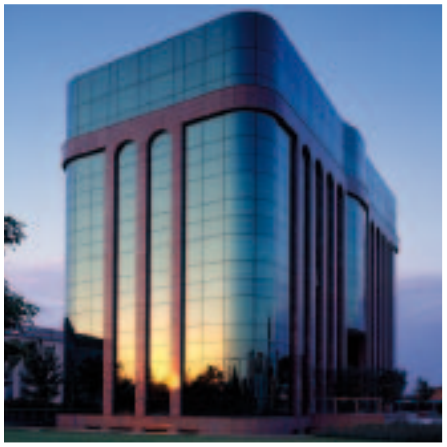
Ferroli

PRODUCT RANGE 2011



>>> INDUSTRIAL AIR-CONDITIONING <<<

Summary

NEW

NEW

NEW

NEW

> Ferroli production plant

THE PRODUCTION PLANT OF THE INDUSTRIAL AIR CONDITIONING DIVISION COVERS AN AREA OF 20,000 M^2 AND IS LOCATED IN VILLANOVA, NEAR SAN BONIFACIO (VR) CLOSE TO THE HEAD QUARTERS. RECENT IMPORTANT INVESTMENTS HAVE BEEN MADE TO IMPROVE AND UPGRADE THE PRODUCTION PROCESS STAGES.
A MICRO-FACTORY WITHIN THE MAIN PRODUCTION FACILITIES WITH **LEAN PRODUCTION** KANBAN SYSTEM PRODUCES HIGH SPECIFICATION FAN COIL TERMINALS.

>>> INDUSTRIAL AIR-CONDITIONING <<<

>> The production process begins with the production of the finned coil in copper and aluminium, complete with a welding and testing line.

>> The assembly cell (picture opposite) assembles the components such as fan-motor, condensate tray and heat exchanger along with the main structure.

>> The final assembling and packaging cell assembles the cabinets and all components, such as valves, supplementary trays, and the controls.

>> Chillers with capacity from 5 to 350 kW are built on the assembly line. The 5 lines total a length of 300 m.

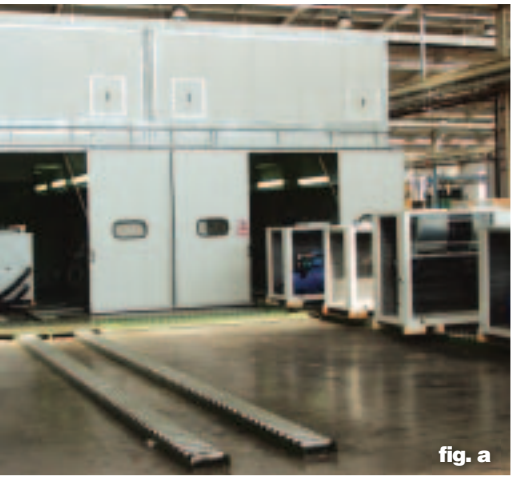


fig. a


fig. b


fig. c


fig. d

Ferroli
i migliori gradi centigradi

>> For the testing of medium to high capacity chillers (**fig. a-b**) there are three test chambers which enables units to be tested according to EUROVENT conditions.
A very important investment by FERROLI, which offers our customers guarantee that our equipment fully comply the project specification.

>> The functional tests vary from a minimum of 4 hours for 20 kW units with heat pump (minimum 2 hours for operational mode) and up to 8 hours for 200 kW units (approx. 4 hours per operational mode). Complete test reports are compiled and made available to entire Ferroli world.

>> Chillers up to 1400 kW (fig. c) are tested by specialised technical personnel who undergo a rigorous and intensive training schedules coordinated by the project engineers. Testing can last up to 8 hours for operation modes, with particular attention to ensuring correct operation of all alarms and adjustment functions of the units. Again complete test reports are compiled and made available to entire Ferroli world.

