JL Marine & Engineering Corp Ltd

- Cabin Unit & Air Terminal

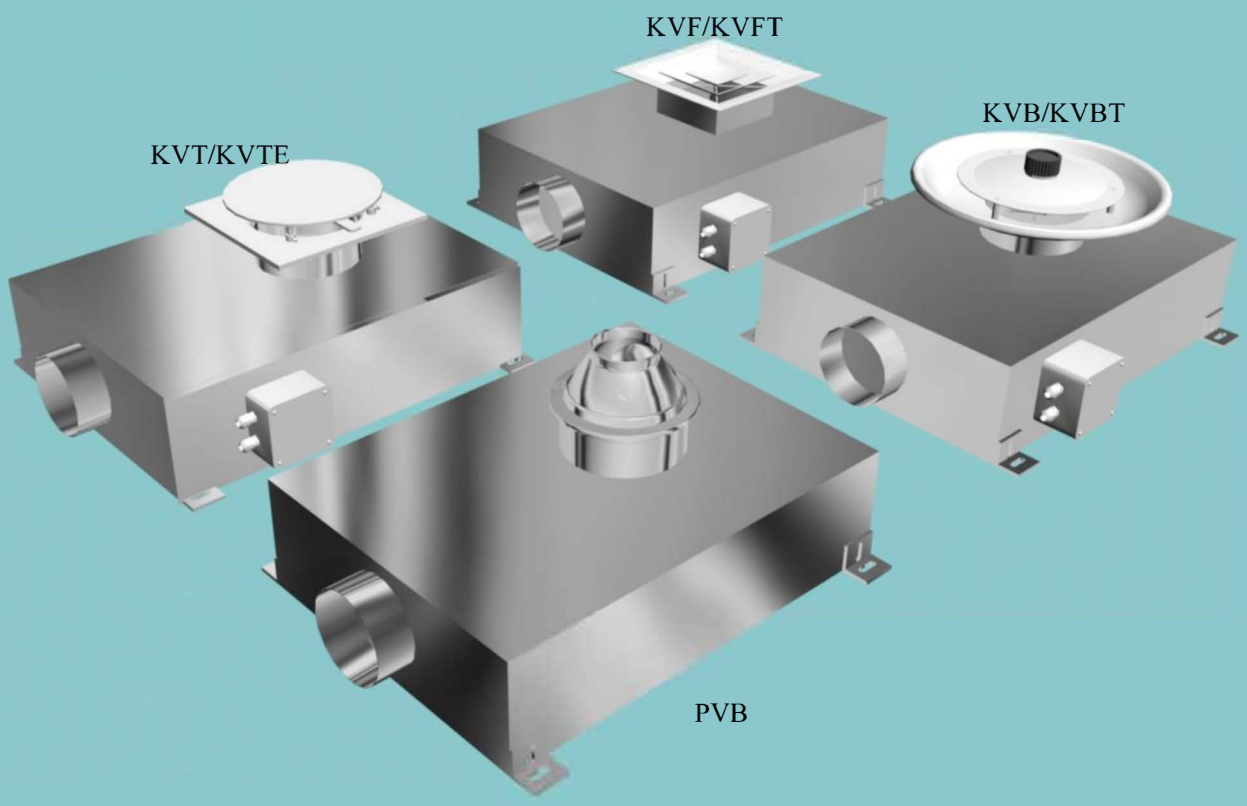
Marine Technology and Products Catalogue

Product Instructions

Owing to continued product development, JL reserves the right to introduce alterations without prior notice.

Document No: PI-01.20100428-1.SG

Single Duct Cabin Unit (KV & PV Series)
Sound Attenuator, Balancing Box & Diffuser



Introduction

The cabin units are specially designed for High Pressure Air Conditioning Systems (HPACS) to supply a constant flow of conditioned air to ships' accommodations. For each type of HPACS, there is a comprehensive range of units for ceiling suspension, supplying conditioned air through a ceiling diffuser. All units are of the flat type, constructed to be low in height. High Pressure ceiling cabin units consist of a box and a diffuser designed for class B0 & B15 ceilings.

The cabin units are made in sizes to suit the ventilation requirements as well as the heating and cooling loads. All units have air volume control devices through which the airflow delivered can be varied within a predetermined range. Also, units intended for reheat installation provide automatic individual temperature control, by using room thermostats.

The design of the units pays special attention to sound attenuation. Very satisfactory sounds levels have been achieved in relation to the ambient sound of ships' accommodations. Standard cabin units have sound traps that effectively reduce noise from the pipe system and throttle valves to below the requested level.

Single-Pipe Cabin Unit Type KV/PV

Cabin unit type KV/PV is a manual single-pipe unit, compact and simple to control. The units are available in different types for various airflows and mounting requirements. In each cabin, the climate is controlled manually via an airflow adjustment knob on the cabin unit.

The cabin unit can be mounted in the ceiling or on the bulkhead. The supply air is distributed via diffusers or punkah louvres.

Reheat Cabin Unit Type KV(X)-E

Cabin unit type KV(X)-E is a very compact reheat unit with an electrical reheating element inside. The unit is available in different types for various airflows and mounting requirements. In each cabin, the climate is to be controlled by the reheating coil (230VAC as standard, other voltages optional) in accordance with the set point on the room thermostat. The reheating element is designed for covering the transmission loss from the served cabin. The airflow is kept constant or can be manually regulated.

The electric reheating element has built-in safety switches for power cut-off if the temperature exceeds the permissible maximum. The maximum capacity of the electric coil is 1200 W. The cabin unit can be mounted in the ceiling. The supply air is distributed via diffusers.

MATERIALS TABLE

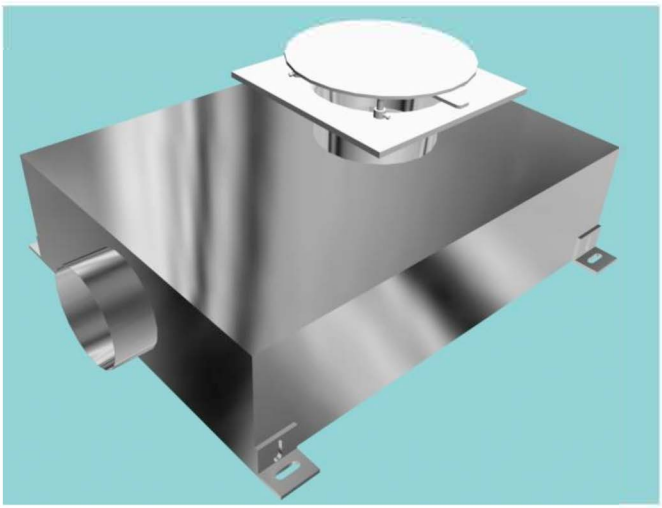
PART	MATERIAL	PART	MATERIAL
Casing	Hot galvanised steel.0.6mm/SUS(Optional)	Reheat coil	AISI 304
Insulation	Mineral wool, s = 25 mm, MED approved	Cables	Halogen-free

QUICK SELECTION

Single-Pipe Cabin Unit Type KV/PV			
Model	Diffuser Type	Size (L x W x H)	Airflow
KVT-20	Flat Diffuser	450mmx450mmx150 mm	50 m^3/h -260 m^3/h
KVT-30		600mmx450mmx160 mm	50 m^3/h -360 m^3/h
KVB-20	Pan Diffuser	450mmx450mmx150 mm	50 m^3/h -260 m^3/h
KVB-30		600mmx450mmx160 mm	50 m^3/h -360 m^3/h
KVF-20	4-way Diffuser	450mmx450mmx150 mm	50 m^3/h -260 m^3/h
KVF-30		600mmx450mmx160 mm	50 m^3/h -360 m^3/h
KVF-40		600mmx450mmx200 mm	50 m^3/h -460 m^3/h
PVB-20	Punkah Louvre	450mmx450mmx150 mm	0 m^3/h -260 m^3/h
PVB-30		550mmx450mmx160 mm	0 m^3/h -360 m^3/h

Reheat Cabin Unit Type KV(X)-E				
Model	Diffuser Type	Size (L x W x H)	Airflow	Reheating Capacity
KVTE-20	Flat Diffuser	600mmx450mmx150 mm	50 m^3/h -260 m^3/h	300w/600w
KVTE-30		600mmx450mmx160 mm	50 m^3/h -360 m^3/h	300w/600w/900w
KVBE-20	Pan Diffuser	600mmx450mmx150 mm	50 m^3/h -260 m^3/h	300w/600w
KVBE-30		600mmx450mmx160 mm	50 m^3/h -360 m^3/h	300w/600w/900w
KVFE-20	4-way Diffuser	600mmx450mmx150 mm	50 m^3/h -260 m^3/h	300w/600w
KVFE-30		600mmx450mmx160 mm	50 m^3/h -360 m^3/h	300w/600w/900w
KVFE-40		600mmx450mmx200 mm	50 m^3/h -460 m^3/h	300w/600w/900w/1200w

Single-Pipe Cabin Unit Type KVT



Cabin unit type KVT for high-pressure single-pipe system supplies fully conditioned air that creates comfortable conditions in all spaces served.

The cabin unit consists of:

- Attenuator box
- Air spigot for connection to the air duct system, which supplies conditioned air from the air handling unit
- Sound trap made of inorganic material, reducing the noise from the duct system and throttling valve to the requested sound level
- Air capacity regulating device for adjustment of the maximum airflow required

Complementary equipment

- Outlet flat diffuser, suspended from any kind of ceiling panel; air is projected at an angle and velocity that eliminate any risk of draughts or smudging of the ceiling
- Angles or irons for suspension of the attenuator box

Materials

Attenuator box: Galvanised sheet steel (0.6mm) or optionally, SUS

Diffuser, upper part: Galvanised sheet steel

Diffuser, lower part: Aluminium

Colour

Diffusers are available for fixed airflow or with manual regulation of airflow. The diffusers are painted a standard neutral light-grey enamel (code RAL 9002). Other colours are available on request.

