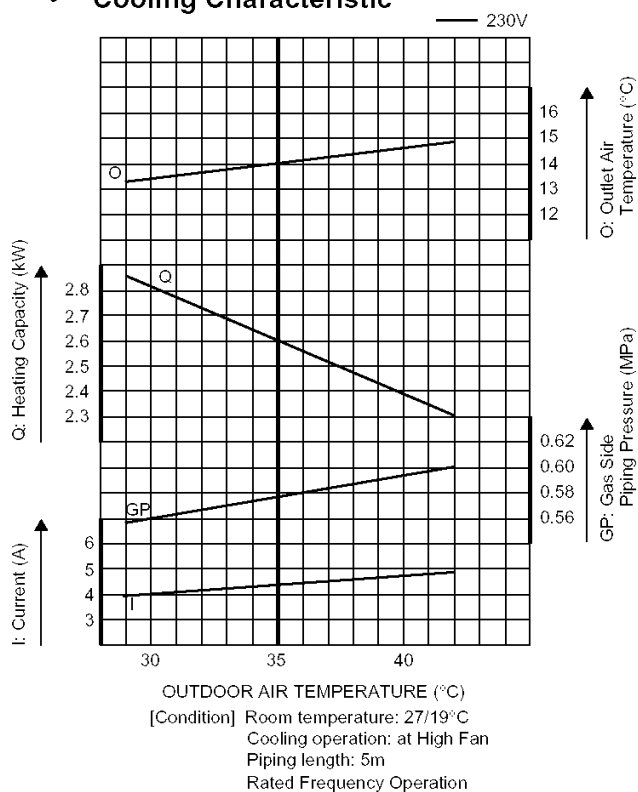
• **Piping Length Characteristic (Heating)**



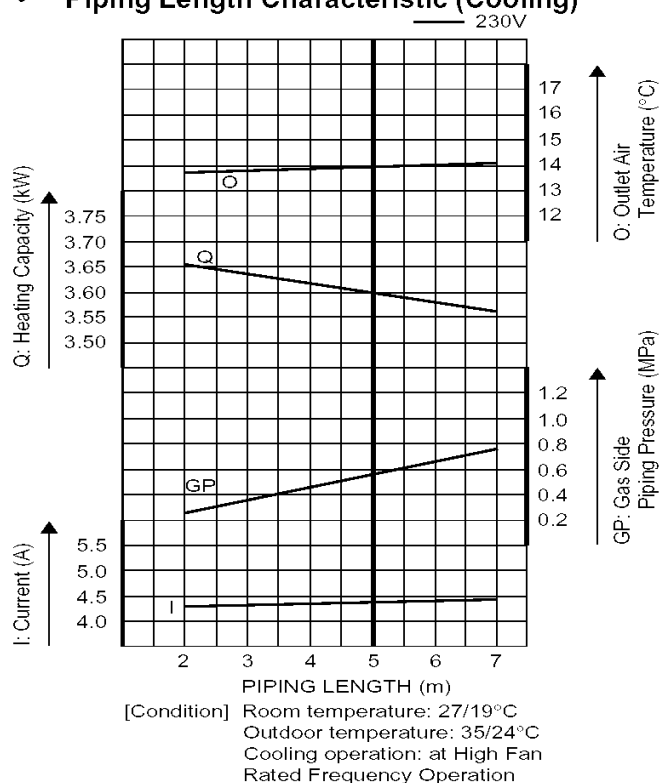
[Condition] Room temperature: 20°C
Heating Operation: 7/6°C
Piping length: at High Fan
Rated Frequency Operation

CS-G90KE / CU-G90KE

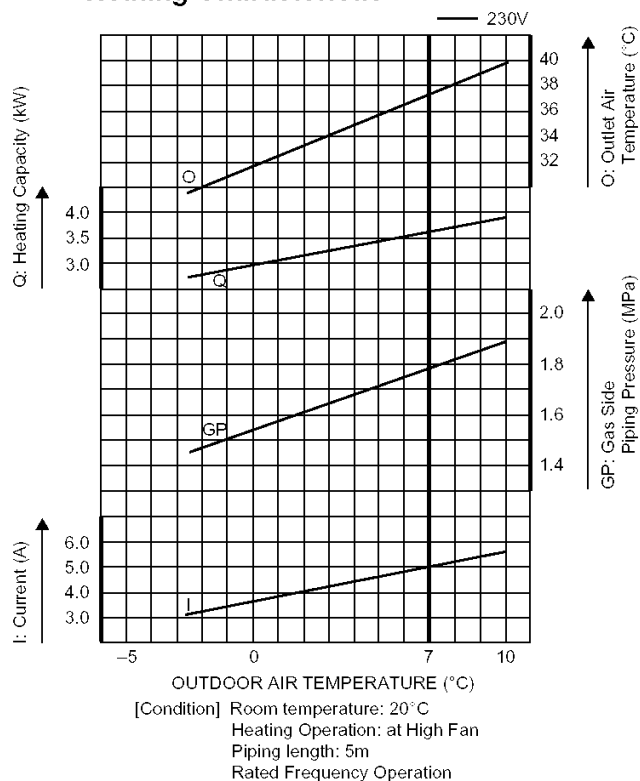
Cooling Characteristic



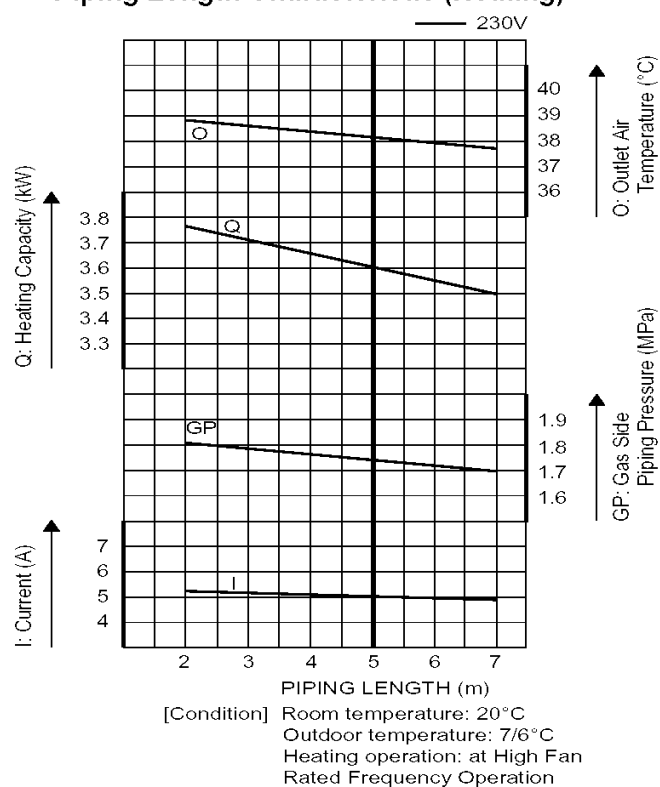
Piping Length Characteristic (Cooling)



Heating Characteristic

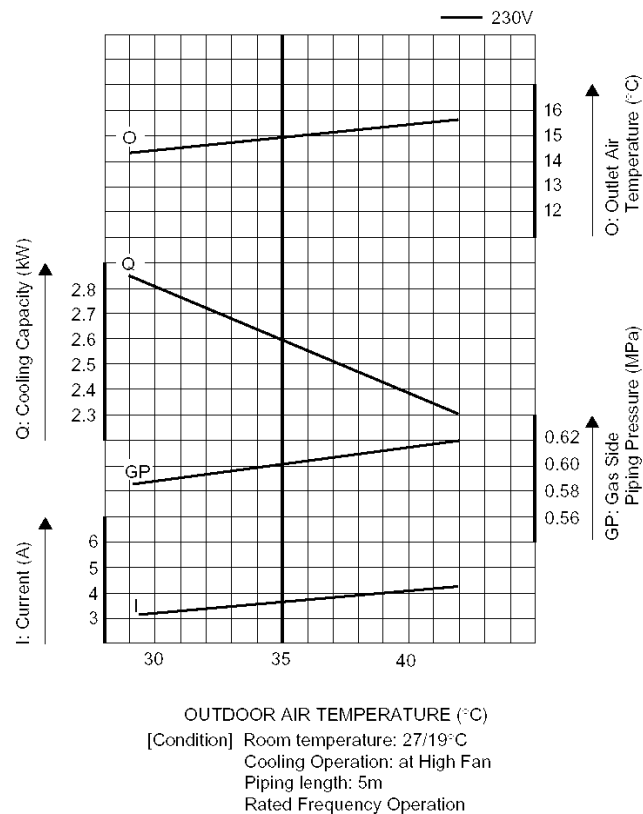


Piping Length Characteristic (Heating)

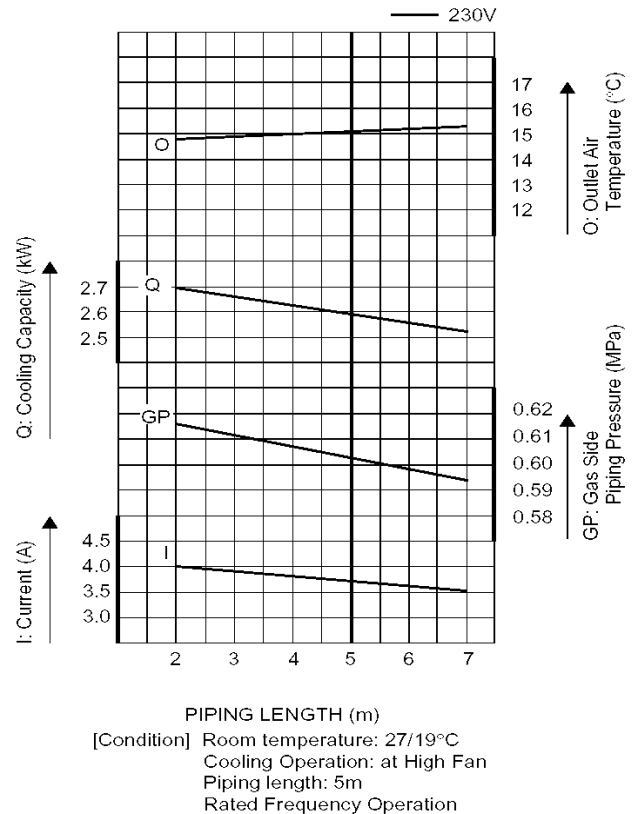


CS-G93KE / CU-G93KE, CS-G95KE / CU-G95KE

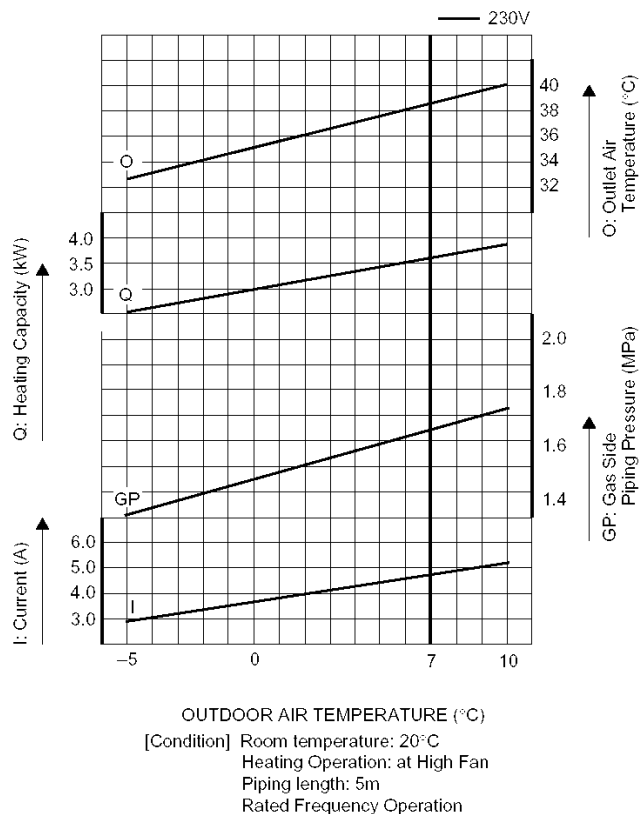
• **Cooling Characteristic**



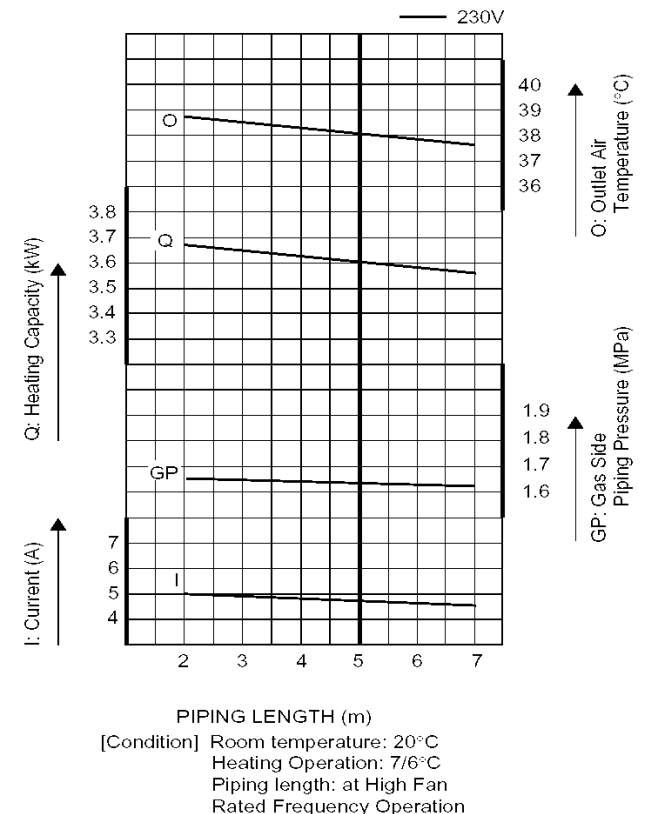
• **Piping Length Characteristic (Cooling)**

