

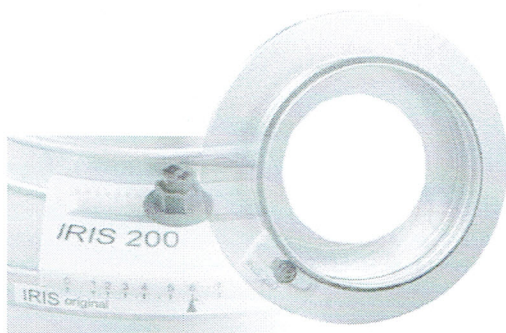
# IRIS DAMPER

## IRIS REGULATION AND MEASURING DEVICE

### TECHNICAL DATA

**IRIS DAMPER** - the ideal airflow regulation and measuring device circular ducts.

- Low noise level
- Operation independent of flow direction
- Fully openable for cleaning of duct tight construction
- Solid construction



### CONSTRUCTION

The **IRIS DAMPER** is composed of regulation plates, regulating nut or handle (size 13mm spanner) and regulation scale plus manometer connections and casing. The casing and regulation plates are made of hot-galvanized steel, other components of plastic. The joining collars are supplied with rubber sealing gasket.

### INSTALLATION

The **IRIS DAMPER** is secured to the ducting with rivets. For vertical mounting, ensure the weight of the interconnecting ductwork is fully supported. Refer to page 9 for recommended safety distances.

### REGULATION AND MEASUREMENT OF AIR FLOW

The regulation plates form a virtually ideal measuring orifice which enables an easy and reliable measurement of the air flow.

To determine the airflow, measure the pressure difference  $\Delta p_m$  at the manometer connections and check the corresponding airflow from the regulation chart.

The chart is shown on the damper casing and in the separate information for air flow regulation and measurement (the selection diagrams do not serve the air flow measurement).

The adjustment of the Iris is simple, all that is needed is a standard 13mm spanner and the damper locks in the right position automatically.



<b>Product:</b>	<b>IRIS</b>
<b>Size:</b>	<b>200</b>
<b>CODE:</b>	<b>DRIS200</b>

<b>Product:</b>	<b>IRIS Stainless steel</b>
<b>Size:</b>	<b>200</b>
<b>CODE:</b>	<b>DRIS-S200</b>

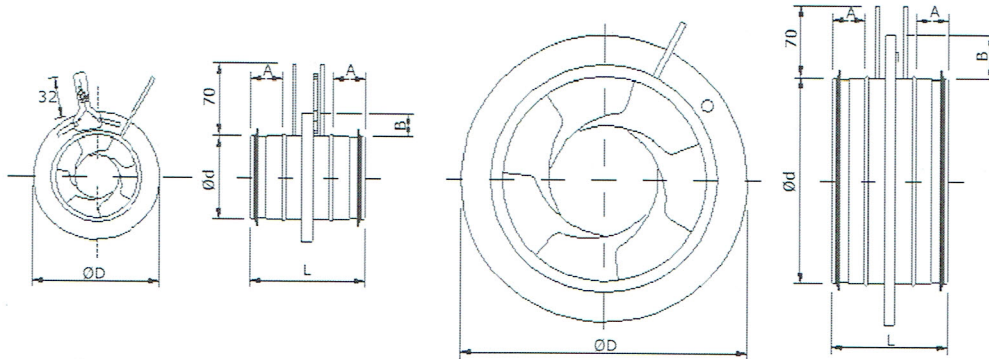
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# IRIS DAMPER

Size Ø80 mm

Size Ø100 mm - Ø800 mm



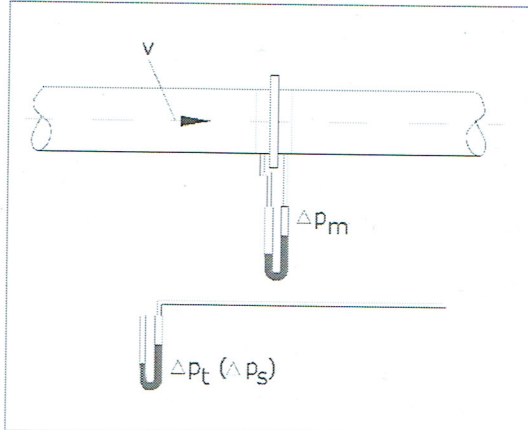
## DIMENSIONS

Size	Ød	ØD	L	A	B	Weight kg
80	79	125	110	30	22	0.5
100	99	165	110	30	32	0.5
125	124	188	110	30	32	0.7
150	149	230	210	27	40	0.9
160	159	230	110	30	35	0.9
200	199	285	110	30	42	1.4
250	249	335	135	40	42	2.1
315	314	410	135	40	47	3.5
400	398	525	190	60	62	6.4

## SPECIAL SIZES

Size	Ød	ØD	L	A	B	Weight kg
180	179	285	210	40	53	1.9
300	299	410	160	37	54	3.5
355	353	525	545	60	85	9.8
500	498	655	170	50	77	9.6
630	628	815	170	50	92	15.6
800	798	1015	270	100	107	25.0