Airflow

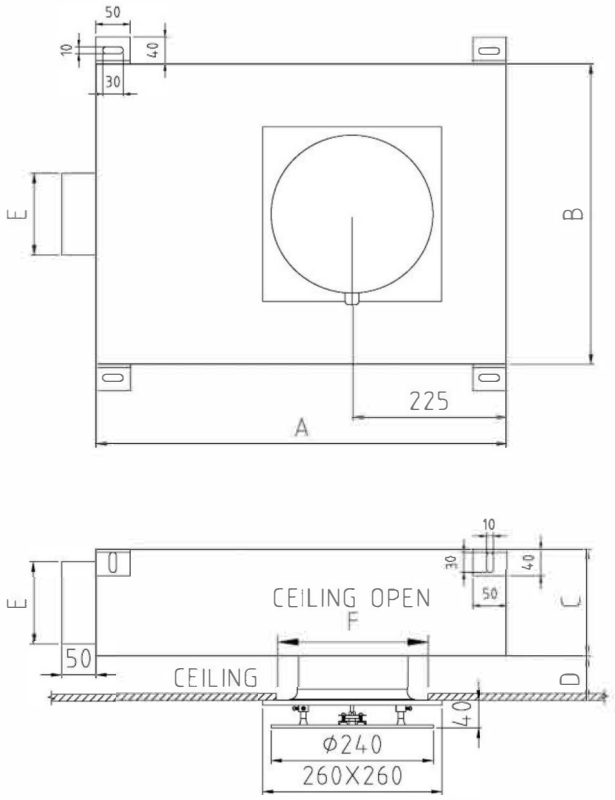
The cabin unit is available in 2 sizes: type KVT-20 for 260 m3/h, and type KVT-30 for 360m3/h.

Specifications

Cabin units with fixed airflow are used for spaces with no requirements for individual room temperature control, such as alleyways and storerooms.

For cabin units with manual regulation of airflow, a variation of the temperature in a cabin is achieved by changing the air quantities supplied.

Attenuator Box Drawing



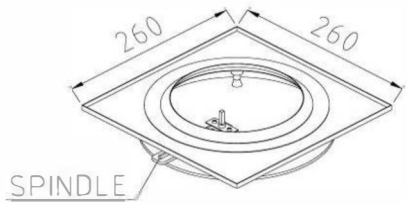
Attenuator Box Dimensions

Model	A(mm)	B(mm)	C(mm)	E (mm)
KVT-20	450	450	150	Φ98
KVT-30	600	450	160	Φ123

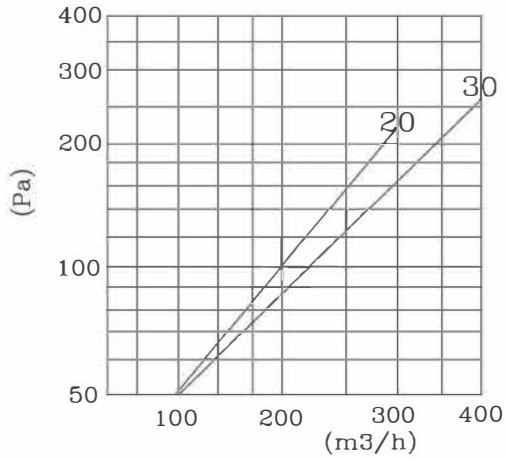
Installation Dimensions

Model	F(mm)	D(mm)	Weight
KVT-20	Φ185	55~70	~12kg
KVT-30	Φ185	75~95	~14kg

Flat Diffuser with Airflow Regulating Device



Pressure Drop

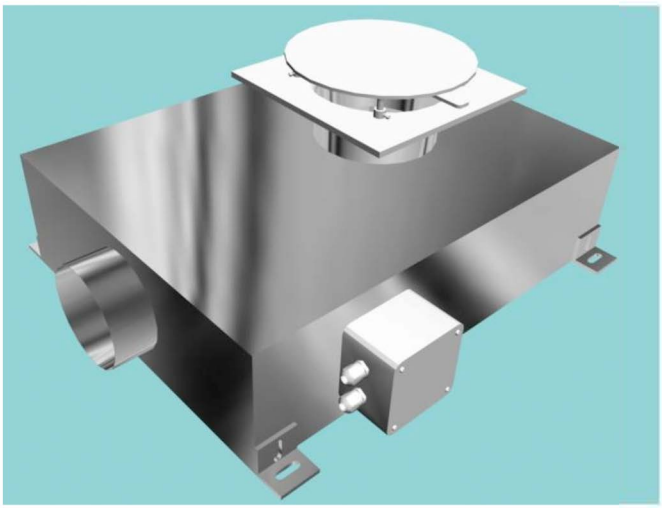


Sound Attenuation

Sound levels, cabin sound absorption ~4 dB (A)

KVT-20 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.2	7.2	17.2	26.7	36.4	40.7	38.5	34.3
KVT-30 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	6.4	11.3	15.9	25.8	34.8	37.9	35.3	34.7
DL: Sound attenuation not including end reflection								

Reheat Cabin Unit Type KVTE



Cabin unit type KVTE for high-pressure reheat system supplies fully conditioned air that creates comfortable conditions in all spaces served.

The cabin unit consists of:

- Attenuator box
- Air spigot for connection to the air duct system, which supplies conditioned air from the air handling unit
- Sound trap made of inorganic material, reducing the noise from the duct system and throttling valve to the requested sound level
- Air capacity regulating device for adjustment of the maximum airflow required

Complementary equipment

- Outlet flat diffuser, suspended from any kind of ceiling panel; air is projected at an angle and velocity that eliminate any risk of draughts or smudging of the ceiling
- Angles or irons for suspension of the attenuator box

Materials

Attenuator box: Galvanised sheet steel (0.6mm) or optionally, SUS

Diffuser, upper part: Galvanised sheet steel

Diffuser, lower part: Aluminium

Electrical Heater Coil: SUS

Junction Box: PVC, IP44

Colour

Diffusers are available for fixed airflow or with manual regulation of airflow. The diffusers are painted a standard neutral light-grey enamel (code RAL 9002). Other colours are available on request.

Airflow

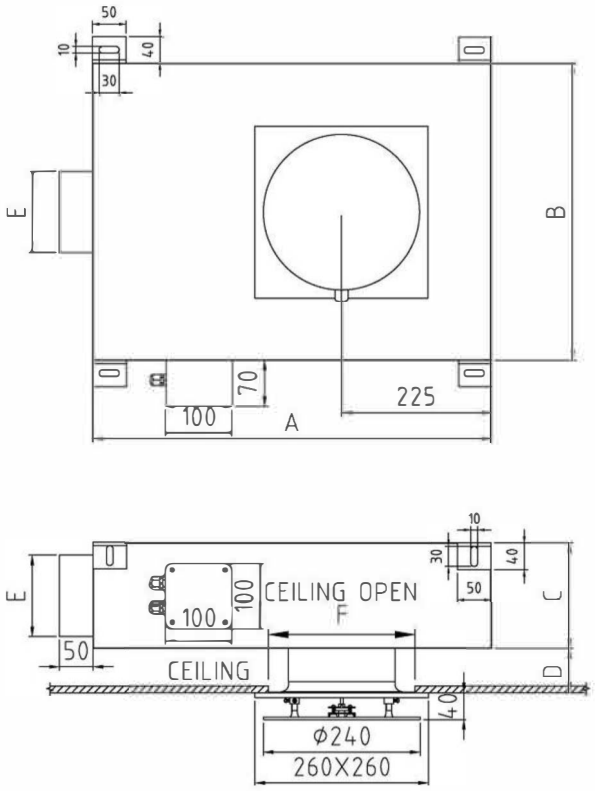
The cabin unit is available in 2 sizes: type KVTE-20 for 260 m3/h, and type KVTE-30 for 360m3/h.

Specifications

Cabin units with fixed airflow are used for spaces with no requirements for individual room temperature control, such as alleyways and storerooms.

For cabin units with manual regulation of airflow, a variation of the temperature in a cabin is achieved by changing the air quantities supplied.

Attenuator Box Drawing



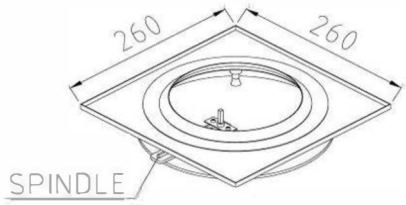
Attenuator Box Dimensions

Model	A(mm)	B(mm)	C(mm)	E (mm)
KVTE-20	600	450	150	Φ98
KVTE-30	600	450	160	Φ123

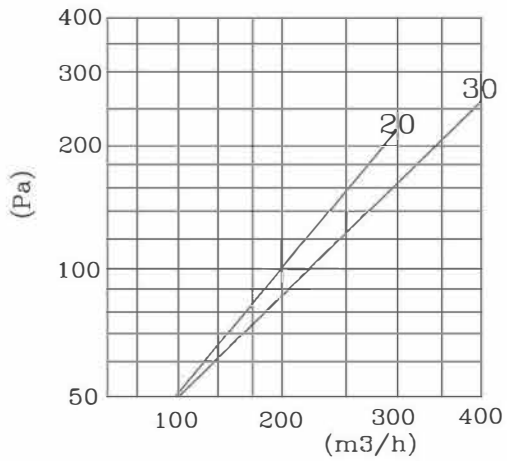
Installation Dimensions

Model	F(mm)	D(mm)	Weight
KVTE-20	Φ185	55~70	~12kg
KVTE-30	Φ185	75~95	~14kg

Flat Diffuser with Airflow Regulating Device



Pressure Drop



Sound Attenuation

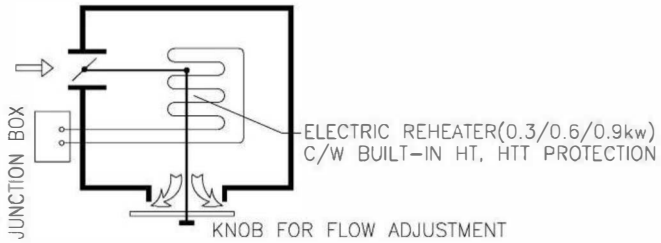
Sound levels, cabin sound absorption ~4 dB (A)

KVTE-20 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.2	7.2	17.2	26.7	36.4	40.7	38.5	34.3
KVTE-30 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	6.4	11.3	15.9	25.8	34.8	37.9	35.3	34.7
DL: Sound attenuation not including end reflection								

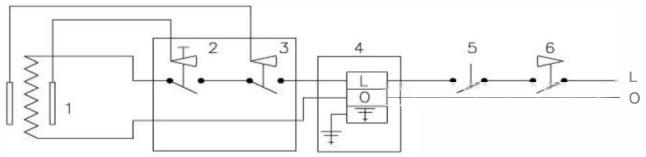
Heating Capacity

Model	Voltage	Capacity
KVTE-20	210~230v/1Φ/50~60Hz	300w/600w
KVTE-30	210~230v/1Φ/50~60Hz	300w/600w/900w

