AMENA
AIR CONDITIONERS

# Ducted Type
## Split System Air Conditioners

- Direct Expansion Cooling
- Hot Water Coil Heating

HYBRID

Tomorrow's Technology for
Today's Good Living

Outdoor Unit

ISO 9001:2008

ISO 14001:2004

TIS 18001:1999

OHSAS 18001:2007

# Ducted Type Split System Air Conditioners with Hot Water Coil

In response to demands in certain countries of the world for a ducted split system air conditioner that can use hot water from a boiler to heat a room in winter and refrigerant to cool a room with an air conditioning system in summer, Amena has designed and built a hybrid ducted type split system air conditioner with a direct expansion coil and a hot water coil encased in the same indoor unit to satisfy those demands.

Why use the hot water and not the heat pump or electric heater for heating? The answer is the oil and gas supply are cheap in those countries of the world where oil and gas are abundant. Therefore, the hot water heating is more economical than using electricity for heating there.

Amena has two types of such products–one with a side discharge outdoor unit and the other one with top discharge outdoor unit. The side discharge outdoor unit is suitable for installation on the balcony of a high rise building and the top discharge type is most suitable for a flat roof building or a resident.

## DNM Models : Ducted Indoor Unit

The indoor unit is built from high quality steels and electronically powder painted and baked for durability and beauty. It is designed especially for easy installation and maintenance. This unit is suitable for a luxury house, residence, shop and light commercial installation where no obtrusive indoor unit sitting on the wall or hanging under the ceiling is welcome. Besides, the indoor unit is only 27 CM high (in case of DNM 18 & 24) and 30 CM for larger capacities. Inside the indoor casing are encased both a refrigerant coil and a hot water coil.The same indoor unit can be used with either a side discharge or a top discharge outdoor unit. Here are some of the key features and benefits.

### Features

- High performance in cooling and heating.
- Low profile indoor unit fitting into most ceiling voids.
- Equipped with adequate devices for safe operation.
- Available in both cooling only type and hot water heating version.
- System is pre-charged with R-22 refrigerant to facilitate convenient installation.
- Five-speed indoor unit fan motor for high flexibility in selecting optimal air flow.
- Indoor unit casing is fabricated from heavy gauge galvanized steel with oven baked powder coating.

## VC & TC Models : Outdoor Units

### VC Outdoor Units (Side Discharge)

### TC Outdoor Units (Top Discharge)

Amena's Tropico series outdoor units are designed to work perfectly well under harsh ambient temperatures as high as 52˚C in summer and down to a very low temperature in winter when used with hot water coil. They are available in both a side discharge and a top discharge type for versatile installations.

### Features

- Fan motor has internal thermal protection.
- Equipped with adequate safety devices for compressor protection.
- Outdoor units are available as a side discharge or a top discharge type.
- Service-friendly design for ease of installation, service and maintenance.
- Factory pre-charged with refrigerant providing great convenience in installation.
- Piston compressors from 18,000-30000 Btu/hr and scroll compressor for 42,000-60,000 BTU for top discharge outdoor unit.
- Rotary compressors for 18,000-36,000 Btu and scroll compressors for 48,000 and 60,000 Btu/hr for side discharge outdoor unit.
- Unit casing is fabricated from heavy gauge galvanized steel with oven baked powder coating paint to withstand harsh weather conditions.

## Controls and Their Features

All the ducted splits come with wired type controls. Following are some of their features:

- Dry-keep function for added comfort at sleep time.
- Twenty–four-hour Timer-On and Timer-Off available.
- Automatic changeover function for cooling and heating.
- Multi-speed controls for flexible choices of comfort levels.
- Auto-restart function when the power returns after a breakdown.
- Non-volatile memory that keeps the set parameters when the power comes back after the power breakdown.