## AIRFLOW MEASUREMENT

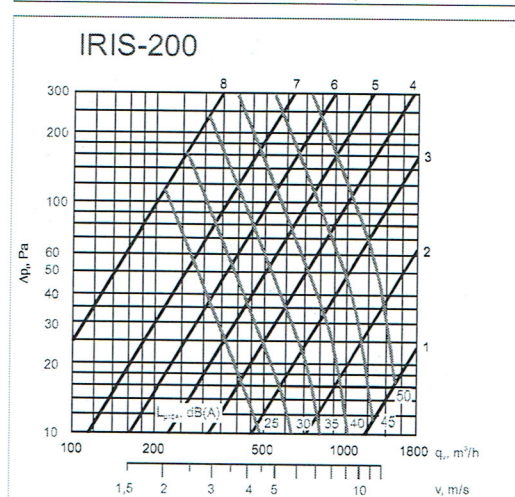
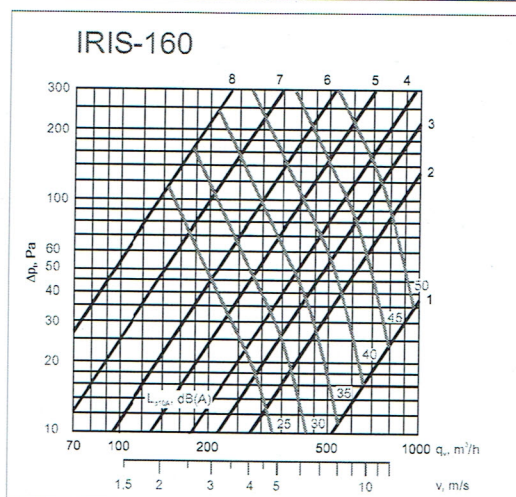
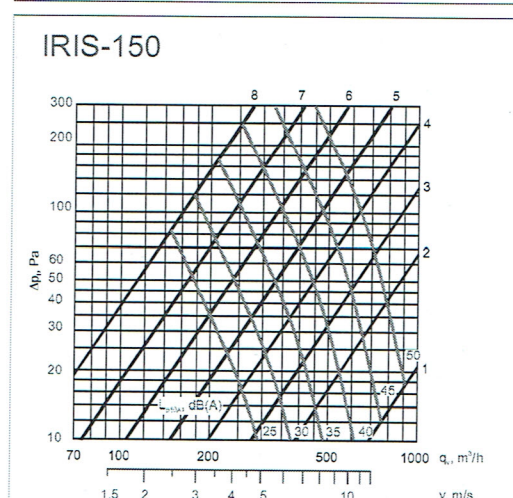
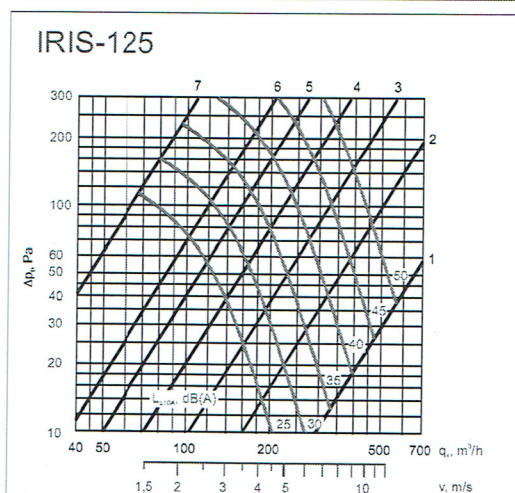
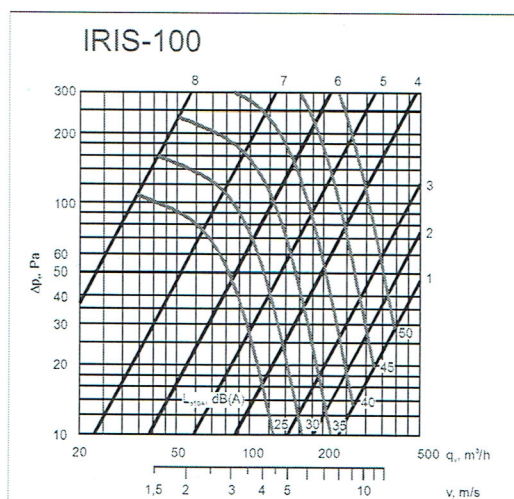
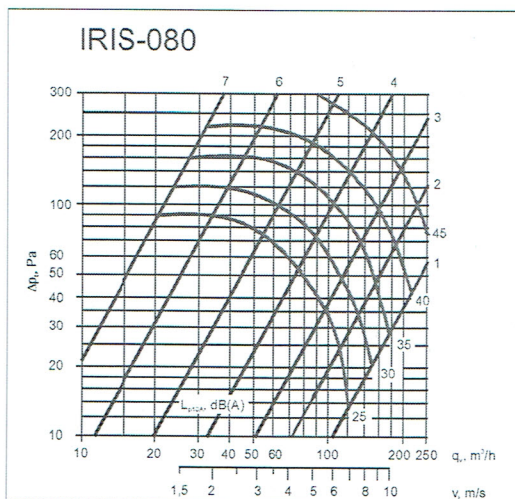


