DUNNAIR
Quality Engineering Solutions

iNVERTER

UNIQUE COMPRESSOR
ENVELOPE CONTROL FUNCTION

R410A
ZERO OZONE DEPLETION POTENTIAL

PREMIUM RANGE INVERTER
ROOFTOP PACKAGED UNITS

- Highly efficient and reliable DC inverter scroll compressors
- Multiple options for supply and return air duct connections
- BMS compatible, Modbus RTU as a standard, BACnet as an option
- Wide capacity range from 25kW to 150kW
- EC - Plug Fans

FOR ALL YOUR COMMERCIAL APPLICATIONS:

> Shopping Centres > Restaurants > Warehouses

OPTIONS

- Economy Cycle
- Electric Heating
- Emergency Power Supply
- Fire Alarm Cut-Off Switch
- Highly Flexible Control Ability
- CO_2 Controlled Fresh Air Option
- Supply Air Variable Speed Drive
- Left or Right-Hand Supply/Return Air Connections

STANDARD INCLUSION

- EC Condenser Fan
- Electronic Expansion Valve
- High/Low Pressure Transducer
- EC - Plug Fan

CONTROL OPTIONS

ECO i

STANDARD

- Panel Mounted Controller
- Full Diagnostic Function

ECO iQ

OPTIONAL

- Hand Held or Wall Mount

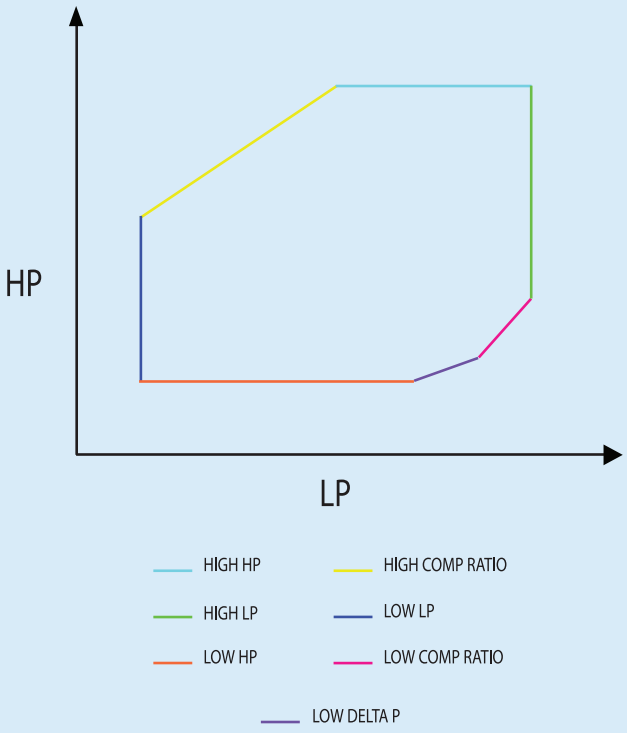
ECO iQ TOUCH

INTUITIVE MENU

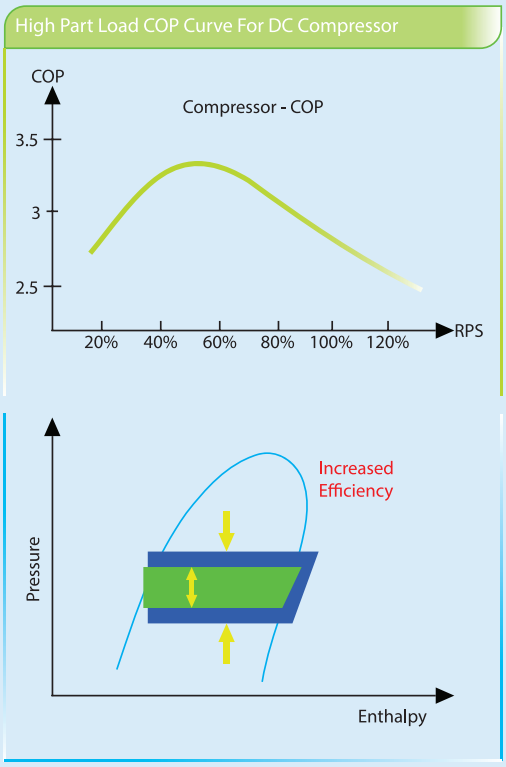
Menu screens enable even novice users to operate and monitor the system like an expert.

FEATURES
- Pre-Commissioning Tool
- Time Saving Commissioning Tool
- Simplify Troubleshooting
- Alarm History Monitoring
- Easy Servicing

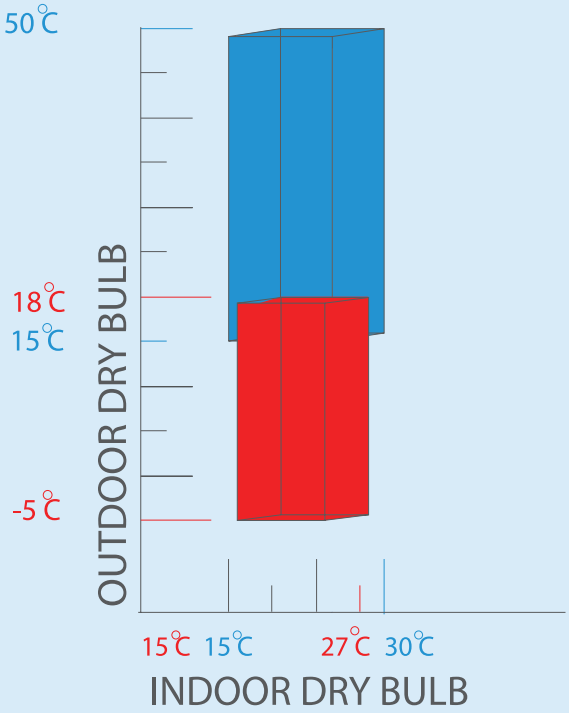
UNIQUE COMPRESSOR ENVELOPE CONTROL FUNCTION



