



AIR Cooled

Rooftop Packaged Air Conditioners 8 kW to 200 kW



Dunnair

Quality Engineering Solutions

Dunnair is now firmly positioned as a leading supplier to the air conditioning industry.

The name Dunnair is synonymous with high quality products in the commercial air-conditioning industry. Beginning with Dunn Air Conditioning in 1961 and more recently, Dunnair International and Dunnair Australia, the company continues to be a leading supplier of air-conditioning units for the Australian market.

In 1994, the company was bought by Multistack and renamed Dunnair International. In 2004, Ernest Ugazio acquired the sales and subsequently state service department of Dunnair. This led to the company being divided into separate entities: Dunnair International and Dunnair Australia, the former focused on Multistack Chiller sales and spare parts; while the latter began design and development of a split ducted and rooftop packaged range that was manufactured in China. More recently, in April 2018, Air Change Group acquired Dunnair Australia, solidifying Dunnair's position as a manufacturer of high quality, specified air conditioning units.

The **Air Cooled series of split ducted units** shown in this brochure are part of Dunnair's range of high quality units for every application. Dunnair has also become the first choice when individual engineering solutions are required. Fast-moving and responsive, Dunnair supplies made-to-measure HVAC solutions to a growing number of high profile developments across Australia.

Dunnair research and development plus a strict quality control program have been fundamental to our growth, success and reputation. Dunnair units are manufactured in accordance with strict quality control standards and are MEPS rated and developed for Australian conditions.

Range: Dunnair's modern factories manufacture 16 separate product lines and some 600 different models. Dunnair can supply most products the HVAC industry requires. The recent acquisition by Air Change, a company known for its award winning innovation, is proof that the company is working continuously to improve its product range and the efficiency of its products.

Specialised Solutions: Dunnair will engineer and manufacture equipment to suit the application and building design. No challenge will go unaccepted. We will design and make special products as required for the building, mining, transport and maritime industry. We employ mechanical engineers in all sales offices in Australia. Their role is to supporting designers to achieve their goals.

Our promise to system designers is: **"Tell us what you need and we will work with you to deliver"**.

With a head office in Sydney, Dunnair also has offices in Victoria and Queensland. Dunnair maintains a dedicated engineering and sales support staff waiting to assist you with technical and product information and provide valuable solutions for your project.

Dunnair will design, build and deliver HVAC equipment to meet the most stringent specifications and difficult applications.

"We make special equipment."



Features

- PHS8-PHS35 single stage
- PH40-PH200 two stage
- PHS8-PHS35 direct drive evaporator fan
- PH40-PH200 belt drive evaporator fan
- Automatic De-Ice
- Liquid Accumulator
- Crankcase heater
- 24 volt control
- Galvanised steel panelling
- Durable powder coated cabinet (outdoor unit)
- External stainless steel fittings
- Easy access panels with turn lock handles, no screws
- 25 mm insulation
- Coil corrosion protection
- High quality scroll compressors
- High/low pressure protection for compressor
- Time delay protection for compressor
- Limit start timer
- Aluminium coil frames
- Quiet & efficient
- Individual defrost dual circuit units for two stage units
- Reverse phase protection
- Electric reheat high temperature protection (optional)
- Overload protection for both indoor and outdoor fan motor
- MEPS IV approved
- Manufactured for Australian standards & conditions
- High quality control procedures
- R410a refrigerant is used in standard units
- Fault output for DDC control.
- Dry filter



Optional Features

As an active market player in the commercial air conditioning industry, we understand that every project is unique. Standard manufactured units may not meet the requirements of your system design.

Dunnair always welcome enquiries for custom made air conditioning equipment.

Available options are listed below:

- Two stage for 18–35 kW units
- 50 mm insulation
- Fan upgrade (High external static pressure)
- Stainless steel condensate tray
- Belt drive instead of direct drive fan
- All copper coils (see image)
- Stainless steel casing (see image)
- Change location of supply return air
- Anti-corrosion marine grade coil coating black fin
- Hot gas bypass
- EC motor
- EC plug fan
- EC condenser fan
- Two speed condenser fan
- High static centrifugal condenser fan for plant room
- Other Customised options available. Please contact your local Dunnair sales office

Optional Controller

DAT - 770 multifunction thermostat

Technologically advanced in design and performance, the DAT - 770 is the ideal thermostat control for any installation of air conditioning systems.

Features include:

- Auto season change over
- Select programmable or manual mode
- Heat cool or heat pump (O/B) logic
- 0-10 V output option for heating or cooling
- High & Low balance points
- Single or three-speed fan control
- Keyboard and/or temperature locks
- Occupancy sensor inputs
- Programmable occupancy inputs
- Adaptive recovery (Optimised start)
- Smart fan logic for commercial control
- PIN protected menus (installer PIN)
- Outside air temperature display
- 24 V powered with memory backup
- Volt free (clean contact) relays
- Large backlit EL display
- Remote temperature sensors available
- Integrated Modbus option
- Replaces most 24 V thermostats.



Specifications

Models PHS8 - PH200

Model	Total Cooling Capacity (kW)	Sensible Cooling Capacity (kW)	Heating Capacity (kW)	Nominal Air Flow (L/s)	Phase	Nominal Max Current (A)	Noise Level (dBA)	Refrigerant Circuits	Fan Drive
PHS8	8.0	7.2	7.9	472	1	15.9	66.8	1	Direct
PHS10	9.3	8.0	9.4	555	1	26.0	67.2	1	Direct
PHS12	11.5	9.7	11.7	695	3	11.0	69.7	1	Direct
PHS15	14.8	13.0	14.6	850	3	12.6	70.6	1	Direct
PHS18	17.1	14.4	17.5	1000	3	14.6	70.4	1	Direct
PHS20	20.5	16.3	20.7	1110	3	17.4	73.5	1	Direct
PHS25	23.8	19.1	24.2	1390	3	22.4	74.9	1	Direct
PHS30	30.6	24.9	30.6	1800	3	27.0	74.7	1	Direct
PHS35	34.8	28.3	34.2	2000	3	28.7	75.2	1	Direct
PH40	39.1	31.5	38.4	2200	3	30.8	68.2	2	Belt
PH45	44.6	36.4	44.2	2700	3	37.2	70.3	2	Belt
PH50	48.6	39.4	47.8	2800	3	41.2	71.3	2	Belt
PH56	55.1	44.5	55.6	3000	3	47.7	72.3	2	Belt
PH66	65.5	50.9	60.7	3500	3	54.5	71.2	2	Belt
PH73	72.8	59.3	66.6	3900	3	60.6	73.0	2	Belt
PH80	80.4	65.5	81.5	4300	3	66.2	75.8	2	Belt
PH85	86.6	68.2	87.1	4500	3	63.2	75.8	2	Belt
PH90	88.5	71.0	85.0	4800	3	74.4	73.6	2	Belt
PH95	95.8	72.3	96.2	5200	3	74.4	76.0	2	Belt
PH100	102.2	82.9	98.5	5500	3	85.2	77.0	2	Belt
PH120	117.6	95.2	116.2	6500	3	98.8	76.0	2	Belt
PH140	137.8	110.6	132.0	7500	3	117.5	80.2	2	Belt
PH160	156.2	127.5	152.5	8500	3	133.9	77.6	2	Belt
PH180	176.8	143.6	169.4	9500	3	153.2	80.8	2	Belt
PH200	201.8	164.3	196.2	10500	3	163.7	83.2	2	Belt

Cooling Capacity is based on DB 27° C, 19° C WB Entering Air Temperature & 35° C Ambient Temperature

Heating Capacity is based on 21° C DB, Entering Air Temperature

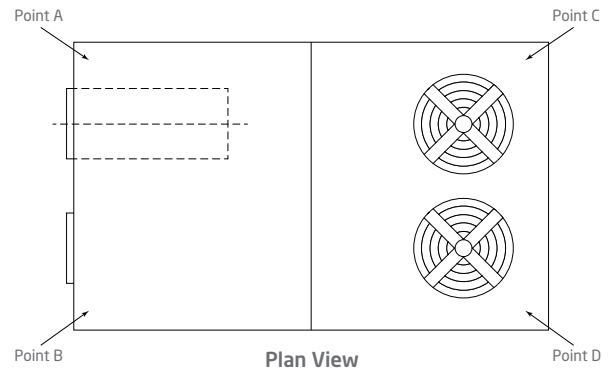
Sound Levels are measured from 1 metre of the unit

Dimensions

Models PHS8-PH200

Model	Overall size (mm)				Spigot Sizes (mm)	
	Width	Depth	Height	Weight (kg)	Return Air spigot (W x H)	Supply Air spigot (W x H)
PHS8	954	1190	780	198	350 x 637	188 x 270
PHS10	954	1190	780	198	350 x 637	148 x 310
PHS12	1050	1246	845	210	400 x 680	221 x 300
PHS15	1190	1360	865	230	495 x 723	237 x 282
PHS18	1190	1360	865	238	495 x 723	275 x 495
PHS20	1170	1650	865	360	390 x 756	325 x 338
PHS25	1560	1650	860	428	710 x 800	325 x 338
PHS30	1800	1800	1010	500	869 x 950	331 x 455
PHS35	1800	1800	1010	622	900 x 1163	452 x 516
PH40	1850	2200	1305	622	900 x 1163	507 x 507
PH45	1850	2400	1305	632	900 x 1163	507 x 507
PH50	1850	2600	1450	780	900 x 1300	507 x 507
PH56	1850	2600	1450	800	900 x 1300	507 x 507
PH66	2100	2700	1580	850	1080 x 1405	569 x 569
PH73	2130	2800	1580	915	1150 x 1405	569 x 569
PH80	2130	2800	1580	970	1150 x 1405	569 x 569
PH85	2130	2800	1580	970	1150 x 1405	569 x 569
PH90	2130	3100	1980	1140	1100 x 1790	638 x 638
PH95	2130	3100	1980	1140	1100 x 1790	638 x 638
PH100	2050	3934	1850	1700	1550 x 1600	638 x 638
PH120	2050	3934	2000	1860	1550 x 1750	715 x 715
PH140	2050	3934	2000	2120	1750 x 1750	715 x 715
PH160	2050	3934	2000	2120	1750 x 1750	800 x 800
PH180	2150	4334	2350	2570	2050 x 2100	900 x 900
PH200	2150	4334	2350	2570	2050 x 2100	900 x 900