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# IRIS DAMPER



3.9

IRIS

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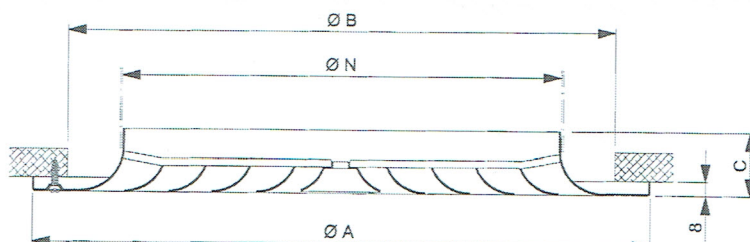
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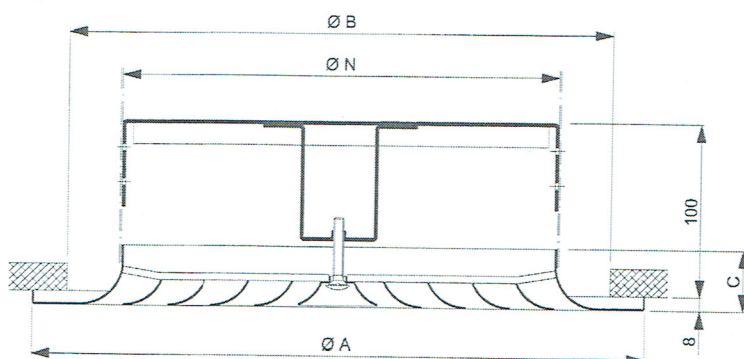
# FIXED CIRCULAR DIFFUSER DR160

## Installation dimensions

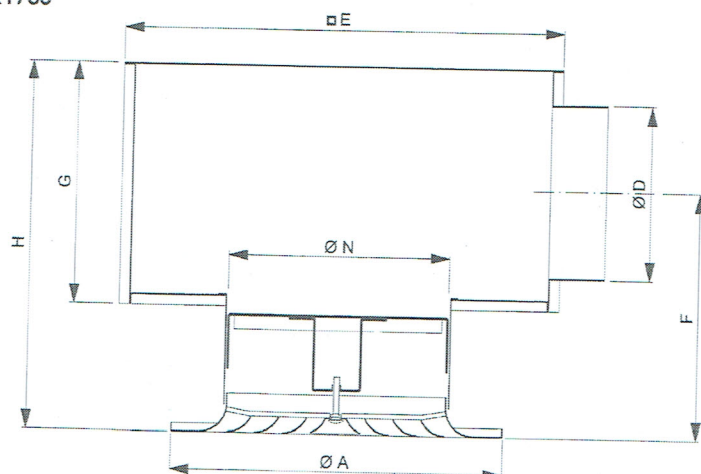
DR160



DR170

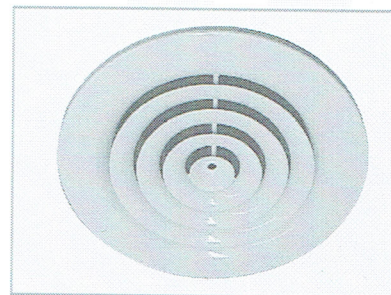


DR170S



Size	Ø A	Ø B	C	Ø D	Ø E	F	G	H	Ø N
160	248	190	36	123	345	216	185	305	158
200	298	230	36	158	395	234	220	340	198
250	363	280	36	198	470	264	270	390	248
315	448	350	36	248	520	289	310	440	313

All dimensions in mm



## Application

The diffuser type DR160 is used for the supply and exhaust of cooled or heated air in facilities such as offices, shopping centres,... The diffuser can be used for ceiling or exposed duct mounting and has a fixed horizontal air pattern.

## Technical information

### Characteristics:

- fixed horizontal air pattern, flat mounted rings
- available with side entry plenum, with or without damper in side entry

### Construction:

- steel; painted white (RAL 9010)
- plenum galvanised steel sheet, optionally insulated



## Specifications description

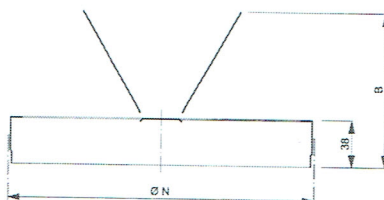
### Example:

Steel circular diffuser with flat mounted rings. Central screw fixing with steel mounting support GR003.

Type: **DR170 + GR003**  
size ... mm

## Accessories

- **GR003:** steel mounting support with central screw fixing; only for DR170
- **DT012:** V-shaped damper steel sheet, painted black (RAL 9005). The damper can be mounted on the diffuser and can be adjusted through the diffuser front (central hole). Only with DR160.