WHY WE USE DC INVERTER COMPRESSORS



WIDE OPERATION RANGE



LEFT HAND RIGHT HAND

Black fin coated coils

CONNECTIVITIES:

ASHRAE BACnet™

Modbus RTU

DUNNAIR
Established 1961

INVERTER ROOFTOP PACKAGED UNITS

1. Introduction

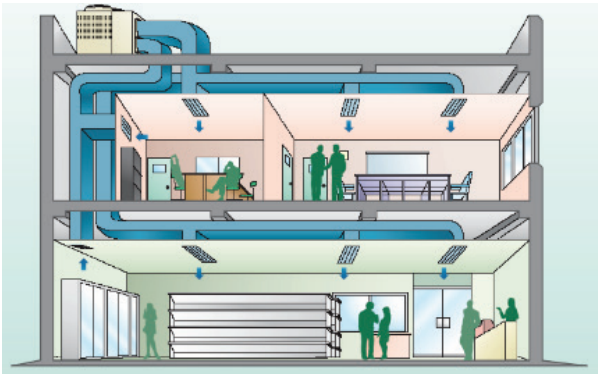
a. Dunnair (Aust) Pty Ltd
Dunnair (Aust) Pty Ltd is an Australian owned and managed international HVAC supplier, catering for the commercial and industrial markets for the past 50 years. Dunnair's mission is to provide the most competitively priced, reliable and efficient air conditioning equipment available on the market.

b. Dunnair's Premium Inverter Rooftop series
Our units are single packaged units which are factory assembled, tested and shipped complete. Dunnair rooftop packaged units have been designed specifically for the harsh Australian climate and are guaranteed to perform optimally within a large range of design conditions. They may be used for cooling only or heat pump applications, or with an option of electric heating. Dunnair's premium inverter range of equipment are ideal for residential, commercial and industrial applications and are available in nominal cooling capacity from 25 to 150 kW. Quality design and construction (with easy installation and maintenance) make Dunnair Inverter Rooftop Packaged Units (with hermetic scroll compressors) the preferred option for applications.

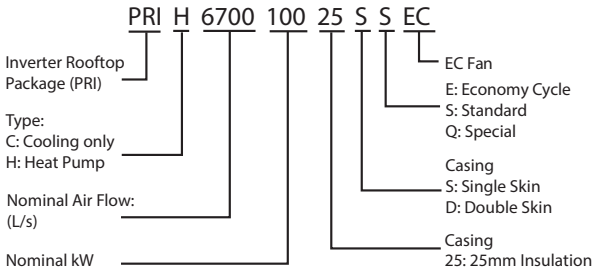
c. Dunnair's Inverter Rooftop Units: Applications
Rooftop packaged systems are unobtrusive, quiet and designed to provide year round comfort – warming in winter and cooling in summer. Dunnair's wide product range offers a unit to suit small to large packaged air conditioner applications, e.g. offices, shops, hotels, fast food outlets, restaurants, petrol stations, open plan office and work spaces, supermarkets, shopping malls and auditoriums. Units are suited to high static pressure applications where large volume spaces are to be air conditioned. Long duct runs are possible enabling greater installation flexibility. This range of units has been developed to meet the needs of typical applications.

Should you have special requirements, such as higher air flows or greater sensible duty units, please contact your nearest Dunnair representative. Dunnair engineers have extensive experience in designing air conditioning equipment for specific applications.

2. Typical Installation



3. Model Number Nomenclature



4. Descriptions

a. Casing
Dunnair Premium Inverter Rooftop package units come in 2 main casing designs for the evaporator section:

i) 25mm Double skin with polyurethane foam injected panel insulation.
ii) Single skin high grade sheet steel casing with a 25mm closed cell fan insulation.

The compressor section is manufactured from a high grade sheet steel casing and frame with a weather proof electrostatic, baked polyester epoxy powder coated external finish, designed for outdoor installation.

b. Evaporator and Condenser Coils
The evaporator and condenser coils are designed to deliver their respective duties at optimum performance at all design conditions. Coils are manufactured from seamless copper tubes mechanically expanded into aluminium fins. All coils are tested (under water to avoid leakage) at 30kg/cm^2 (450 Psi) air pressure. The coils also undergo vigorous cleaning procedures after the manufacturing process for optimal performance and reliability.

c. Condensate tray
The condensate tray is manufactured from stainless steel and insulated on the underside to prevent condensation. All units are provided with a drain pan having the drain connection from one side.

d. Compressor
Dunnair utilises DC Inverter refrigerant gas-cooled scroll compressors with internal thermal protection and soft starters as standard. This combination of features guarantees optimal efficiency, performance and robustness with minimal noise.

e. Direct Driven Condenser EC Axial Fans
All condenser fan blades are of the axial type, which are directly mounted on the motor shaft. All fans are selected for optimum efficiency and for maximum sound power reduction. Fan blades are designed for maximum corrosion resistance, and are statically and dynamically balanced before installation. All condenser fans are equipped with wire guards. All fan motors are air-cooled with internal thermal protection, with class "IP56" electrical insulation.

f. Evaporator Fan Motors
Backward curved EC direct driven plug fans provided for highly efficient and flexible operation.