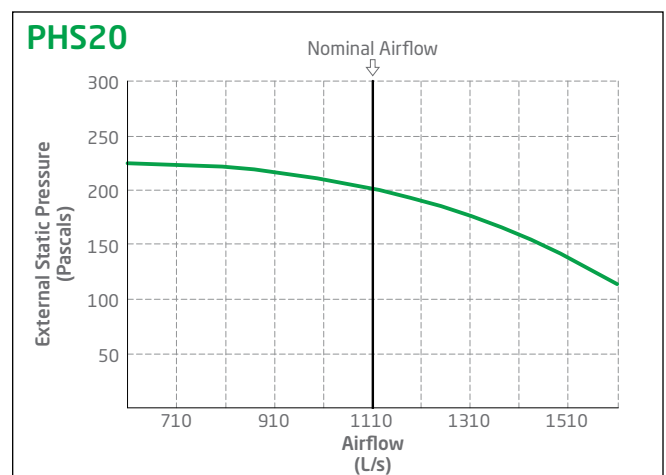
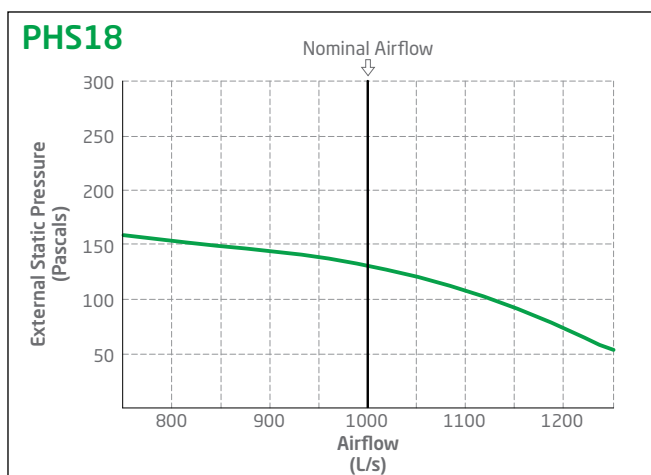
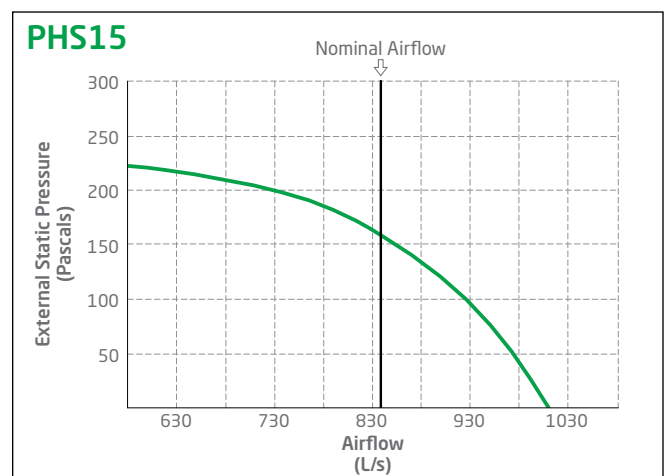
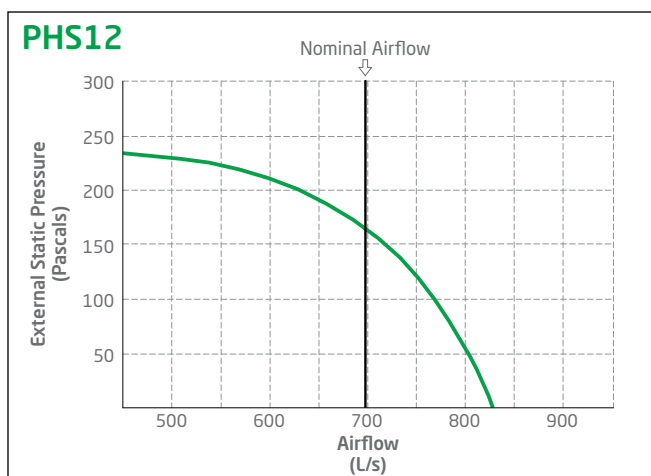
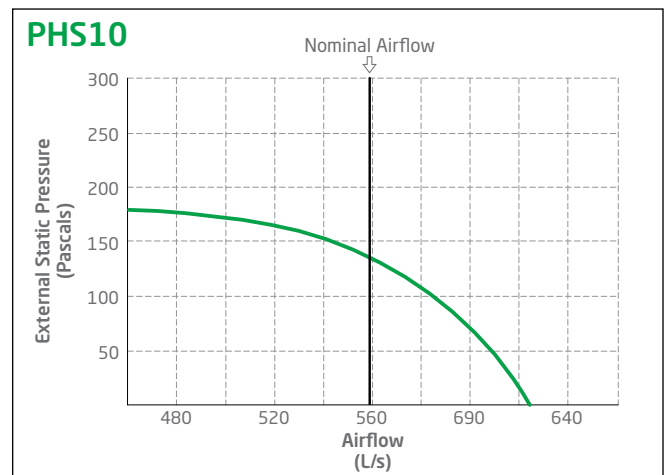
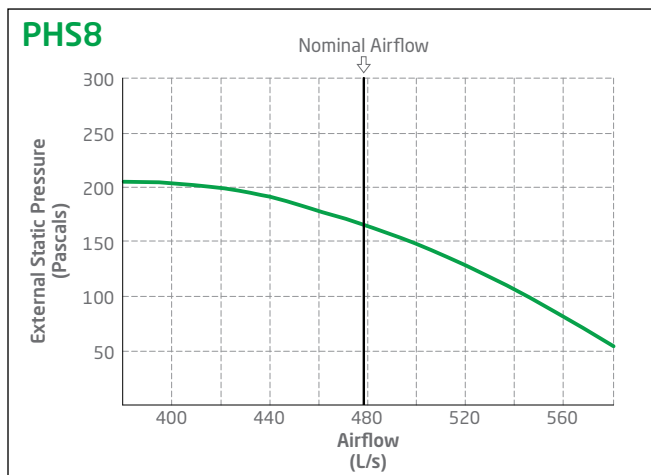
Rooftop Packaged Unit Point Load Chart

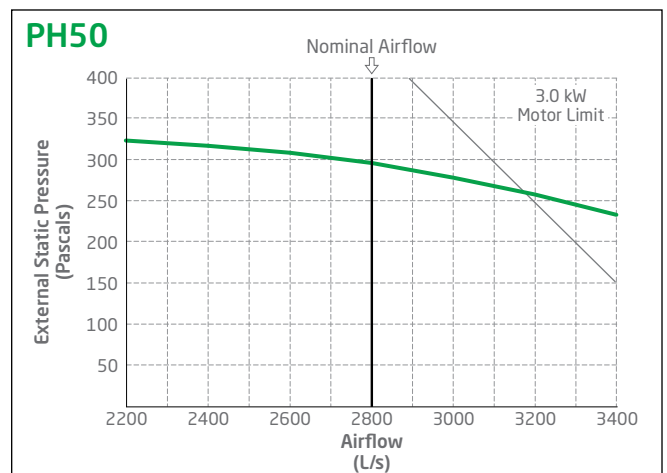
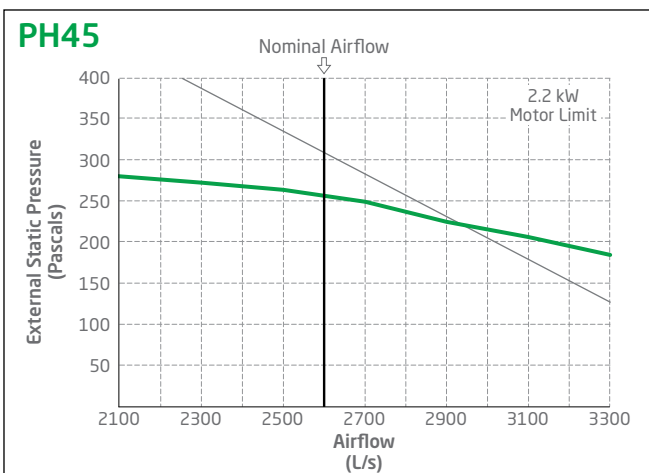
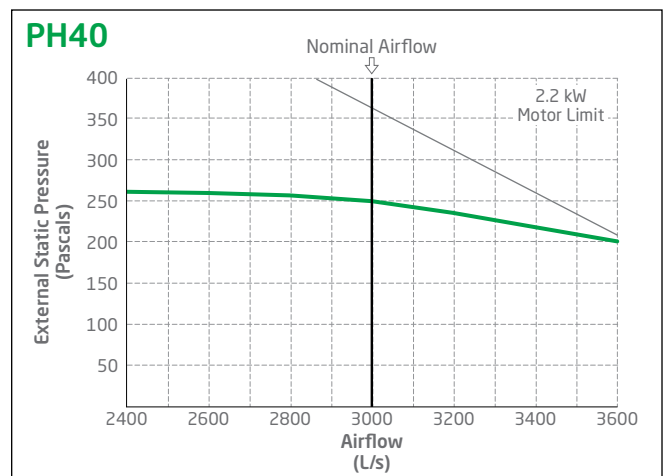
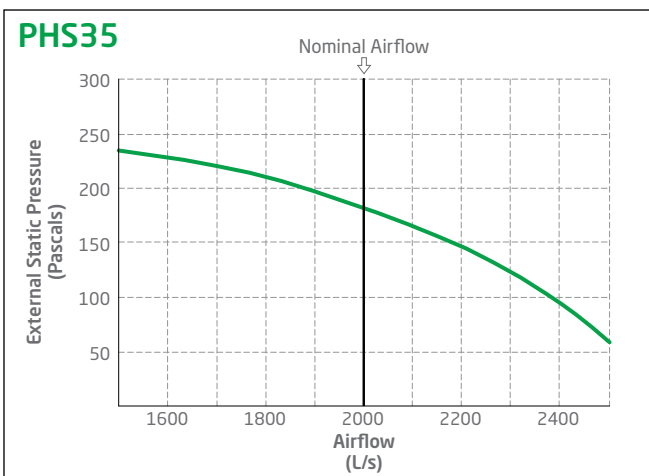
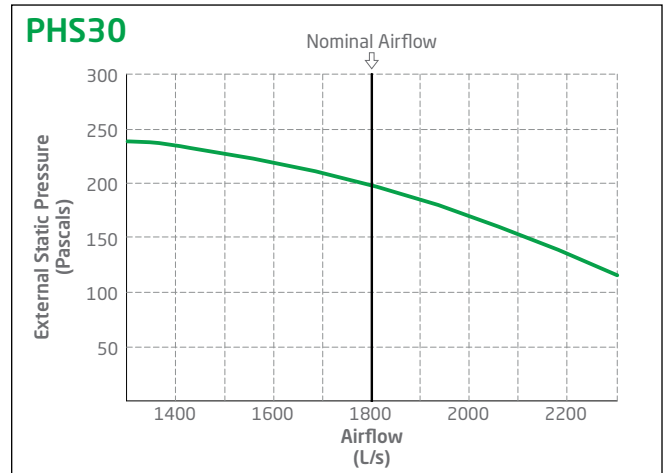
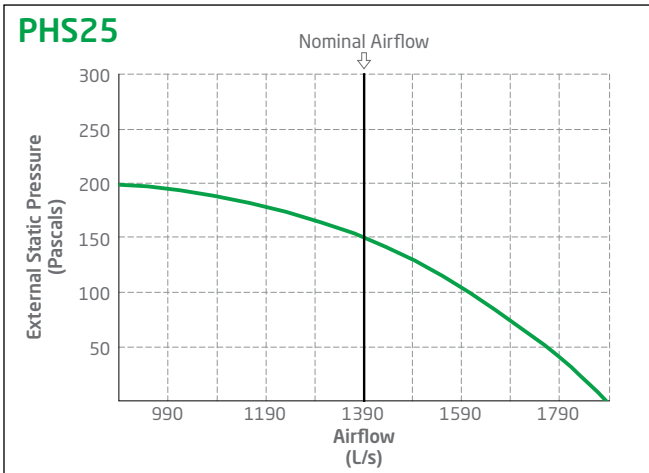


Model	Indoor (kg)		Outdoor (kg)	
	Point A	Point B	Point C	Point D
PHS8	39	39	55	65
PHS10	39	39	55	65
PHS12	40	45	55	70
PHS15	40	50	60	80
PHS18	44	50	60	84
PHS20	70	75	95	120
PHS25	80	98	110	140
PHS30	80	90	150	190
PHS35	80	90	150	208
PH40	120	110	201	201
PH45	120	100	206	206
PH50	165	125	245	245
PH56	175	135	245	245
PH66	175	165	255	255
PH73	195	170	275	275
PH80	195	185	295	295
PH85	195	185	295	295
PH90	265	255	310	310
PH95	265	255	310	310
PH100	395	395	425	485
PH120	435	435	495	495
PH140	485	515	565	555
PH160	485	515	565	555
PH180	550	535	755	730
PH200	535	525	755	755