# DNM

## Ducted Type Split System (T3)
## With Top Discharge Outdoor Unit & Hot Water Coil R-22 (50HZ)

Condensing Unit

## Specifications

| Model | Indoor Unit | | DNM18BHVD-TIRZ | DNM24BHVD-TIRZ | DNM30BHVD-TIRZ | DNM36BHVD-TGRZ | DNM48BHVD-TGRZ | DNM60BHVD-TGRZ |
|---|---|---|---|---|---|---|---|---|
| | Outdoor Unit | | TC18PSVC-TERZ | TC24PSVC-TERZ | TC30PSVC-TERZ | TC36CSVC-TERZ | TC48CSYC-TERZ | TC60CSYC-TERZ |
| Nominal Cooling Capacity * | | Btu/hr | 19000 | 26000 | 30000 | 36000 | 48000 | 57000 |
| | | W | 5570 | 7620 | 8800 | 10550 | 14100 | 16700 |
| Nominal Heating Capacity ** | | Btu/hr | 34500 | 45400 | 55300 | 61400 | 76800 | 86000 |
| | | W | 10110 | 13300 | 16200 | 18000 | 22500 | 25200 |
| Moisture Removal | | L/hr | 0.69 | 2.12 | 2.31 | 2.76 | 3.47 | 4.94 |
| Power Supply | | V/Ph/Hz | 220-240/1/50 | | | | 380-415/3/50 | |
| Running Current | Cooling | A | 10.00 | 14.30 | 17.60 | 20.10 | 8.90 | 10.50 |
| Power Consumption | Cooling | W | 2250 | 3020 | 3650 | 3900 | 5250 | 6100 |
| Efficiency | Cooling | EER | 8.44 | 8.61 | 8.22 | 9.23 | 9.14 | 9.34 |
| Control | Type | | Without Control (Wired Control is optional) | | | | | |
| Piping Conection | Type | | Flare | | | | | |
| | Liq./Gas/Drain | mm | ø9.5/15.9/OD.16 | | | | ø12.7/19.0/OD.16 | |
| | Max. Length | m | 30 | | | | | |
| | Max. Height | m | +/-15 | | | | | |
| Water Pipe Connection | Type | | Male Thread Pipe | | | | | |
| | Inlet | inch | 3/4 | | | | | |
| | Outlet | inch | 3/4 | | | | | |

| Indoor Unit | | | DNM18BHVD-TIRZ | DNM24BHVD-TIRZ | DNM30BHVD-TIRZ | DNM36BHVD-TGRZ | DNM48BHVD-TGRZ | DNM60BHVD-TGRZ |
|---|---|---|---|---|---|---|---|---|
| Evaporator Coil | Row | | 2 | 3 | 2 | 3 | | |
| | Tube | mm | ø7/Grooved | | | | | |
| Hot Water Coil | Row | | 2 | | | | | |
| | Tube | mm | ø9.5/Smooth | | | | | |
| Blower | Type | | Double Intel Centrifugul Fan | | | | | |
| | No. | | 2 | | | | | |
| Fan Motor | Type | | Permanent Split Capacitor | | | | | |
| | Power Supply | V/Ph/Hz | 220-240/1/50 | | | | | |
| | No. | | 1 | | | | | |
| | Full Load Current | A | 1.26 | 2.12 | | 2.21 | 3.49 | |
| | Nominal Output | W | 123 | 217 | | 311 | 527 | |
| Nominal Air Flow Rate | | l/s | 360 | 470 | 600 | 680 | 840 | |
| Sound Pressure Level at 1 m. | | dB (A) | 50/47/45/43 | 50/47/42/38 | 52/48/42/40 | | 59/55/49/45 | |
| Unit Dimensions | HxWxD | mm | 270x880x513 | 300x880x633 | 300x1180x633 | | 300x1400x633 | |
| Packing Dimensions | HxWxD | mm | 316x971x521 | 358x971x671 | 358x1271x671 | | 358x1491x671 | |
| Net Weight | | kg | 28 | 32 | 38 | 46 | 54 | 55 |
| Gross Weight | | kg | 30 | 31 | 41 | 49 | 58 | 60 |