5. Standard Features

a. Heat pump packaged units come standard with 4-way reversing valve, suction accumulator, oil separator and a liquid receiver.

b. Easily accessible system components.
c. Ample space for easy access to power and control panels.
d. Heavy duty mounting chassis for the whole unit with lifting holes.
e. Anti-vibration mounted compressor.
f. Weather-proof, polyester epoxy powder electrostatic paint oven-baked finish for sheet metal and base frame. Aluminum mesh on condenser section.
g. All units are shipped pre-tested with protection devices pre-set from the factory.
h. Quick release fasteners are provided on all electrical and compressor compartment cabinets.

6. Electrical Features

a. Control and power panels include the direct-on-line starting contactors for the compressors and condenser fan motor.
b. Internal thermal motor protection for condenser fan motors
c. Compressor internal thermal protection and discharge temperature.
d. Anti-recycling protection (time delay) for compressors through microprocessor.
e. Compressor motor protection device.
f. Microprocessor controller with the following main functions:
   i) External remote ON/OFF button for remote operation of the unit using external ON/OFF switch or connection to building management system.
   ii) Volt-free terminals available for general alarm indication signal to remote monitoring station.
g. High and low pressure transducers as well as safety switches (capsule type, factory pre-set) for all models.
h. Voltage monitor controller (phase sequence relay) for monitoring the main incoming power supply for the unit which provides protection from single-phasing, under-voltage, phase-voltage imbalance and phase-non-sequence of the supply power.
i. Low ambient control:
   The refrigeration systems in all units are inherently designed to operate efficiently, without extra controls or modifications. To permit the unit to operate in low ambient conditions an inverter fan speed head pressure control is included as standard.

j. MODbus RTU compatible (BACnet available as option) High efficiency hermetic DC inverter scroll compressor.

7. Refrigeration Features

a. High efficiency hermetic DC inverter scroll compressor
b. Filter drier
c. Charging points pin valve
d. Electronic expansion valve
e. Factory pre-charged with refrigerant
f. Suction Accumulator
g. Liquid receiver
h. Oil seperator

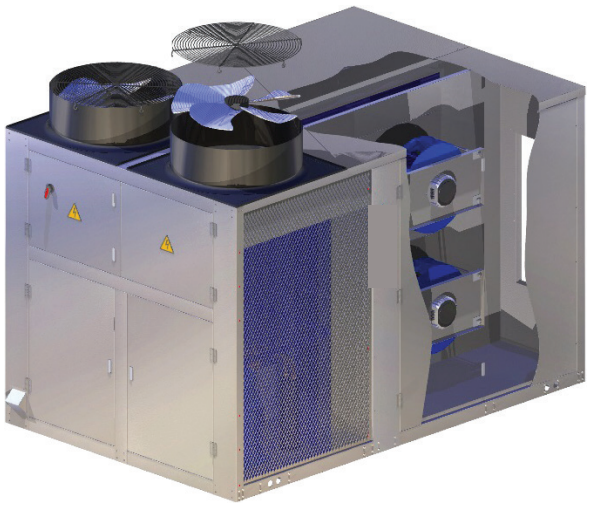
8. Optional Features

8.1 CONSTRUCTION OPTIONS

a. Economiser option with fresh, return and exhaust air dampers. With the economiser installed, the unit gains the ability to provide free cooling or free heating, allowing it to exploit the external environmental conditions and operate without the use of compressors or heaters. This function is achieved by measurement of outdoor and indoor temperatures, coupled with the operation of the integrated dampers.
b. High static condenser fan optional.
c. Upgraded evaporator fan.

8.2 ELECTRICAL OPTIONS

a. Building automation system interface. Interfacing with other building management systems. (e.g. BACnet)
b. Dual power supply input.
c. Remote control panel.



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SPECIFICATIONS

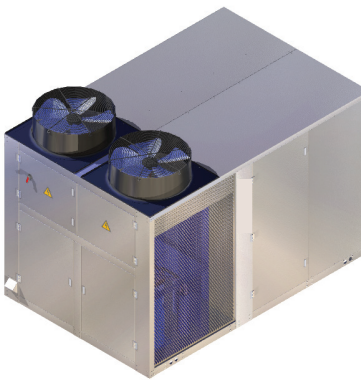
Model No.			PRIH 20-35S	PRIH 25-45S	PRIH 30-55S	PRIH 37-70S	PRIH 45-70S
Power supply			400V / 3Ph / 50Hz				
Capacity	Cooling *	kW	25 - 35	36 - 46	50 - 62	57 - 70	60 - 72
	Heating *	kW	26 - 37	38 - 49	53 - 64	62 - 73	62 - 74
Input power	Cooling *	kW	8 - 12	12 - 15	17 - 21	19 - 23	20 - 24
	Heating *	kW	9 - 12	13 - 16	18 - 22	20 - 25	21 - 25
COP Full Load - 60%			3.00 - 3.50	3.00 - 3.50	2.90 - 3.40	3.00 - 3.50	2.90 - 3.40
Evaporator	Air Flow *, **	L/s	1500 - 2500	2000 - 3000	2500 - 4000	2800 - 4500	3500 - 5300
	Ext. Static Pressure	Pa	150	150	150	200	200
	Drain Pipe Size	mm	3/4"				
Dimensions	W x D x H	mm	1608 x 2054 x 1689		2055 x 2305 x 1813	2055 x 2305 x 2063	
Weight		kg	750	780	1150	1260	1280
Condenser Air Flow	Cooling	L/s	4270	4270	8080	9500	9680
Outdoor Operating Range	Cooling - min - max	°CDB	15 - 50				
	Heating - min - max	°CWB	-5 - 18				
Refrigerant	Type / GWP		R410A / 2088				
	Charge	kg	1 x 10.0	1 x 13.1	1 x 8.3 / 1 x 9.8	2 x 11.0	2 x 11.0