Fan Curves

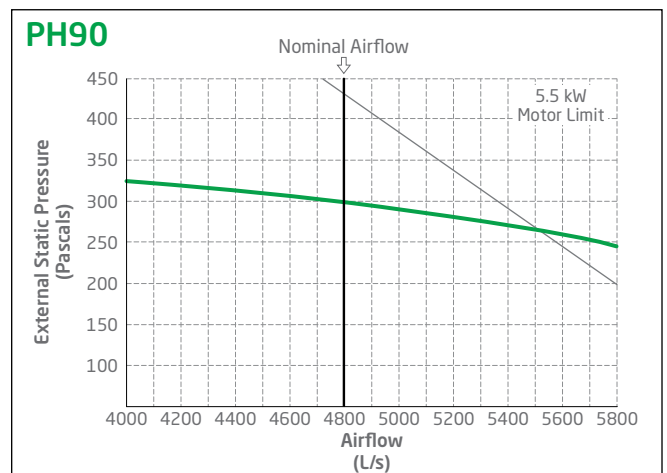
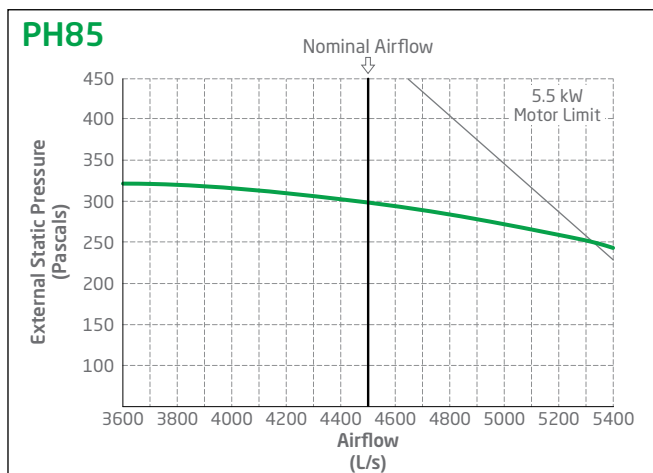
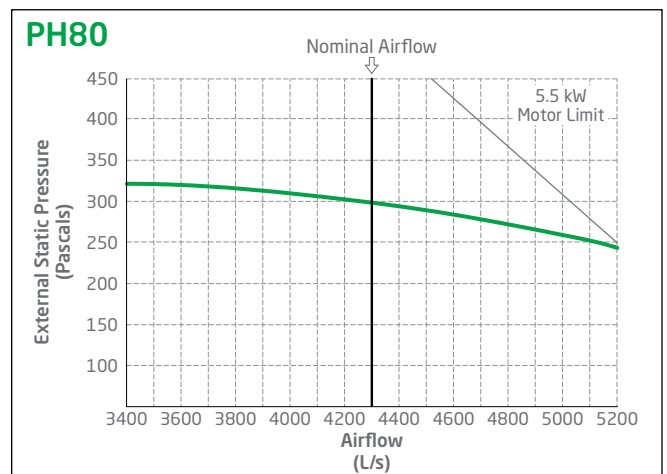
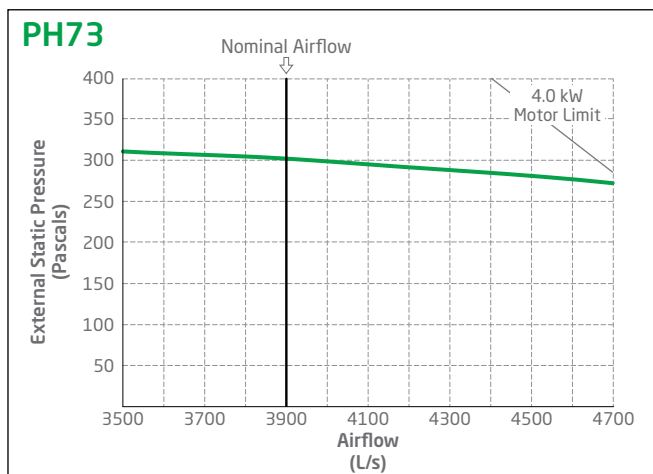
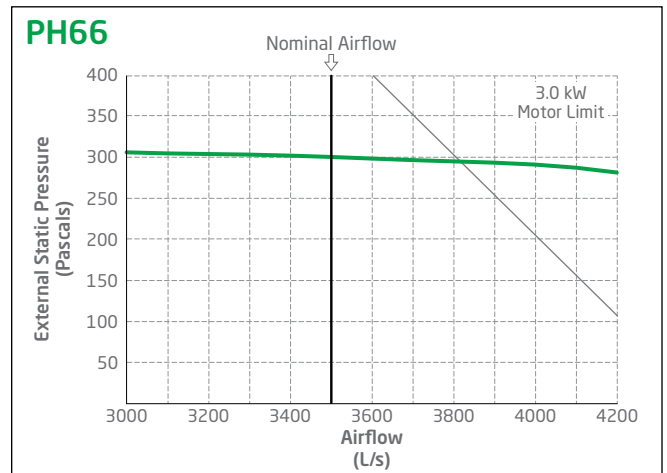
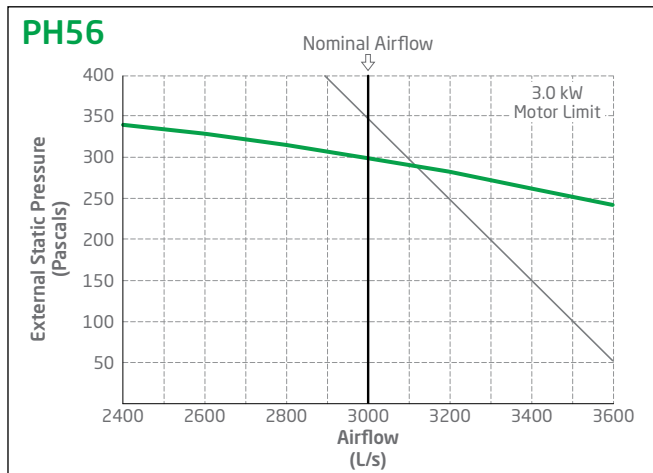
Air Handling Performance

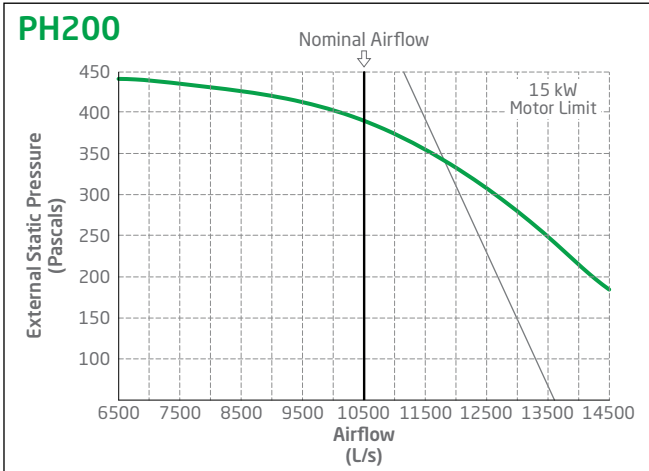
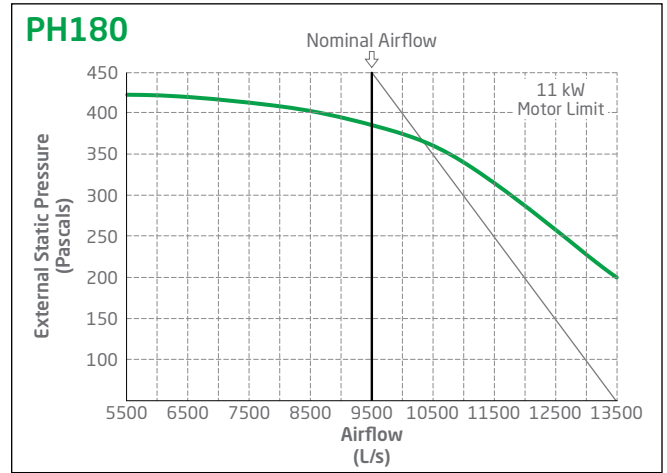
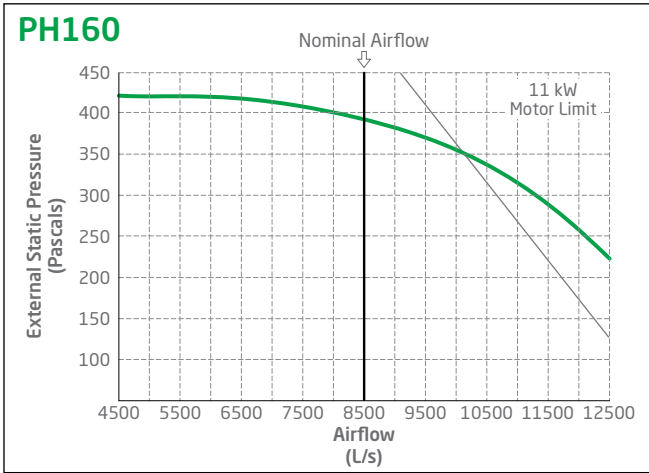
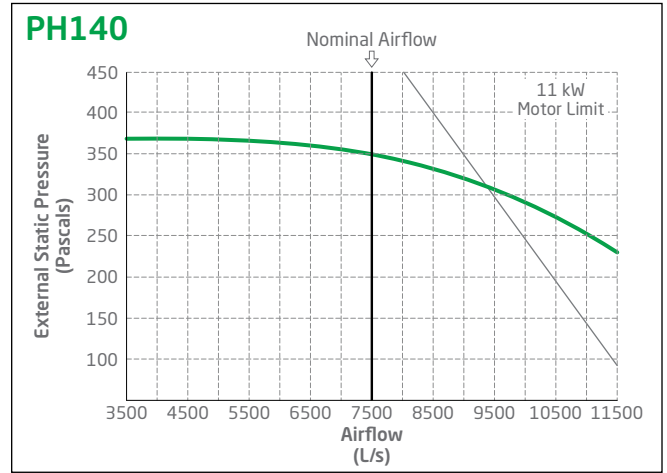
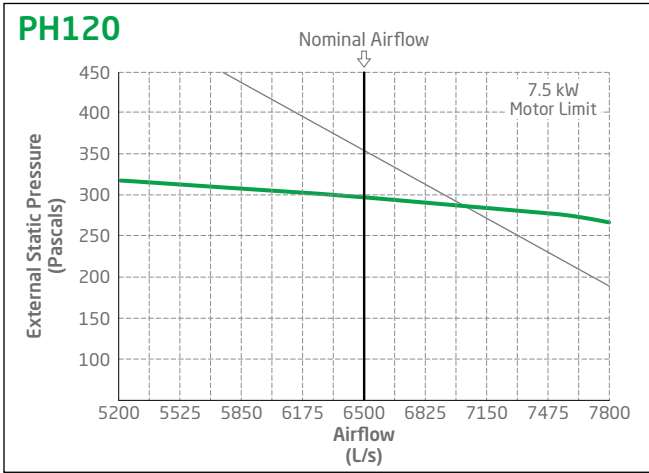
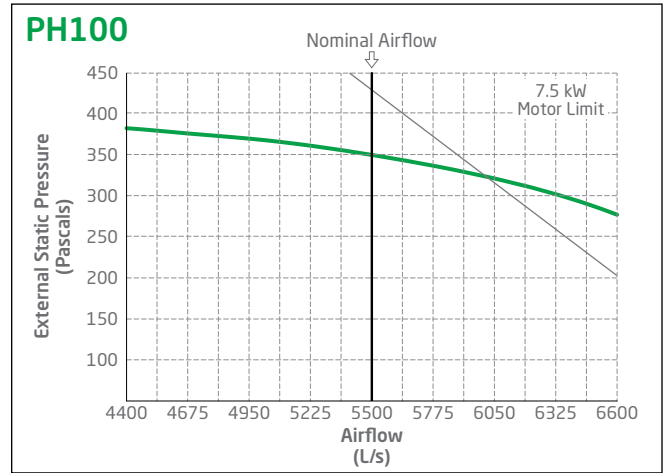
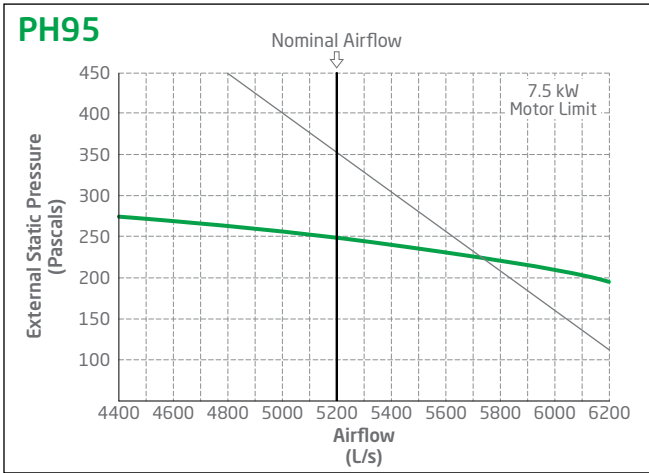