Schematic Diagram



Wiring Diagram



Reheater Specifications

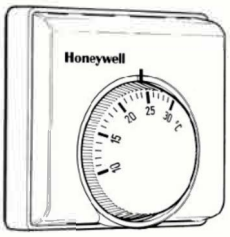
1. Electric reheater element (230v-50/60Hz)
2. Manual reset (HTT) thermostat, 170°C
3. Auto reset (HT) thermostat, 120°C, diff ~20°C
4. Junction box with connection terminals

* Interlocking with airflow (fan) not included

* Room thermostat not included

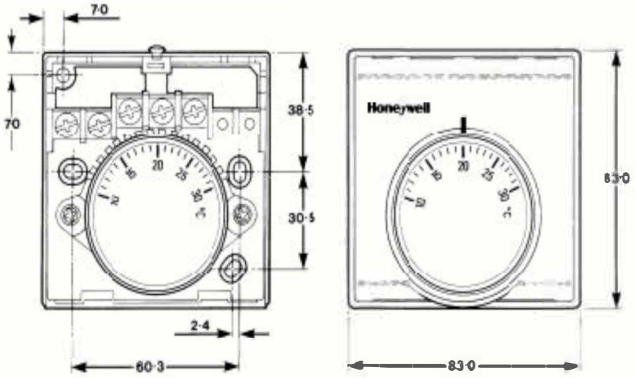
Room Thermostat

Room thermostat type T4360B is mounted separately on the bulkhead for regulation of the electrical heating element. The operational temperature is between 0°C and 40°C, and the supply voltage is 230 V at 50 Hz or 60 Hz.

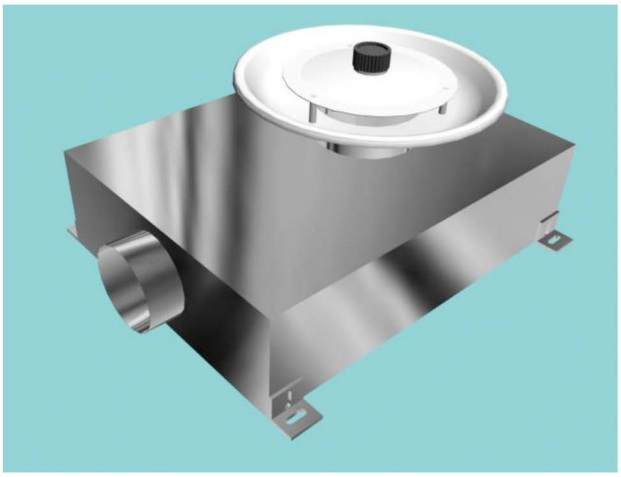


Room Thermostat Type T4360B

Room Thermostat Dimensions



Single-Pipe Cabin Unit Type KVB



Cabin unit type KVB for high-pressure single-pipe system supplies fully conditioned air that creates comfortable conditions in all spaces served.

The cabin unit consists of:

- Attenuator box
- Air spigot for connection to the air duct system, which supplies conditioned air from the air handling unit
- Sound trap made of inorganic material, reducing the noise from the duct system and throttling valve to the requested sound level
- Air capacity regulating device for adjustment of the maximum airflow required

Complementary equipment

- Outlet pan diffuser, suspended from any kind of ceiling panel; air is projected at an angle and velocity that eliminate any risk of draughts or smudging of the ceiling
- Angles or irons for suspension of the attenuator box

Materials

Attenuator box: Galvanised sheet steel (0.6mm) or optionally, SUS

Diffuser, upper part: Galvanised sheet steel

Diffuser, lower part: Aluminium

Colour

Diffusers are available for fixed airflow or with manual regulation of airflow. The diffusers are painted a standard neutral light-grey enamel (code RAL 9002). Other colours are available on request.

Airflow

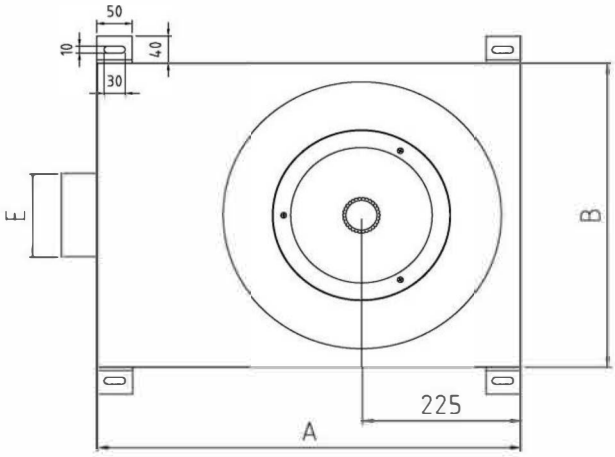
The cabin unit is available in 2 sizes: type KVB-20 for 260 m3/h, and type KVB-30 for 360m3/h.

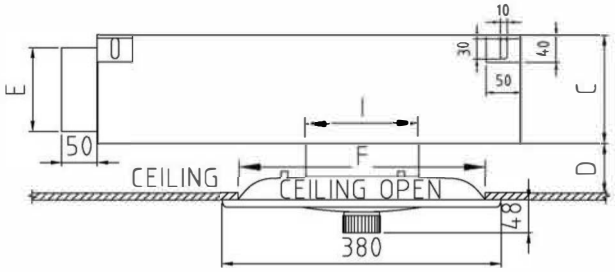
Specifications

Cabin units with fixed airflow are used for spaces with no requirements for individual room temperature control, such as alleyways and storerooms.

For cabin units with manual regulation of airflow, a variation of the temperature in a cabin is achieved by changing the air quantities supplied.

Attenuator Box Drawing





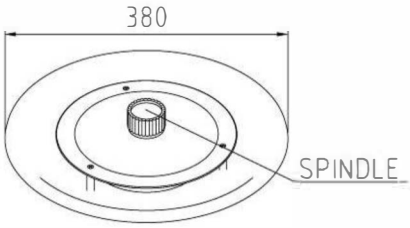
Attenuator Box Dimensions

Model	A(mm)	B(mm)	C(mm)	E(mm)	I(mm)
KVB-20	450	450	150	Φ98	Φ175
KVB-30	600	450	160	Φ123	Φ200

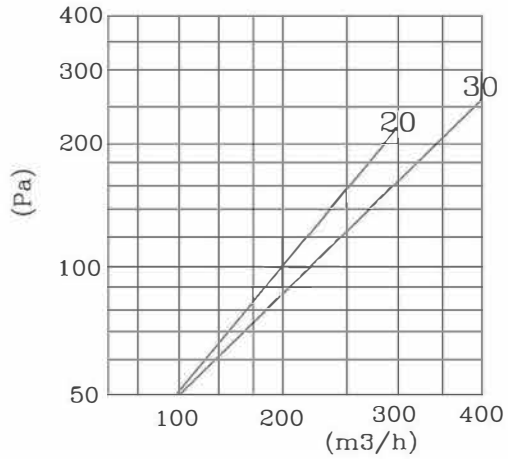
Installation Dimensions

Model	F(mm)	D(mm)	Weight
KVB-20	Φ320	70~115	~12kg
KVB-30	Φ320	70~115	~14kg

Pan Diffuser with Airflow Regulating Device



Pressure Drop

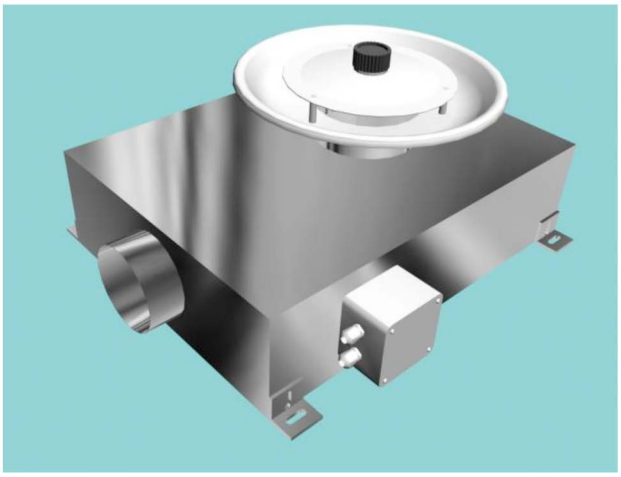


Sound Attenuation

Sound levels, cabin sound absorption ~4 dB (A)

KVB-20 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.2	7.2	17.2	26.7	36.4	40.7	38.5	34.3
KVB-30 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	6.4	11.3	15.9	25.8	34.8	37.9	35.3	34.7
DL: Sound attenuation not including end reflection								

Reheat Cabin Unit Type KVBE



Cabin unit type KVBE for high-pressure reheat system supplies fully conditioned air that creates comfortable conditions in all spaces served.

The cabin unit consists of:

• Attenuator box

• Air spigot for connection to the air duct system, which supplies conditioned air from the air handling unit.

• Sound trap made of inorganic material, reducing the noise from the duct system and throttling valve to the requested sound level.

• Air capacity regulating device for adjustment of the maximum airflow required.

Complementary equipment

• Outlet pan diffuser, suspended from any kind of ceiling panel; air is projected at an angle and velocity that eliminate any risk of draughts or smudging of the ceiling

• Angles or irons for suspension of the attenuator box

Materials

Attenuator box: Galvanised sheet steel (0.6mm) or optionally, SUS

Diffuser, upper part: Galvanised sheet steel

Diffuser, lower part: Aluminium

Electrical Heater Coil: SUS

Junction Box: PVC, IP4

Colour

Diffusers are available for fixed airflow or with manual regulation of airflow. The diffusers are painted a standard neutral light-grey enamel (code RAL 9002). Other colours are available on request.