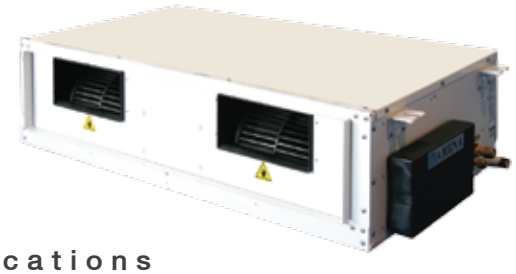
| Outdoor Unit | | | TC18PSVC-TERZ | TC24PSVC-TERZ | TC30PSVC-TERZ | TC36CSVC-TERZ | TC48CSYC-TERZ | TC60CSYC-TERZ |
|---|---|---|---|---|---|---|---|---|
| Condenser Coil | Row | | 1 | | | | | 1.75 |
| | Tube | mm | ø9.5/Grooved | | | | | |
| Fan | Type | | Propeller Direct Drive | | | | | |
| | No. | | 1 | | | | | |
| Fan Motor | Type | | Permanent Split Capacitor | | | | | |
| | Power Supply | V/Ph/Hz | 220-240/1/50 | | | | | |
| | Full Load Current | A | 1.87 | | | | | |
| | Nominal Output | W | 264 | | | | | |
| Compressor | Type | | Reciprocating | | | Scroll | | |
| | Power Supply | V/Ph/Hz | 220-240/1/50 | | | | 380-415/3/50 | |
| Refrigerant | Type | | R-22 | | | | | |
| | Charging weight | Kg | 1.40 | 1.50 | 2.45 | 1.85 | 2.80 | 3.40 |
| Nominal Air Flow Rate | | l/s | 1230 | | 1500 | 1500 | 1600 | |
| Sound Pressure Level at 1 m. | | dB (A) | 58 | | | 60 | 63 | |
| Unit Dimensions | HxWxD | mm | 570x570x570 | | 720x570x570 | 720x570x570 | 974x570x570 | |
| Packing Dimensions | HxWxD | mm | 624x577x577 | | 777x577x577 | 777x577x577 | 1030x577x577 | |
| Net Weight | | kg | 45 | | 48 | 50 | 55 | 57 |
| Gross Weight | | kg | 50 | | 54 | 56 | 62 | 64 |

NOTE

* Cooling capacity and electric characteristics are based on 27˚C DB, 19˚C WB indoor temp. and 35˚C outdoor temp. at high speed. System is operative up to 52˚C outdoor temp.
** Heating capacity and electric characteristics are based on 20˚C DB indoor temp. and 7˚C DB, 6˚C WB outdoor temp. at high speed.
Becuase of our policy of continuous improvement we reserve the right to make changes in all specifications without notice.

# DNM

## Ducted Type Split System (T3)
## With Side Discharge Outdoor Unit & Hot Water Coil R-22 (50HZ)



Condensing Unit

## Specifications

| Model | Indoor Unit | | DNM18BHVD-TCRZ | DNM24BHVD-TCRZ | DNM30BHVD-TCRZ | DNM36BHVD-TCRZ | DNM48BHVD-TJRZ | DNM60BHVD-TJRZ |
|---|---|---|---|---|---|---|---|---|
| | Outdoor Unit | | VC18RSVC-TERZ | VC24RSVC-TERZ | VC30RSVC-TERZ | VC36RSVC-TERZ | VC48CSYC-TERZ | VC60CSYC-TERZ |
| Nominal Cooling Capacity * | | Btu/hr | 19000 | 25000 | 30000 | 36000 | 48000 | 57000 |
| | | W | 5570 | 7330 | 8800 | 10550 | 14100 | 16700 |
| Nominal Heating Capacity ** | | Btu/hr | 34500 | 45400 | 55300 | 61400 | 76800 | 86000 |
| | | W | 10110 | 13300 | 16200 | 18000 | 22500 | 25200 |
| Moisture Removal | | L/hr | 1.24 | 1.60 | 1.71 | 1.73 | 2.88 | 3.67 |
| Power Supply | | V/Ph/Hz | 220-240/1/50 | | | | 380-415/3/50 | |
| Running Current | Cooling | A | 10.00 | 12.70 | 15.30 | 19.00 | 8.80 | 10.30 |
| Power Consumption | Cooling | W | 2080 | 2840 | 3530 | 4230 | 5100 | 5700 |
| Efficiency | Cooling | EER | 9.13 | 8.80 | 8.50 | 8.51 | 9.41 | 10.00 |
| Control | Type | | Without Control (Wired Control is optional) | | | | | |
| Piping Connection | Type | | Flare | | | | | |
| | Liq./Gas/Drain | mm | ø9.5/15.9/OD.16 | | | | ø12.7/19.0/OD.16 | |
| | Max. Length | m | 30 | | | | | |
| | Max. Height | m | +/-15 | | | | | |
| Water Pipe Connection | Type | | Male Thread Pipe | | | | | |
| | Inlet | inch | 3/4 | | | | | |
| | Outlet | inch | 3/4 | | | | | |