Size	Ø N	B
160	160	106
200	200	126
250	250	151
315	315	183

All dimensions in mm  
N= nominal size = duct size

## Fixing

- **DR160:** 3 screws in the outer ring of the diffuser
- **DR170:** central screw fixing (screws delivered together with diffuser) and steel mounting support GR003.

## Delivery possibilities

- **DR160:** circular diffuser with screw holes in mounting frame
- **DR160S:** DR160 with plenum with side entry
- **DR161S:** DR160 with plenum with damper in side entry
- **DR160SG/DR161SG:** DR160S/DR161S with insulated plenum
- **DR170:** circular diffuser with central screw fixing
- **DR170S:** DR170 with plenum with side entry
- **DR171S:** DR170 with plenum with damper in side entry
- **DR170SG/DR171SG:** DR170S/DR171S with insulated plenum
- **DS170P:** DR170 integrated in false ceiling plate 594 x 594 mm. For further information, see p. 2500

## How to order

DR160 size 250 mm with insulated plenum DP170SG

### a) Diffuser

D	R	1	6	0	S	G	0	2	5	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

size

- : non insulated plenum  
G: insulated plenum
- : without plenum  
S: plenum with side entry
- 0: without damper  
1: damper in inlet spigot
- 6: fixing with screws in outer ring  
7: central screw fixing
- S: square flange (ceiling plate)  
R: round flange with a stand-up edge

### b) Plenum box (when separately)

D	P	1	7	0	S	G	0	2	5	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

- : non insulated plenum  
G: insulated plenum
- 0: without damper in inlet spigot  
1: with damper in inlet spigot

7: plenum for diffuser DR160 and DR170, with mounting support GR003

### c) Damper

D	T	0	1	2	-	-	0	2	5	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---



## ACCESSORI A RICHIESTA - ACCESSORIES ON DEMAND - ZUBEHÖR AUF ANFRAGE

### ACCESSORI MONTATI

- Limitatore alta/bassa tensione e protezione sequenza/mancanza fase e tensione.

### ACCESSORI SCIOLTI

- Termostato elettronico base (necessario per il funzionamento della macchina).
- Termostato elettronico con orologio.
- Termostato elettronico con orologio illuminato.
- Antivibranti in gomma.

### MOUNTED ACCESSORIES

- Over/under voltage + phase failure protection relay.

### LOOSE ACCESSORIES

- Electronic room thermostat standard (necessary for the operation of the units).
- Electronic room thermostat with clock.
- Electronic room thermostat with lighted clock.
- Rubber antivibration mounts.

### EINGEBAUTE ZUBEHÖRTEILE

- Nieder-/Hochspannungsbegrenzer und Phasenfolge- / Phasenausfall-schutz.

### SEPARATE ZUBEHÖRTEILE

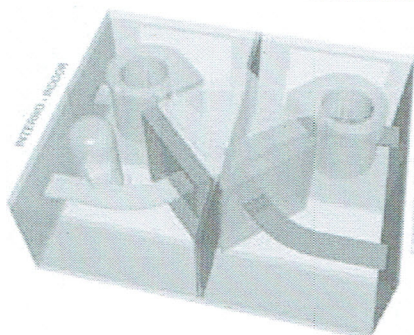
- Elektronisches Basisthermostat (notwendig für den Betrieb des Geräts).
- Elektronisches Thermostat mit Uhr.
- Elektronisches Thermostat mit beleuchteter Uhr.
- Gummischwingungsdämpfer.



### Vantaggi - Advantages - Vorteile

- Adatto per applicazioni in ambienti per fumatori, nel rispetto della legge n° 584 dell'11/11/1975.
- Good for applications in smoking areas, according to the law n° 584.
- Geeignet zur Verwendung in Raucherzimmern gemäß Gesetz Nr. 584 vom 11/11/1975.

- Comfort totale per tutti i locali sovraffollati (bar, ristoranti, pub, sale riunioni) sia in termini di temperatura che di qualità dell'aria. La mandata e la ripresa dell'aria possono avvenire tramite canalizzazione.
- Total comfort for all crowded premises (bars, restaurants, pubs, meeting rooms) both in terms of temperature and quality of air. The air intake and delivery lines can be ducted.
- Hoher Komfort in allen überfüllten Räumen (Bars, Restaurants, Pubs, Versammlungszimmer), sowohl bezüglich der Temperatur als auch der Luftqualität. Luftvor- und -rücklauf erfolgt über einen Führungskanal.



## SCHEMA DI FUNZIONAMENTO - OPERATING SCHEME - BETRIEBSSCHEMA

- Efficienza energetica ottenuta grazie allo scambiatore a flussi incrociati che permette un recupero energetico superiore al 20% in funzionamento estivo e superiore al 30% in funzionamento invernale. La mandata e la ripresa dell'aria possono avvenire tramite canalizzazione.
- Energy efficiency: thanks to air cross flow heat exchanger able to recover more than 20% of the capacity in summer mode and more than 30% in winter mode. Air supply and return can be ducted.
- Energiewirkungsgrad dank des Kreuzstromtauschers, der eine Energierückgewinnung von mehr als 20% im Sommer-betrieb bzw. mehr als 30% im Winterbetrieb ermöglicht. Luftvor- und -rücklauf erfolgt über einen Führungskanal.