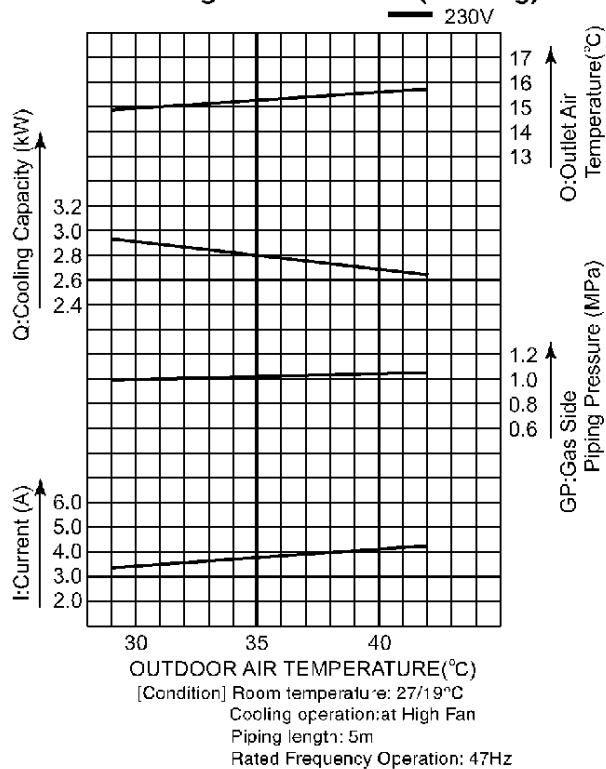
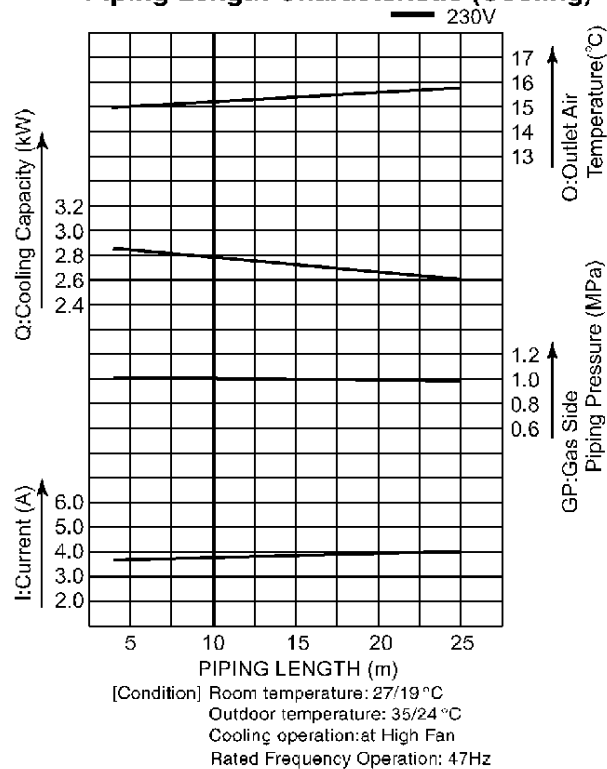
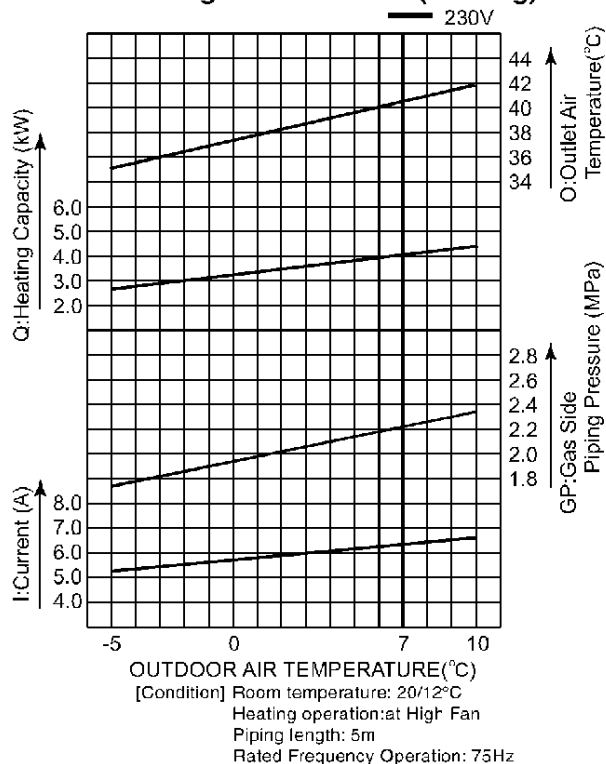
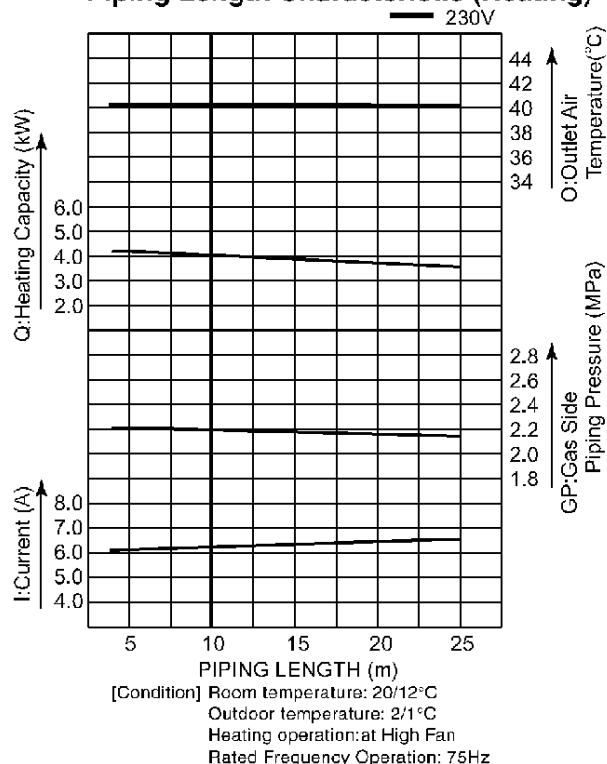


• **Heating Characteristic**



• **Piping Length Characteristic (Heating)**

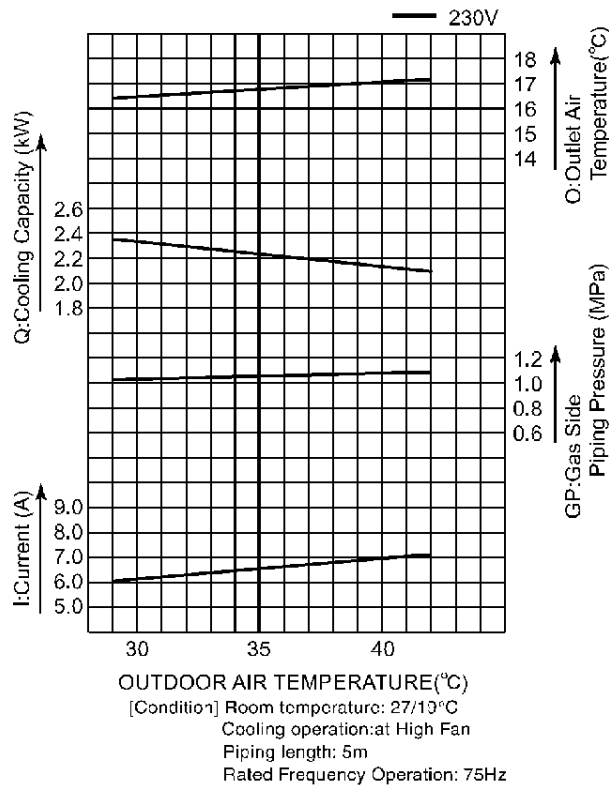


CS-MVG103KE / CU-MVG153KE**One Indoor Unit Operation****• Cooling Characteristic (Cooling)****• Piping Length Characteristic (Cooling)****• Heating Characteristic (Heating)****• Piping Length Characteristic (Heating)**

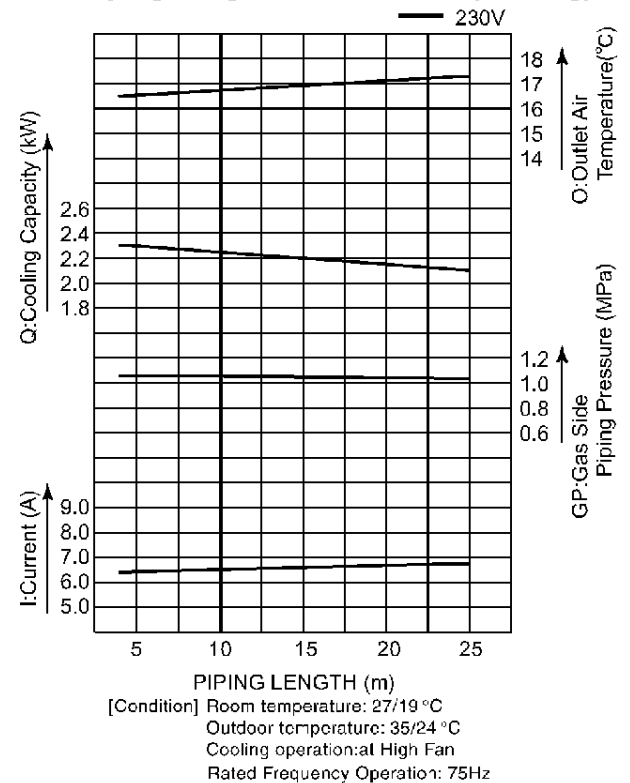
NOTA: Los modelos VG emplean refrigerante R410A.

Two Indoor Units Operation

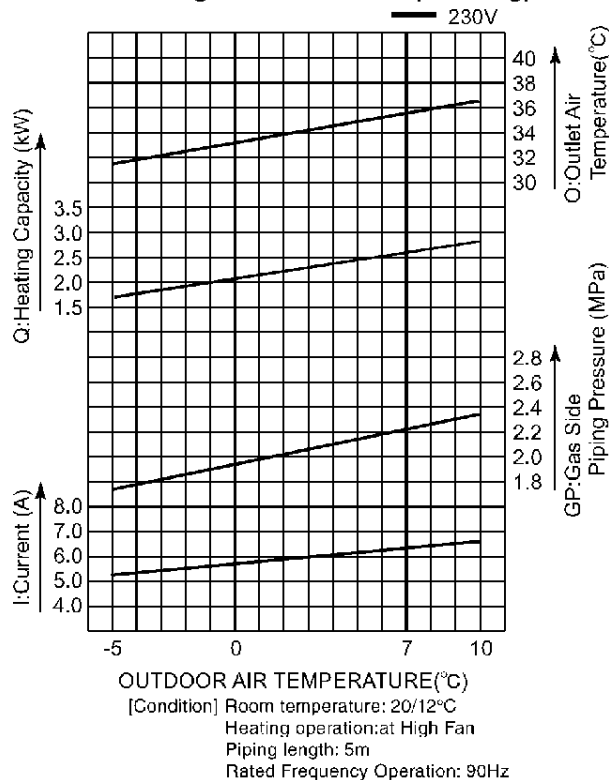
• Cooling Characteristic (Cooling)



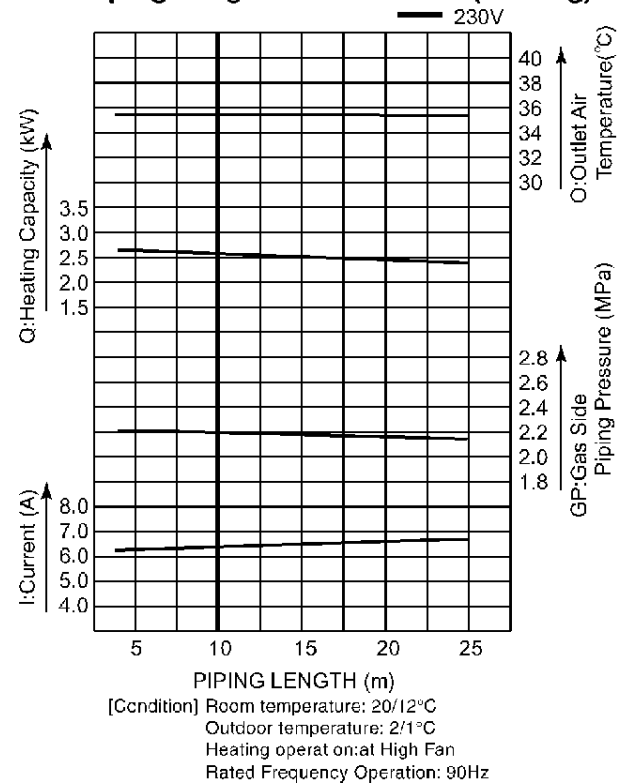
• Piping Length Characteristic (Cooling)



• Heating Characteristic (Heating)



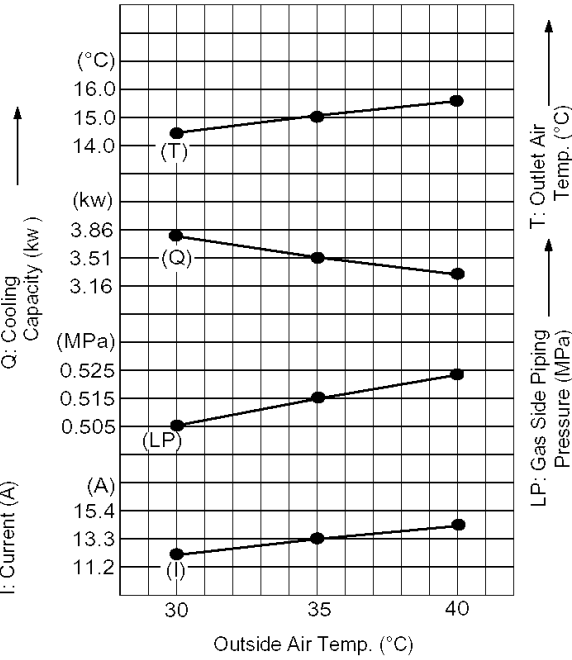
• Piping Length Characteristic (Heating)



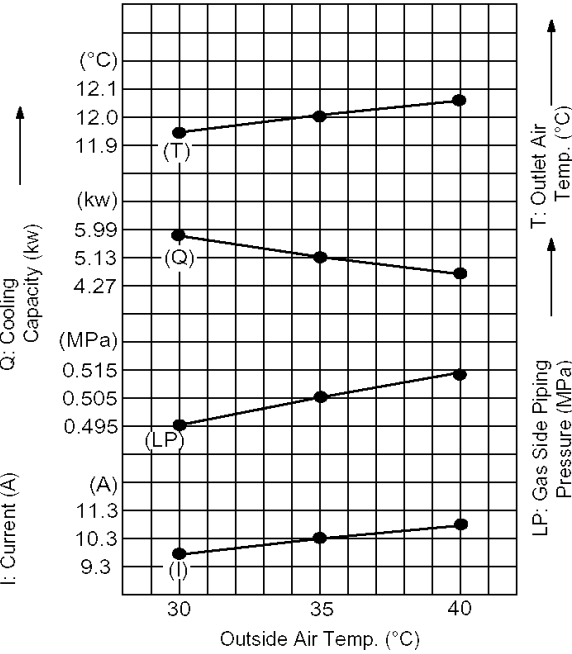
NOTA: Los modelos VG emplean refrigerante R410A.