>> Charts and reports for monitoring production schedules, efficiency, construction and the safety within the departments are updated and displayed (**fig. d**) inside the plant are available to all, as well as visiting customers and professionals.

> Laboratory R&D

THE RESEARCH & DEVELOPMENT LABORATORIES ARE THE PRESTIGIOUS AREAS OF FERROLI PRODUCTION FACILITIES. INDIVIDUAL R & D LABORATORIES OPERATING INSIDE THE PRODUCTION PLANT ARE DEDICATED TO INDUSTRIAL AIR CONDITIONING TOTALLING AN AREA OF 1400 $M^{2.}$
ITS MAIN DUTIES INCLUDE DESIGNING PROTOTYPES FOR THE TECHNICAL DEPARTMENT AND CARRYING OUT FUNCTIONAL TESTS IN D.B. AND W.B.
TEMPERATURE CONDITIONS CERTIFIED BY EUROVENT. THE RESEARCH AND DEVELOPMENT STRUCTURE COMPRISES A HEAD OF DEPARTMENT, FOUR TECHNICIANS FOR THE CONSTRUCTION OF PROTOTYPES AND ANOTHER FOUR LABORATORY TECHNICIANS FOR THE TESTINGS.
THE NEW LABORATORY IS EQUIPPED WITH:

>> A compensated-type calorimeter **C2**, with a cavity separated chambers, for checking units up to P=16.5 kW with the capability of testing units to a temperature of -10°C (**fig. a**).

>> A calibrated-type calorimeter **C1** (with double chamber without cavity separated chambers where losses are taken into account) for checking units up to P=16.5 kW and to a temperature of -10°C, equipped inside with an enthalpy tunnel for calculating the performance of internal split or fan coil units up to Q=1,500 m^3/h, built to AMCA 210 specifications (**fig. a**).

>> A fan test tunnel, according to ISO 5801 and UNI 10531, for checking the air flow-rate values of axial-flow and tangential fans and monitoring of the flow-rate/head curve of centrifugal fans for values up to Q=5000 m^3 (**fig. a**).

>> A semi anechoic chamber **C3** for sound power and pressure tests reconditioned for carrying out the tests at temperatures stiplulated by Eurovent conditions. The chamber is suitable for units up to P=50 kW and therefore for the whole range of terminal units and chillers up to the powers conditions;

>> All the chambers allow our technicians to control cooling only or heat pump units, with heat recovery in the de-superheating phase or total heat recovery and In addition process units for leaving water temperature down to -8°C.


fig. a

fig. d

fig. b

fig. c

Ferroli
i migliori gradi centigradi

The financial investment in R&D in recent years have enabled the production of systems that meet individual market demands needs in terms of performance (efficiency, quiet operation, reliability).

>> The most significant and largest financial investment is certainly the climatic chamber C5, which is one of the largest in Italy and able to test units for powers up to 1800 kW (**fig. c-d**). The total internal volume (approx. 1200 m3) is controlled by a system of water and re circulated air circuits with inverter control and a smart software system enabling testing without personnel for temperatures to -10°C, with the option of dividing the chamber into separate zones for testing two units at the same time under different conditions.

>> The steam for test some unit is produced by a boiler at low pressure, specially designed by the industrial heating division technical department.