# DATI TECNICI GENERALI - GENERAL TECHNICAL DATA - ALLGEMEINE TECHNISCHE DATEN

Mod.	Vers.		15 Z	17 Z	19 Z	110 Z	113 Z	115 Z	117 Z	123 Z
CC	PC	kW	4,8	6,3	8,6	9,8	12,2	14,3	17	22,1
CI	PC	kW	1,1	1,6	2	2,4	2,8	3,4	4,2	5,9
HC	PH	kW	5,8	7,5	10,4	11,6	15	17,1	20,2	26,9
CI	PH	kW	1,1	1,6	2	2,4	2,9	3,5	4,3	6
EAF		m³/h	700	1000	1500	1500	2400	2400	2600	3500
FAF		m³/h	700	1000	1500	1500	2400	2400	2600	3500
SPEA		Pa	50	200	50	50	40	40	100	40
SPFA		Pa	50	200	50	50	40	40	100	40
RCN		N.	1	1	1	1	1	1	1	1
CN		N.	1	1	1	1	1	1	1	1
CT			Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
SPL		dB(A)	59	61	62	59	73	73	57	61
SPWL		dB(A)	85	87	88	85	99	99	83	87
MPI		kW	1,39	2,44	2,84	3,24	4,37	4,97	5,77	7,47
MFLC		A	13,6	19	22,4	24,9	20,2	23,2	26,2	30,2
FLSC		A	38,6	54,6	68,6	83,6	59,2	63,2	80,7	116,2
EPS		V/Ph/Hz	220/1/50				380/3/50			

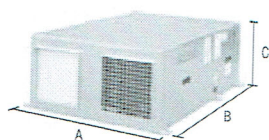
**CC** Potenza frigorifera (temp. aria esterna 35°C b.s. - temp. aria ambiente 27°C b.s. 19,4°C b.u.)  
**CI** Potenza assorbita dai compressori  
**HC** Potenza termica (temp. aria esterna 7°C 90% U.R. - temp. aria ambiente 21°C)  
**EAF** Portata d'aria in espulsione  
**FAF** Portata d'aria di rinnovo  
**SPEA** Prevalenza utile aria espulsione  
**SPFA** Prevalenza utile aria di rinnovo  
**RCN** Numero circuiti refrigeranti  
**CN** Numero compressori  
**CT** Tipo compressori  
**SPL** Livello pressione sonora (calcolato secondo ISO 3744 a 5 m di distanza dall'unità)  
**SPWL** Livello potenza sonora  
**MPI** Potenza assorbita max  
**MFLC** Corrente assorbita max  
**FLSC** Corrente assorbita spunto  
**EPS** Alimentazione elettrica standard

**CC** Cooling capacity (outdoor air temp. 35°C d.b. - ambient air temp. 27°C d.b. 19,4°C w.b.)  
**CI** Compressors power input  
**HC** Heating capacity (outdoor air temp. 7°C 90% R.H. - ambient air temperature 21°C)  
**EAF** Exhaust air flow  
**FAF** Fresh air flow  
**SPEA** Static pressure exhaust air  
**SPFA** Static pressure fresh air  
**RCN** Number of refrigerant circuits  
**CN** Number of compressors  
**CT** Type of compressors  
**SPL** Pressure sound level (calculated according to ISO 3744 at 5 mt distance from the unit)  
**SPWL** Power sound level  
**MPI** Maximum power input  
**MFLC** Maximum full load current  
**FLSC** Full load starting current  
**EPS** Electrical power supply

**CC** Kälteleistung (Außenlufttemp. 35°C - Umgebungslufttemp. 27°C d.b. 19,4°C w.b.)  
**CI** Leistungsaufnahme Verdichter  
**HC** Wärmeleistung (Außenlufttemp. 7°C 90% R.F. - Umgebungslufttemp. 21°C)  
**EAF** Luftdurchsatz, Ablass  
**FAF** Luftdurchsatz, Erneuerung  
**SPEA** Nutzförderhöhe Ablassluft  
**SPFA** Nutzförderhöhe Erneuerungsluft  
**RCN** Anzahl Kältekreisläufe  
**CN** Anzahl Verdichter  
**CT** Verdichtertyp  
**SPL** Schalldruckpegel (berechnet nach ISO 3744 auf 5 m Abstand zur Einheit)  
**SPWL** Schalleistungspegel  
**MPI** Max. Leistungsaufnahme  
**MFLC** Max. Stromaufnahme  
**FLSC** Anlaufstrom  
**EPS** Standard-Stromversorgung