6. CARACTERÍSTICAS DE FUNCIONAMIENTO: SPLIT CÓNSOLA / TECHO

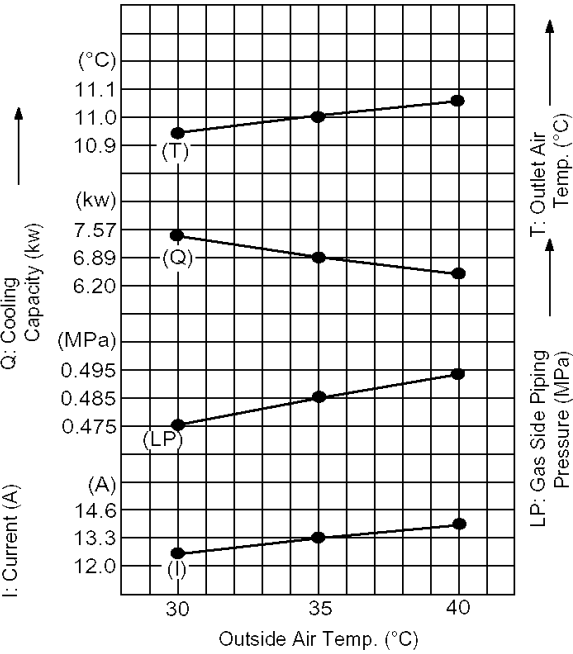
CS-C120T



CS-C180T

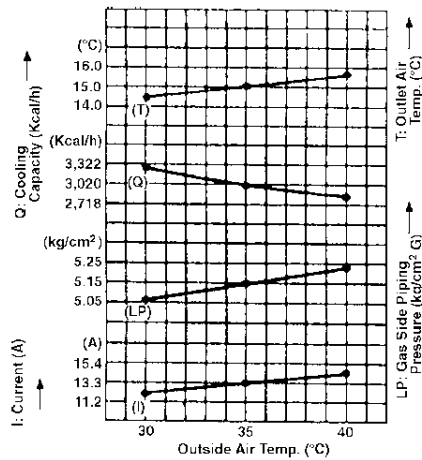


CS-C240T

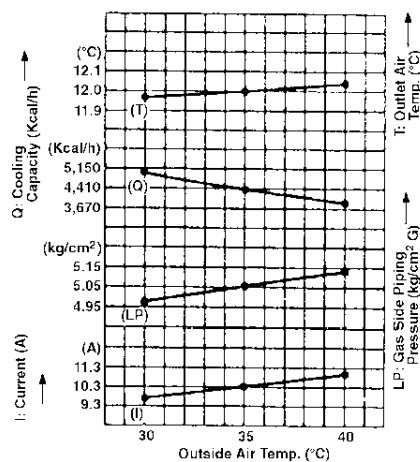


Cooling characteristics – Outdoor temperature
(Conditions: Room Temperature; 27°C (D.B.T.)
Cooling operation; at High Fan)

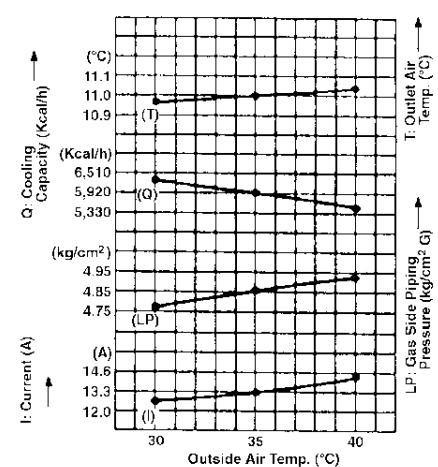
• CS-A120T



• CS-A180T

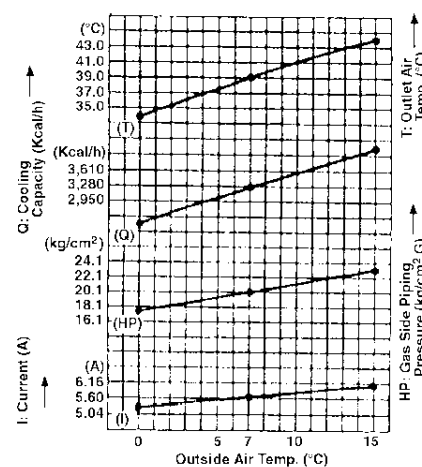


• CS-A240T

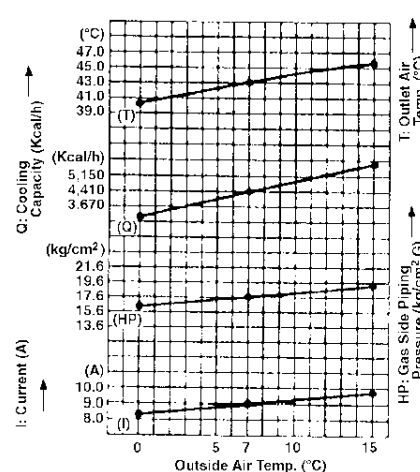


Heating characteristics – Outdoor temperature
(Conditions: Room Temperature; 21°C (D.B.T.)
Heating operation; at High Fan)

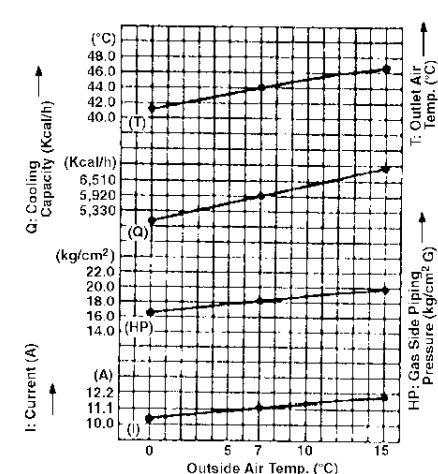
• CS-A120T



• CS-A180T



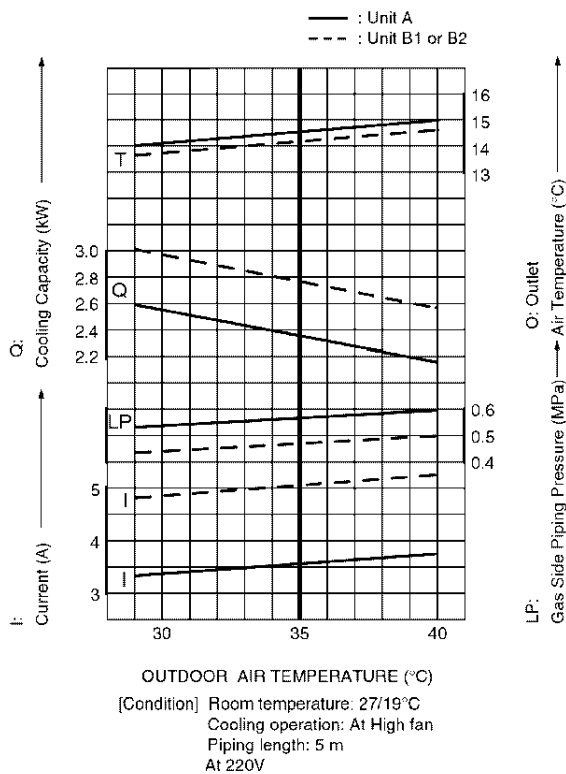
• CS-A240T



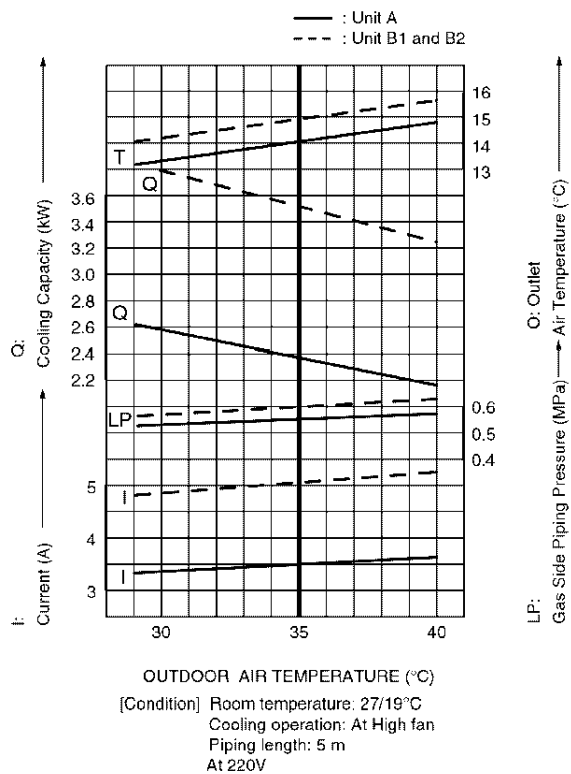
7. CARACTERÍSTICAS DE FUNCIONAMIENTO: MULTI-SPLIT SÓLO FRÍO

CS-MC90KE / CU-2MC200KE, CS-MC95KE / CU-3MC205KE

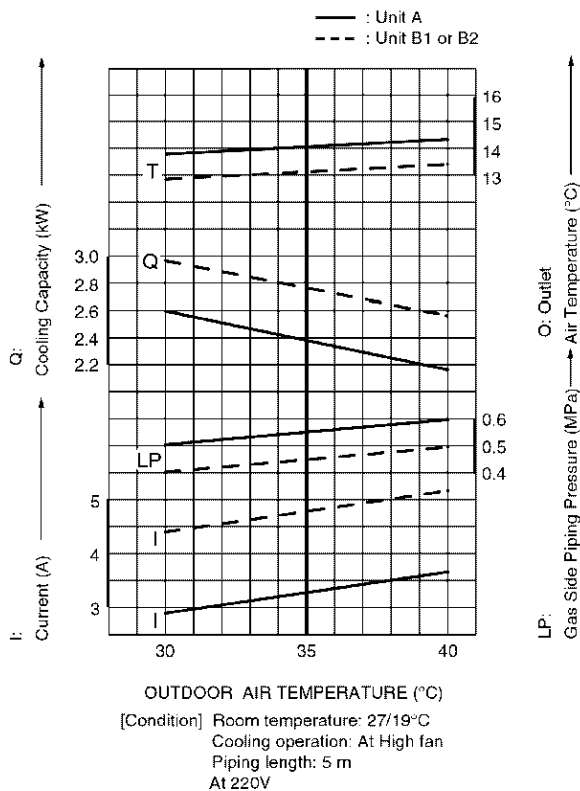
• 1 Unit Operation



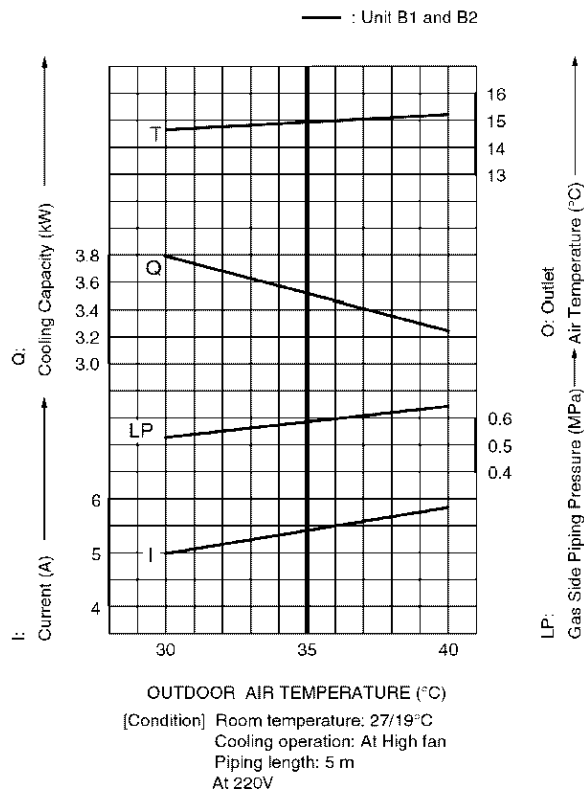
• 3 Units Operation



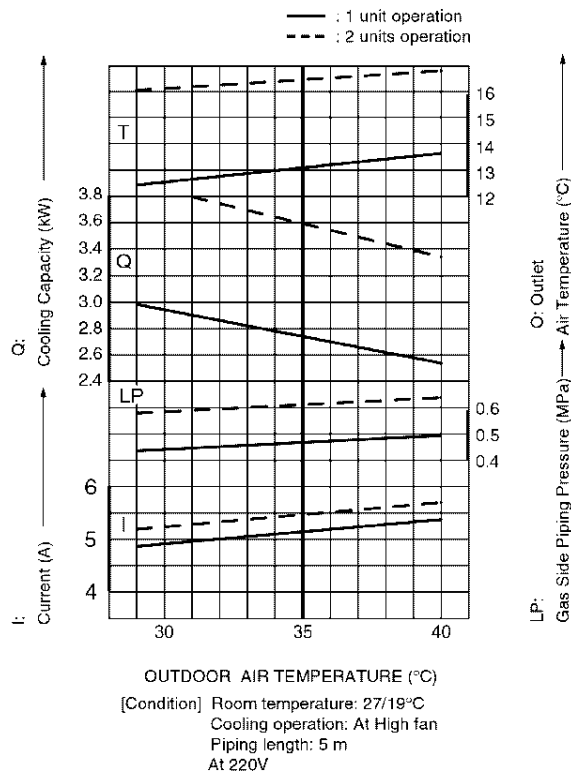
• 2 Units Operation (A + B1 or B2)



• 2 Units Operation (B1 + B2)

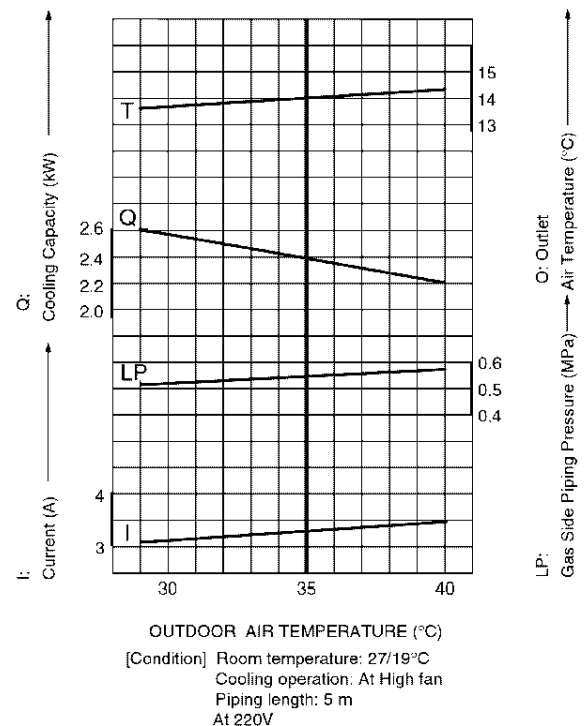


CS-MC90KE / CU-MC140KE CS-MC95KE / CU-MC145KE



CS-MC90KE / CU-MC180KE CS-MC95KE / CU-MC185KE

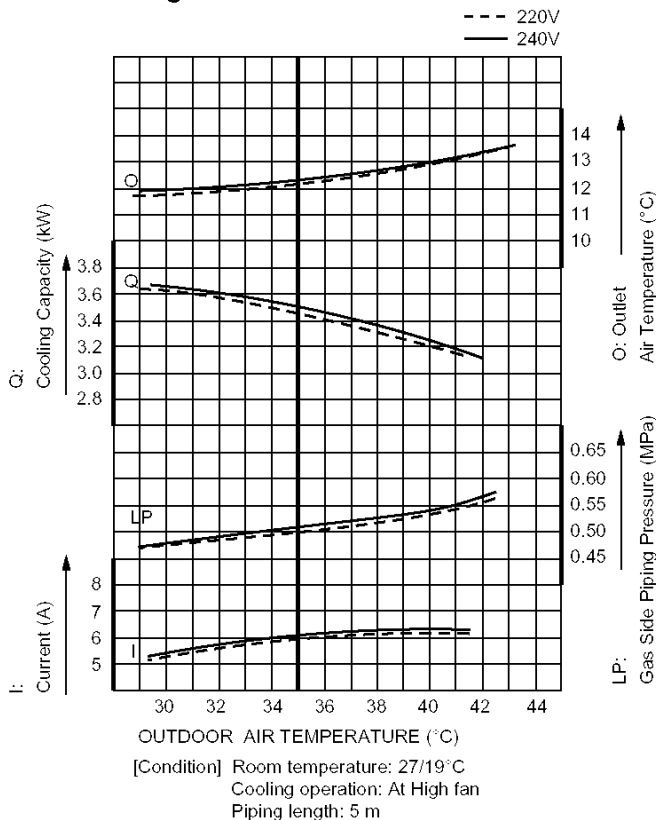
The capability value shown is the value for one unit.
For a total for two units, multiply by 2.