Airflow

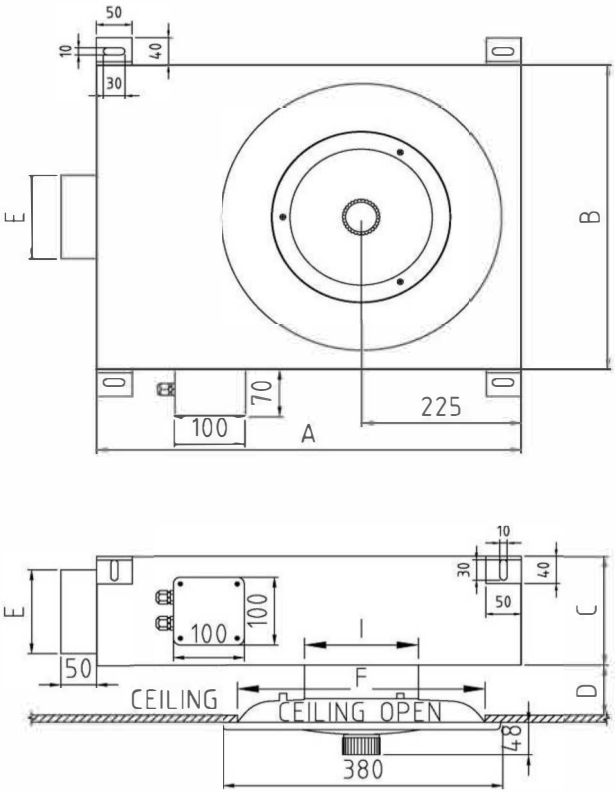
The cabin unit is available in 2 sizes: type KVBE-20 for 260 m3/h, and type KVBE-30 for 360m3/h.

Specifications

Cabin units with fixed airflow are used for spaces with no requirements for individual room temperature control, such as alleyways and storerooms.

For cabin units with manual regulation of airflow, a variation of the temperature in a cabin is achieved by changing the air quantities supplied.

Attenuator Box Drawing



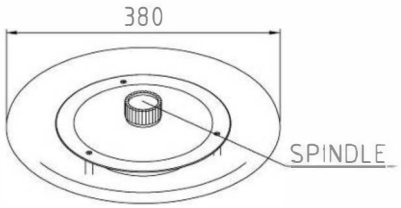
Attenuator Box Dimensions

Model	A(mm)	B(mm)	C(mm)	E (mm)	I (mm)
KVB-20	600	450	150	Φ98	Φ175
KVB-30	600	450	160	Φ123	Φ200

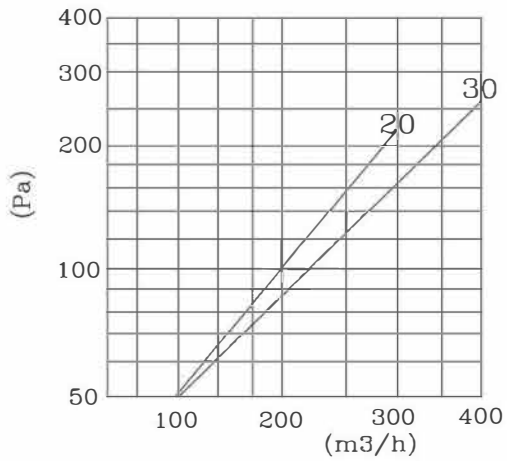
Installation Dimensions

Model	F(mm)	D(mm)	Weight
KVB-20	Φ320	70~115	~12kg
KVB-30	Φ320	70~115	~14kg

Pan Diffuser with Airflow Regulating Device



Pressure Drop



Sound Attenuation

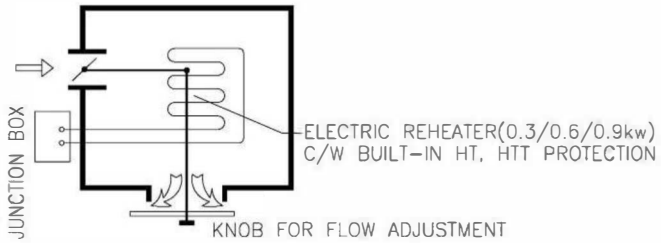
Sound levels, cabin sound absorption ~4 dB (A)

KVBE-20 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.2	7.2	17.2	26.7	36.4	40.7	38.5	34.3
KVBE-30 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	6.4	11.3	15.9	25.8	34.8	37.9	35.3	34.7
DL: Sound attenuation not including end reflection								

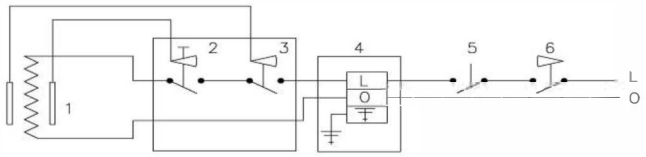
Heating Capacity

Model	Voltage	Capacity
KVTE-20	210~230v/1Φ/50~60Hz	300w/600w
KVTE-30	210~230v/1Φ/50~60Hz	300w/600w/900w

Schematic Diagram



Wiring Diagram



Reheater Specifications

1. Electric reheater element (220v-50/60Hz)
2. Manual reset (HTT) thermostat, 170°C
3. Auto reset (HT) thermostat, 120°C, diff ~20°C
4. Junction box with connection terminals

* Interlocking with airflow (fan) not included

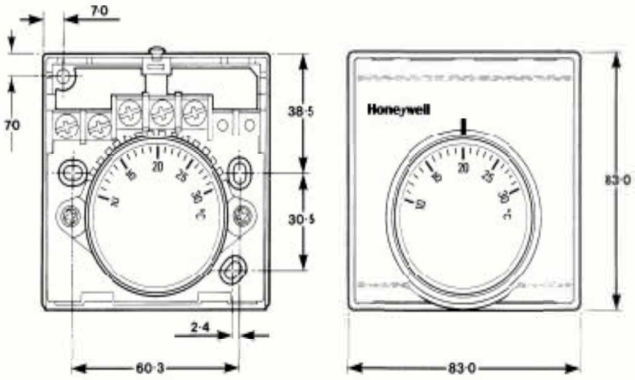
* Room thermostat not included

Room Thermostat

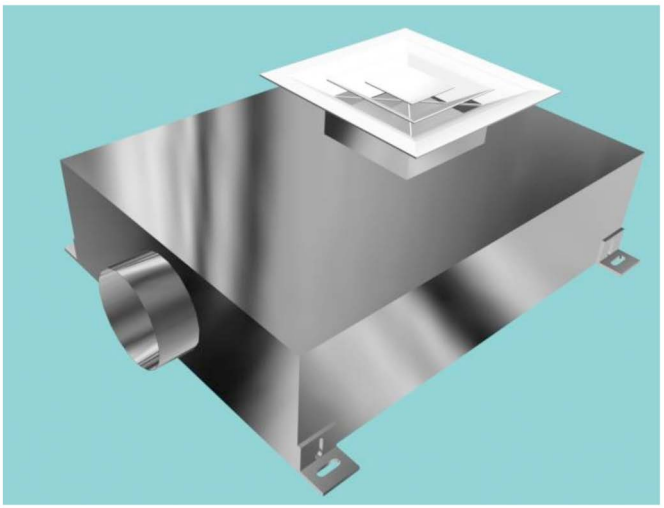
Room thermostat type T4360B is mounted separately on the bulkhead for regulation of the electrical heating element. The operational temperature is between 0°C and 40°C, and the supply voltage is 230 V at 50 Hz or 60 Hz.

Room Thermostat Type T4360B

Room Thermostat Dimensions



Single-Pipe Cabin Unit Type KVF



Cabin unit type KVF for high-pressure single-pipe system supplies fully conditioned air that creates comfortable conditions in all spaces served.

The cabin unit consists of:

- Attenuator box
- Air spigot for connection to the air duct system, which supplies conditioned air from the air handling unit.
- Sound trap made of inorganic material, reducing the noise from the duct system and throttling valve to the requested sound level.
- Air capacity regulating device for adjustment of the maximum airflow required.

Complementary equipment

- Outlet 4-way diffuser, suspended from any kind of ceiling panel; the air is projected at an angle and velocity that eliminate any risk of draughts and smudging of the ceiling
- Angles or irons for suspension of the attenuator box

Materials

Attenuator box: Galvanised sheet steel (0.6mm) or optionally, SUS

Diffuser, upper part: Galvanised sheet steel

Diffuser, lower part: Aluminium

Colour

Diffusers are available for fixed airflow or with manual regulation of airflow. The diffusers are painted a standard neutral light-grey enamel (code RAL 9002). Other colours are available on request.

Airflow

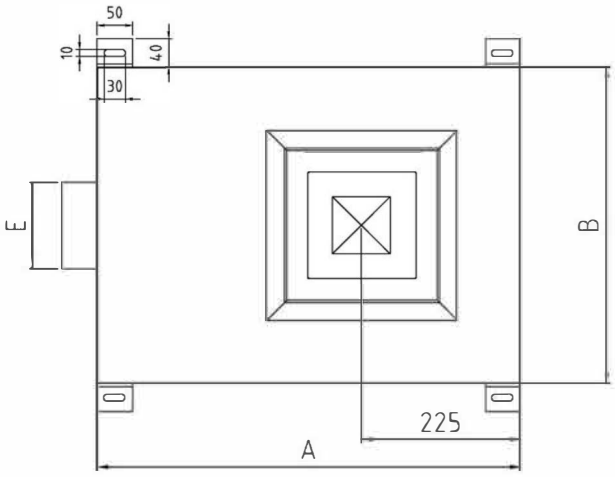
The cabin unit is available in 3 sizes: type KVF-20 for 260 m3/h, type KVF-30 for 360m3/h, and type KVF-40 for 460m3/h.

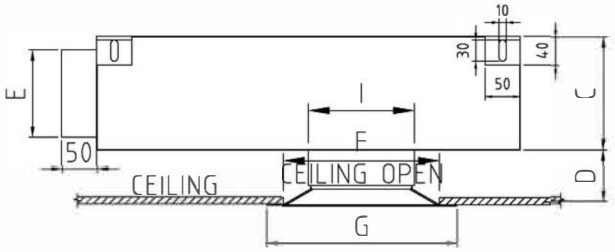
Specifications

Cabin units with fixed airflow are used for spaces with no requirements for individual room temperature control, such as alleyways and storerooms.

For cabin units with manual regulation of airflow, a variation of the temperature in a cabin is achieved by changing the air quantities supplied.