Fan Curves

Air Handling Performance



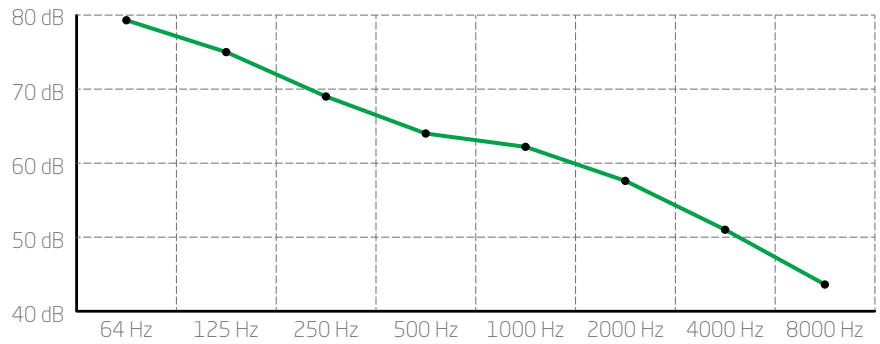


Sound Pressure Curves

PHS8

A Class: 66.8dB*

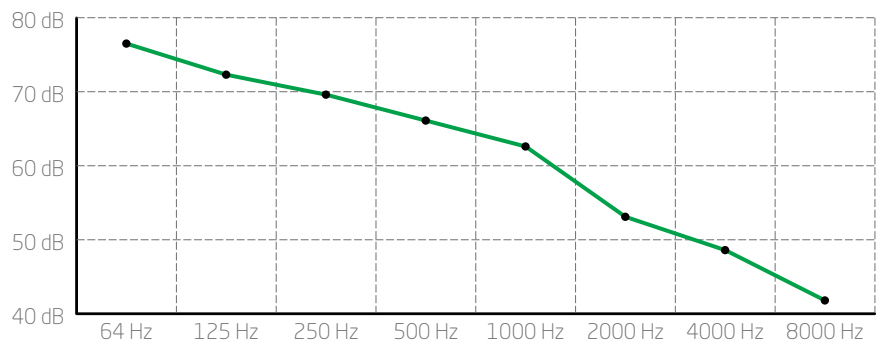
Frequency (Hz)	Decibel (dB)
64	79.3
125	75.0
250	69.0
500	64.0
1000	62.2
2000	57.6
4000	51.0
8000	43.6



PHS10

A Class: 67.2dB*

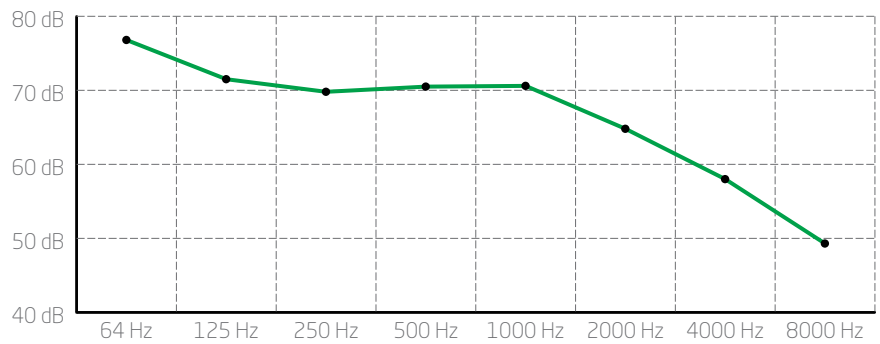
Frequency (Hz)	Decibel (dB)
64	76.5
125	72.3
250	69.6
500	66.1
1000	62.6
2000	53.1
4000	48.6
8000	41.8



PHS12

A Class: 69.7dB*

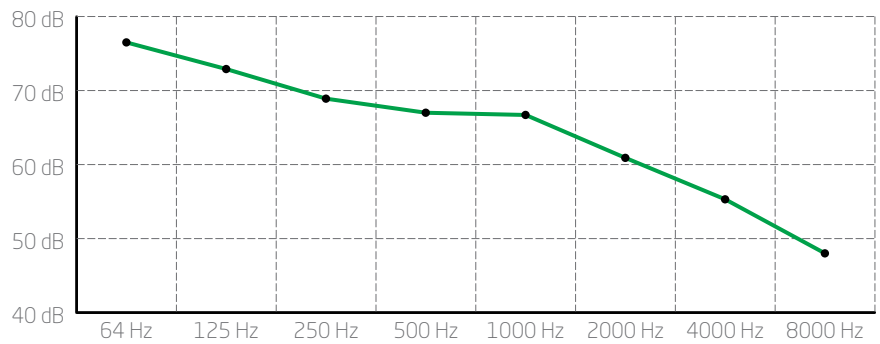
Frequency (Hz)	Decibel (dB)
64	76.8
125	71.5
250	69.8
500	70.5
1000	70.6
2000	64.8
4000	58.0
8000	49.3



PHS15

A Class: 70.6dB*

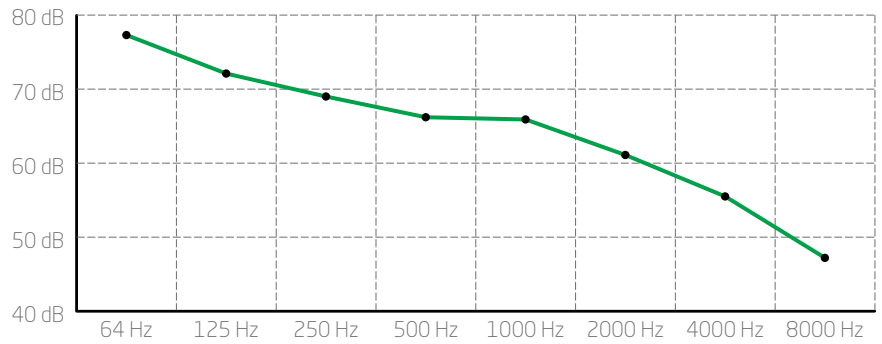
Frequency (Hz)	Decibel (dB)
64	76.5
125	72.9
250	68.9
500	67.0
1000	66.7
2000	60.9
4000	55.3
8000	48.0



*Occupant at least 1.0 m from sound source.

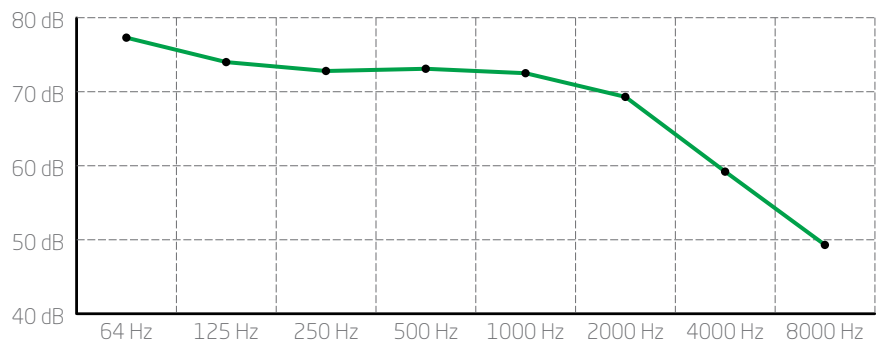
PHS18 A Class: 70.4dB*

Frequency (Hz)	Decibel (dB)
64	77.3
125	72.1
250	69.0
500	66.2
1000	65.9
2000	61.1
4000	55.5
8000	47.2



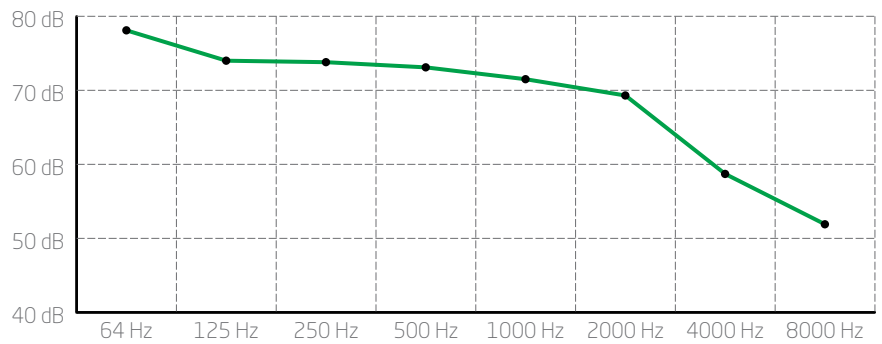
PHS20 A Class: 73.5dB*

Frequency (Hz)	Decibel (dB)
64	77.3
125	74.0
250	72.8
500	73.1
1000	72.5
2000	69.3
4000	59.2
8000	49.3



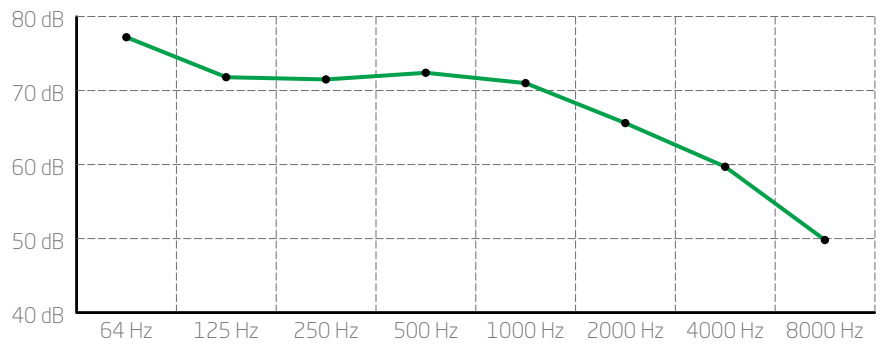
PHS25 A Class: 74.9dB*

Frequency (Hz)	Decibel (dB)
64	78.1
125	74.0
250	73.8
500	73.1
1000	71.5
2000	69.3
4000	58.7
8000	51.9



PHS30 A Class: 74.7dB*

Frequency (Hz)	Decibel (dB)
64	77.2
125	71.8
250	71.5
500	72.4
1000	71.0
2000	65.6
4000	59.7
8000	49.8



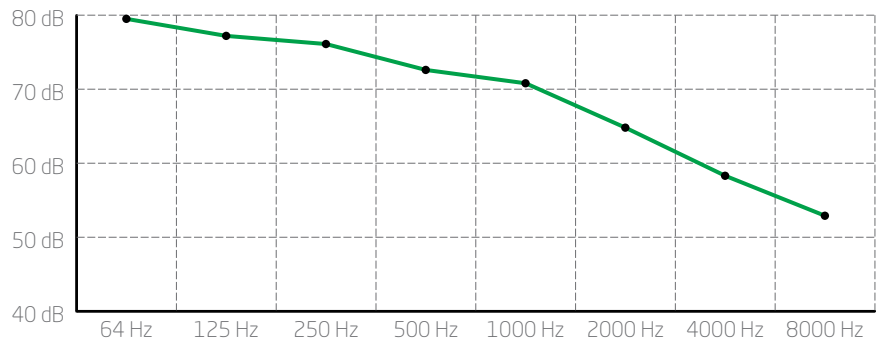
*Occupant at least 1.0 m from sound source.