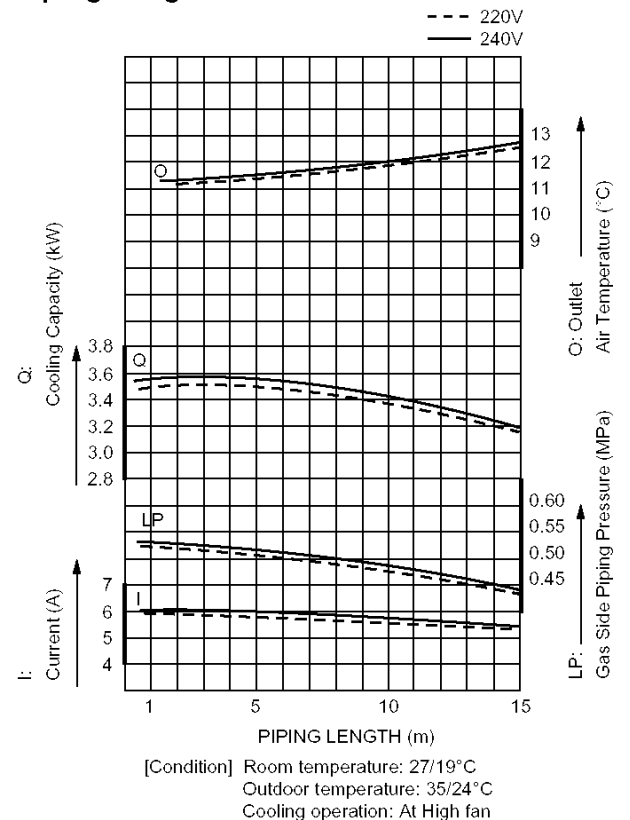
CS-MC120KE/CU-MC240KE, CS-MC125KE/CU-MC245KE

The capability value shown is the value for one unit. For a total for two unit, multiply by 2.

• Cooling Characteristic

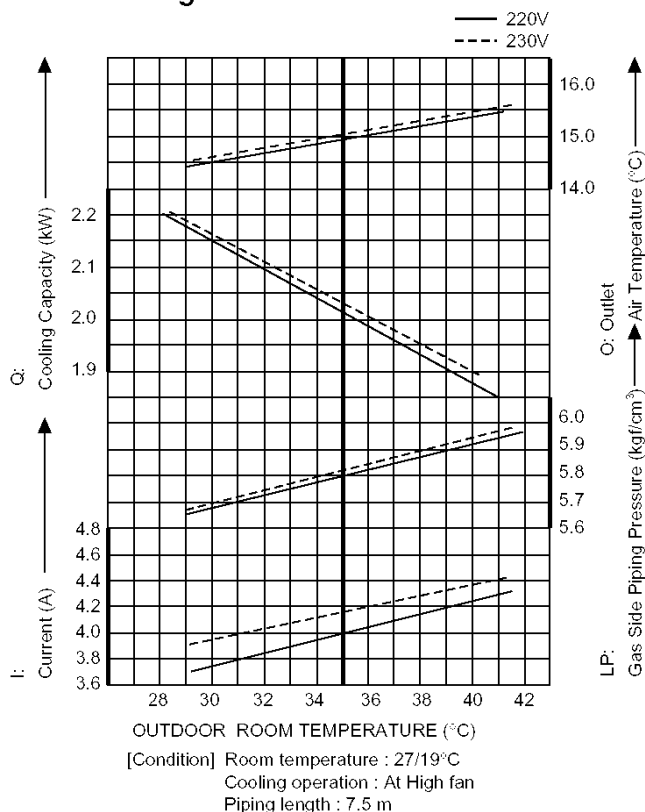


• Piping Length Characteristic

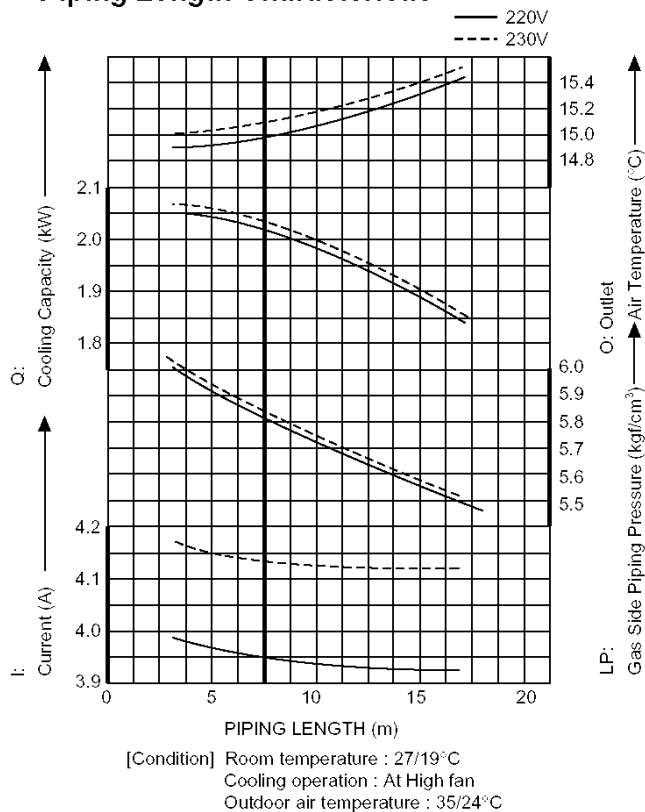


CS-MC71KE / CU-MC191KE, CS-MC76KE / CU-MC196KE

• **Cooling Characteristic**

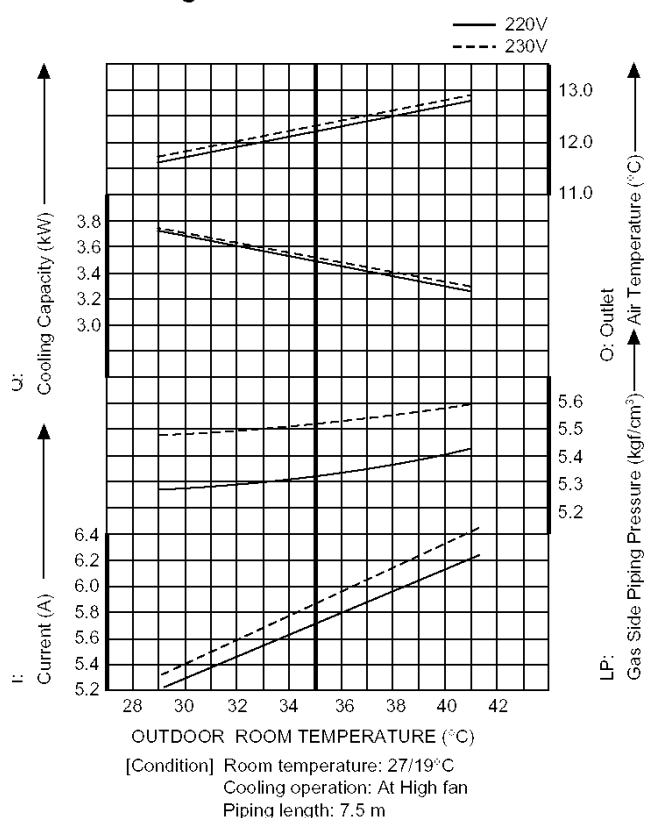


• **Piping Length Characteristic**

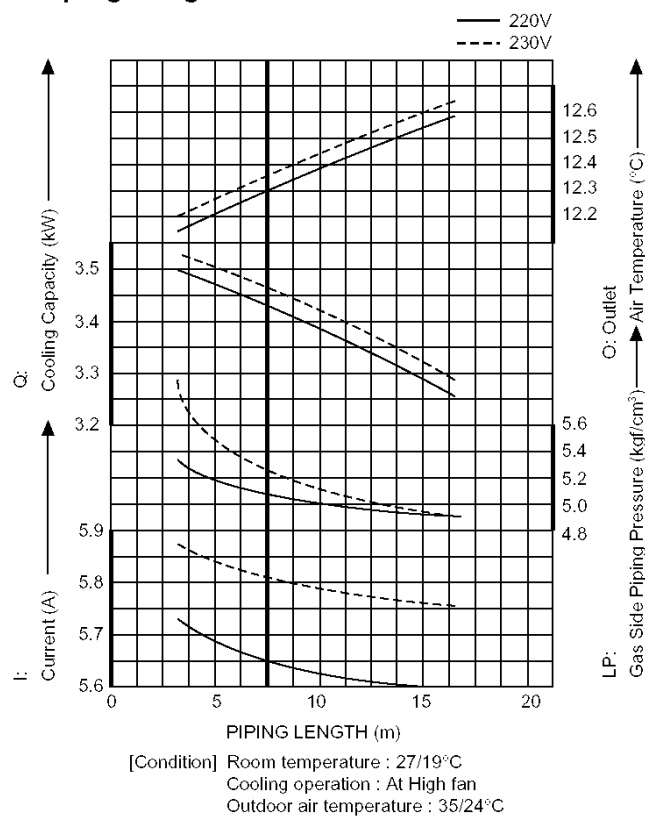


CS-MC121KE / CU-MC191KE, CS-MC126KE / CU-MC196KE

• **Cooling Characteristic**



• **Piping Length Characteristic**

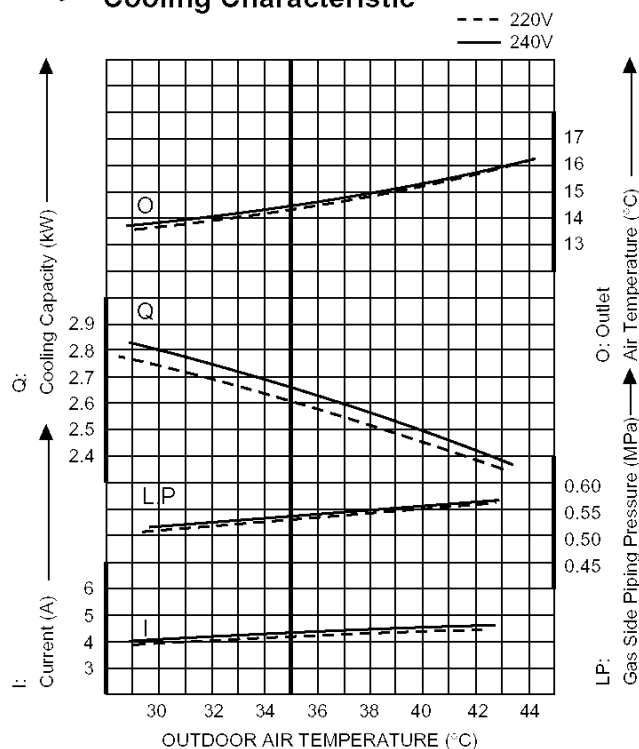


8. CARACTERÍSTICAS DE FUNCIONAMIENTO: MULTI-SPLIT BOMBA DE CALOR

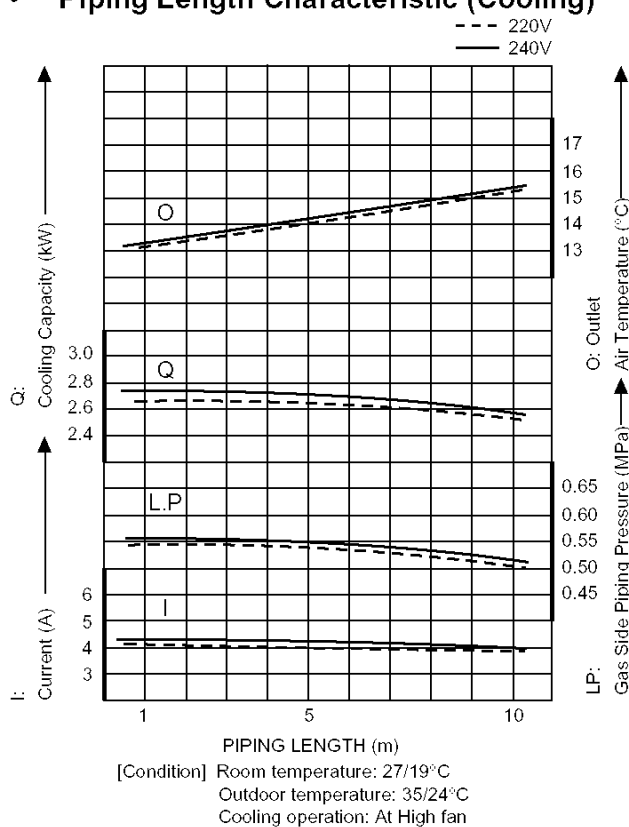
CS-MA90KE / CU-MA180KE

The capability value shown is the value for one unit. For a total for two units, multiply by 2.

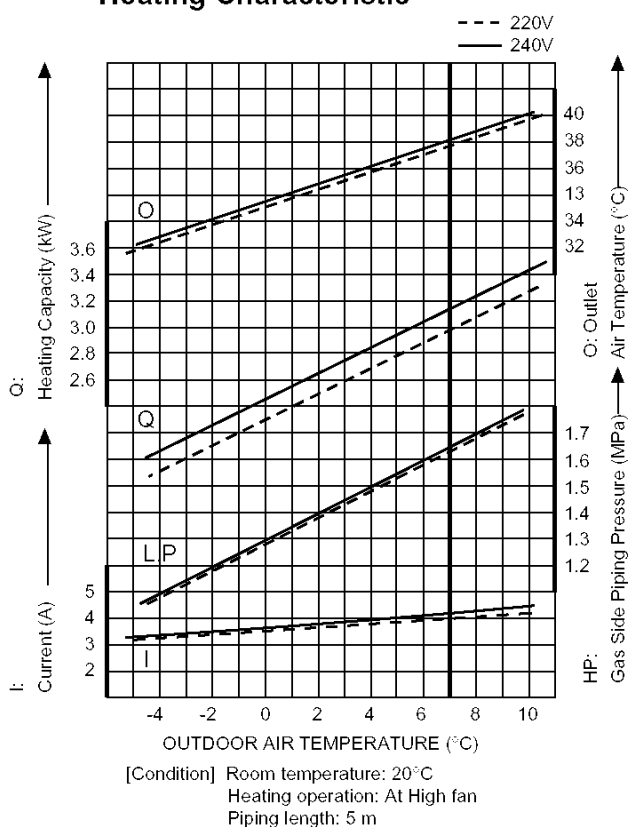
- Cooling Characteristic**



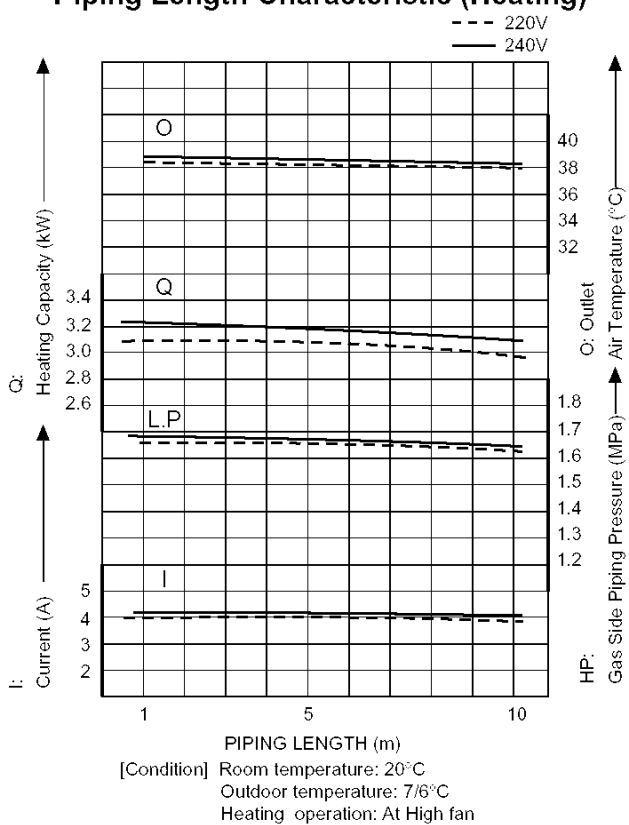
- Piping Length Characteristic (Cooling)**