Attenuator Box Drawing





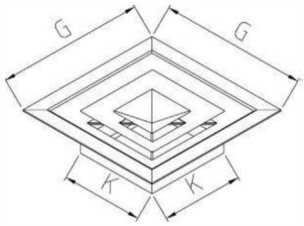
Attenuator Box Dimensions

Model	A(mm)	B(mm)	C(mm)	E (mm)	I (mm)
KVF-20	500	450	150	Φ98	200X200
KVF-30	600	450	160	Φ123	225X225
KVF-40	600	500	200	Φ148	250X250

Installation Dimensions

Model	F(mm)	D(mm)	Weight
KVF-20	270X270	80~115	~12kg
KVF-30	295X295	80~115	~14kg
KVF-40	320X320	100~135	~16kg

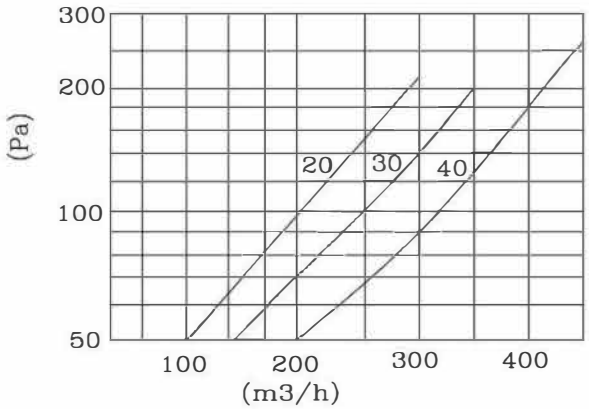
4-way Diffuser with Airflow Regulating Device



4-way Diffuser Dimensions

Model	G(mm)	K(mm)
KVF-20	320X320	268X268
KVF-30	345X345	293X293
KVF-40	365X365	318X318

Pressure Drop

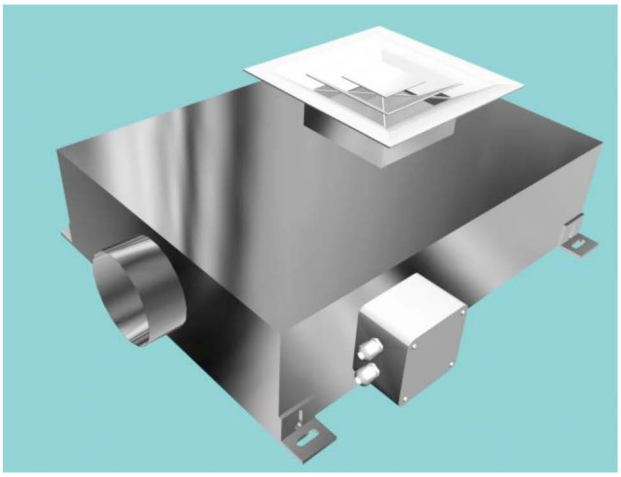


Sound Attenuation

Sound levels, cabin sound absorption ~4 dB (A)

KVF-20 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.2	7.2	17.2	26.7	36.4	40.7	38.5	34.3
KVF-30 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	6.4	11.3	15.9	25.8	34.8	37.9	35.3	34.7
KVF-40 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.9	8.1	17.9	27.1	36.8	41.2	39.5	36.1
DL: Sound attenuation not including end reflection								

Reheat Cabin Unit Type KVFE



Cabin unit type KVFE for high-pressure reheat system supplies fully conditioned air that creates comfortable conditions in all spaces served.

The cabin unit consists of:

- Attenuator box
- Air spigot for connection to the air duct system, which supplies conditioned air from the air handling unit
- Sound trap made of inorganic material, reducing the noise from the duct system and throttling valve to the requested sound level
- Air capacity regulating device for adjustment of the maximum airflow required

Complementary equipment

- Outlet 4-way diffuser, suspended from any kind of ceiling panel; the air is projected at an angle and velocity that eliminate any risk of draughts and smudging of the ceiling
- Angles or irons for suspension of the attenuator box

Materials

Attenuator box: Galvanised sheet steel (0.6mm) or optionally, SUS

Diffuser, upper part: Galvanised sheet steel

Diffuser, lower part: Aluminium

Electrical Heater Coil: SUS

Junction Box: PVC, IP44

Colour

Diffusers are available for fixed airflow or with manual regulation of airflow. The diffusers are painted a standard neutral light-grey enamel (code RAL 9002). Other colours are available on request.

Airflow

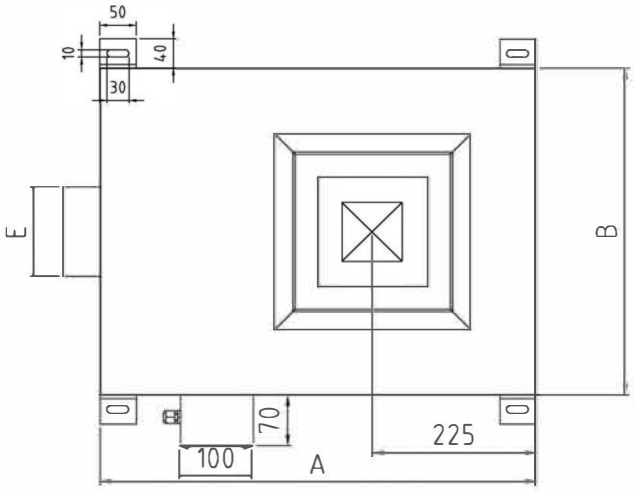
The cabin unit is available in 3 sizes: type KVFE-20 for 260 m3/h, typeKVFE-30for360m3/h, and KVFE-40 for 460m3/h.

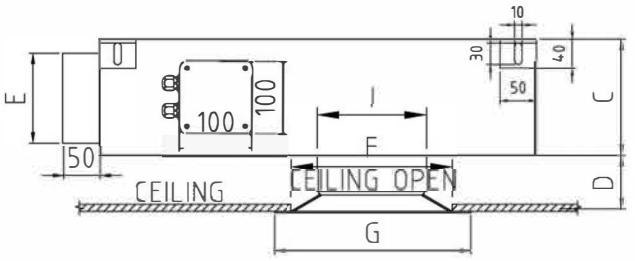
Specifications

Cabin units with fixed airflow are used for spaces with no requirements for individual room temperature control, such as alleyways and storerooms.

For cabin units with manual regulation of airflow, a variation of the temperature in a cabin is achieved by changing the air quantities supplied.

Attenuator Box Drawing





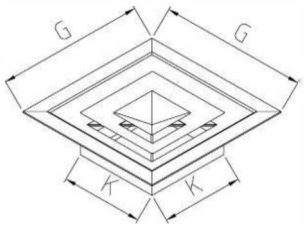
Attenuator Box Dimensions

Model	A(mm)	B(mm)	C(mm)	E(mm)	I (mm)
KVFE-20	500	450	150	Φ98	200X200
KVFE-30	600	450	160	Φ123	225X225
KVFE-40	600	500	200	Φ148	250X250

Installation Dimensions

Model	F(mm)	D(mm)	Weight
KVFE-20	270X270	80~115	~12kg
KVFE-30	295X295	80~115	~14kg
KVFE-40	320X320	100~135	~16kg

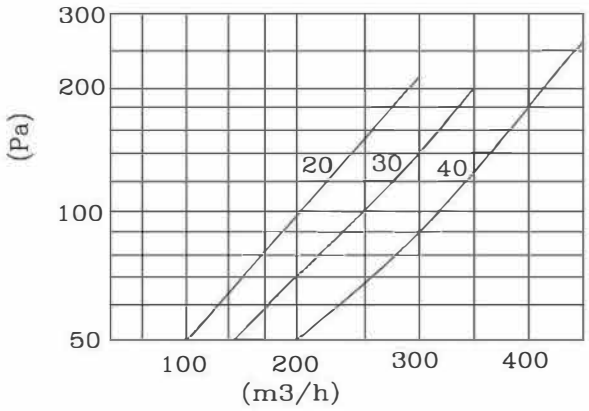
4-way Diffuser with Airflow Regulating Device



4-way Diffuser Dimensions

Model	G(mm)	K(mm)
KVFE-20	320X320	268X268
KVFE-30	345X345	293X293
KVFE-40	365X365	318X318

Pressure Drop



Sound Attenuation

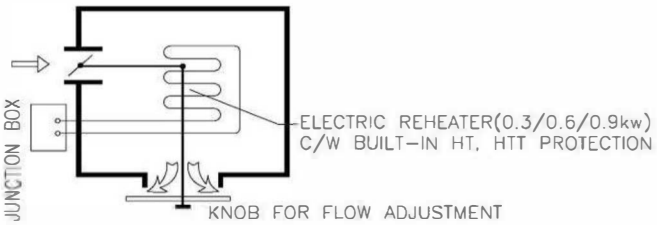
Sound levels, cabin sound absorption ~4 dB (A)

KVFE-20 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.2	7.2	17.2	26.7	36.4	40.7	38.5	34.3
KVFE-30 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	6.4	11.3	15.9	25.8	34.8	37.9	35.3	34.7
KVFE-40 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.9	8.1	17.9	27.1	36.8	41.2	39.5	36.1
DL: Sound attenuation not including end reflection								

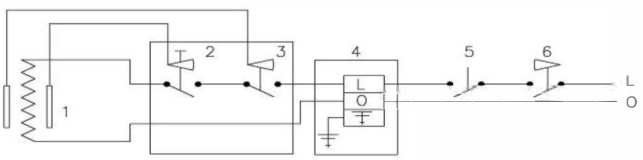
Heating Capacity

Model	Voltage	Capacity
KVFE-20	210~230v/1Φ/50~60	300w/600w
KVFE-30	210~230v/1Φ/50~60	300w/600w/900w
KVFE-30	210~230v/1Φ/50~60 Hz	300w/600w/900w / 1200W

Schematic Diagram



Wiring Diagram



Reheater Specifications

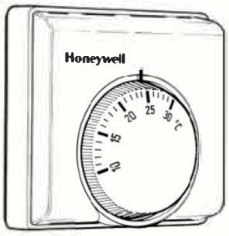
1. Electric reheater element (220v-50/60Hz)
2. Manual reset (HTT) thermostat, 170°C
3. Auto reset (HT) thermostat, 120°C, diff ~20°C
4. Junction box with connection terminals.

* Interlocking with air flow (fan) not included

* Room thermostat not included

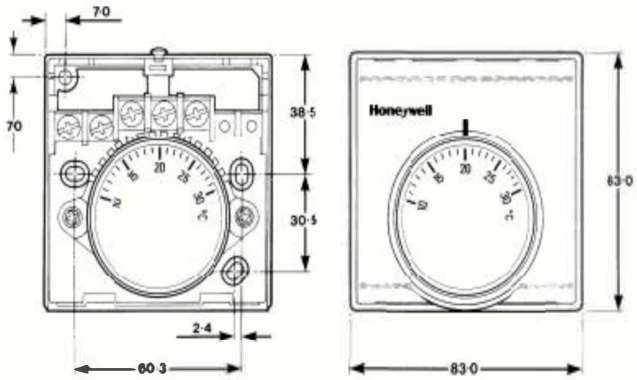
Room Thermostat

Room thermostat type T4360B is mounted separately on the bulkhead for regulation of the electrical heating element. The operational temperature is between 0°C and 40°C, and the supply voltage is 230 V at 50 Hz or 60 Hz.