> Ferroli's Italy references

HOSPITAL AUTHORITIES

Milazzo (ME)
RHA + RGA + AIR HANDLING UNIT

Piemonte (ME)
RLA + FAN COIL

Roma S. Filippo Neri
RMA + FAN COIL

Militare Celio (RM)
AIR HANDLING UNIT + FAN COIL

Opera Pia (VB)
RMA + FAN COIL

Cotugno (NA)
RGA + AIR HANDLING UNIT + FAN COIL

Vecchio Palmanova (UD)
FAN COIL

V. Emanuele Gela (RG)
RHA + AIR HANDLING UNIT

Borgosesia (VC)
RHV + AIR HANDLING UNIT

Misericordia (GR)
FAN COIL

Silvestrini (PG)
FAN COIL

Villa San Pietro (RM)
AIR HANDLING UNIT

San Bonifacio (VR)
AIR HANDLING UNIT

C. Poma (MN)
FAN COIL

Monaldi (NA)
RLA + AIR HANDLING UNIT

Sarcone (BA)
RGA

S. Anna (CO)
AIR HANDLING UNIT

Belcolle (VT)
AIR HANDLING UNIT

Maggiore (BO)
AIR HANDLING UNIT

S.Martino (GE)
RGA

Barcellona (ME)
AIR HANDLING UNIT

G. Rummo (BN)
RGA

Cà Foncello (TV)
AIR HANDLING UNIT

S. Maria della Circe (SI)
AIR HANDLING UNIT

Vittorio Emanuele III (CL)
AIR HANDLING UNIT

Vincenzo dell'Erba (BA)
RMA + AIR HANDLING UNIT

Santhià (TO)
RLA + FCF

Borgomanero
RHA + AIR HANDLING UNIT

Roma Bambin Gesù
AIR HANDLING UNIT + FANCOIL

Sandro Pertini (RM)
RGA + FAN COIL

Manduria (TA)
RXA + RMA + FAN COIL + DUCTED FAN COIL

Moscati (TA)
RXA + DUCTED FAN COIL

S. Vito al Tagliamento (UD)
AIR HANDLING UNIT + DUCTED FAN COIL

Niguarda (MI)
DUCTED FAN COIL

Maggiore della Carità (NO)
AIR HANDLING UNIT + RLA + RGA

Gubbio (PG)
RGA + FAN COIL

Presidio Ospedaliero ASL n. 4 APICELLA (NA)
RGA

Azienda Ospadaliera Senese (SI)
RXA

Policlinico di Monza (MI)
RGA

USL 4 di Prato (PO)
AIR HANDLING UNIT + RGA + FAN COIL

USL 13 (BA)
AIR HANDLING UNIT

ASL NAPOLI 2 (NA)
AIR HANDLING UNIT

ASL di Frosinone (FR)
RLA + AIR HANDLING UNIT

Casa di Cura Columbus (MI)
AIR HANDLING UNIT

Istituto Zooprofilattico (SS)
RLA + RHA

Regione Lazio (RM)
AIR HANDLING UNIT

Clinica Villa Sandra (RM)
AIR HANDLING UNIT

Casa di Cura S. Lorenzino (FC)
RGA

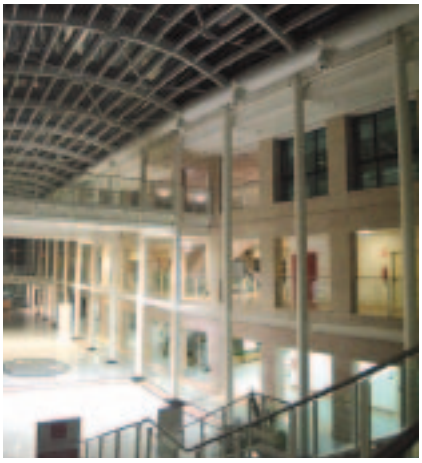
Laboratorio TUV Scarmagno (TO)
RGA + FCS

I.P.A.B. Ist. Giovanni XXIII (BO)
RHA + AIR HANDLING UNIT

Centro Sterilizzazione "Steril Piemonte" (VC)
RHV + RLA + AIR HANDLING UNIT

Ingegneria Biomedica S. Lucia (NO)
RGA + FAN COIL

>>> INDUSTRIAL AIR-CONDITIONING <<<



San Bonifacio hospital (VR)