Sound Pressure Curves

PHS35

A Class: 75.2dB*

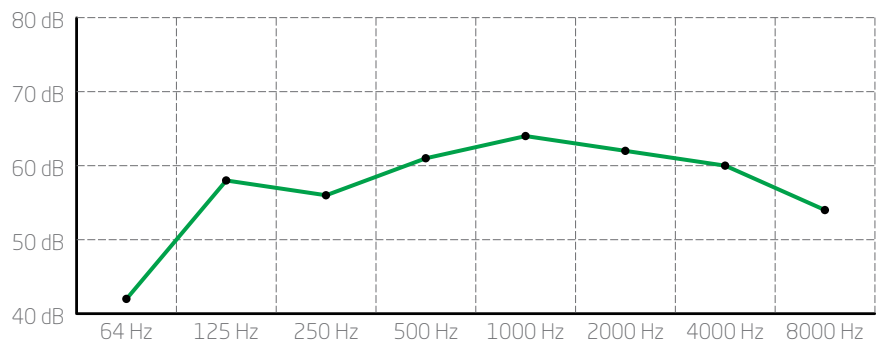
Frequency (Hz)	Decibel (dB)
64	79.5
125	77.2
250	76.1
500	72.6
1000	70.8
2000	64.8
4000	58.3
8000	52.9



PH40

A Class: 68.2dB*

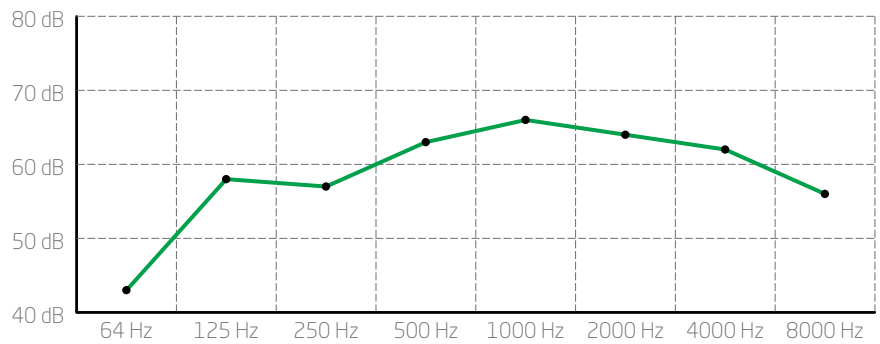
Frequency (Hz)	Decibel (dB)
64	42
125	58
250	56
500	61
1000	64
2000	62
4000	60
8000	54



PH45

A Class: 70.3dB*

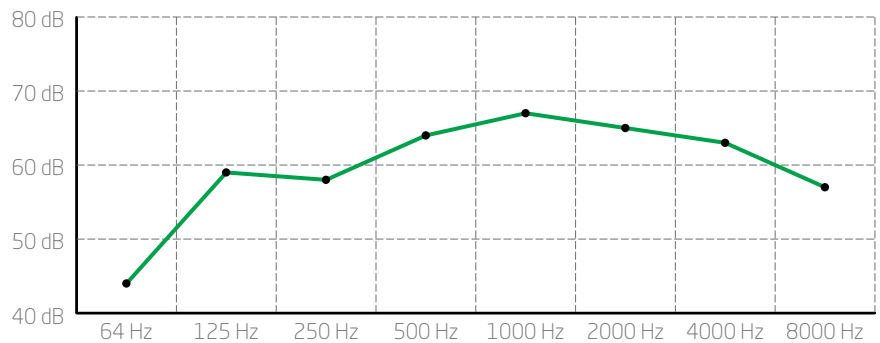
Frequency (Hz)	Decibel (dB)
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125	58
250	57
500	63
1000	66
2000	64
4000	62
8000	56



PH50

A Class: 71.3dB*

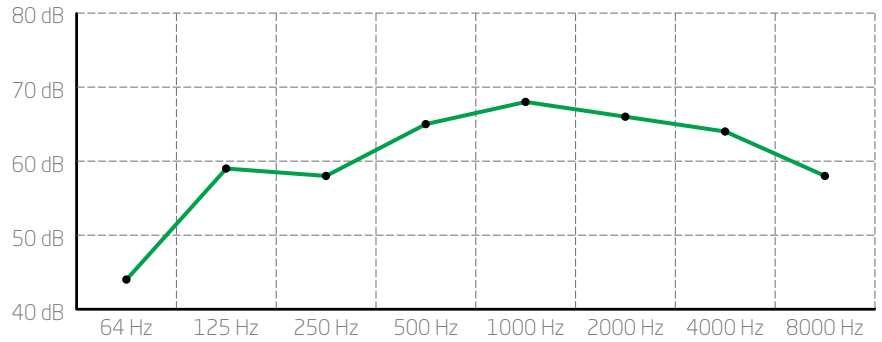
Frequency (Hz)	Decibel (dB)
64	44
125	59
250	58
500	64
1000	67
2000	65
4000	63
8000	57



*Occupant at least 1.0 m from sound source.

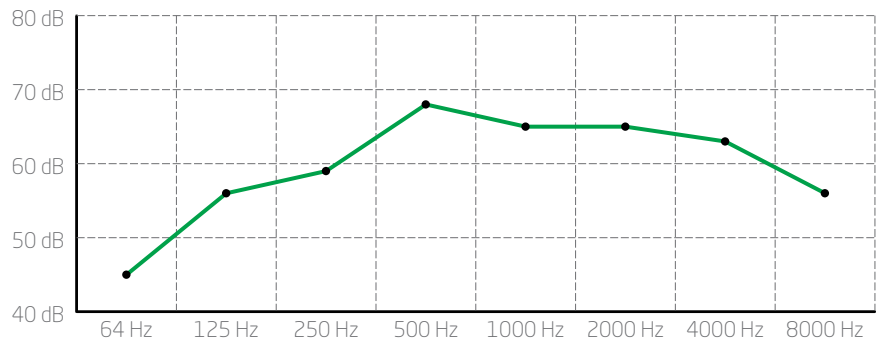
PH56 A Class: 72.3dB*

Frequency (Hz)	Decibel (dB)
64	44
125	59
250	58
500	65
1000	68
2000	66
4000	64
8000	58



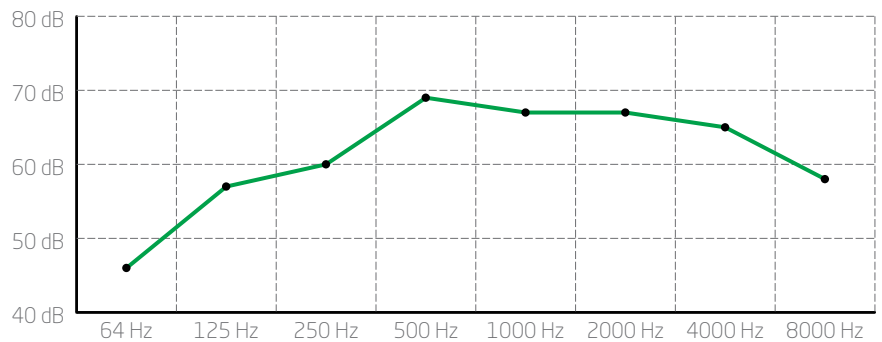
PH66 A Class: 71.2dB*

Frequency (Hz)	Decibel (dB)
64	45
125	56
250	59
500	68
1000	65
2000	65
4000	63
8000	56



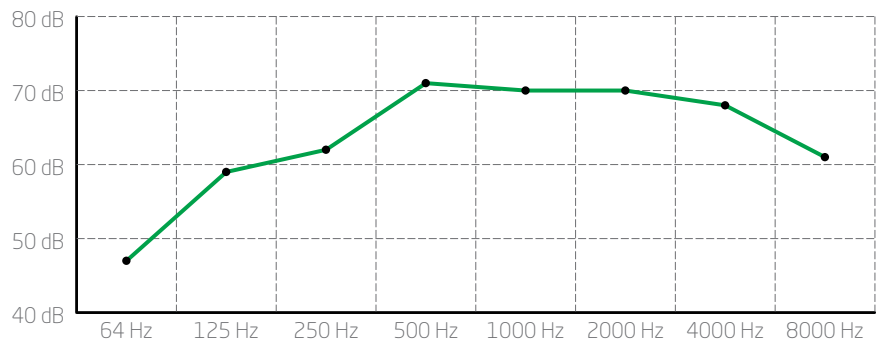
PH73 A Class: 73.0dB*

Frequency (Hz)	Decibel (dB)
64	46
125	57
250	60
500	69
1000	67
2000	67
4000	65
8000	58



PH80 A Class: 75.8dB*

Frequency (Hz)	Decibel (dB)
64	47
125	59
250	62
500	71
1000	70
2000	70
4000	68
8000	61



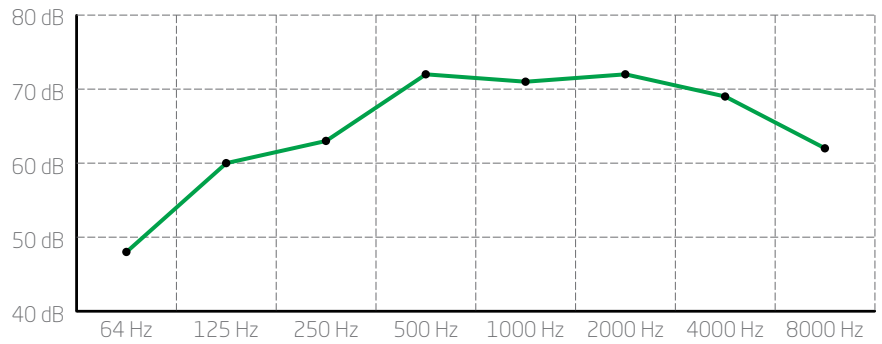
*Occupant at least 1.0 m from sound source.

Sound Pressure Curves

PH85

A Class: 75.8dB*

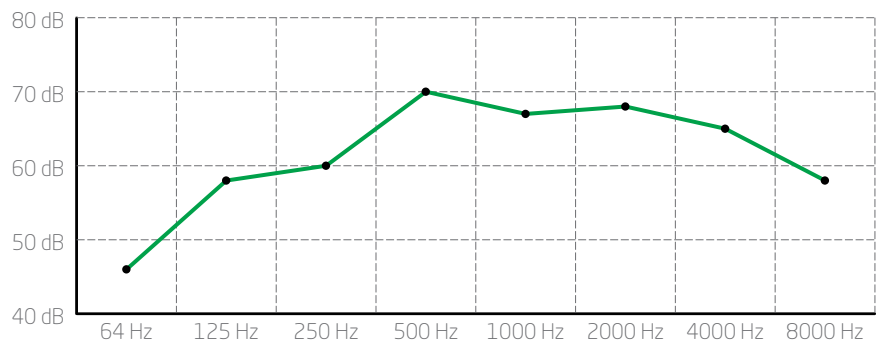
Frequency (Hz)	Decibel (dB)
64	48
125	60
250	63
500	72
1000	71
2000	72
4000	69
8000	62



PH90

A Class: 73.6dB*

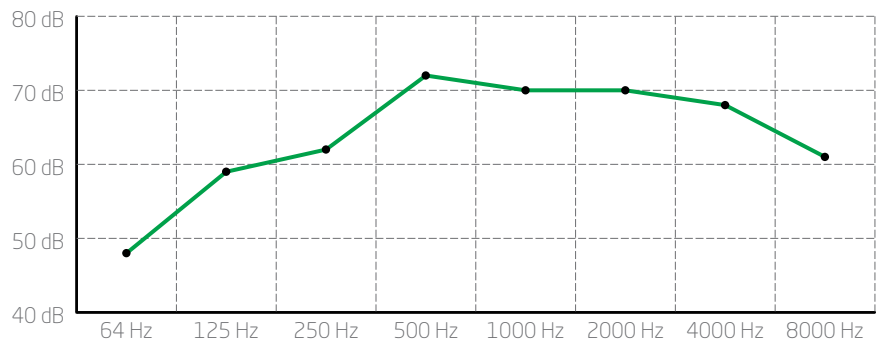
Frequency (Hz)	Decibel (dB)
64	46
125	58
250	60
500	70
1000	67
2000	68
4000	65
8000	58



PH95

A Class: 76.0dB*

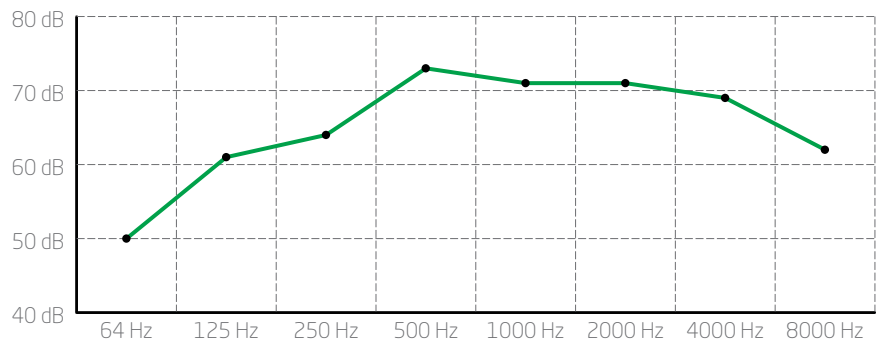
Frequency (Hz)	Decibel (dB)
64	48
125	59
250	62
500	72
1000	70
2000	70
4000	68
8000	61



PH100

A Class: 77.0dB*

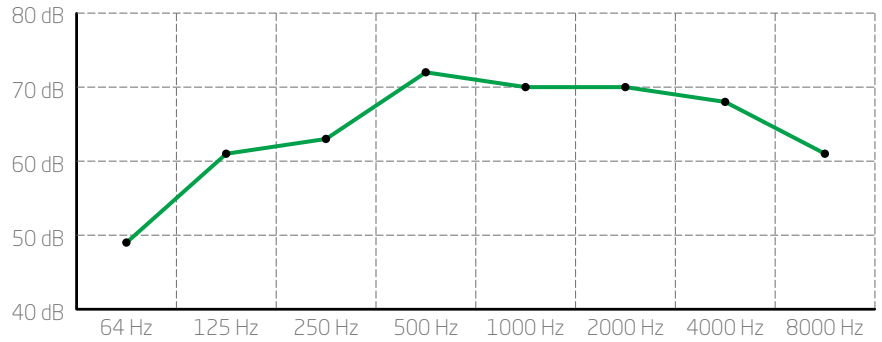
Frequency (Hz)	Decibel (dB)
64	50
125	61
250	64
500	73
1000	71
2000	71
4000	69
8000	62



*Occupant at least 1.0 m from sound source.