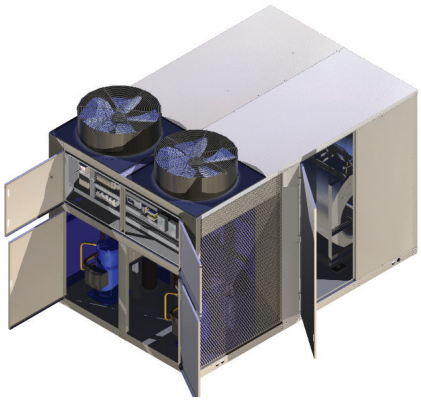
* The units can operate in a wide range of airflow and capacity, when the units' airflow decreases the capacity will also decrease and when the units airflow increases the capacity will also increase. Therefore the low airflow should be read together with the low capacity and the high airflow should be read together with the high capacity.

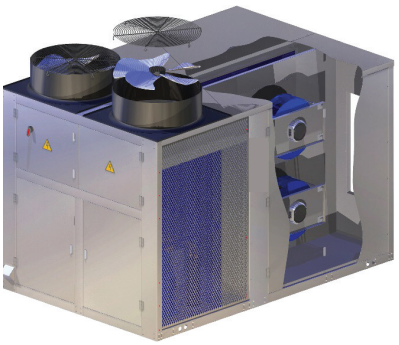
Model No.			PRIH 45-90S	PRIH 54-110	PRIH 67-115S	PRIH 67-145S	PRIH80-150S
Power supply			400V / 3Ph / 50Hz				
Capacity	Cooling *	kW	78 - 91	93 - 110	97 - 114	130 - 150	135 - 156
	Heating *	kW	85 - 99	100 - 115	99 - 117	133 - 161	138 - 163
Input power	Cooling *	kW	26 - 30	31 - 37	32 - 38	43 - 50	45 - 52
	Heating *	kW	27 - 32	32 - 38	34 - 40	45 - 53	47 - 55
COP Full Load - 60%			2.90 - 3.40	2.90 - 3.40	3.00 - 3.50	3.00 - 3.50	2.90 - 3.40
Evaporator	Air Flow *, **	L/s	3500 - 5300	4500 - 6700	5400 - 8000	5400 - 8000	6500 - 9500
	Ext. Static Pressure	Pa	200	250	250	250	250
	Drain Pipe Size	mm	3/4"				
Dimensions	W x D x H	mm	2055 x 2305 x 2063	2255 x 2805 x 2063	2255 x 3105 x 2063		2255 x 3405 x 2063
Weight		kg	1320	1660	1690	1850	1930
Condenser Air Flow	Cooling	L/s	10360	13340	13340	15860	15860
Outdoor Operating Range	Cooling - min - max	°CDB	15 - 50				
	Heating - min - max	°CWB	-5 - 18				
Refrigerant	Type / GWP		R410A / 2088				
	Charge	kg	2 x 13.0	1 x 18.0 / 1 x 13.7	1 x 19.0 / 1 x 14.3	1 x 24.7 / 1 x 18.8	1 x 25.7 / 1 x 19.6

Please Note :

The above capacities are based on: Evaporator On Coil : 27°C / 19°C, Ambient : 35°C / 26.1°C and Altitude 0 masl. Dunnair (Aust) Pty Ltd Reserves the right to change any data on this sheet due to technical development without prior notice.