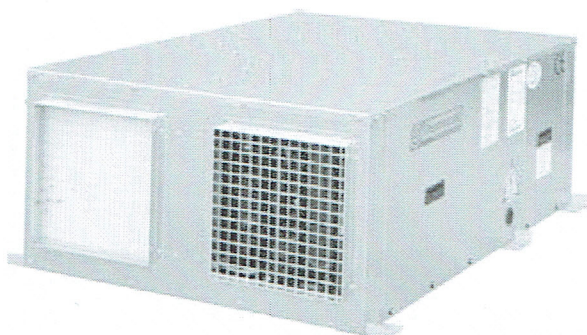
## DIMENSIONI E PESI - DIMENSIONS AND WEIGHTS - ABMESSUNGEN UND GEWICHTE

Mod.	Vers.		15 Z	17 Z	19 Z	110 Z	113 Z	115 Z	117 Z	123 Z
A		mm	1240	1440	1440	1440	1440	1440	1440	1640
B		mm	870	920	920	1240	1240	1240	1240	1390
C		mm	470	540	590	590	590	590	690	690
SW	PC	kg	160	180	200	210	260	265	300	370
SW	PH	kg	174	195	217	228	282	288	326	401



SW Peso di spedizione  
 SW Shipping weight  
 SW Liefergewicht





**IT** Unità monoblocco di trattamento dinamico dell'aria esterna con recuperatore a flussi incrociati con ventilatori centrifughi e compressori scroll.

**UK** Packaged air dynamic handling units with cross-flow heat exchangers with centrifugal fans and hermetic scroll compressors.

**DE** Monoblock-Einheit zur dynamischen Aufbereitung der Außenluft mit Kreuzstrom-Rückgewinner, Radialgebläsen und Scrollverdichtern.

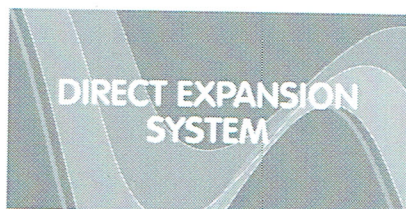
#### Versioni - Versions - Versionen

- PC** **IT** Condizionatori monoblocco solo freddo.  
**UK** Packaged cooling only air conditioners.  
**DE** Monoblock-Klimaanlagen - nur Kältebetrieb.
- PH** **IT** Condizionatori autonomi monoblocco con inversione di ciclo per funzionamento a pompa di calore.  
**UK** Packaged air conditioners with reverse cycle for heat pump operation.  
**DE** Autonome Monoblock-Klimaanlagen mit Zyklus-umkehrung für Betrieb als Wärmepumpe.

#### CARATTERISTICHE COSTRUTTIVE - UNIT DESCRIPTION - BAUEIGENSCHAFTEN

- |   |   |  |
|---|---|--|
| <p><b>IT</b></p> <ul style="list-style-type: none"> <li>• Compressori ermetici a spirali orbitanti scroll.</li> <li>• Ventilatori centrifughi a doppia aspirazione.</li> <li>• Scambiatore di calore a pacco zlettato con tubi in rame ed alette in alluminio.</li> <li>• Recuperatore di calore aria-aria a piastre corrugate in alluminio.</li> <li>• Microprocessore.</li> <li>• Mobile con struttura portante in profilati di alluminio.</li> </ul> | <p><b>UK</b></p> <ul style="list-style-type: none"> <li>• Compressors scroll hermetic type.</li> <li>• Double suction centrifugal fans.</li> <li>• Air side heat exchanger with seamless copper tubes and plate type aluminium fins mechanically bonded to the tubes.</li> <li>• Heat recovery exchanger is an air to air exchanger characterized by the fact that the plates are corrugated.</li> <li>• Microprocessor.</li> <li>• Casing made of painted galvanised steel.</li> </ul> | <p><b>DE</b></p> <ul style="list-style-type: none"> <li>• Hermetische Scroll Verdichter.</li> <li>• Radiallüfter mit Doppelansaugung.</li> <li>• Wärmetauscher mit Rippenstruktur, Rohren aus Kupfer und Rippen aus Aluminium.</li> <li>• Luft-Luft-Wärmerückgewinner mit gewellten Aluminiumplatten.</li> <li>• Mikroprozessor.</li> <li>• Möbel mit Trägerstruktur aus Aluminiumprofilen.</li> </ul> |
|---|---|--|

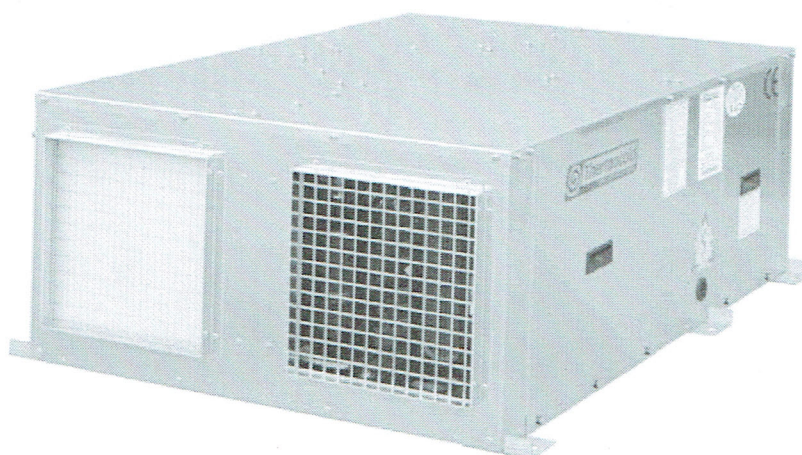
CLIMAMIXER 17 Z PH - R407C



## CLIMAMIXER

*Line Residential & Light Commercial*

Packaged air conditioners heat pump.