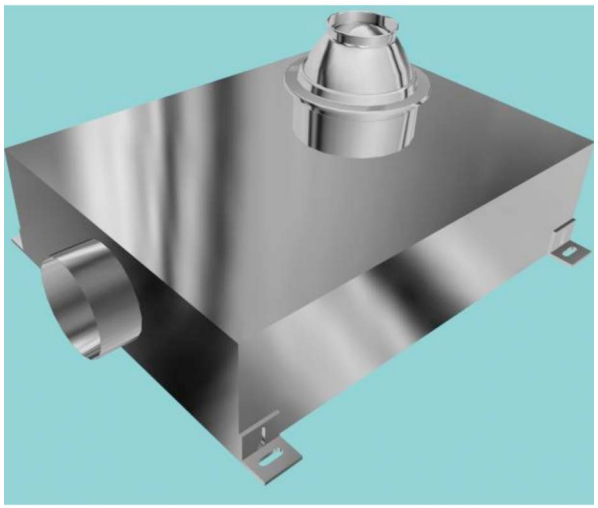


Room Thermostat Type T4360B

Room Thermostat Dimensions



Single-Pipe Cabin Unit Type PVB



Cabin unit type PVB for high-pressure single-pipe system supplies fully conditioned air that creates comfortable conditions in all spaces served.

The cabin unit consists of:

• Attenuator box

• Air spigot for connection to the air duct system, which supplies conditioned air from the air handling unit

• Sound trap made of inorganic material, reducing the noise from the duct system and throttling valve to the requested sound level

• Air capacity regulating device for adjustment of the maximum airflow required

Complementary equipment

• Outlet punkah louvre diffuser, suspended from any kind of ceiling panel; the air is projected at an angle and velocity that eliminate any risk of draughts and smudging of the ceiling

• Angles or irons for suspension of the attenuator box

Materials

Attenuator box: Galvanised sheet (0.6mm) or optionally, SUS

Diffuser, upper part: SUS sheet steel/Aluminium

Diffuser, lower part: SUS sheet steel/Aluminium

Airflow

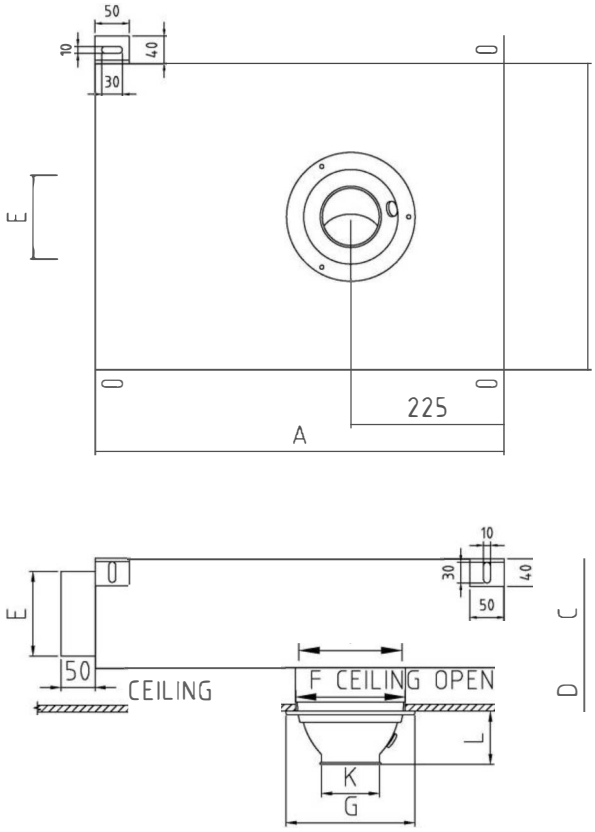
The cabin unit is available in 2 sizes: type PVB-20 for 260 m3/h, and type PVB-30 for 360m3/h.

Specifications

Cabin units with fixed airflow are used for spaces with no requirements for individual spot air area temperature control, such as galleys, dry provisions or laundry rooms.

For cabin units with manual regulation of airflow, a variation of the temperature in a spot air area is achieved by changing the air quantities supplied.

Attenuator Box Drawing



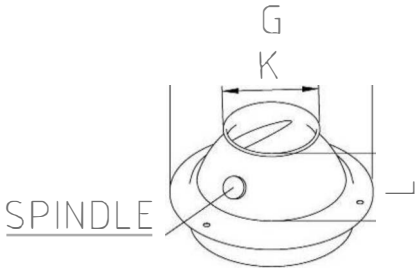
Attenuator Box Dimensions

Model	A(mm)	B(mm)	C(mm)	E (mm)	I (mm)
PVB-20	450	450	150	Φ98	Φ162
PVB-30	550	450	160	Φ123	Φ192

Installation Dimensions

Model	F(mm)	D(mm)	Weight
KVB-20	Φ164	38~88	~12kg
KVB-30	Φ194	38~88	~14kg

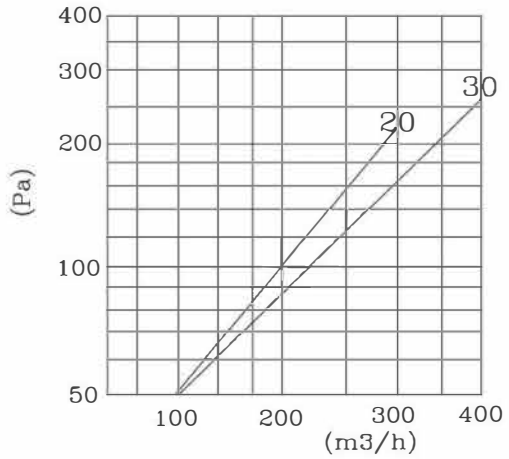
Punkah Louvre with Airflow Regulating Device



Punkah Louvre Dimensions

Model	G(mm)	K(mm)	L(mm)
PVB-20	Φ190	Φ75	94
PVB-30	Φ231	Φ90	111

Pressure Drop



Sound Attenuation

Sound levels, cabin sound absorption ~4 dB (A)

PVB-20 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	7.2	7.2	17.2	26.7	36.4	40.7	38.5	34.3
PVB-30 Sound attenuation (dB)								
f(Hz)	63	125	250	500	1000	2000	4000	8000
DL(dB)	6.4	11.3	15.9	25.8	34.8	37.9	35.3	34.7
DL: Sound attenuation not including end reflection								

Supply Air Diffuser
KYODO Series C-2 Round Ceiling Diffuser

Features

- Designed for both heating and cooling applications
- Fashionable appearance; suits modern architectural designs
- Very low noise; suitable for use in noise-sensitive areas such as performance theatres, studios or concert halls
- All sizes have 3 cones; gives a uniform appearance where different sizes are used in the same area
- Gives even air distribution due to its round streamline cones.
- Uniform, 360° discharge pattern
- Gravity lock arrangement permits fast and easy removal of inner cores
- Gang-operated radial blades volume damper (SED II), used for easy adjustment from diffuser face
- Made of aluminium

Finish

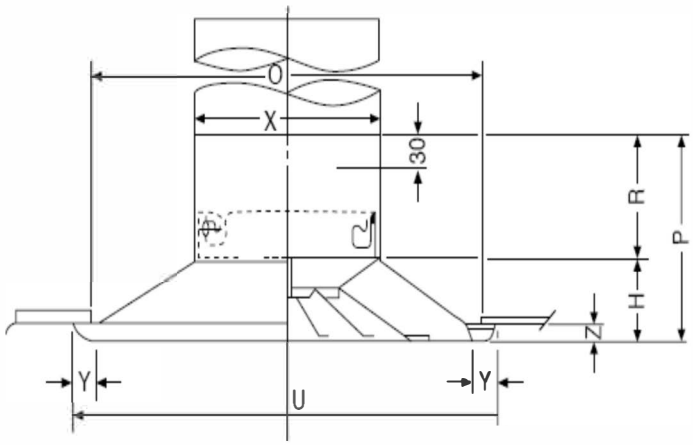
Standard finishes in natural anodised and baked enamel paints.

Accessories

Air Volume Control Damper:

- Radial Type (SED II) for neck sizes Ø150 to Ø350
- Butterfly Type (B II) for neck sizes Ø400 to Ø450

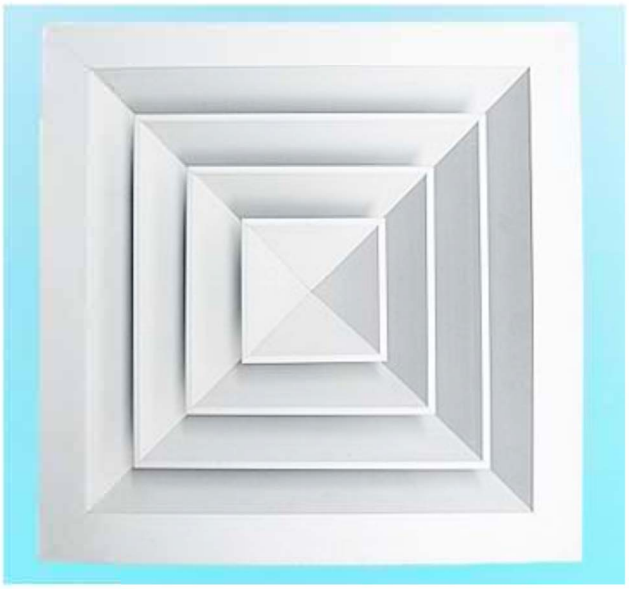
C-2 Round Ceiling Diffuser Drawing



C-2 Round Ceiling Diffuser Dimensions

No.	U	O	X	H	R	P	Y	Z
15	345	317	152	50	100	150	20	10
20	453	422	202	61	100	165	25	15
25	569	528	256	83	100	180	25	19
30	695	642	302	85	100	185	30	20
35	781	734	351	109	100	202	35	22
37.5	855	810	377	118	100	218	35	22
40	905	845	404	118	100	218	40	22
45	1029	965	454	122	100	222	40	25

Supply Air Diffuser
KYODO Series T-4A Ceiling Diffuser



Features

• Able to handle an unusually large amount of air for a given pressure drop and noise level