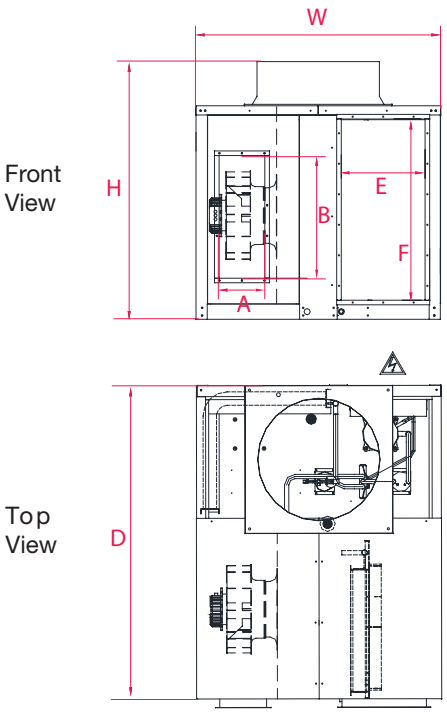
EC - Backward Curved Fan

DIMENSIONS

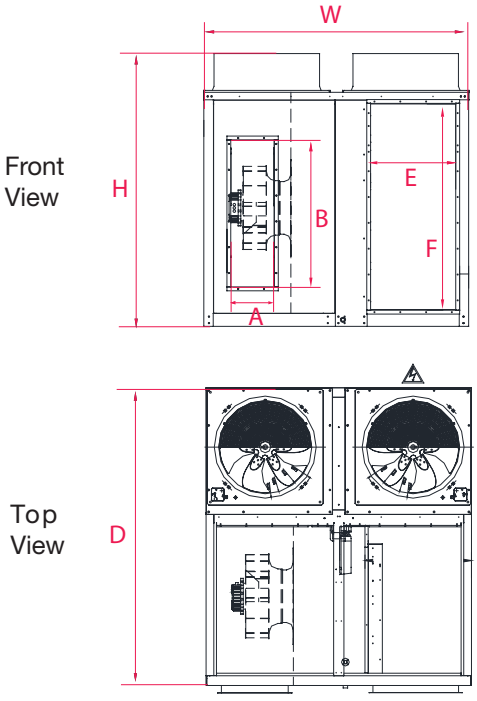
	Overall size (mm)				Spigot Sizes (mm)	
Model	Width (W)	Depth (D)	Height (H)	Weight (kg)	Supply Air spigot (A x B)	Return Air spigot (E x F)
PRIH 20-35S	1608	2054	1689	750	300 x 804	550 x 1188
PRIH 25-45S	1608	2054	1689	780	300 x 804	550 x 1188
PRIH 30-55S	2055	2305	1813	1150	336 x 1136	660 x 1597
PRIH 37-70S	2055	2305	2063	1260	348 x 1136	660 x 1842
PRIH 45-70S	2055	2305	2063	1280	348 x 1136	660 x 1842
PRIH 45-90S	2055	2305	2063	1320	348 x 1136	660 x 1842
PRIH 54-110S	2255	2805	2063	1660	560 x 1416	660 x 1842
PRIH 67-115S	2255	3105	2063	1690	348 x 1336	660 x 1842
PRIH 67-145S	2255	3105	2063	1850	348 x 1336	660 x 1842
PRIH 80-150S	2255	3405	2063	1930	348 x 1336	660 x 1850

DRAWINGS

PRIH20-35S & PRIH25-45S



PRIH30-55S to PRIH80-150S



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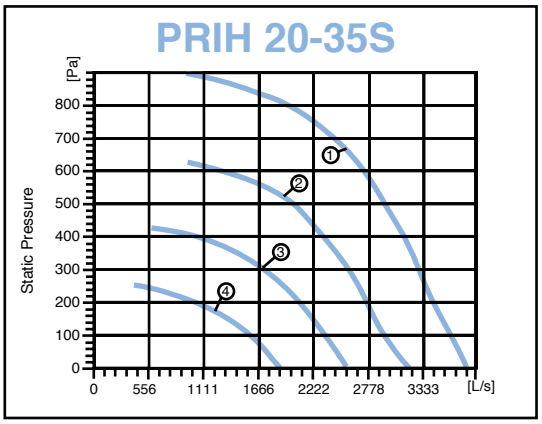
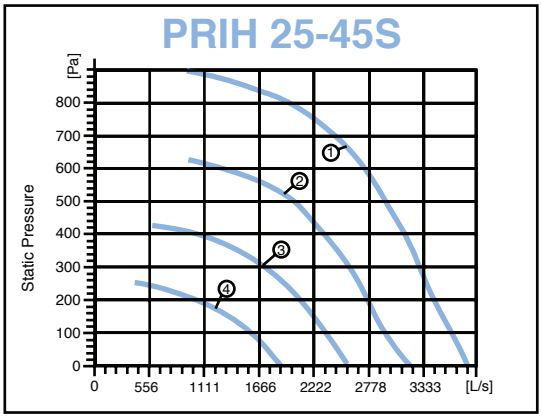
FAN CURVES