> Ferroli's Italy references

SCHOOLS, UNIVERSITIES, LIBRARIES
HOTELS
CATERING

> SCHOOLS, UNIVERSITIES, LIBRARIES

Liceo Classico S.M. Legnani (VA)
RGA + AIR HANDLING UNIT

Biblioteca di Palazzo Chigi (RM)
FAN COIL

Biblioteca Com. Macomer (SS)
ROOF TOP RFA

Biblioteca Com. Caserta (CE)
RLA

Università Magna Grecia (CZ)
AIR HANDLING UNIT

IPSIA di Gallarate (VA)
AIR HANDLING UNIT

Università di Bari (BA)
RGA + AIR HANDLING UNIT

Università di Salerno (SA)
ROOF TOP RFA

Palazzo Reale (NA)
RGC

Politecnico di Bari
AIR HANDLING UNIT

Campus Universitario (PI)
AIR HANDLING UNIT + FAN COIL

> HOTEL

Hotel San Marco (VR)
AIR HANDLING UNIT

Hotel Mediterraneo (RG)
RLA

Hotel Baco da Seta (AQ)
RGA

Hotel Torricella (PG)
RGA

Hotel Tilibas (SS)
AIR HANDLING UNIT

Hotel Tiberio Palace (NA)
AIR HANDLING UNIT

Hotel Incanto (PI)
RGA

Hotel Hilton (MT)
UT REC + TCX

Residence "La Giurlita" (LE)
RMA + FCF + TCX

> CATERING

Ristorante "Mare Rosso" (MI)
HSW

Cantine le Cionce (GR)
RLA

Cantina Zaccagnini (PE)
ROOF TOP

Castello di Radda (SI)
AIR HANDLING UNIT

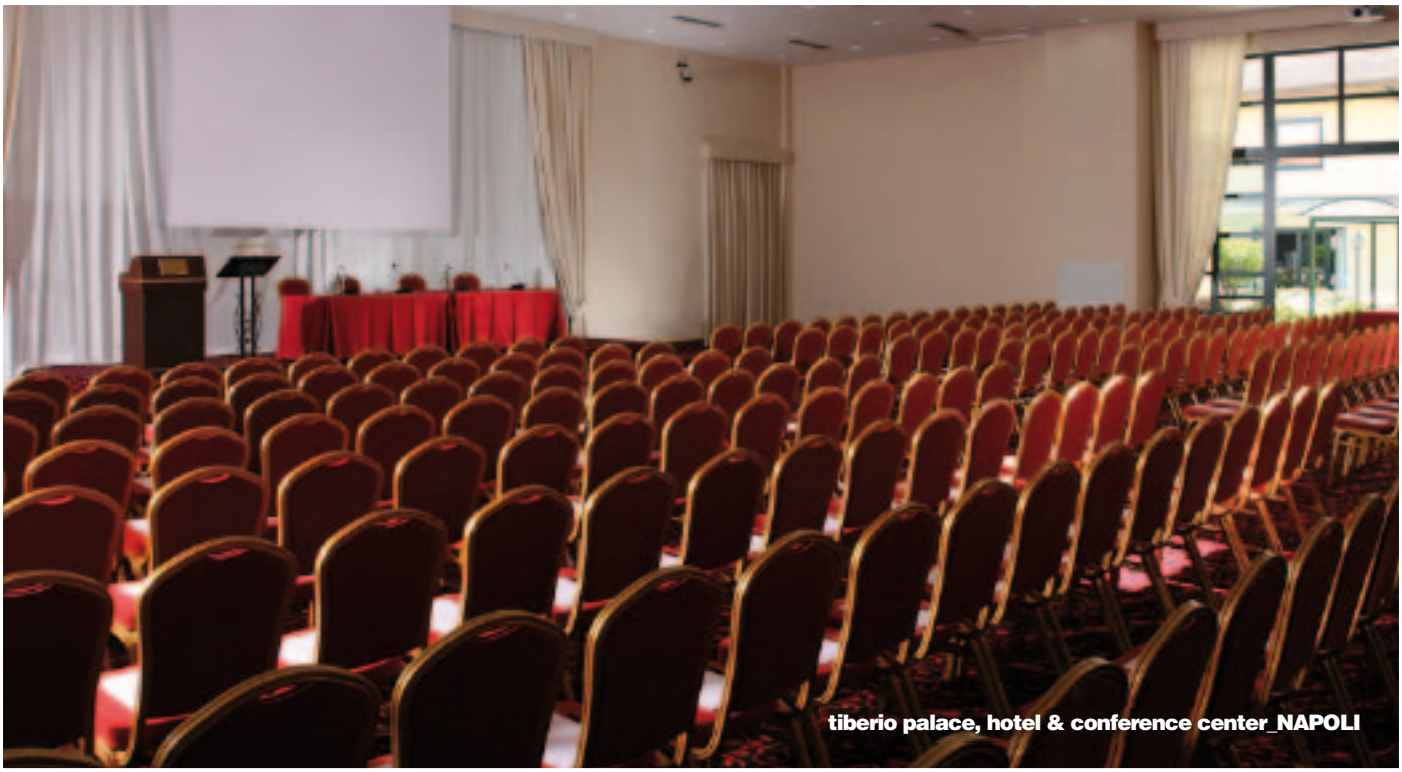
Ristorante Santo Spirito (SA)
RLA + AIR HANDLING UNIT