- Heating Characteristic**

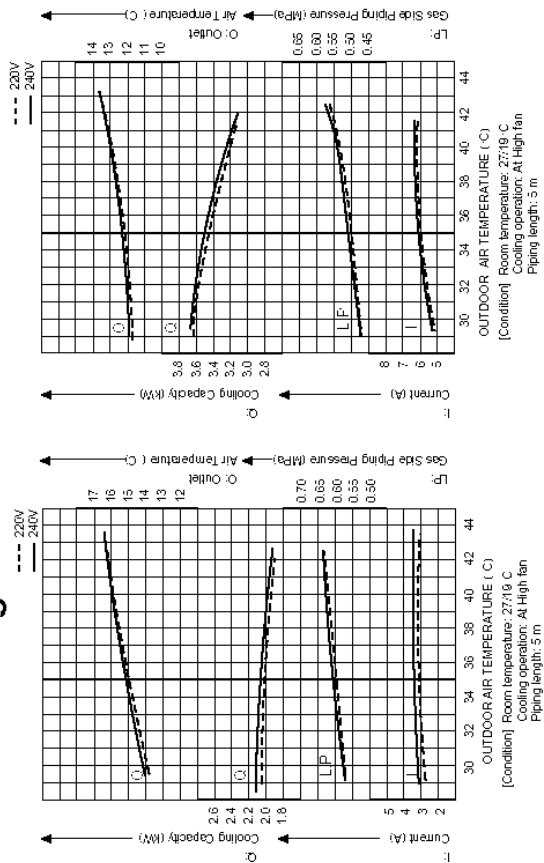


- Piping Length Characteristic (Heating)**

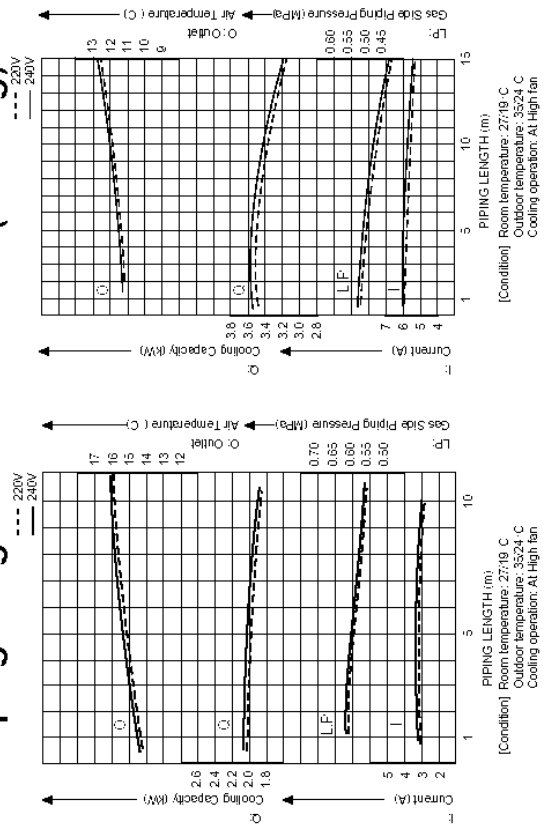


CS-MA70KE, CS-MA120KE / CU-MA190KE

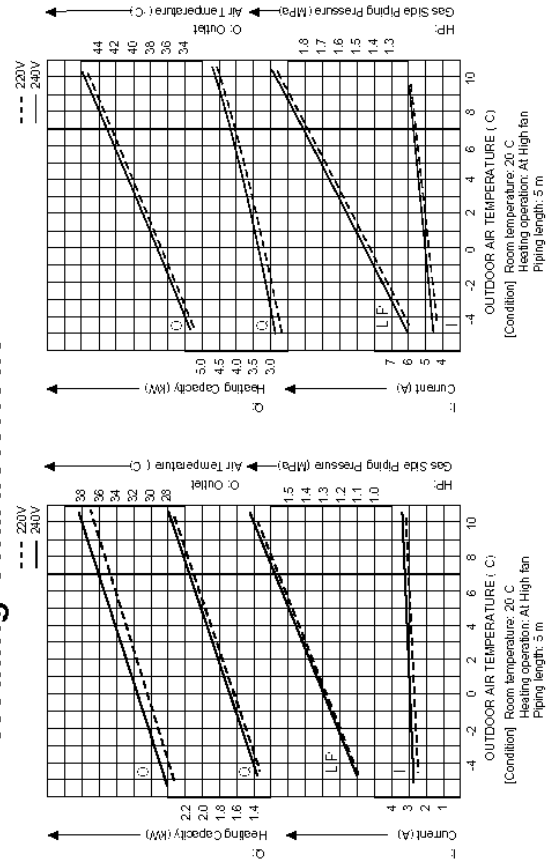
• Cooling Characteristic



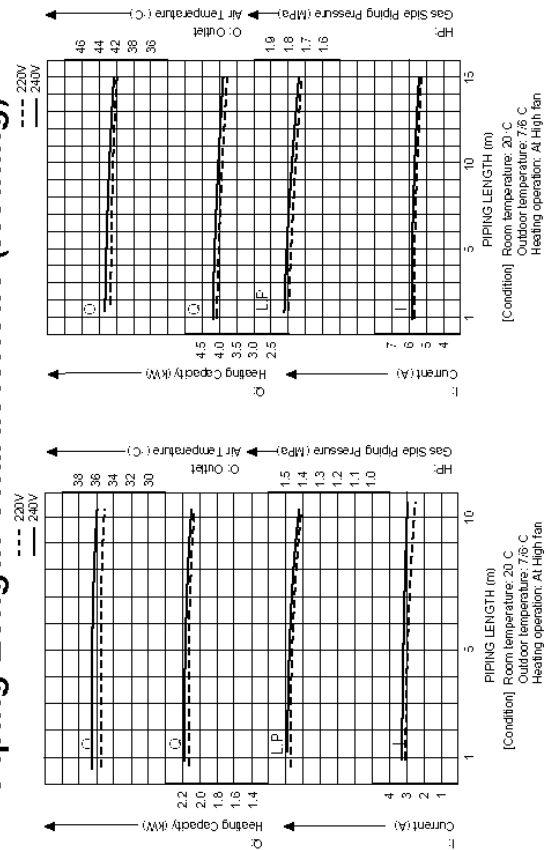
• Piping Length Characteristic (Cooling)



• Heating Characteristic



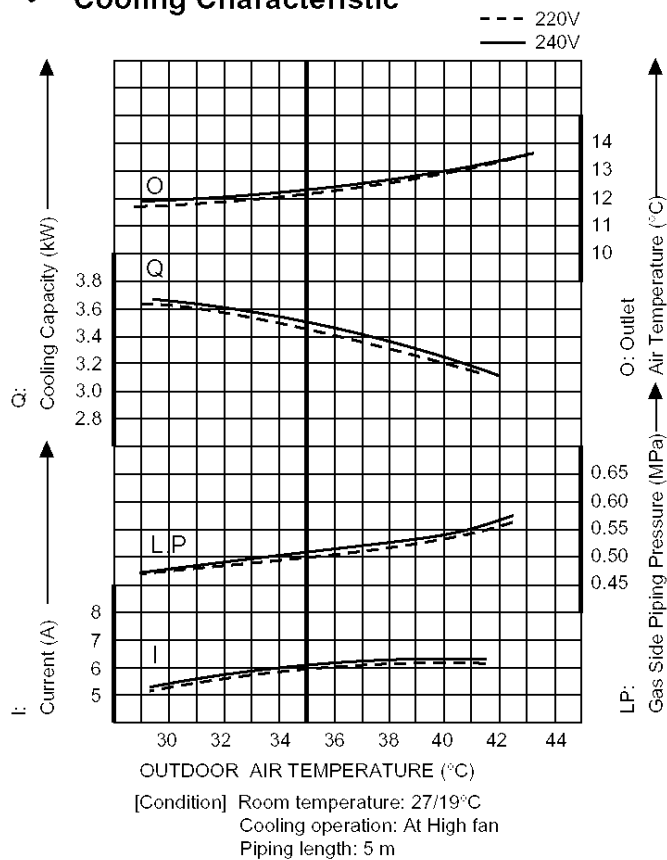
• Piping Length Characteristic (Heating)



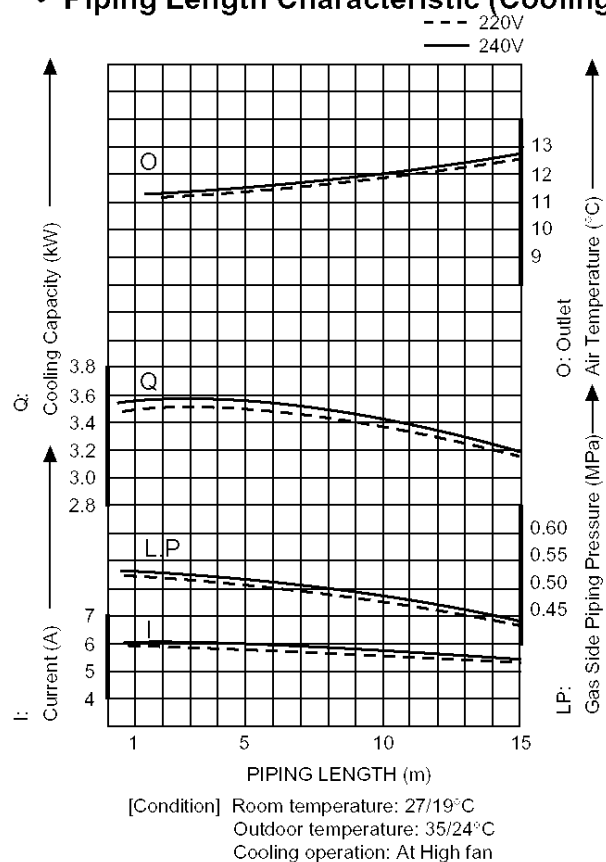
CS-MA120KE / CU-MA240KE, CS-MA125KE / CU-MA245KE

The capability value shown is the value for one unit. For a total for two unit, multiply by 2.

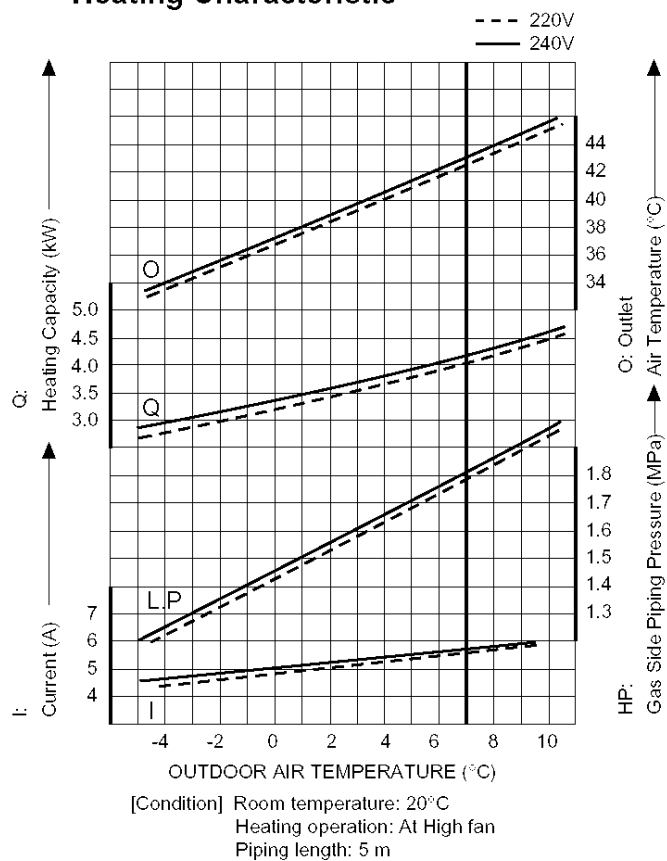
- Cooling Characteristic**



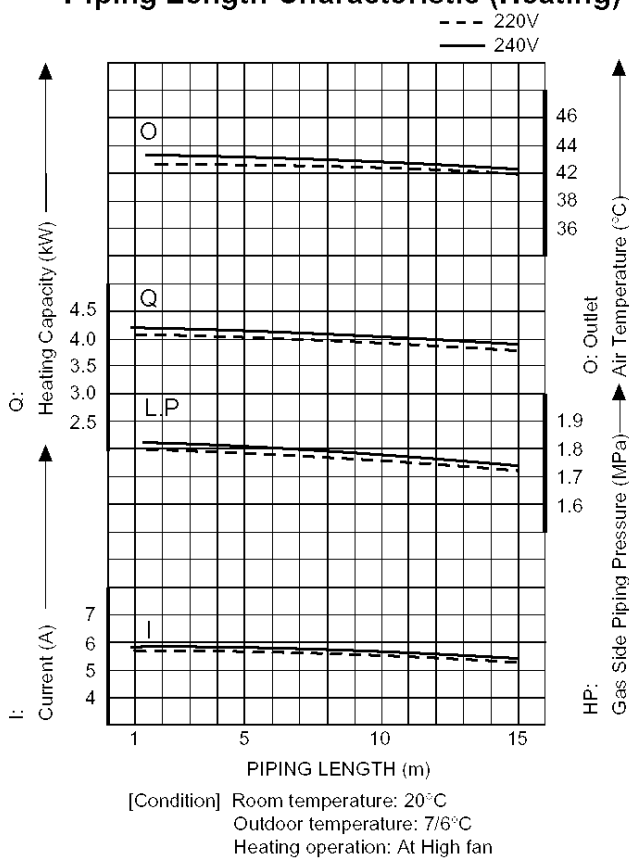
- Piping Length Characteristic (Cooling)**