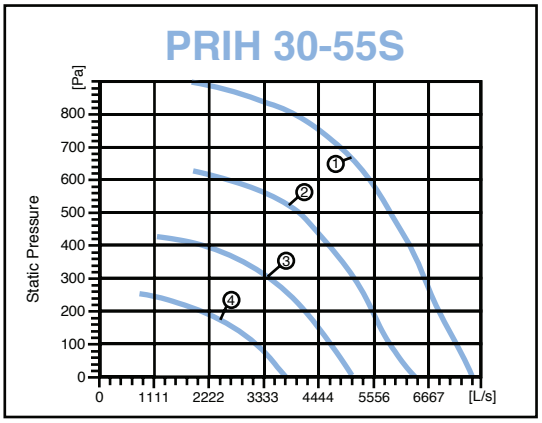
PRIH 20-35S



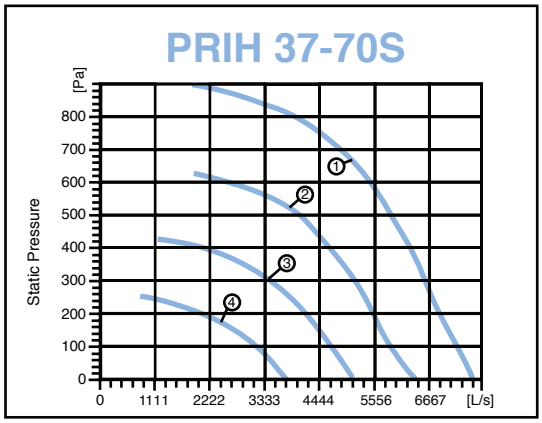
PRIH 25-45S



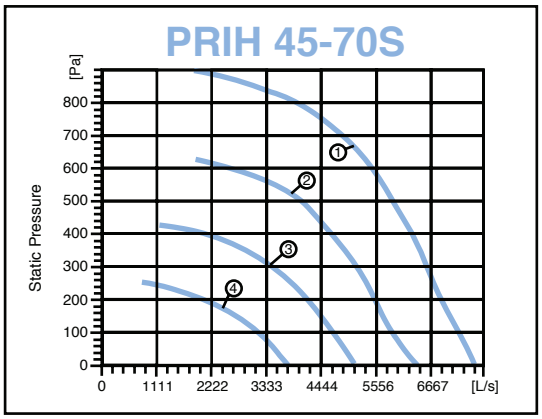
PRIH 30-55S



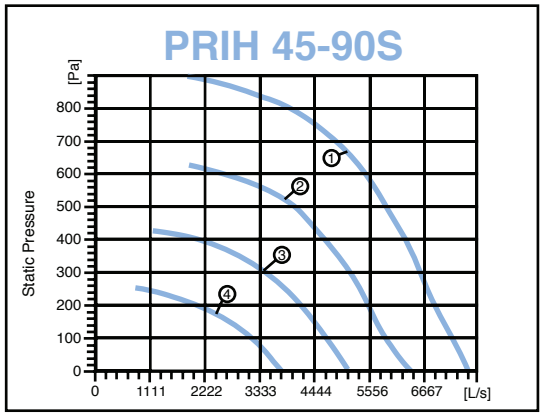
PRIH 37-70S



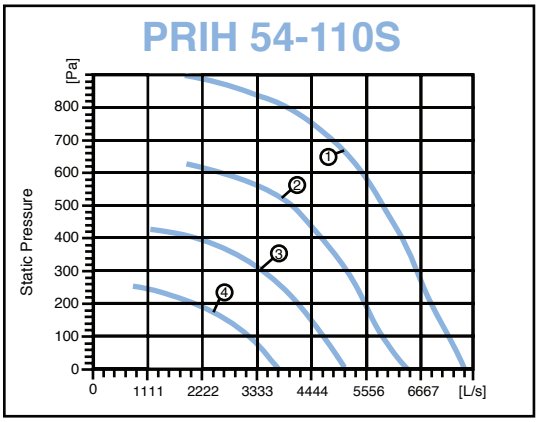
PRIH 45-70S



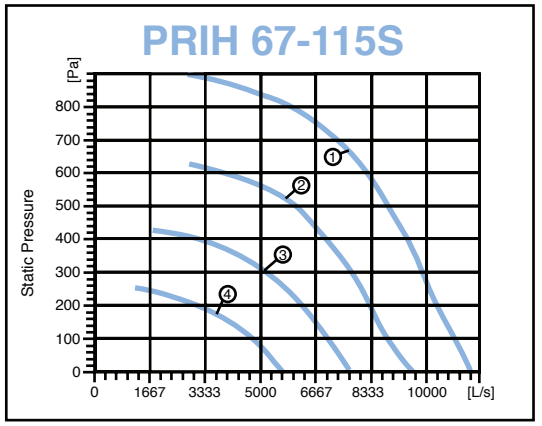
PRIH 45-90S



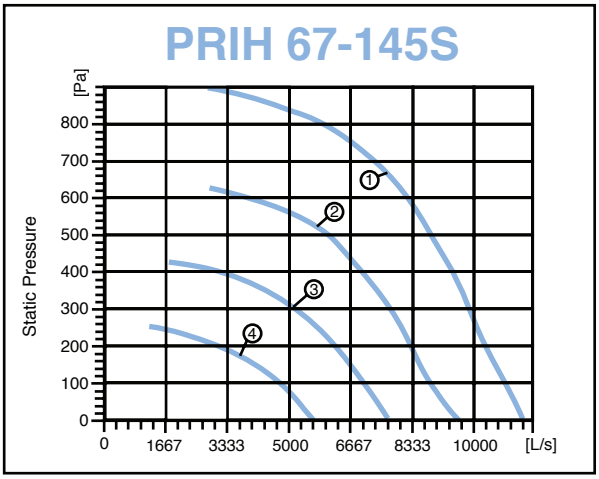
PRIH 54-110S

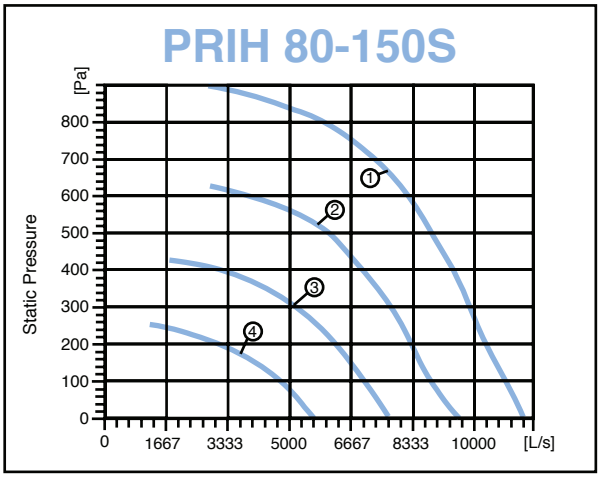