| Indoor Unit | | | DNM18BHVD-TCRZ | DNM24BHVD-TCRZ | DNM30BHVD-TCRZ | DNM36BHVD-TCRZ | DNM48BHVD-TJRZ | DNM60BHVD-TJRZ |
|---|---|---|---|---|---|---|---|---|
| Evaporator Coil | Row | | 2 | 3 | 2 | | 3 | |
| | Tube | mm | ø7/Grooved | | | | | |
| Hot Water Coil | Row | | 2 | | | | | |
| | Tube | mm | ø9.5/Smooth | | | | | |
| Blower | Type | | Double Intel Centrifugul Fan | | | | | |
| | No. | | 2 | | | | | |
| Fan Motor | Type | | Permanent Split Capacitor | | | | | |
| | Power Supply | V/Ph/Hz | 220-240/1/50 | | | | | |
| | No. | | 1 | | | | | |
| | Full Load Current | A | 1.26 | 2.12 | | 2.21 | 3.49 | |
| | Nominal Output | W | 123 | 217 | | 311 | 527 | |
| Nominal Air Flow Rate | | l/s | 360 | 470 | 600 | 680 | 840 | |
| Sound Pressure Level at 1 m. | | dB (A) | 50/47/45/43 | 50/47/42/38 | 52/48/42/40 | | 59/55/49/45 | |
| Unit Dimensions | HxWxD | mm | 270x880x513 | 300x880x633 | 300x1180x633 | | 300x1400x633 | |
| Packing Dimensions | HxWxD | mm | 316x971x521 | 358x971x671 | 358x1271x671 | | 358x1491x671 | |
| Net Weight | | kg | 28 | 32 | 38 | 46 | 54 | 55 |
| Gross Weight | | kg | 30 | 34 | 41 | 49 | 58 | 60 |

| Outdoor Unit | | | VC18RSVC-TERZ | VC24RSVC-TERZ | VC30RSVC-TERZ | VC36RSVC-TERZ | VC48CSYC-TERZ | VC60CSYC-TERZ |
|---|---|---|---|---|---|---|---|---|
| Condenser Coil | Row | | 2 | 1 | | 1.5 | 2 | |
| | Tube | mm | ø7/Grooved | ø9.5/Grooved | | | | |
| Fan | Type | | Propeller Direct Drive | | | | | |
| | No. | | 1 | | | | | |
| Fan Motor | Type | | Permanent Split Capacitor | | | | | |
| | Power Supply | V/Ph/Hz | 220-240/1/50 | | | | | |
| | Full Load Current | A | 0.62 | 1.15 | | 1.66 | | |
| | Nominal Output | W | 70 | 112 | | 216 | | |
| Compressor | Type | | Rotary | | | | Scroll | |
| | Power Supply | V/Ph/Hz | 220-240/1/50 | | | | 380-415/3/50 | |
| Refrigerant | Type | | R-22 | | | | | |
| | Charging weight | Kg | 1.10 | 1.70 | 1.75 | 2.30 | 3.50 | 3.60 |
| Nominal Air Flow Rate | | l/s | 615 | 1230 | | 1400 | | 1500 |
| Sound Pressure Level at 1 m. | | dB (A) | 57 | | 63 | | | 64 |
| Unit Dimensions | HxWxD | mm | 620x843x334 | 770x920x334 | | | | 975x920x334 |
| Packing Dimensions | HxWxD | mm | 682x980x420 | 832x1058x420 | | | | 1036x1058x420 |
| Net Weight | | kg | 42 | 62 | 64 | 66 | 67 | 80 |
| Gross Weight | | kg | 45 | 66 | 68 | 70 | 71 | 85 |

NOTE
* Cooling capacity and electric characteristics are based on 27˚C DB, 19˚C WB indoor temp. and 35˚C outdoor temp. at high speed. System is operative up to 52˚C outdoor temp.
** Heating capacity and electric characteristics are based on 20˚C DB indoor temp. and 7˚C DB, 6˚C WB outdoor temp. at high speed.
Becuase of our policy of continuous improvement we reserve the right to make changes in all specifications without notice.

Printed : September 2012


AMENA AIR CONDITIONERS

**UNICO CONSUMER PRODUCTS CO., LTD.**
136, 136/1 2nd Floor, Prayasurent Rd., Bangchan, Klongsamwa,
Bangkok 10510 Thailand Tel : +66 2517 1819 Fax : +66 2517 8530
E-mail : sales@amena-air.com www.amena-air.com