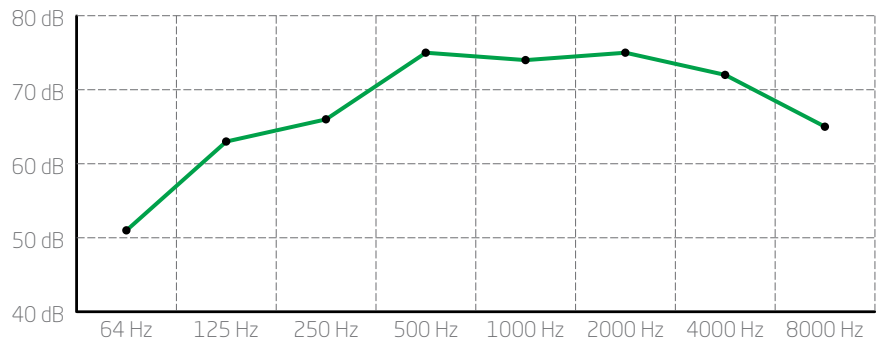
PH120 A Class: 76.0dB*

Frequency (Hz)	Decibel (dB)
64	49
125	61
250	63
500	72
1000	70
2000	70
4000	68
8000	61



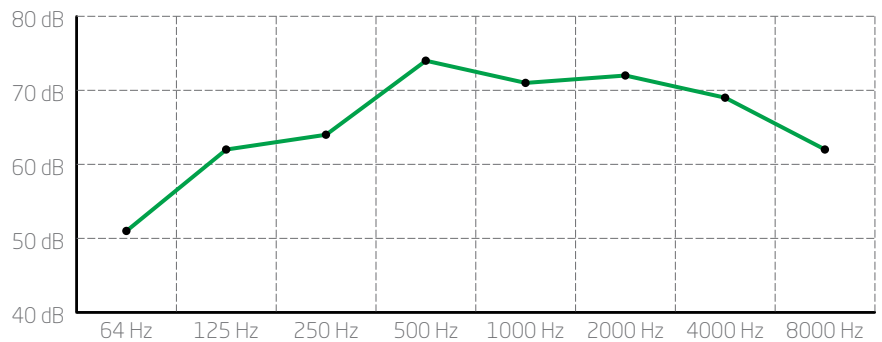
PH140 A Class: 80.2dB*

Frequency (Hz)	Decibel (dB)
64	51
125	63
250	66
500	75
1000	74
2000	75
4000	72
8000	65



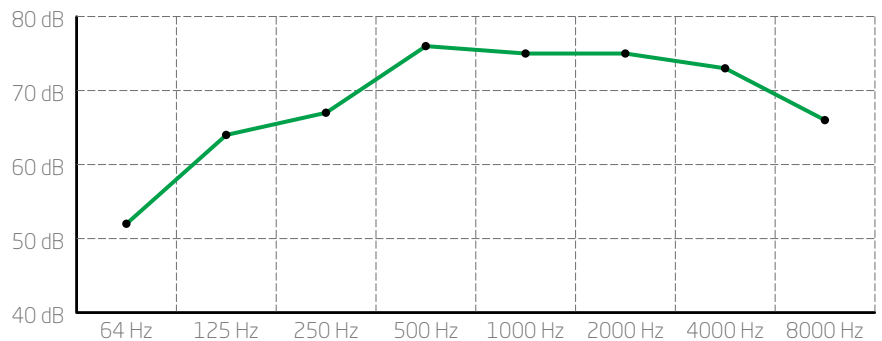
PH160 A Class: 77.6dB*

Frequency (Hz)	Decibel (dB)
64	51
125	62
250	64
500	74
1000	71
2000	72
4000	69
8000	62



PH180 A Class: 80.8dB*

Frequency (Hz)	Decibel (dB)
64	52
125	64
250	67
500	76
1000	75
2000	75
4000	73
8000	66



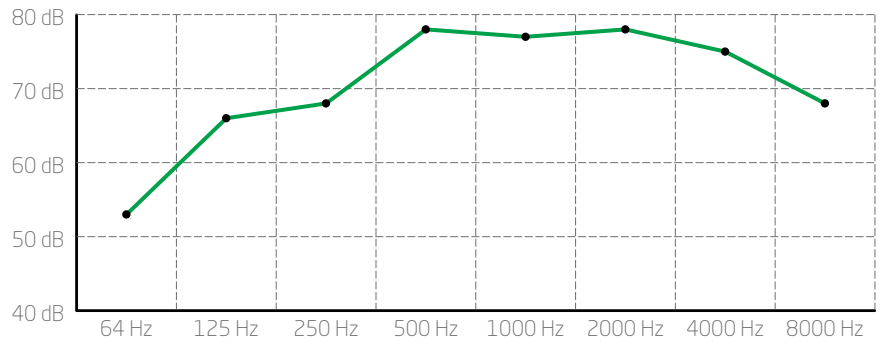
*Occupant at least 1.0 m from sound source.

Sound Pressure Curves

PH200

A Class: 83.2dB*

Frequency (Hz)	Decibel (dB)
64	53
125	66
250	68
500	78
1000	77
2000	78
4000	75
8000	68

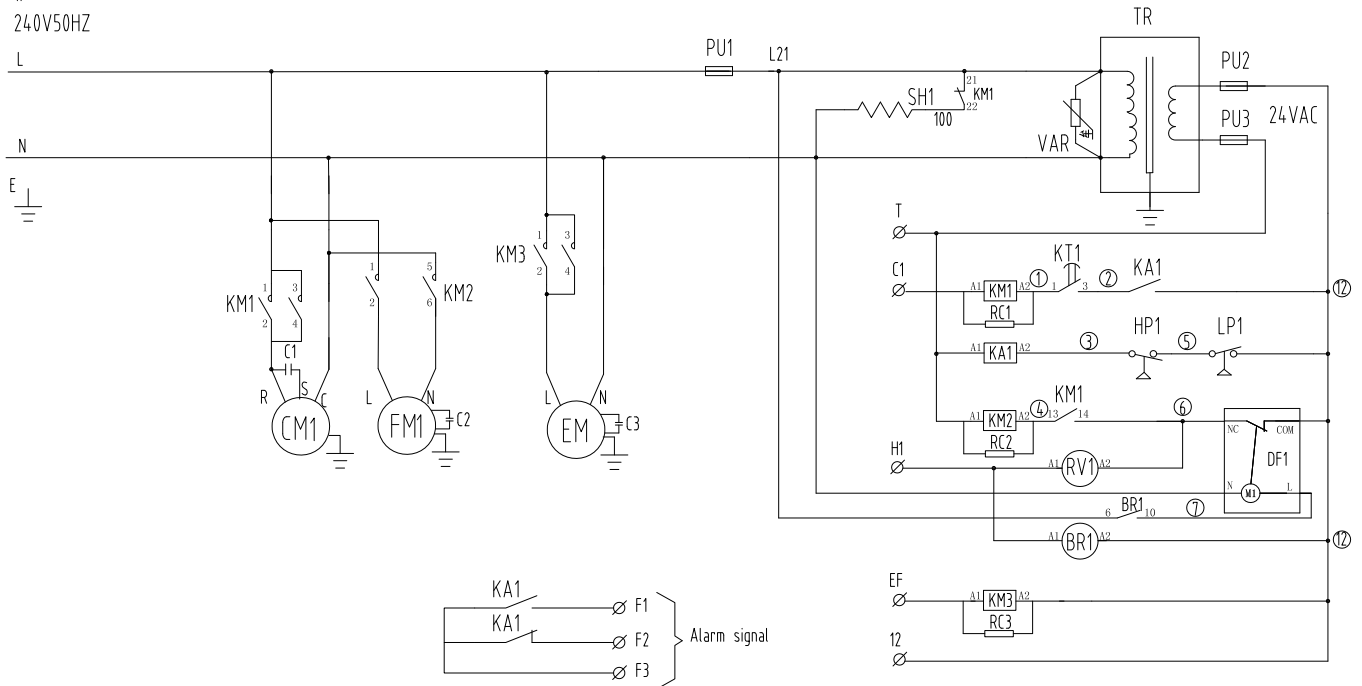


*Occupant at least 1.0 m from sound source.

Wiring Diagrams

PHS8-10

1P
240V50HZ

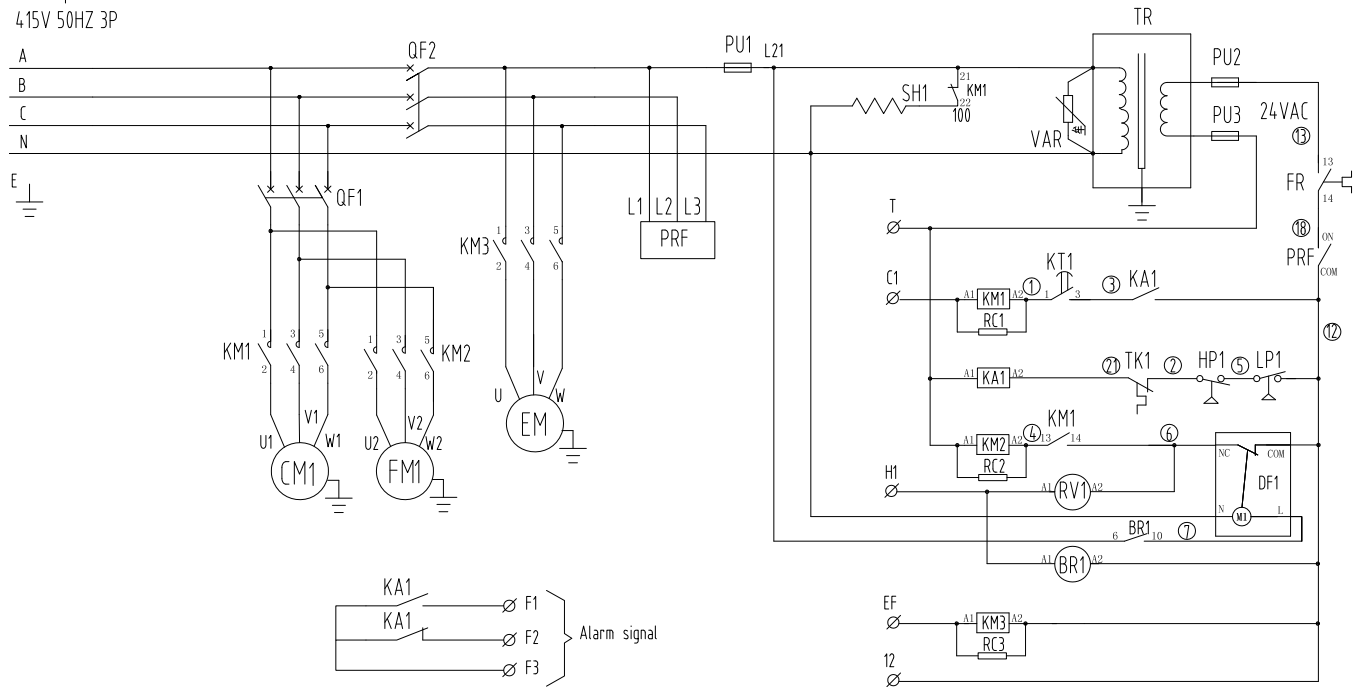


- | | | | | | | | |
|---------|-------------|------|-------------|-------|-----------------|-----|----------------|
| KM1-3 | Contactor | VAR | Varistor | RC1-3 | Filter | FM1 | Condenser fan |
| TR | Transformer | KT1 | Time Relay | RV1 | Reversing valve | EM | Evaporator fan |
| PU1/2/3 | Fuse | C1-3 | Capacitor | L/HP1 | HP/LP switch | SH1 | Sump heater |
| DF1 | De ice | KA1 | Fault Relay | CM1 | Compressor | BR1 | Bypass Relay |