PRIH 67-115S



FAN CURVES

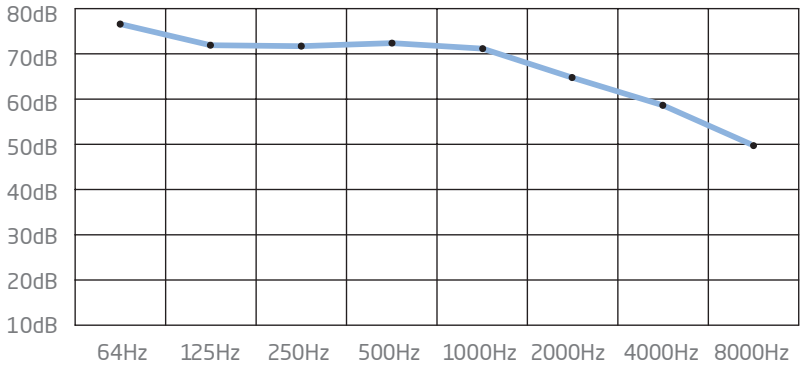




SOUND CURVES

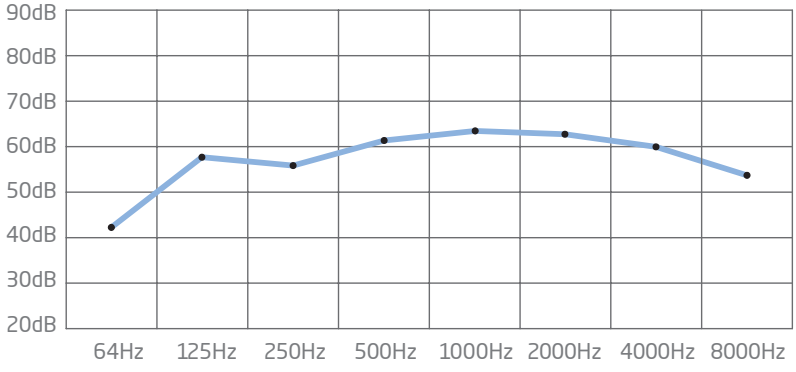
PRIH 20-35S A Class: 74.7dB*

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



PRIH 25-45S A Class: 68.2dB*

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



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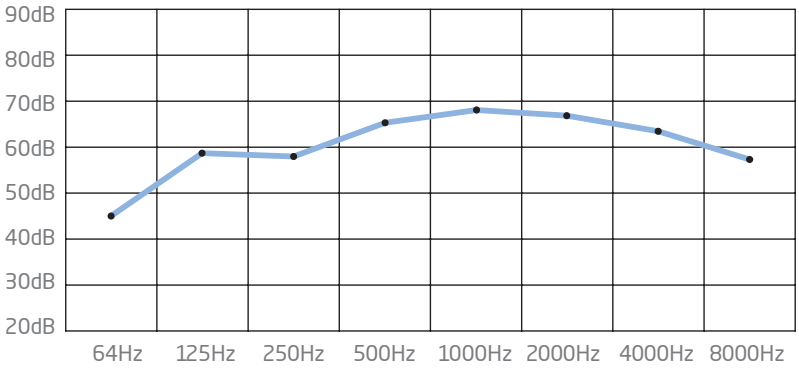
SOUND CURVES