The pictures in the catalogues are not binding, accessories represented could be optional. For further information please contact our sales offices.



## CLIMAMIXER 17 Z PH - R407C

### Casing

made of painted galvanised steel. Easily removable panels providing total access to the components inside the machine for service and maintenance purposes.

### Fans

are direct drive propeller type, with blades statically and dynamically balanced.

### The heat recovery exchanger

is an air to air exchanger characterized by the fact that the plates, made of raw or epoxy coated aluminium, are corrugated. Heat transfer is improved by the surface creating turbulence. The increased turbulence occurs without any filth erecting stagnation points and speed changes. This way the whole exchanger is utilized to the maximum and the fresh air will never come into contact with the expulsion air.

### Compressor

of scroll hermetic type. These compressors are featured from high performance with low noise and vibration levels. The high values of COP are obtained:

- By means of high volumetric efficiency in the whole operating range obtained through the continuous contact between the fix and rotating spirals which avoids the bad space and the reexpansion of the refrigerant;
- By means of low pressure losses due to the absence of suction and discharge valves and to the continuous compression;
- By means of the reduction of the heatexchanging between the suction and discharge refrigerant, thank to the complete separation of the refrigerant paths.

The acoustic features are obtained:

- For the absence of the suction and discharge valves;
- For the continuos and progressive compression process;
- For the absence of pistons which ensures the low vibrations level and pulsation of the refrigerant.

### The electric motor

is suction cooled and equipped with automatic reset thermal protection and electric heater to prevent the dilution of the refrigerant in the oil during the periods when the unit is stopped. The terminals are contained into a box IP 54 protected.

### Air side heat exchanger

finned coil of large surface, with seamless copper tubes and plate type aluminium fins mechanically bonded to the tubes.

### Refrigerant circuit

is entirely constructed with copper tubes, each with: expansion valve with external equaliser, drier filter, sight glass, HP and LP switches. In heat pump versions are also fitted: 4-way reverse valve, liquid receiver and liquid accumulator on suction line.

### Electric board

complying with CEI 44-5/IEC 204-2 specifications his housed inside the outdoor unit and includes:

- main switch;
- contactors for each compressor and fans;
- automatic power circuit breakers for compressors;
- safety fuses for fan motors;
- safety fuses for auxilliary circuit;
- terminals for power cable connection.

### Operating principle

The CLIMAMIXER unit, as has already been mentioned, is self-contained; during the summer, the centrifuge extraction fan sucks the stale air from the environment to be conditioned and expels it. However, since this air is, in any case, cooler than the outside air, it is sent to the cross flows exchanger in which it uses this "chilling reserve" to partially chill the exchange air which, all being air coming from the outside, will undoubtedly be warmer. The job of the expulsion air, does not finish here though: indeed, before being expelled into the environment it surrounds the finned condensing coil of the machine's chilling circuit; in this way the disposal of heat is partially privileged compared to a split unit in which the condensation uses external air (in any case warmer) as secondary fluid. This means an improvement of performance in terms of chilling yield and COP.

Let us analyse what happens to the air to be treated: it is taken from the outside by means of another centrifuge fan, it goes through the cross flow exchanger without ever coming into contact with the expulsion air (and thus without being polluted) and comes out at a lower temperature than the entry temperature. It now goes through the evaporation coil and is cooled further, to the temperature of emission into the environment. This simple operating scheme provides the following advantages:

- SAVINGS ON OPERATING COSTS obtained both thanks to recovery of the cross flow exchanger and thanks to the favourable conditions in the chilling cycle of the CLIMAMIXER unit, which allow very high COP to be obtained.
- SIMPLICITY OF INSTALLATION thanks to the self-contained unit, CLIMAMIXER does not require cooling connections between external and internal units nor positioning several units (condensing unit, treatment unit and recovery unit).
- SAVINGS ON PURCHASE COST because CLIMAMIXER integrates the functions of a split heat pump and those of a recovery unit.
- TOTAL COMFORT for all crowded premises (bars, restaurants, pubs, meeting rooms) both in terms of temperature and quality of air.
- FLEXIBILITY TO USE thanks to the possibility of making channels on the intake and on the discharge line.