Wiring Diagrams

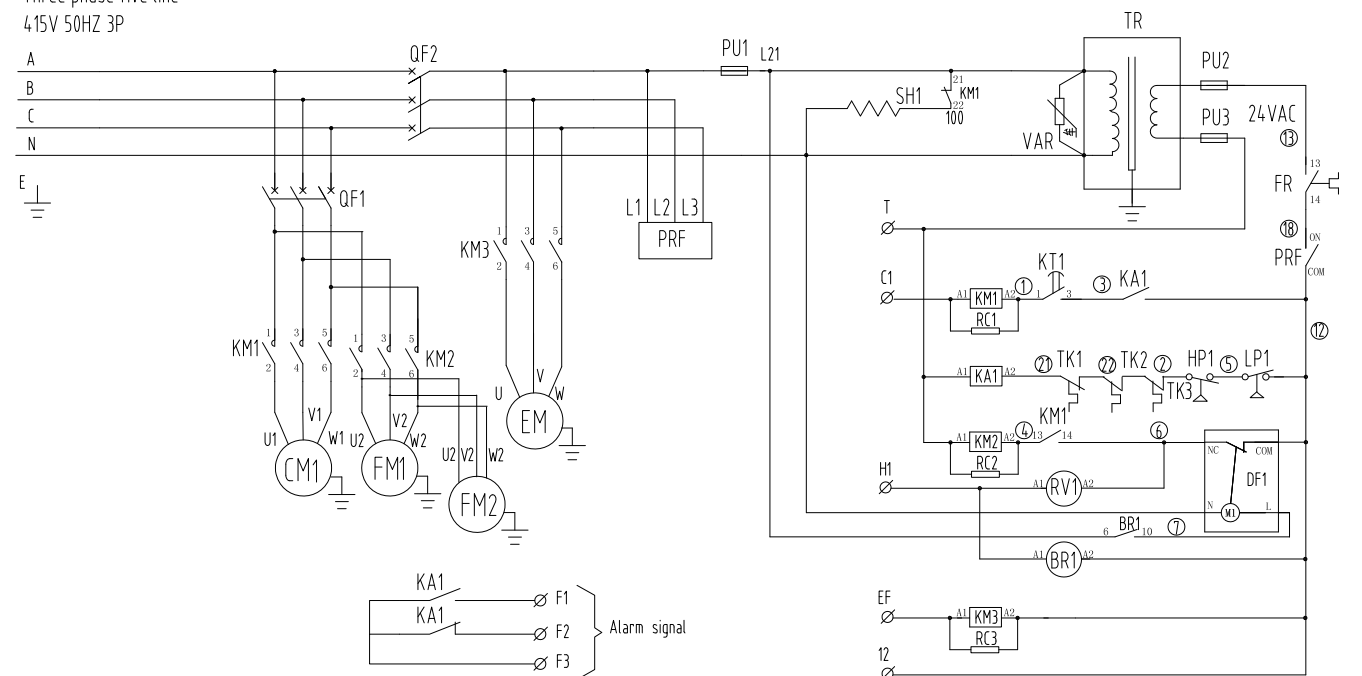
PHS12-25

Three phase five line
415V 50HZ 3P



PHS30-35

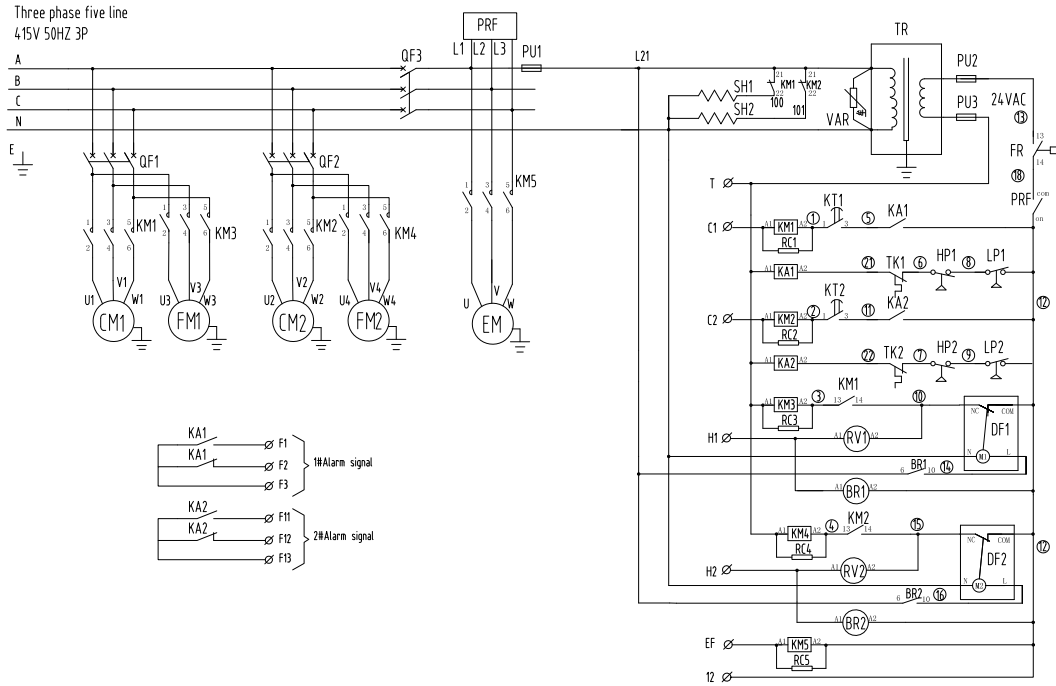
Three phase five line
415V 50HZ 3P



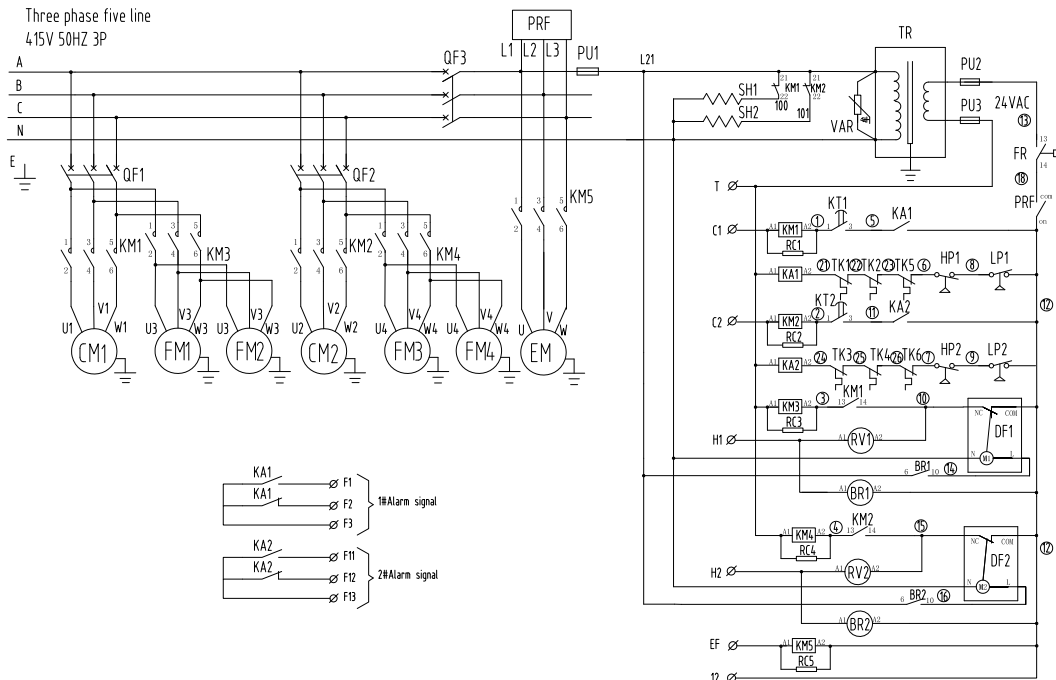
QF1-2	Motor Overload Breaker	VAR	Varistor	RC1-3	Filter	CM1	Compressor
KM1-3	Contactors	KT1	Time Relay	RV1	Reversing valve	FM1-2	Condenser fan
FR	Thermal Relay	PRF	Phase Protection	TK1-2	Overload protector	EM	Evaporator fan
TR	Transformer	C1	Capacitor	TK3	Disch., temp. sensor	SH1	Sump heater
PU1/2/3	Fuse	KA1	Fault Relay	L/HP1-2	HP/LP switch	BR1	Bypass Relay
DF1	De ice						

Wiring Diagrams

PH40-45



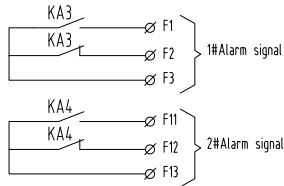
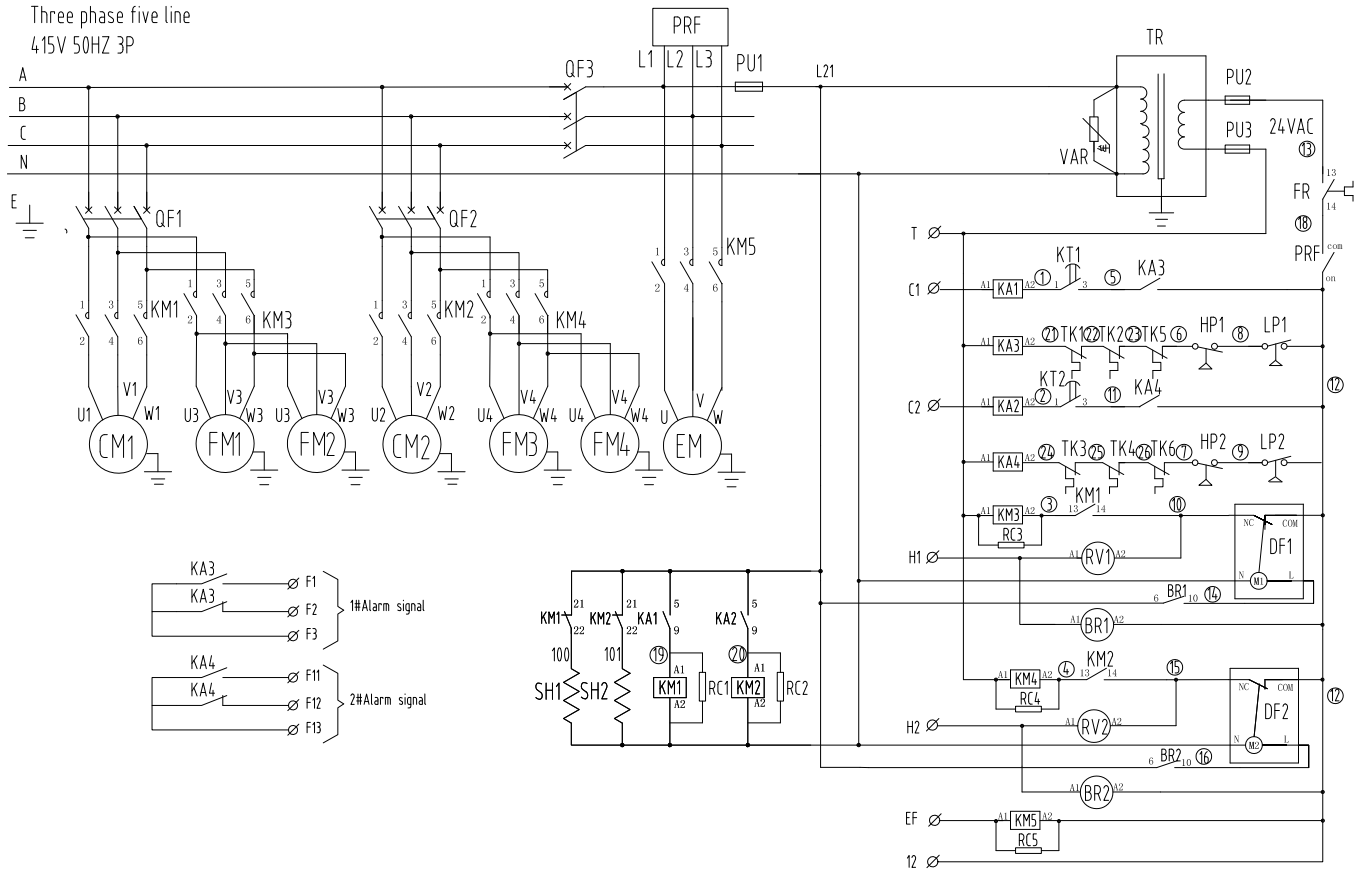
PH50-66