- Heating Characteristic**

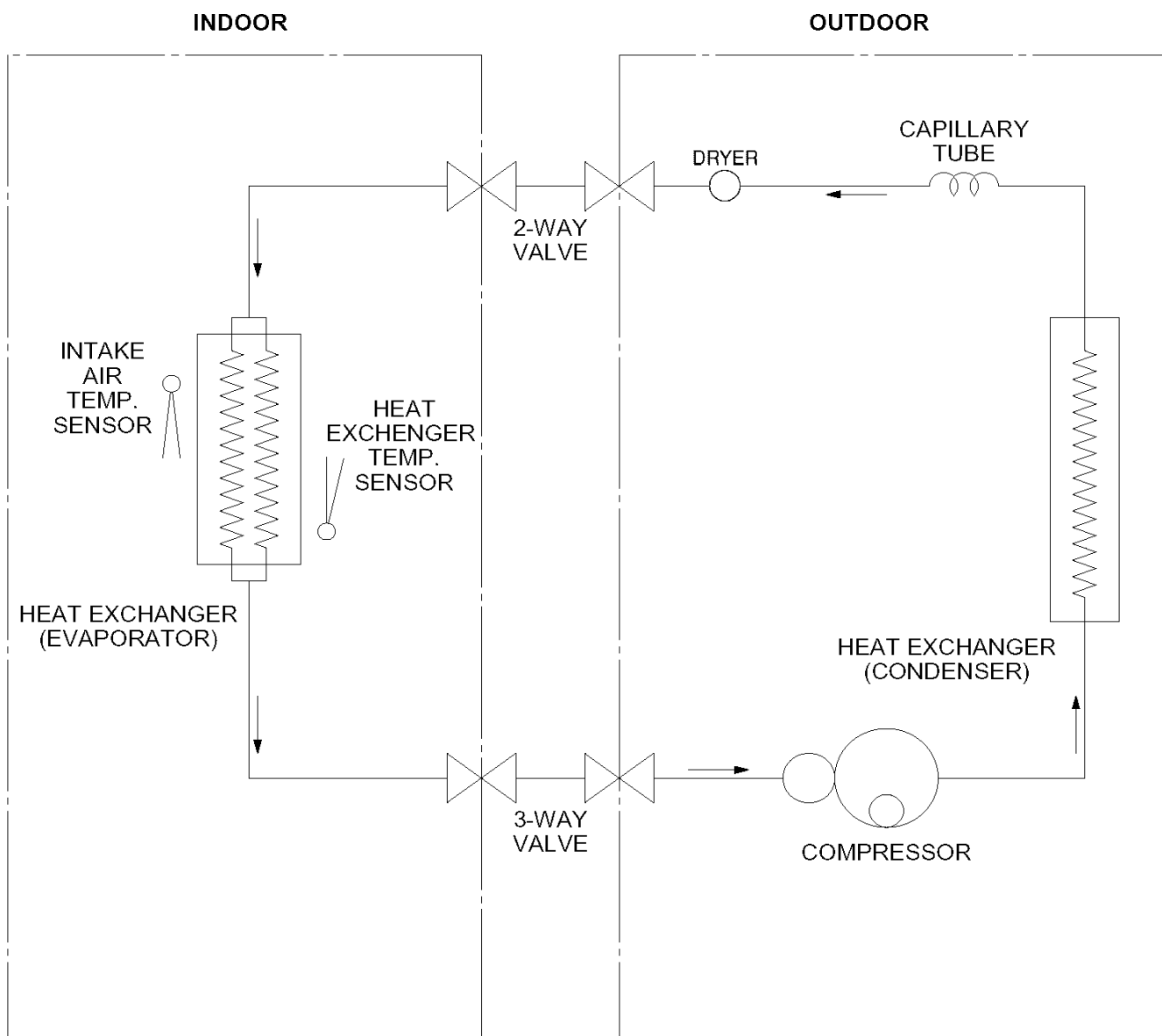


- Piping Length Characteristic (Heating)**



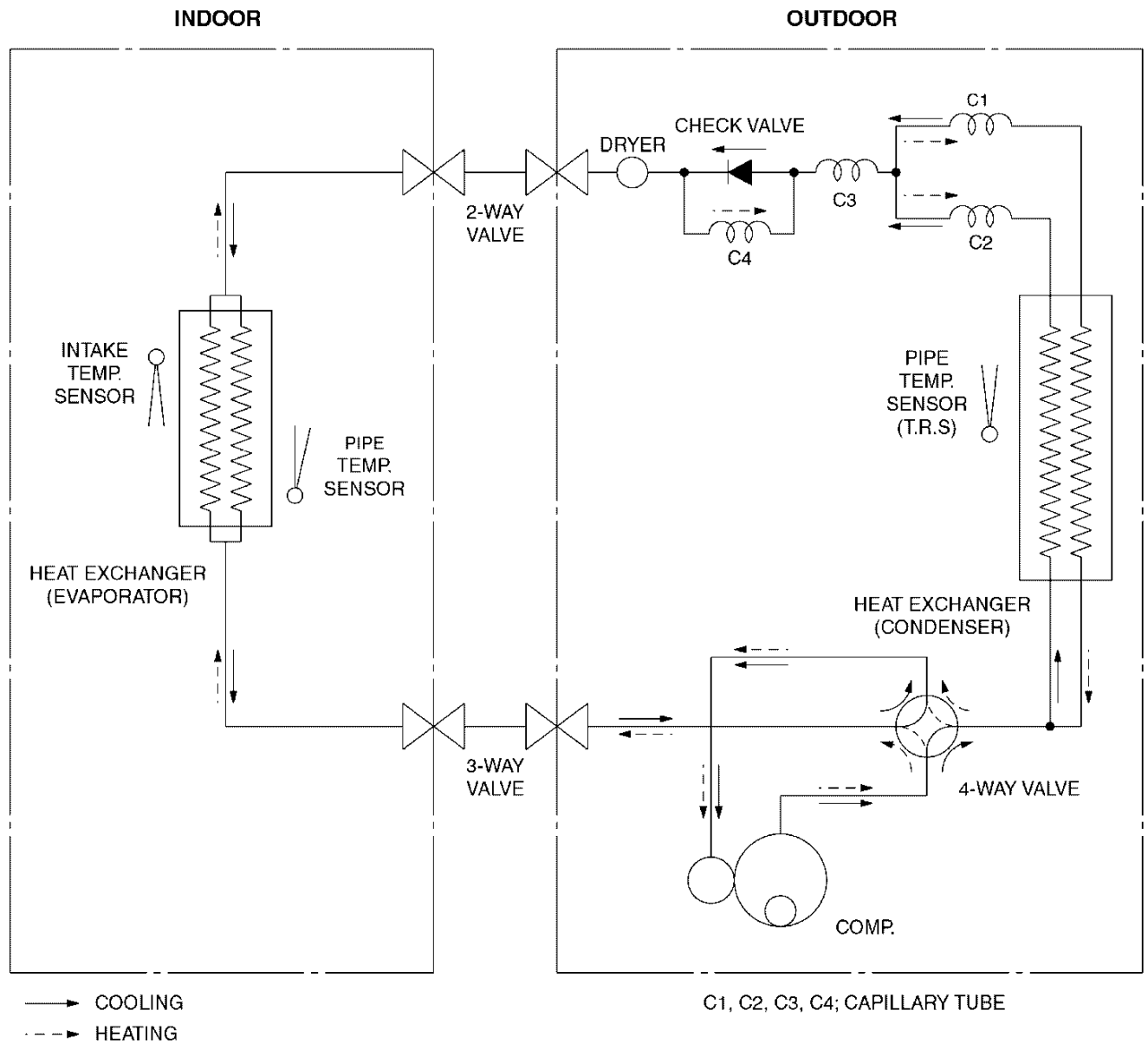
9. DIAGRAMAS FRIGORÍFICOS

CS-C120KE / CU-C120KE, CS-C123KE / CU-C123KE, CS-C125KE / CU-C125KE
 CS-C181KE / CU-C181KE, CS-C241KE / CU-C241KE, CS-C60KE / CU-C60KE
 CS-C70KE / CU-C70KE, CS-C73KE / CU-C73KE, CS-C75KE / CU-C75KE
 CS-C90KE / CU-C90KE, CS-C93KE / CU-C93KE, CS-C95KE / CU-C95KE
 CS-VC125KE / CU-VC125KE, CS-VC75KE / CU-VC75KE, CS-VC95KE / CU-VC95KE



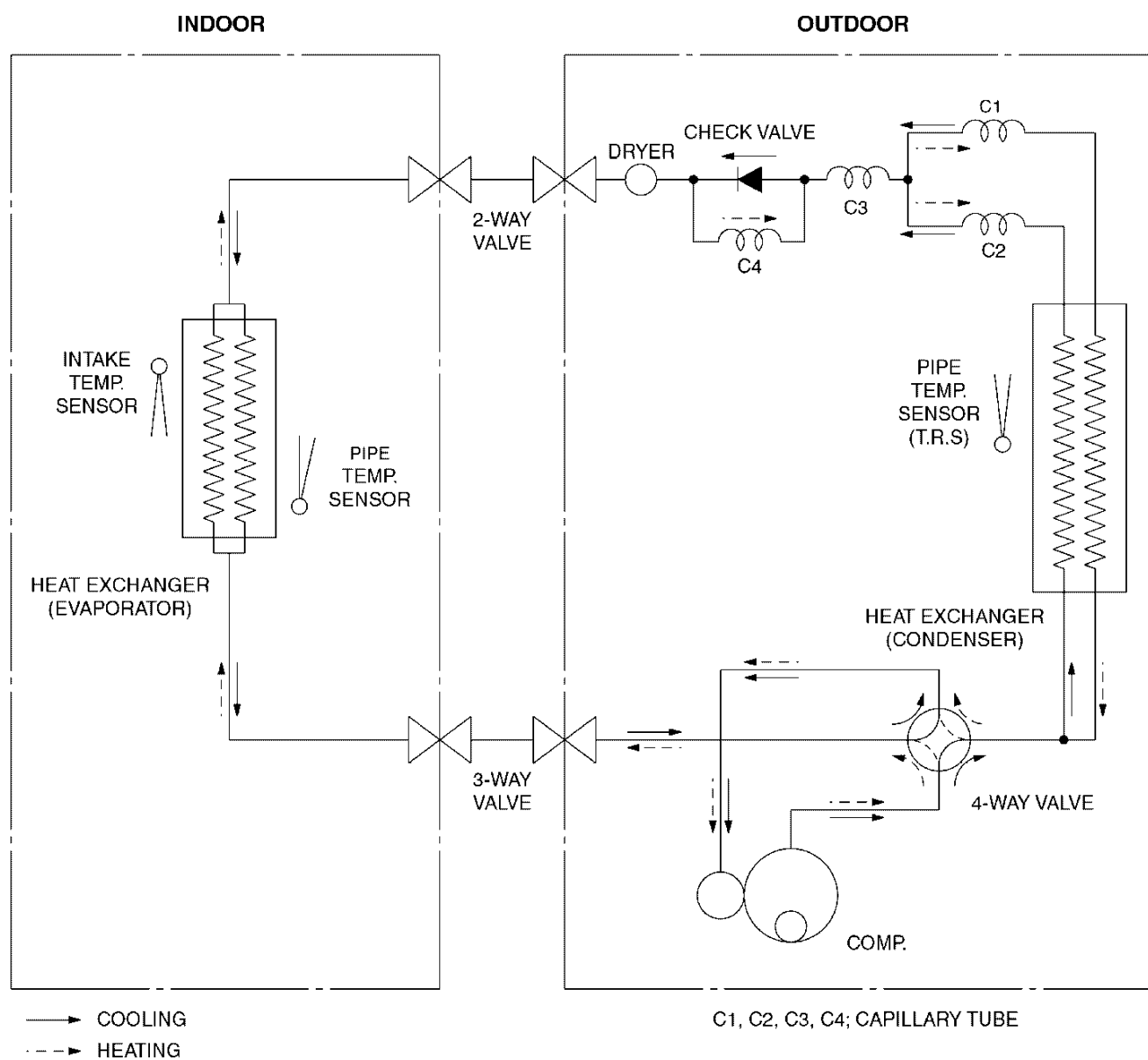
NOTA: Los modelos VC emplean refrigerante R410A.
 Sólo los modelos VC llevan secador (DRYER).

CS-A120KE / CU-A120KE, CS-A123KE / CU-A123KE, CS-A125KE / CU-A125KE
CS-A181KE / CU-A181KE, CS-A241KE / CU-A241KE
CS-A70KE / CU-A70KE, CS-A73KE / CU-A73KE, CS-A75KE / CU-A75KE
CS-A90KE / CU-A90KE, CS-A93KE / CU-A93KE, CS-A95KE / CU-A95KE
CS-VA75KE / CU-VA75KE, CS-VA95KE / CU-VA95KE



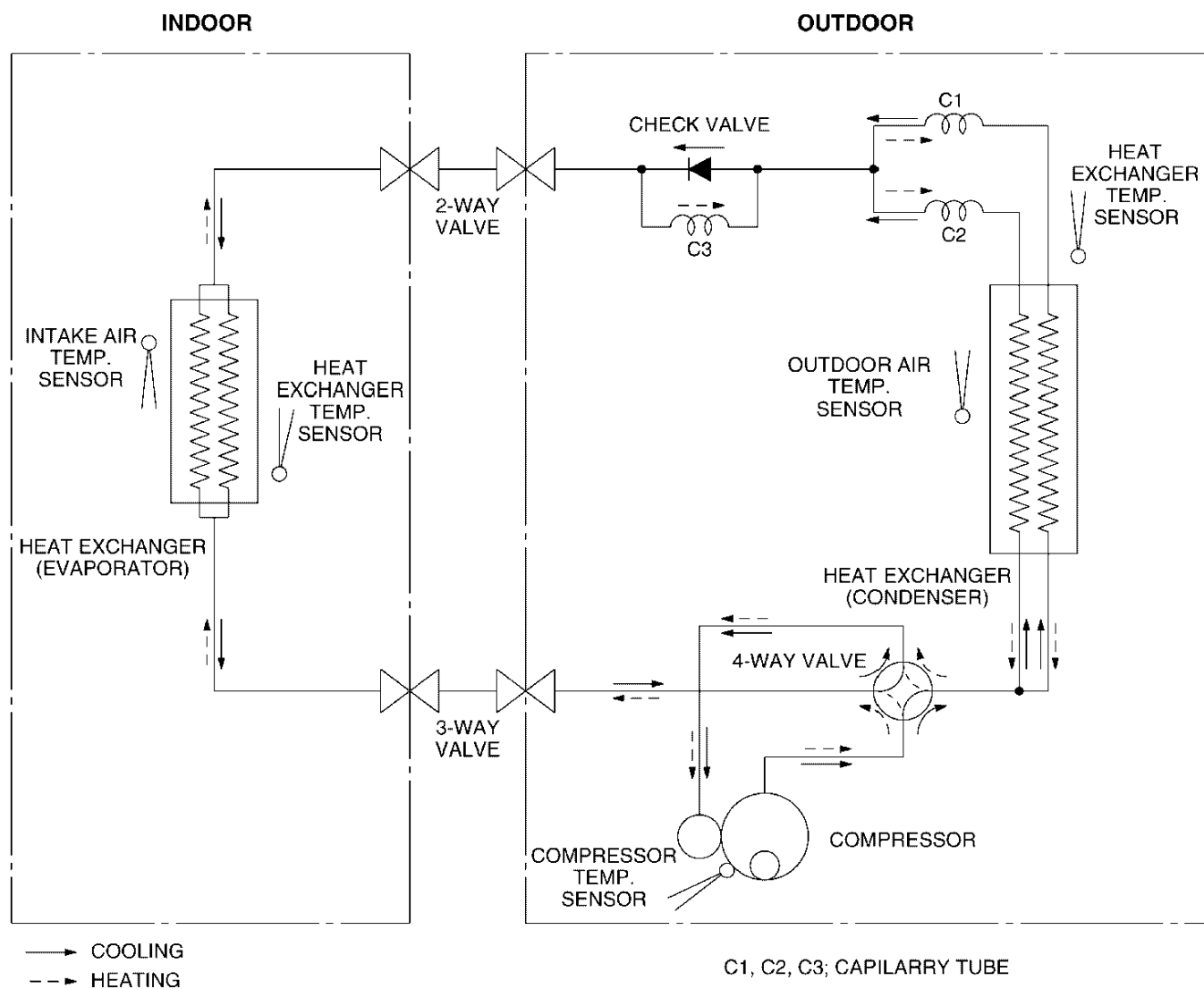
NOTA: Los modelos VA emplean refrigerante R410A.
 Sólo los modelos VA llevan secador (DRYER).