Villaggio turistico Casalvelino (SA)
RLA + FAN COIL

Best Western Soave Hotel (VR)
RLA + FAN COIL + UT REC

>>> INDUSTRIAL AIR-CONDITIONING <<<

tiberio palace, hotel & conference center_NAPOLI



tiberio palace, hotel & conference center_NAPOLI

> Ferroli's Italy references

BANKS
OFFICES
SALES OUTLETS

> BANKS

Monte dei Paschi di Siena
AIR HANDLING UNIT + DUCTED FAN COIL

CMP - Poste Italiane (PG)
RLA + RGA + RMA

Poste Italiane CMP (AN)
UT REC

Poste Italiane (RM)
AIR HANDLING UNIT

Banca Finconsumo
RSA + RPC + FAN COIL

Banca d'Italia (BS)
RXA

> OFFICES

Regione Puglia (LE)
RGA

Telecom S.P.A. (AQ)
FAN COIL

Telecom S.p.A. (RM)
FAN COIL

Pirelli R.E. (TO)
RVW

Olivetti Multiservices SpA (TO)
AIR HANDLING UNIT

Sede Municipale S. Teresa di Riva (ME)
RGA

Direzione compartimentale Ferrovie Italiane (AN)
FCF + FCS

Fiat Group - Ingest Facility (TO)
RGA + RLA + AIR HANDLING UNIT

Autostrade italiane Direzione tronco 2 (MI)
AIR HANDLING UNIT

> SALES OUTLETS

Luisa Spagnoli S.P.A. (PG)
POLAR

LIDL Cairo Montenotte (SV)
RGA

Carrefour (NO)
RLA

Brico Center (PV)
ROOF TOP

Carrefour (CE)
TCX + FAN COIL

Concessionaria AUDI (VC)
RGA

Concessionaria AUDI (NO)
RLA

Calisese Centrum (CE)
RLA + AIR HANDLING UNIT + DUCTED FAN COIL + VEC

>>> INDUSTRIAL AIR-CONDITIONING <<<

teatro san carlo_NAPOLI

> Ferroli's Italy references

MILITARY SECTOR
LARGE AREAS

> MILITARY SECTOR

Caserma Guardia di Finanza "Cefalonia Corfù" (PG)
FCF

Scuola di Polizia Ministero Infrastrutture (RM)
RFA + RMA + RGA + RLA

Esercito Italiano (RM)
CARRELLABILI

Comando Guardia di Finanza (TP)
RLA

Caserma U. Polonio (GO)
RGA + FAN COIL + AIR HANDLING UNIT

Caserma Guardia di Finanza (RA)
RGA + FCS

Arsenale di Taranto (TA)
RHA + FAN COIL + AIR HANDLING UNIT

Scuola Militare di Cavalleria (TO)
AIR HANDLING UNIT

Caserma Carabinieri S. Bonifacio (VR)
RGA + RMA

> LARGE AREAS

Centro Congressi (AR)
AIR HANDLING UNIT + RLA + RGA

Museo delle Scienze Naturali (BN)
RGA + FAN COIL

Piscina Intercomunale Fucecchio (FI)
AIR HANDLING UNIT

Museo Etnografico Caravel (AO)
RGA + AIR HANDLING UNIT

Museo Comunale (RN)
RLA + AIR HANDLING UNIT

Centro Comm.le Ortuso (RC)
AIR HANDLING UNIT

Centro Comm.le Corolla (ME)
AIR HANDLING UNIT

De Martini Shipping (GE)
AIR HANDLING UNIT