QF1-3	Motor Overload Breaker	VAR	Varistor	RC1-5	Filter	CM1-2	Compressor
KM1-5	Contactor	KT1-2	Time Relay	RV1/RV2	Reversing valve	FM1-4	Condenser fan
FR	Thermal Relay	PRF	Phase Protection	TK1-4	Overload protector	EM	Evaporator fan
TR	Transformer	C1-3	Capacitor	TK5-6	Disch temp sensor	SH1-2	Sump heater
PU1/2/3	Fuse	KA1-2	Fault Relay	L/HP1	HP/LP switch	BR1-2	Bypass Relay
DF1/DF2	De ice						

PH73-95

Three phase five line
415V 50HZ 3P

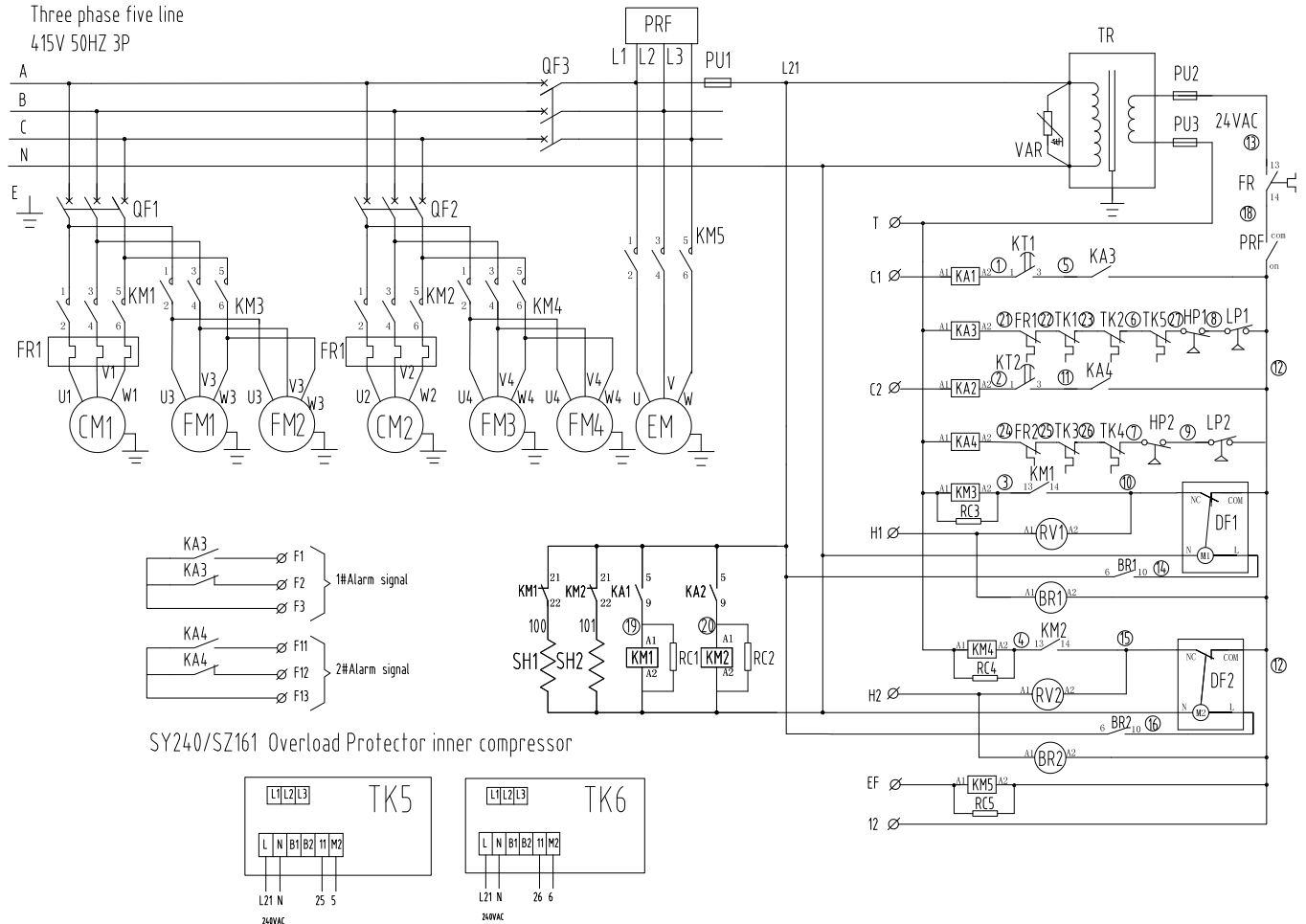


- | | | | |
|---------|------------------------|---------|---------------------|
| QF1-3 | Motor Overload Breaker | RC1-5 | Filter |
| KM1-5 | Contactor | RV1/RV2 | Reversing valve |
| FR | Thermal Relay | TK1-4 | Overload protector |
| TR | Transformer | TK5-6 | Disch. temp. sensor |
| PU1/2/3 | Fuse | L/HP1-2 | HP/LP switch |
| DF1/DF2 | De ice | CM1/CM2 | Compressor |
| VAR | Varistor | FM1-4 | Condenser fan |
| KT1-2 | Time Relay | EM | Evaporator fan |
| PRF | Phase protection | SH1-2 | Sump heater |
| KA1-2 | Intermediate relay | BR1-2 | Bypass Relay |
| KA3-4 | Fault Relay | | |

Wiring Diagrams

PH100-120

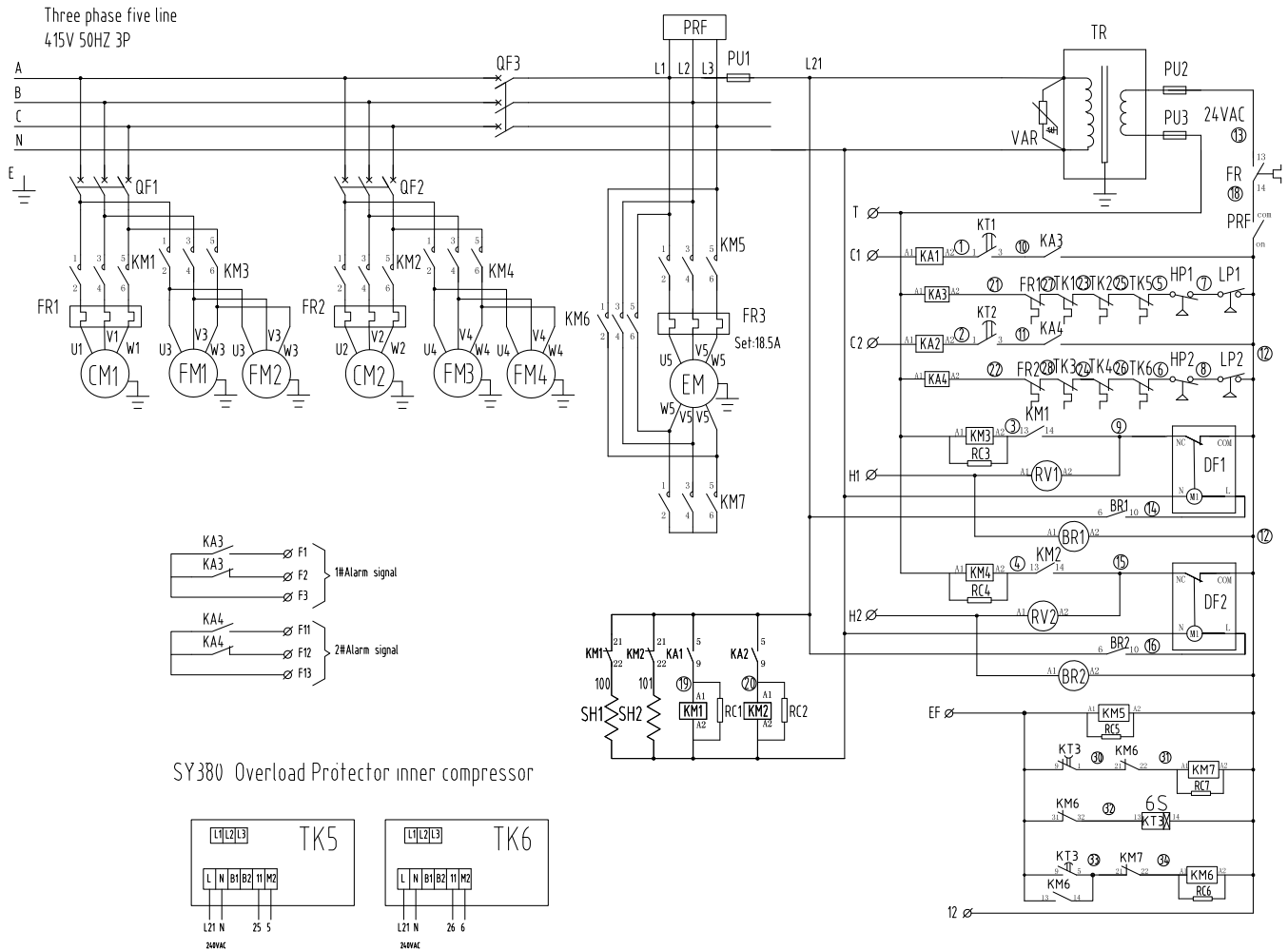
Three phase five line
415V 50HZ 3P



SY240/SZ161 Overload Protector inner compressor

- | | | | |
|---------|------------------------|----------|--------------------|
| QF1-3 | Motor Overload Breaker | RC1-5 | Filter |
| KM1-5 | Contactor | RV1/RV2 | Reversing valve |
| FR | Thermal Relay | TK1-4 | Overload protector |
| TR | Transformer | L/HP1-2 | HP/LP switch |
| PU1/2/3 | Fuse | CM1 /CM2 | Compressor |
| DF1/DF2 | De ice | FM1-4 | Condenser fan |
| VAR | Varistor | EM | Evaporator fan |
| KT1-2 | Time Relay | SH1-2 | Sump heater |
| PRF | Phase Protection | BR1-2 | Bypass Relay |
| KA1-2 | Intermediate relay | TK5 | Compressor protect |
| KA3-4 | Fault Relay | | |

PH140-200



- | | | | |
|---------|------------------------|---------|---------------------|
| QF1-3 | Motor Overload Breaker | RC1-7 | Filter |
| KM1-7 | Contactor | RV1/RV2 | Reversing valve |
| FR1-3 | Thermal Relay | TK1-4 | Overload protector |
| TR | Transformer | TK5-6 | Disch. temp. sensor |
| PU1/2/3 | Fuse | L/HP1-2 | HP/LP switch |
| DF1/DF2 | De ice | CM1/CM2 | Compressor |
| VAR | Varistor | FM1-4 | Condenser fan |
| KT1-3 | Time Relay | EM | Evaporator fan |
| PRF | Phase protection | SH1-2 | Sump heater |
| KA1-2 | Intermediate relay | BR1-2 | Bypass Relay |
| KA3-4 | Fault Relay | | |



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