CS-VA125KE / CU-VA125KE

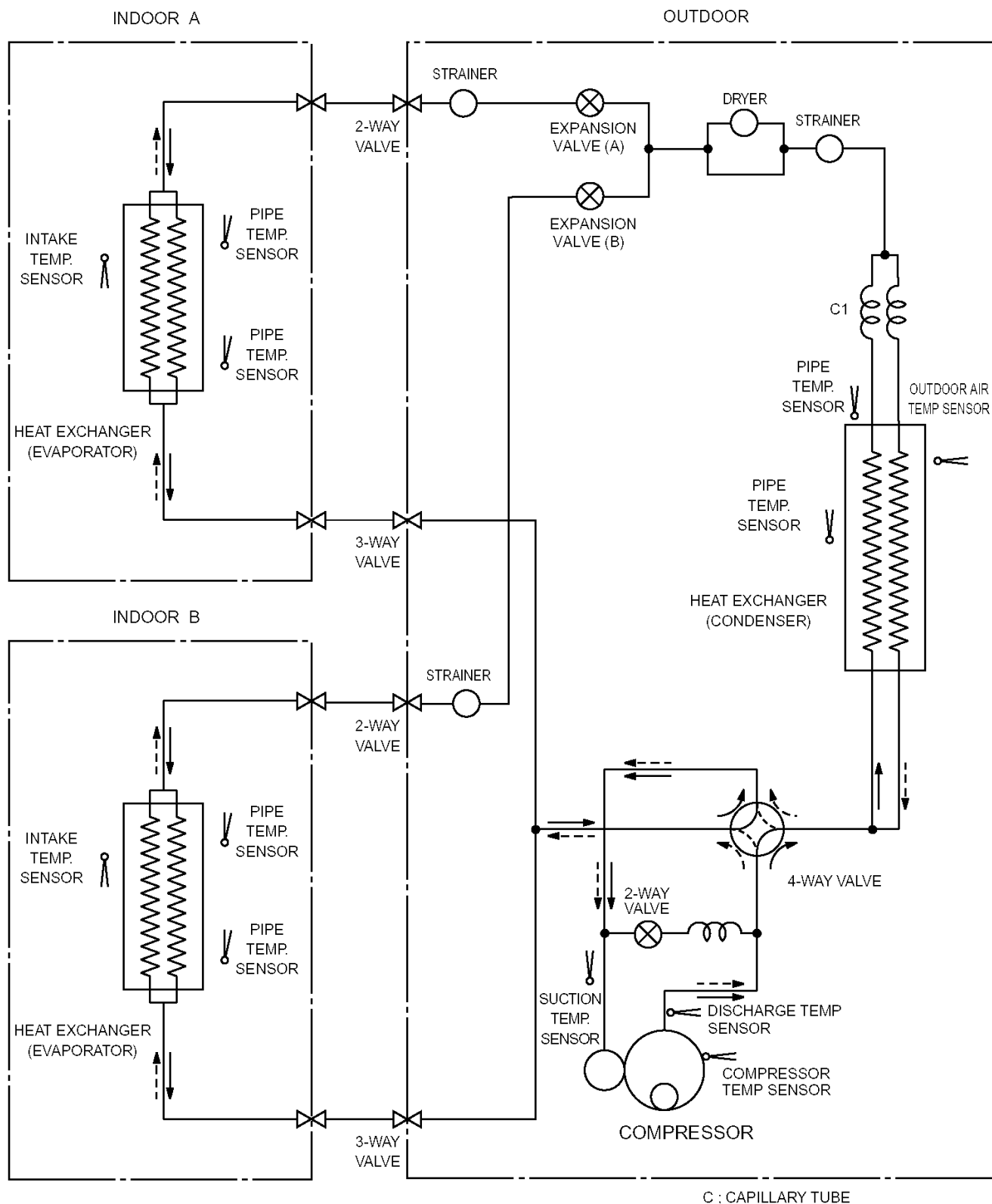


NOTA: Los modelos VA emplean refrigerante R410A.

CS-G120KE / CU-G120KE, CS-G123KE / CU-G123KE, CS-G125KE / CU-G125KE
CS-G90KE / CU-G90KE, CS-G93KE / CU-G93KE, CS-G95KE / CU-G95KE

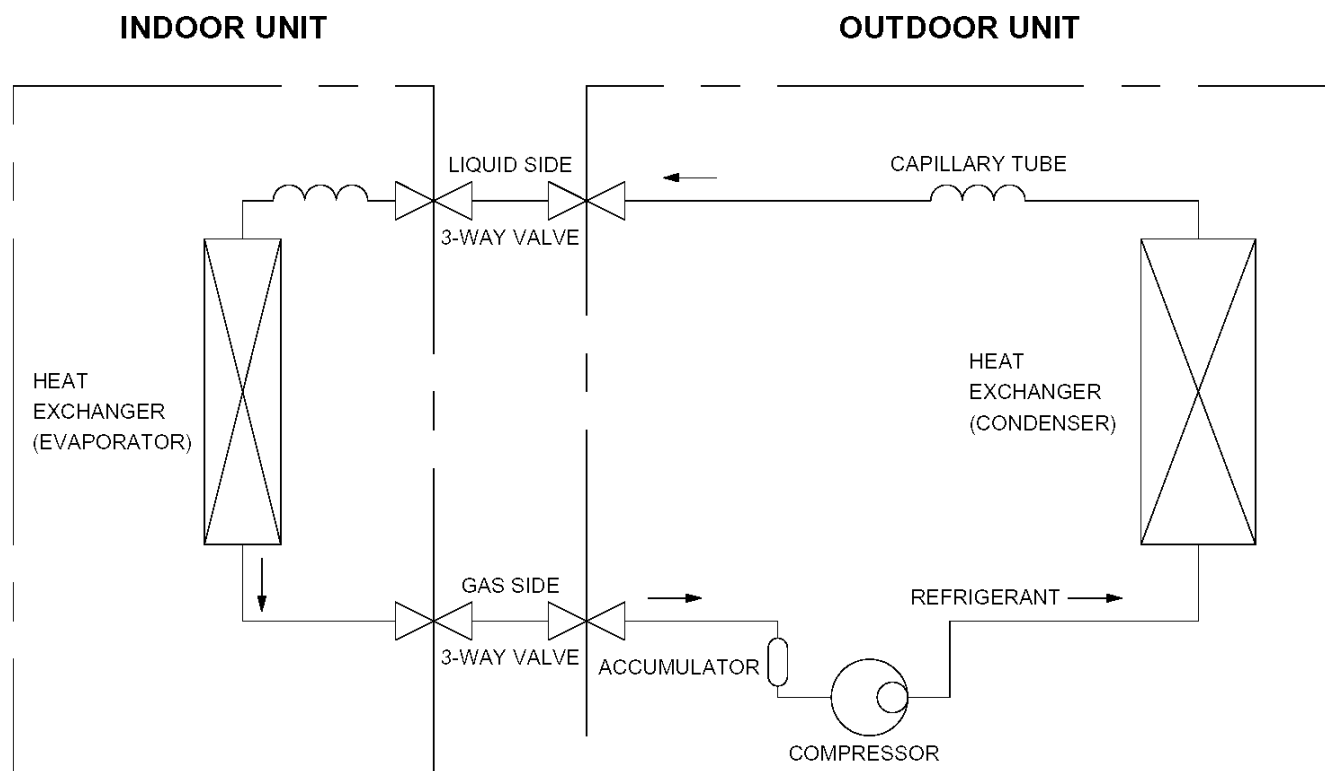


CS-MVG103KE / CU-MVG153KE

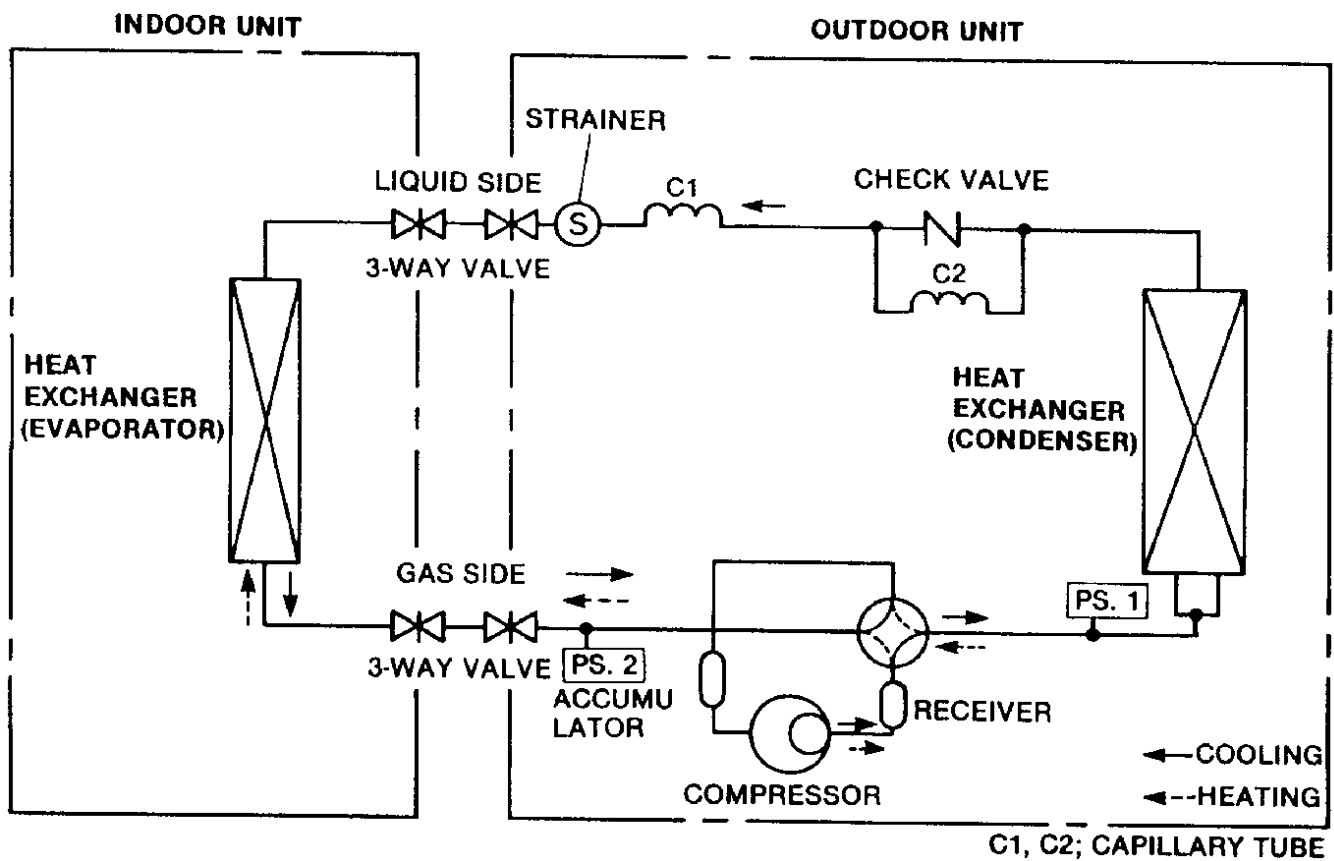


NOTA: Los modelos VG emplean refrigerante R410A.

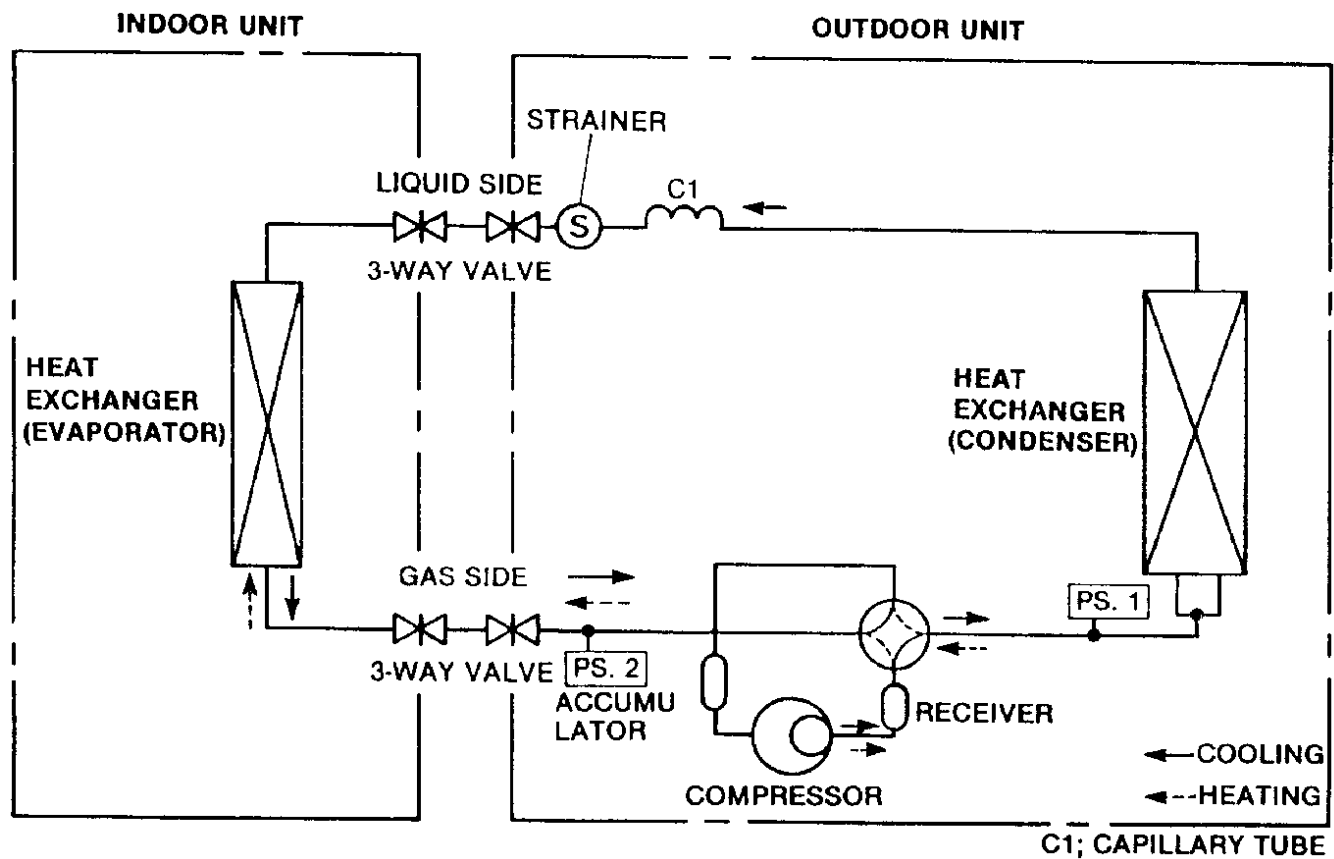
CS-C120TE / CU-C120TE, CS-C180TE / CU-C180TE, CS-C240TE / CU-C240TE