Teatro San Carlo (NA)
AIR HANDLING UNIT

Teatro Diana (SA)
RLA

Mercato Tartini (BO)
AIR HANDLING UNIT

Multisala Impero (VA)
ROOF TOP

Sala Bingo di Gallipoli (LE)
ROOF TOP RFA

Palazzo INAIL (VC)
RGA

EUROMA (RM)
RHV

Auditorium di Mantova (MN)
RGA + AIR HANDLING UNIT

Conservatorio Musicale (SA)
RMA + FCS

Centro Natatorio (MN)
RLA + AIR HANDLING UNIT

CUS Campo Hockey (PI)
AIR HANDLING UNIT

Palacilento (SA)
RHA + AIR HANDLING UNIT

>>> INDUSTRIAL AIR-CONDITIONING <<<

Palacilento_SALERNO

> Ferroli's Italy references

INDUSTRIES
AIRPORTS

> INDUSTRIES

Stabilimento Versace S.P.A. (NO)
RHA

Stab. Artema S.P.A. Zegna (BI)
RGA

Stabilimento AIA (VR)
RHA

Gruppo Fendi S.P.A. (MI)
AIR HANDLING UNIT

Stab. Doimo City Line (TV)
RLA

Stabilimento LIOLÀ Spa (NO)
RGA

Stab. TYCO VALVES (PC)
RGA

Riseria Stroppiana (VC)
RLA

Finmeccanica (RM)
RGA+

Stabilimento Ferrero (CN)
AIR HANDLING UNIT + RLA

Concerie Settebello (PI)
RHA + RGA

Stabilimento Unoaerre (AR)
RHV + AIR HANDLING UNIT

Stabilimento Ericsson (NA)
AIR HANDLING UNIT + FAN COIL

Stabilimento Ansaldo (TO)
RGA + AIR HANDLING UNIT + FAN COIL

Cantiere S. Paolo (BA)
RGA + FAN COIL + UT REC

Stab. Missano S.p.A. (SA)
RLA + RGA + AIR HANDLING UNIT

> AIRPORTS

Militare Base Nato (BR)
RLA

Fiumicino L. da Vinci (RM)
AIR HANDLING UNIT

Militare "F. Baracca" (RM)
RGA

Militare Pratica di Mare (RM)
RLA + AIR HANDLING UNIT + FAN COIL

>>> INDUSTRIAL AIR-CONDITIONING <<<

Stabilimento Missano S.p.A_SALERNO

sede Finmeccanica_ROMA

> Ferroli's Great Britain references

GREAT BRITAIN

> GREAT BRITAIN

Cherry Pipes

Plastic pipe company process application - Ireland

RHA

London Gallery

Art gallery commercial cooling application - London

RHV

Spectrum Centre

Shankhill Road office cooling - Belfast Ireland

RGA

Sussex Farm process cooling - England

RHV

>>> INDUSTRIAL AIR-CONDITIONING <<<

London Gallery - London

Cherry Pipes - Ireland

> Ferroli's Spain references

SPAIN - ESPAÑA

> SPAIN

Hospital de Alta Resolución de Loja

Hospital de Sagrado Corazón

Hospital Meixorio de Vigo

Hospital de Enfermedades Raras

Hospital Benito Menni

Hospital Xanit

Centro Salud Manzanares

Clinica Cefer

Rehabilitación oficinas

Marcado Municipal

Museo de Calahorra

Colegio Corazonistas