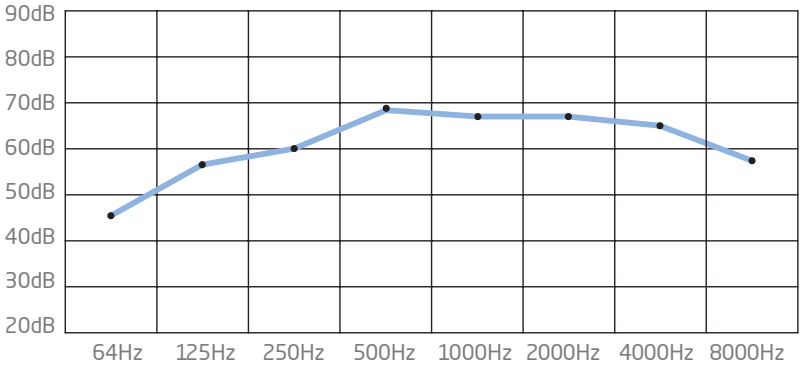
PRIH 30-55S A Class: 72.3dB*

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



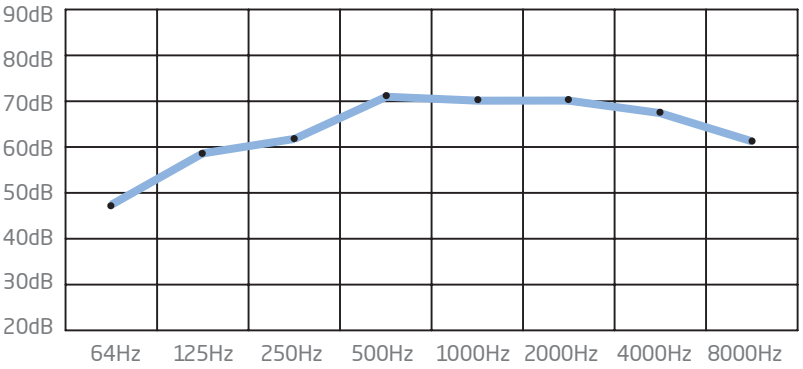
PRIH 37-70S A Class: 73.0dB*

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



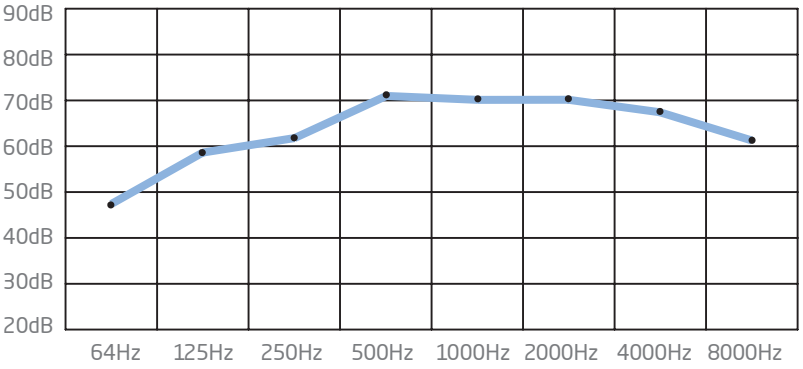
PRIH 45-70S A Class: 75.8dB*

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



PRIH 45-90S A Class: 75.8dB*

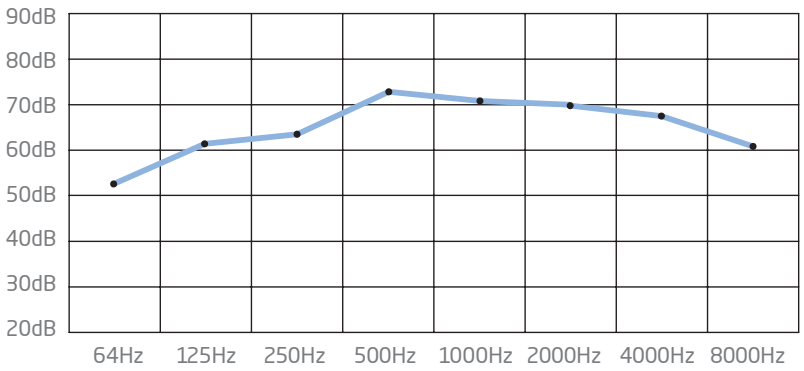
Frequency (Hz)	Decibel (dB)
64	48
125	60
250	63
500	72
1000	71
2000	72
4000	69
8000	62



SOUND CURVES

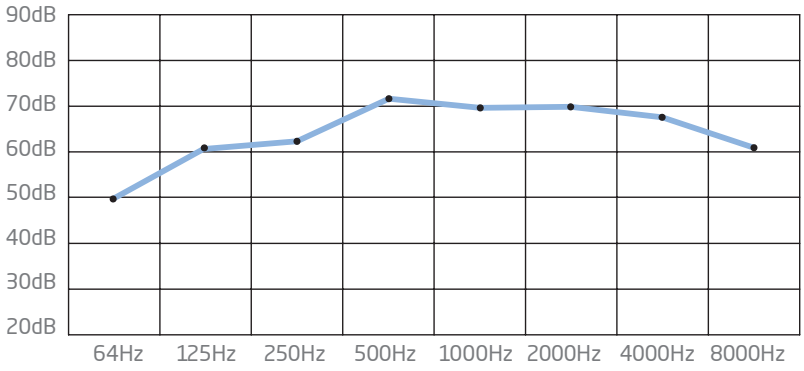
PRIH 54-110S A Class: 77.0dB*

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



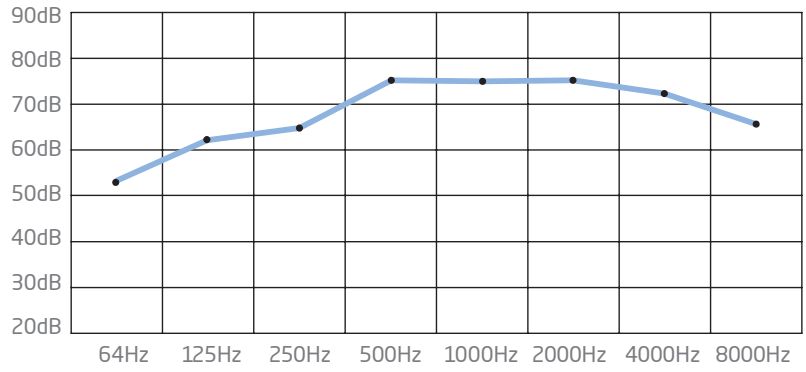
PRIH 67-115S A Class: 76.0dB*

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



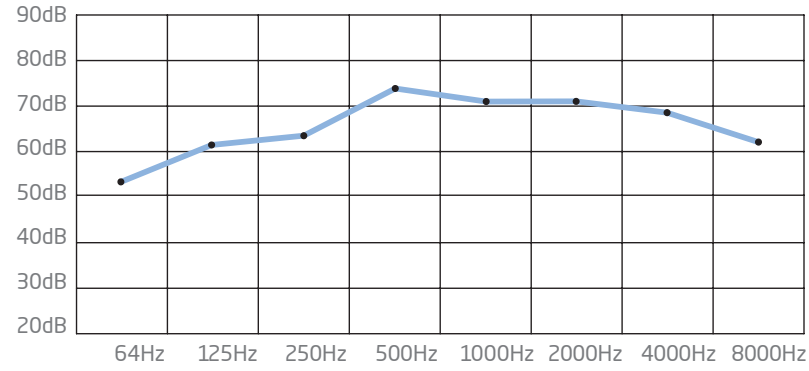
PRIH 67-145S A Class: 80.2dB*

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



PRIH 80-150S A Class: 77.6dB*

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



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