CS-A120TE / CU-A120TE

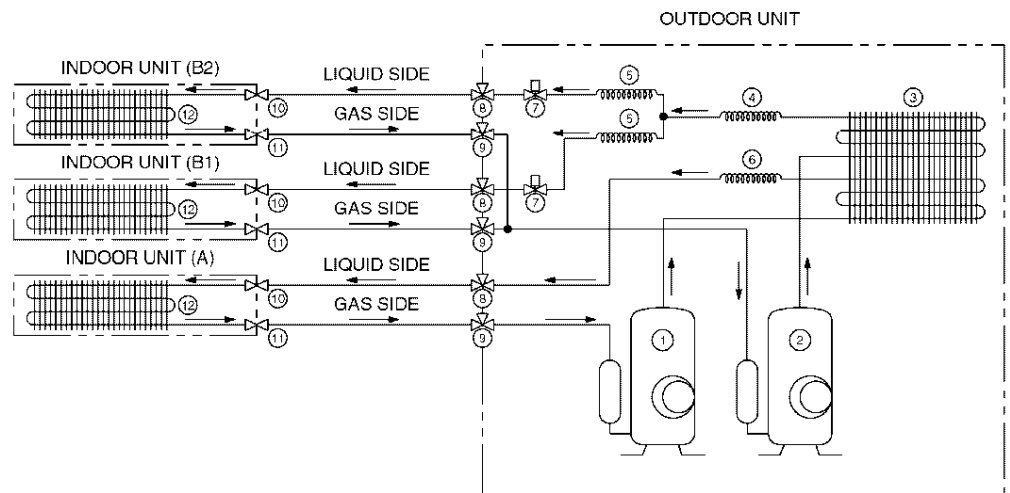


CS-A180TE / CU-A180TE, CS-A240TE / CU-A240TE



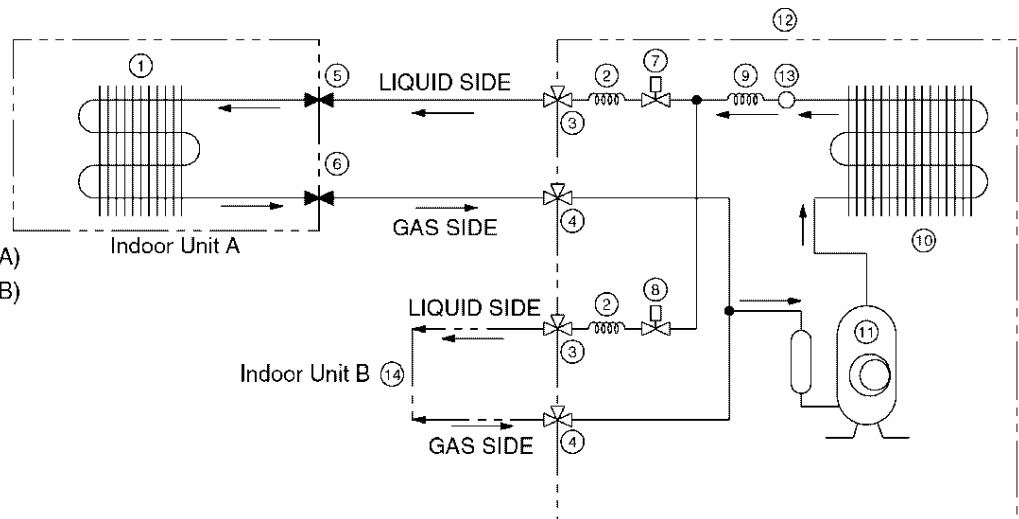
CS-MC90KE / CU-3MC200KE, CS-MC95KE / CU-3MC205KE

- ① Compressor (1)
- ② Compressor (2)
- ③ Condensor
- ④ Capillary tube (1)
- ⑤ Capillary tube (2)
- ⑥ Capillary tube (3)
- ⑦ Switching solenoid valve
- ⑧ 3 way valve (1/4")
- ⑨ 3 way valve (3/8")
- ⑩ Half union (1/4")
- ⑪ Half union (3/8")
- ⑫ Evaporator



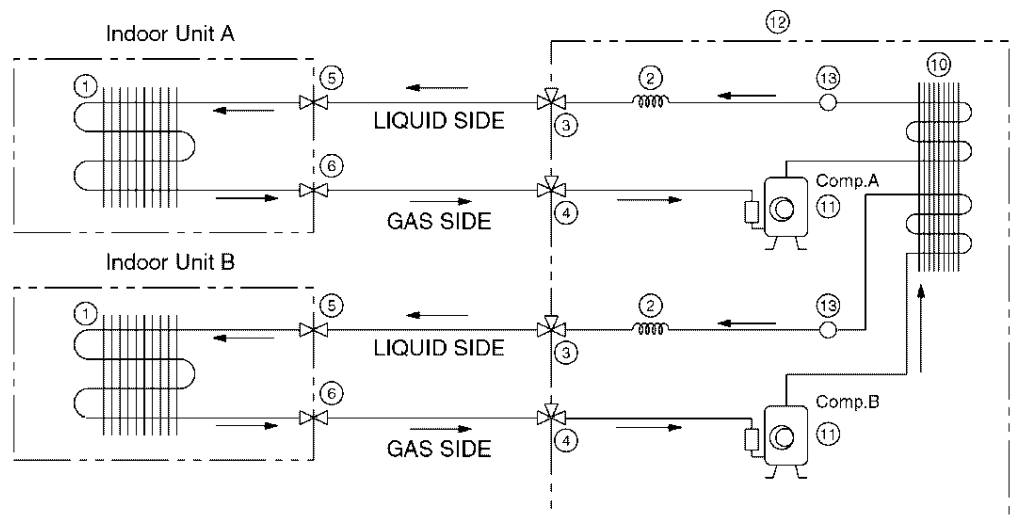
CS-MC90KE / CU-MC140KE, CS-MC95KE / CU-MC145KE

- ① Evaporator
- ② Capillary tube (2)
- ③ 3 way valve (1/4")
- ④ 3 way valve (3/8")
- ⑤ Half union (1/4")
- ⑥ Half union (3/8")
- ⑦ Switching solenoid valve (A)
- ⑧ Switching solenoid valve (B)
- ⑨ Capillary tube (1)
- ⑩ Condensor
- ⑪ Compressor
- ⑫ Outdoor unit
- ⑬ Strainer
- ⑭ To indoor unit B

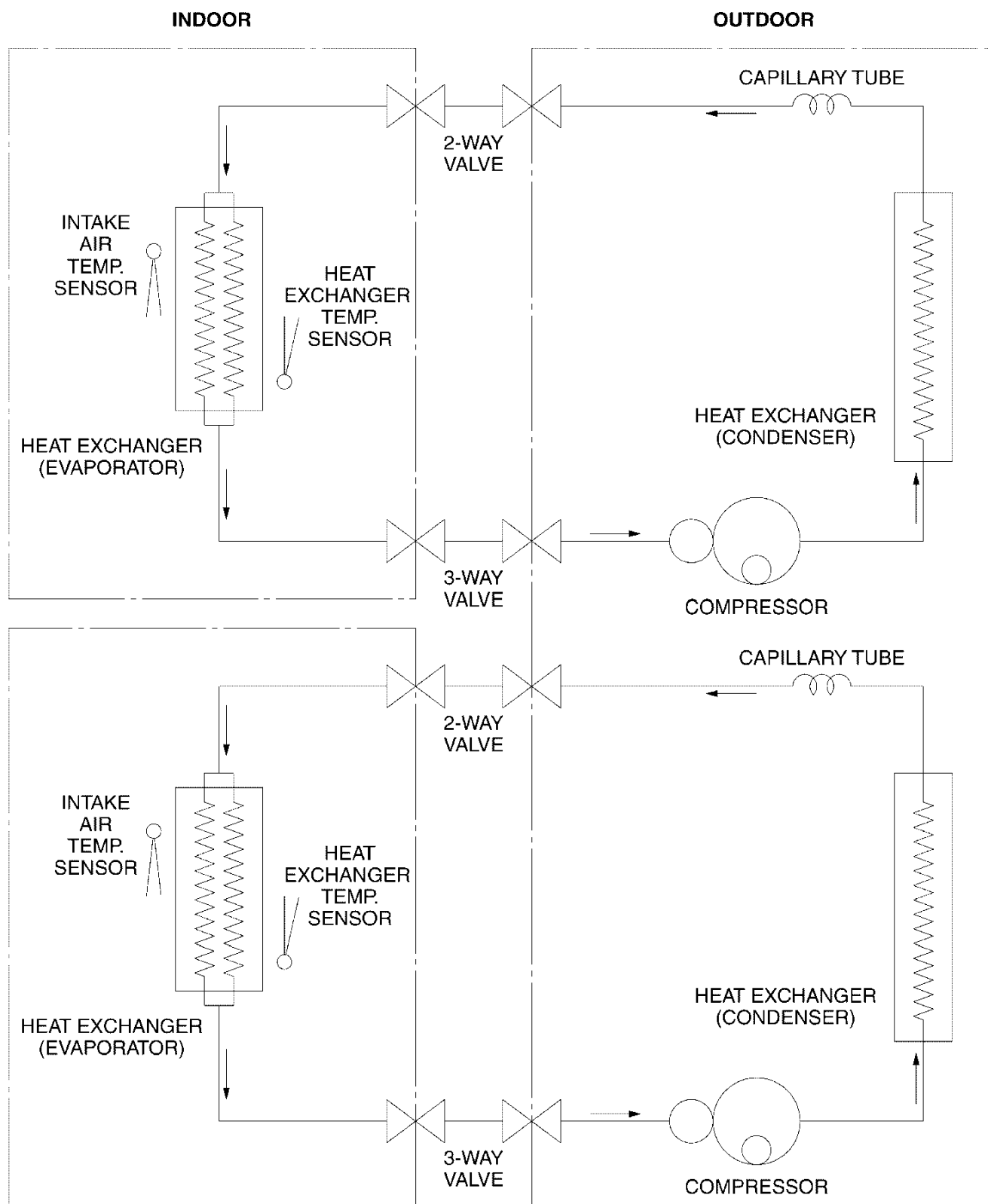


CS-MC90KE / CU-MC180KE, CS-MC95KE / CU-MC185KE

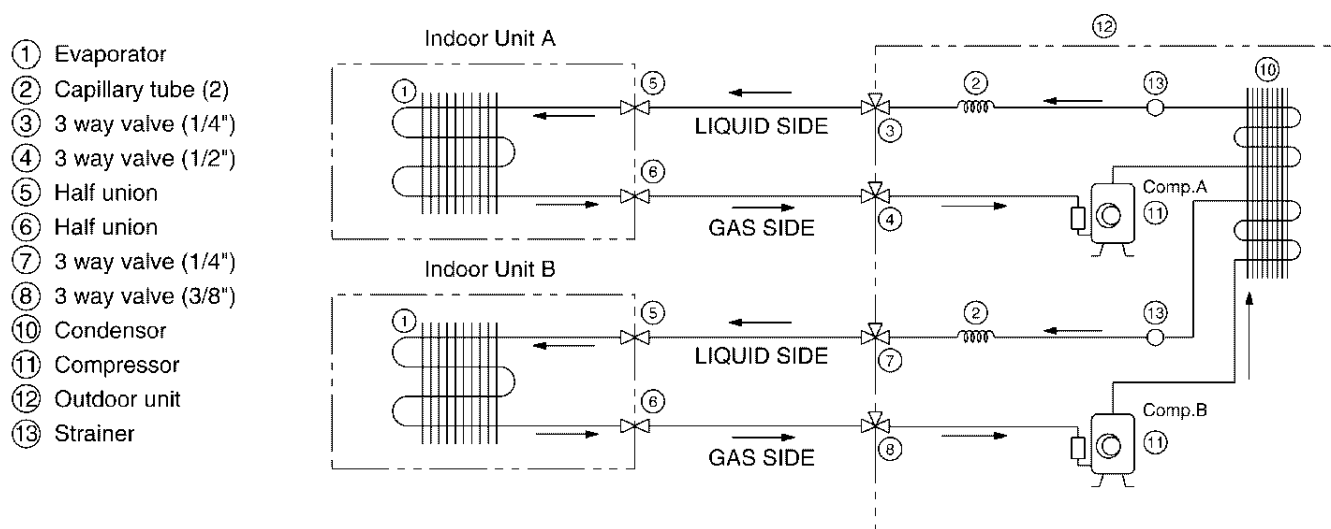
- ① Evaporator
- ② Capillary tube (2)
- ③ 3 way valve (1/4")
- ④ 3 way valve (3/8")
- ⑤ Half union (1/4")
- ⑥ Half union (3/8")
- ⑩ Condensor
- ⑪ Compressor
- ⑫ Outdoor unit
- ⑬ Strainer



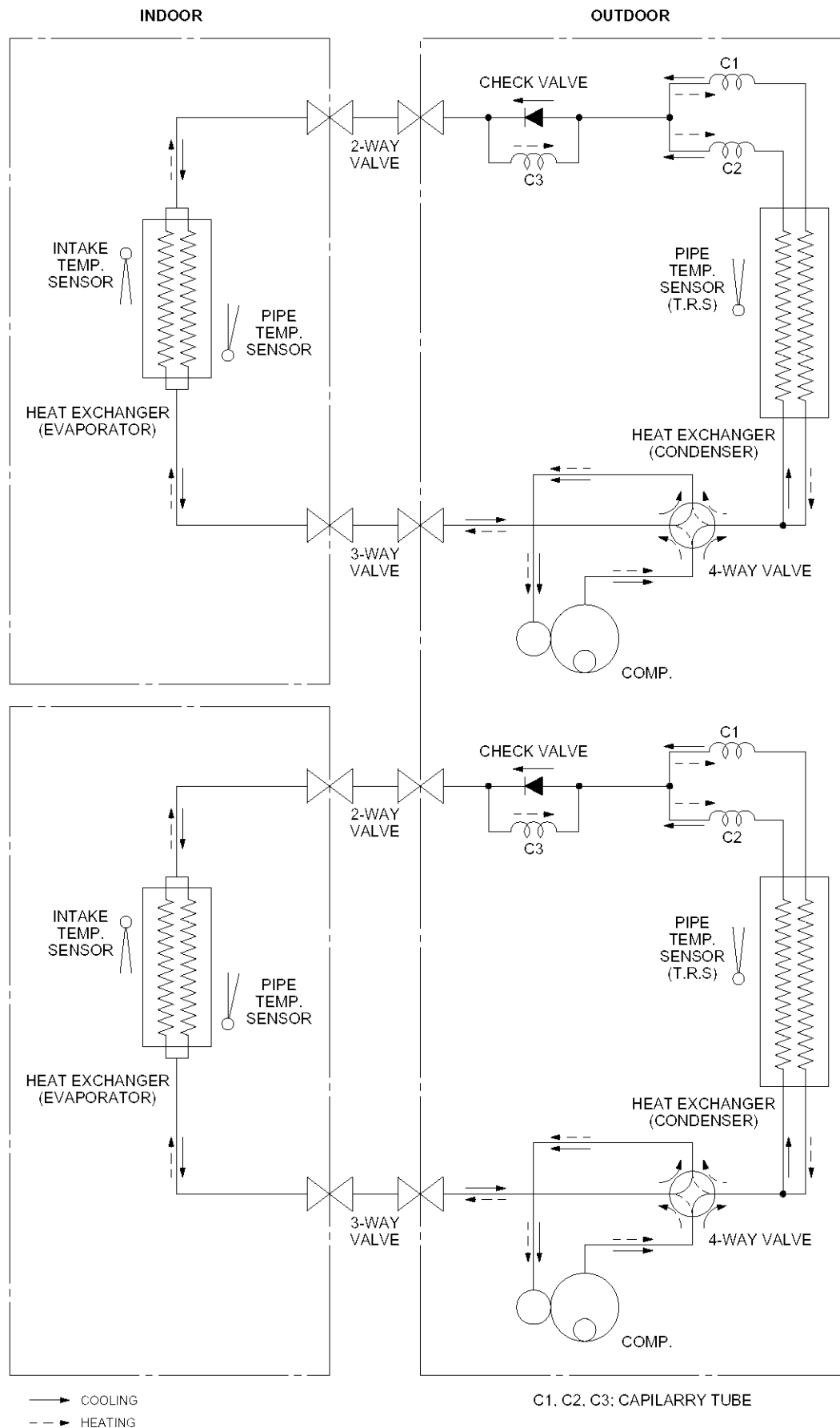
CS-MC120KE / CU-MC240KE
CS-MC125KE / CU-MC245KE



CS-MC71KE / CS-MC121KE / CU-MC191KE
CS-MC76KE / CS-MC126KE / CU-MC196KE



**CS-MA90KE / CU-MA180KE, CS-MA70KE / CS-MA120KE / CU-MA190KE
CS-MA120KE / CU-MA240KE, CS-MA125KE / CU-MA245KE**



NOTAS:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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