• Maintains an unbroken horizontal flow pattern from maximum CMH down to minimum

• Specially designed to supply airflow for all room shapes; also used to return air (to suit architectural design)

• Square or rectangle-shaped with various flow patterns ranging from 1 to 4 ways

• Simple and pleasant appearance

• Opposed-blade volume control damper incorporated in ceiling diffuser for square or rectangular duct; SED II is used in conjunction with round adaptor for round duct

• Can be easily adjusted from the room

• Removable centre core for easy maintenance

• Made of extruded aluminium

Finish

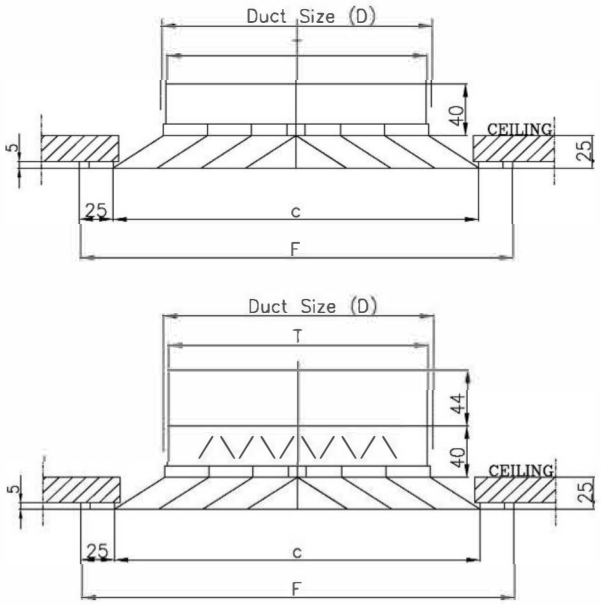
Standard finishes in natural anodised and baked enamel paints.

Accessories

Air Volume Control Damper:

• Opposed-blade volume control damper for square or rectangular neck

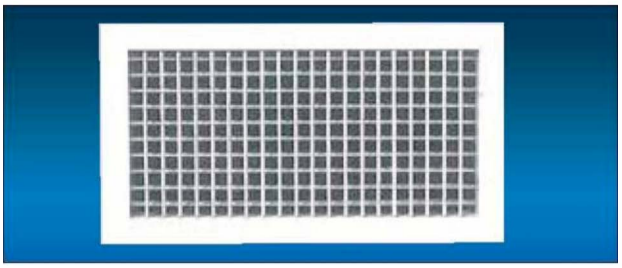
T-4A Ceiling Diffuser Drawings



T-4A Ceiling Diffuser Dimensions

NECK SIZE		FACE SIZE F(mm)	CEILING OPENING C (mm)	AIR FLOW m3/h
DUCT SIZE D (mm)	ACTUAL T (mm)			
175X175	167X167	295x295	245x245	200
200X200	192X192	320x320	270x270	250
225X225	217X217	345X345	295X295	350
300X300	392X392	420X420	445X445	750
400X400	492X492	520X520	545X545	1200

Supply Air Grille
KYODO Series Double Deflection Type (VH/VHS)



VH Type

VHS Type

Features

- Consists of two sets of horizontal land for given vertical stream line blades
- Blades are first arranged vertically, then horizontally (VH Type), providing maximum flexibility of adjustment for throw or spread
- Aerofoil blades fixed at 19mm spacing; both ends mounted in friction pivots, which allow adjustment of individual blades without loosening or rattling
- Corner inserts ensure hairline butting of frames
- Optional opposed-blade damper is adjustable through the face of the grille
- Made of extruded aluminium

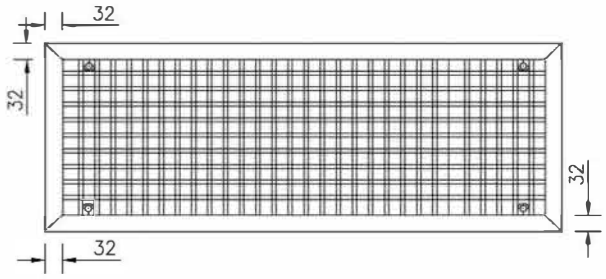
Finish

Standard finishes in natural anodised and baked enamel paints. Other colours available on request.

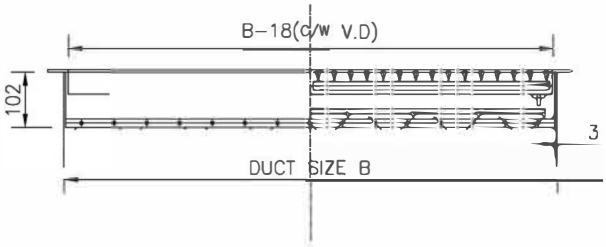
Accessories

- Opposed-blade volume control damper .....S
- Setting frame.....T
- Insect screen.....M
- Filter.....F

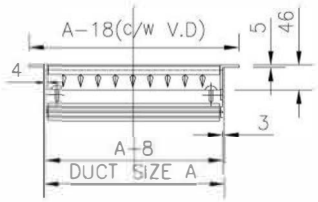
VH/VHS Drawings



Plan View

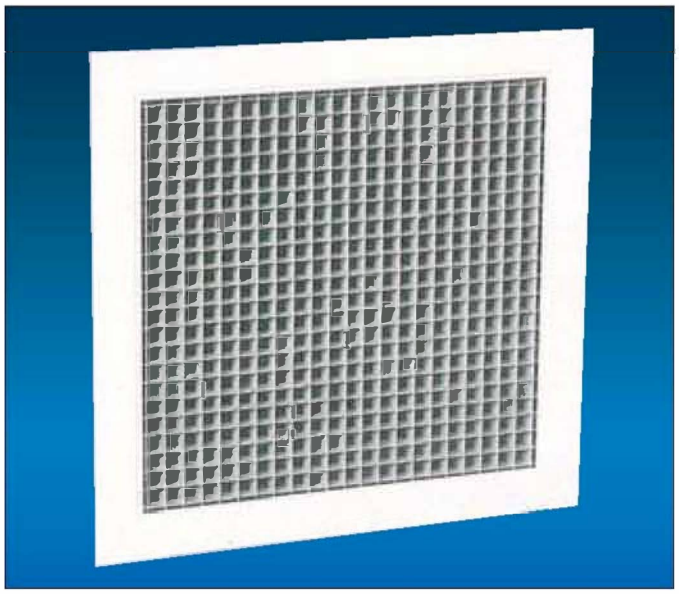


Front View



Side View

Return/Exhaust Air Grille
KYODO Series Aluminium Egg-Crate (AEC) Type



Features

- Specially designed to satisfy both aesthetic and functional requirements
- Provides maximum free area for minimum pressure drop, while still limiting see-through
- Core is 12.5x12.5x12.5(mm)
- Made of aluminium

Finish

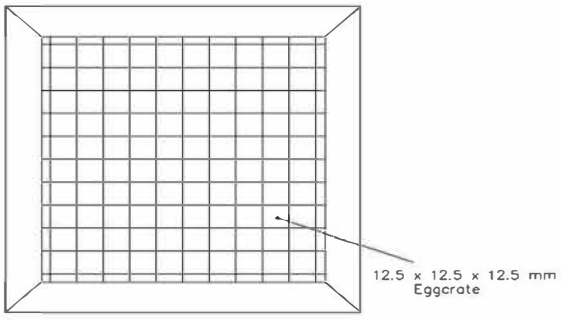
Standard finishes in natural anodised and baked enamel paints. Other colours available on request.

Accessories

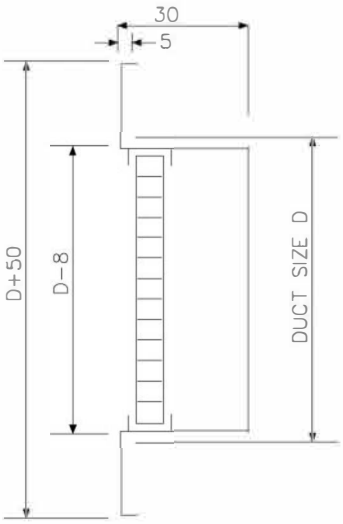
Air Volume Control Damper:

- Opposed-blade volume control damper for square or rectangular neck

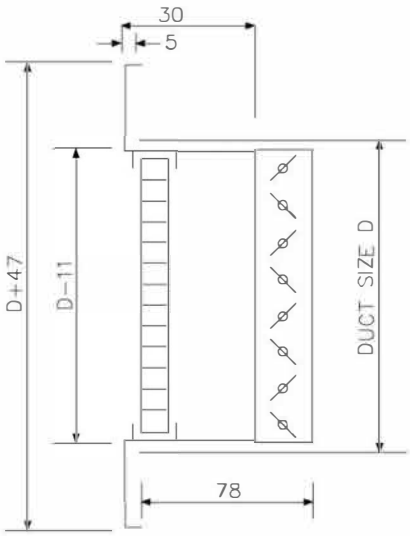
AEC/AECS Drawings



AEC – Without Volume Control Damper



AECS – With Volume Control Damper



Return/Exhaust Air Grille
KYODO Series Fixed Louvre Type (SLG)

Features

- Specially designed for indoor purposes, such as return or exhaust air applications
- Can be mounted on sidewall or ceiling
- Made of extruded aluminium
- SUS available on request

Finish

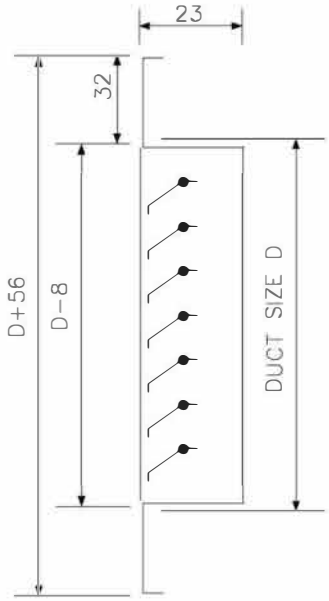
Standard finishes in natural anodised and baked enamel paints. Other colours available on request.