**CLIMAMIXER 17 Z PH - R407C**

CAPACITY	Cooling Capacity		Total		[kW]	6,30
	Compressors power input				[kW]	1,60
	Heating capacity				[kW]	7,50
	Compressors power input in heat pump mode				[kW]	1,60
ENERGETIC PERFORMANCES	EER	3,94	Total EER			1,24
	COP	4,69	Total COP			1,47
COMPRESSORS	COMPRESSORS					
	Refrigerant circuits					
	Unloading steps					
	Refrigerant charge					
	Oil charge					
SOURCE						
USER						
ELECTRICAL DATA						
ACOUSTIC DATA	Sound level pressure at 20 m (ISO 3744)					
	Sound level pressure at 10 m (ISO 3744)					
	Sound level pressure 5 m (ISO 3744)					
	Sound level pressure 1 m (ISO 3744)					
	Sound power level (ISO 3744)					
DIMENSIONS	Length					
	Width					
	Weight					



**CLIMAMIXER 17 Z PH - R407C**

Technical data and dimensions are not binding. Thermocold Costruzioni S.r.l. reserves the right to make necessary changes without notice.

FLI = Full load power input at the conditions of the selection

FLA = Full load current at the conditions of the selection

SA = Inrush current (sum of LRA of the biggest compressor, current of the other compressors, total current of the fans)

LRA = Locked rotor amperes for the biggest compressor

FLI<sub>max</sub> = Full load power input at the worst conditions for compressors and fans (at the limit of the unit envelope)

FLA<sub>max</sub> = Full load current at the worst conditions for compressors and fans (at the limit of the unit envelope)

SA<sub>max</sub> = Inrush current (sum of LRA of the biggest compressor, current of the other compressors calculated at the worst conditions, total current of the fans).

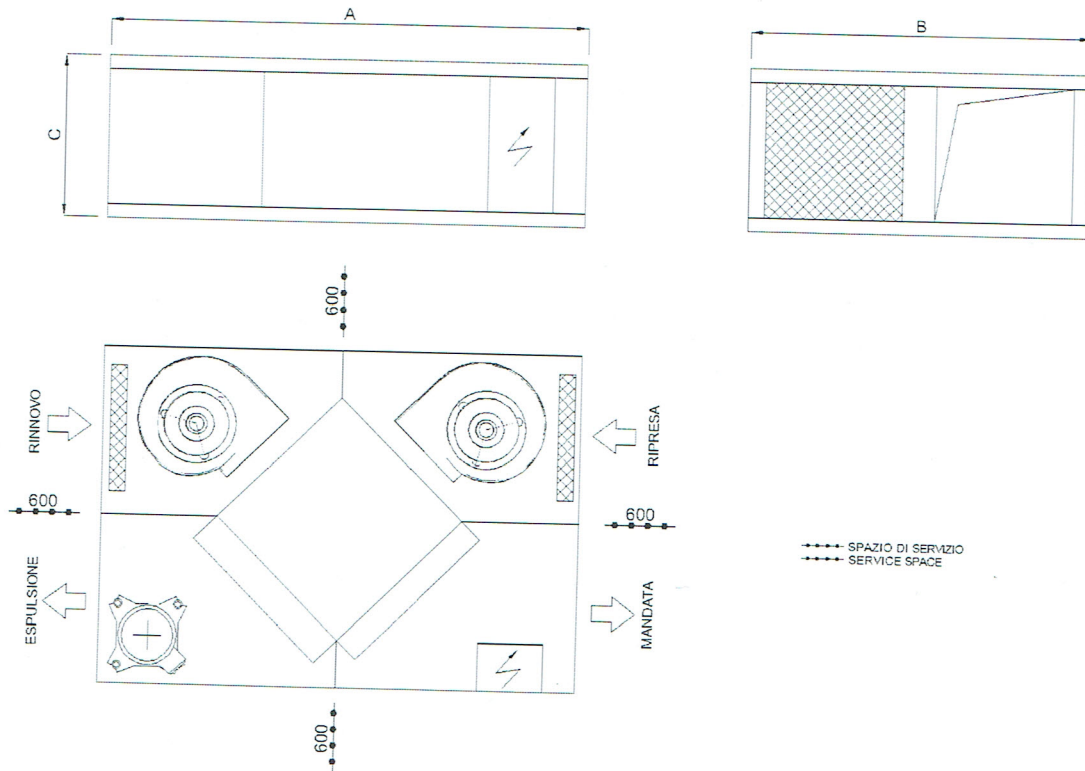
The sound pressure levels ☐ ☐ are average values ☐ ☐ calculated in free field with a reflective surface and are indicative.

The power and sound pressure values ☐ ☐ are weighted (dBA).

The values ☐ ☐ shown in the octave band are indicative and are sound pressure levels at 10 m unweighted (dB).

CLIMAMIXER 17 Z PH - R407C

CLIMAMIXER 15Z-123Z



VERS	15Z	17Z	19Z	110Z	113Z	115Z	117Z	123Z
A	1240	1440	1440	1440	1440	1440	1440	1640
B	870	920	920	1240	1240	1240	1240	1390
C	470	540	590	590	590	590	590	590

PESI IN FUNZIONAMENTO KG OPERATING WEIGHT KG								
VERS	15Z	17Z	19Z	110Z	113Z	115Z	117Z	123Z
C	150	180	200	210	260	265	300	370
H	174	195	217	225	282	283	326	401