Accessories

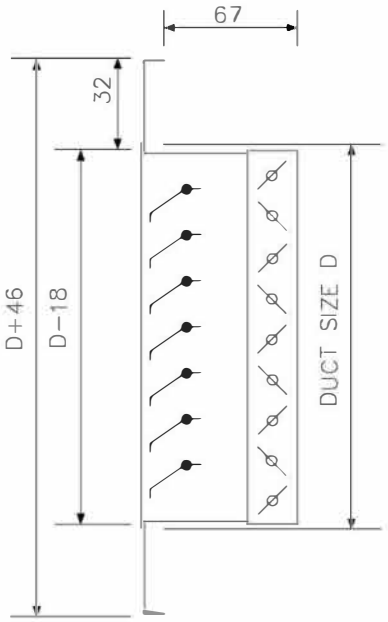
Air Volume Control Damper:

- Opposed-blade volume control damper for square or rectangular neck

SLG – Without Volume Control Damper



SLGS – With Volume Control Damper



Fresh Air/Exhaust Air Louvre
KYODO Series Weatherproof Fixed Louvre Type (RG)

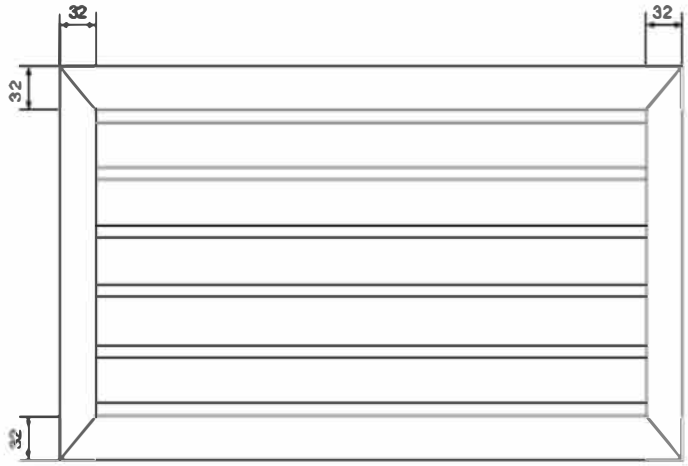
Features

- Specially designed for outdoor purposes
- Can be mounted on sidewall or ceiling
- Made of extruded aluminium
- SUS available on request

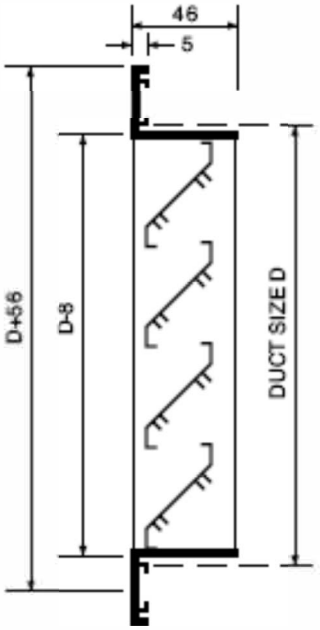
Finish

Standard finishes in natural anodised and baked enamel paints. Other colours available on request.

RG Drawing



Side Section Drawing



Supply Air Punkah Louvre
KYODO Series Spot Louvre/Punkah Louvre (PK)

Features

• It's nozzle type outlet is most suitable for spot cooling, because its direction and volume of air can be adjusted easily to suit one's requirement.

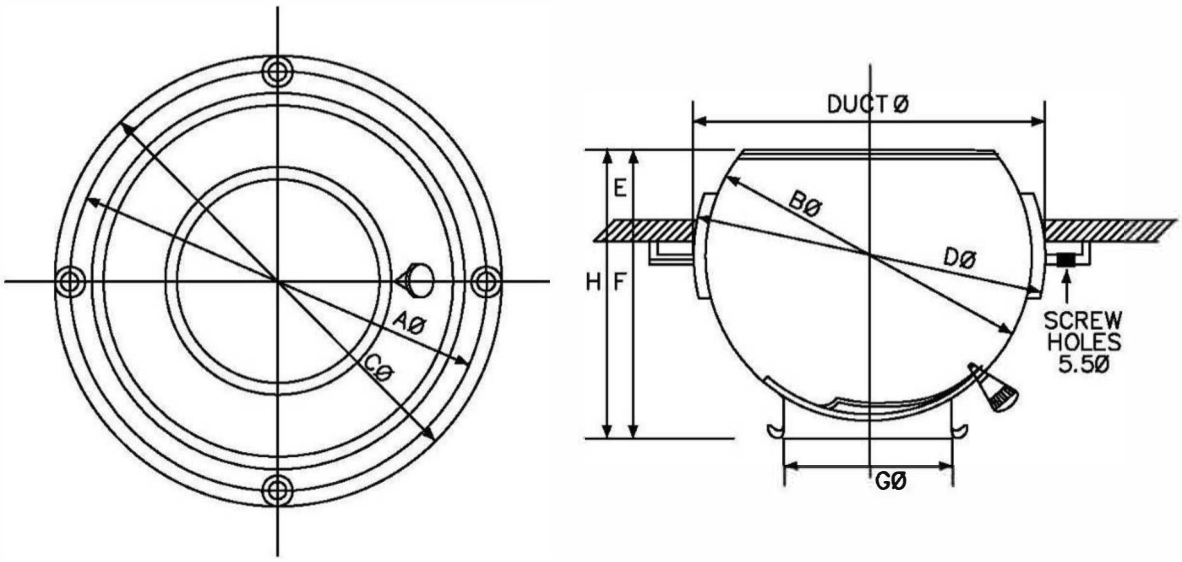
• They are recommended in Galley, Laundry, Electrical workshop, Dry Provision store.

• Constructed of aluminum alloy/SUS.

Finish

Standard Finish in natural anodizes. Other colors are available on request.

Dimensions



SIZE	A	B	C	D	E	F	G	H	Duct Opening	Screw Holes	Weight
No. 3	97	75	115	82	17	53	38	70	85	3	130g
No. 3.5	107	85	125	92	21	58	43	79	95	3	160g
No. 4	122	100	140	107	24	65	50	89	110	4	180g
No. 4.5	137	115	155	122	29	73	58	102	125	4	230g
No. 5	152	130	170	137	33	82	65	115	140	5	340g
No. 6	172	150	190	158	38	94	75	132	160	5	370g
No. 7	213	178	231	185	38	111	90	149	190	5	460g
No. 8	232	200	250	204	44	120	100	164	200	5	580g
No. 10	304	267	324	276	50	174	140	224	280	5	950g
No. 12	342	305	363	314	63	200	165	263	318	5	1180g

Exhaust Air Nozzle
Exhaust Nozzle (ENX)

Introduction

Exhaust nozzles are generally used in connection with a high-pressure/medium-pressure exhaust system for extraction of air from toilets, bathrooms and other small rooms. Furthermore, the nozzles can be used in connection with a high-pressure/medium-pressure return air system for smaller air volumes.

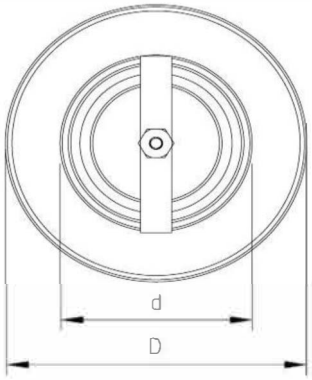
Features

- Used for exhaust air; has a low sound effect level even at relative high-pressure loss
- Made of mild steel sheet

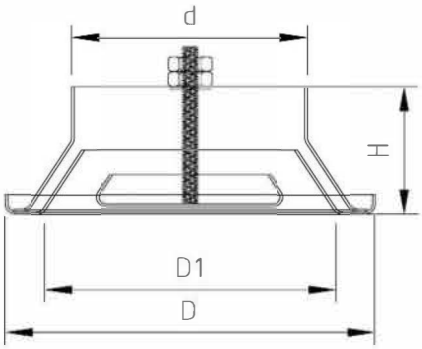
Finish

Standard finishes in natural anodised and baked enamel paints. Other colours available on request.

ENX Drawings



Top View

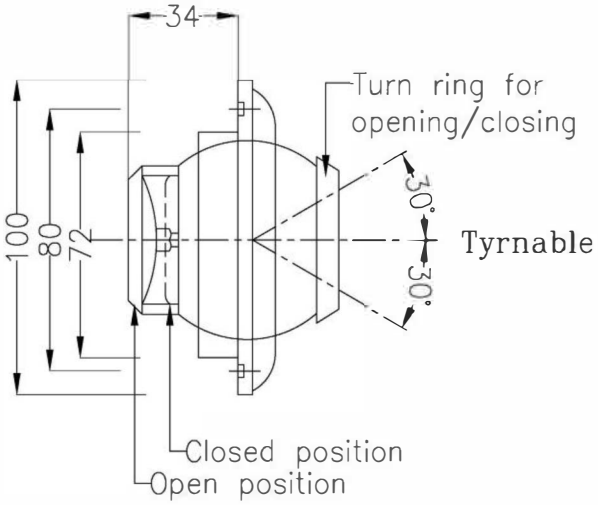


Front View

Dimensions

Model	d	D	D1	H
ENX-100	100mm	160mm	130mm	60mm
ENX-125	125mm	185mm	155mm	60mm
ENX-160	160mm	220mm	190mm	60mm

Supply Air Nozzle
Defroster Air Jet Nozzle (HN-80)



Side View

Introduction

HN nozzles are generally used in connection with a high-pressure windows defroster system for wheelhouses.

Features

• Used for jet air; has a low sound effect level even at relative high-pressure loss

• Made of plastic

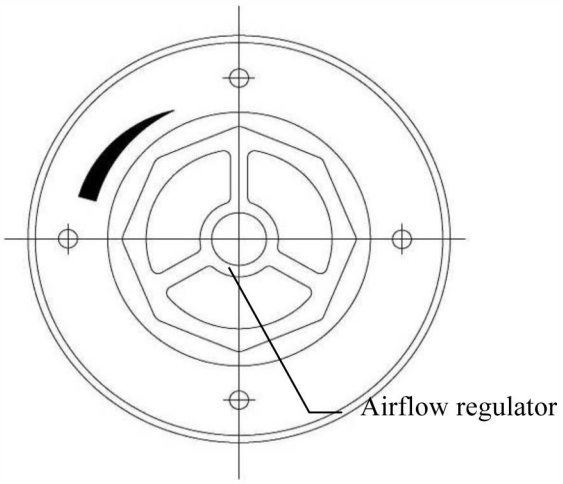
Finish

Standard colours are grey, white and brown.

HN-80 Drawings

Airflow & Pressure Loss Table

Airflow		Pressure Loss	
m3/s	m3/h	Pa	mmWg
0.015	54	30	3



Front View