Edificio Presidencia de la Generalitat

Edificio banco España

Polideportivo Parque Coimbra

Polideportivo Siec

Faculdad de Derecho

Centro Cultural Bembrive

Edificio Banco Espana

Ayuntamiento

Complejo Hotelero Terralta

Hotel Carlton

Hotel Fuente Las Piedras

Hotel San francisco

Hotel El Espinar

Hotel Acosta

Hotel Parador

Hotel Villa de Benavente

Hotel Meridional

Hotel Benidorm

Hotel Balneario de Orio

Hotel Abando

Juzgados de Olot

>>> INDUSTRIAL AIR-CONDITIONING <<<

Complejo HOTELERO TERRALTA Alicante (Spagna)

Los Pilares del Estado Gijón (Spagna)

Hotels CARLTON Bilbao (Spagna)

> Ferroli's Romania references

ROMANIA - ROMÂNIA

> ROMANIA

RSI Electro Office Building - Bucuresti
RGA

Office Building Vitan - Bucuresti
RLA

Office Building Pipera

Hotel Floreasca - Bucuresti
RGA

Hotel Rodna - Bistrita
RGA

Hotel Maxim - Oradea
RGA

Ness Service - Dvd Factory

Sediu Galmopan - Galati
RGA

Sediu Arabesque - Brasov
RGA

Moticica Grup - Timisoara
RGA

MMM Automotive - Turda
RGA

Climatherm Center - Iasi
RGA

Frigoglass Romania - Timisoara
RLA

Teo Center - Brasov
RLA

Amma Print - Bucuresti
AIR HANDLING UNIT + RHA

RH Printing - Bucuresti
RHA

Reamedia - Bucuresti
RHV

Delphi Romania - Ineu
AIR HANDLING UNIT

Club Office - Sighisoara
AIR HANDLING UNIT

Cazino - Sighisoara
AIR HANDLING UNIT

Aeroport - Sibiu
AIR HANDLING UNIT + RHA

ODS Business Service - DVD – Bucuresti
AIR HANDLING UNIT

Manoil Mall - Galati
AIR HANDLING UNIT

Bazin Olimpic - Resita
AIR HANDLING UNIT

Sala Sporturilor - Onesti
AIR HANDLING UNIT

Stabilus - Brasov
RLA

Stella Building / Jules Verne - Bucuresti
RLA

Sempo S A - Bucuresti
RLA

Loial - Sibiu
AIR HANDLING UNIT

MAGAZINE DEDEMAN 2010

Craiova RFA

Brasov RFA

Arad RFA

Timisoara RFA

Resita RFA

Cluj Napoca RFA

Sediu birouri Dedeman- Bacau
VN + AIR HANDLING UNITS + RHV + TCX

MALL Cetatea Noua- Oradea
MERCURY SP + AIR HANDLING UNITS + RHA + RHV + EOLO

Consiliul Judetean - Sibiu
VM-B + FCS

Depozit EVW Gilau- Cluj
RGA + VM-F

MALL - Tr Severin
RHV + AIR HANDLING UNITS

>>> INDUSTRIAL AIR-CONDITIONING <<<

HYPERMARKET DEDEMAN Bacâu (Romania)

> Ferroli's Czech Republic references

CZECH REPUBLIC

> CZECH REPUBLIC

Hotel Celnice Břeclav
RXA + TOP-FAN

MERLIN PLUS Břeclav, stock of oil and offices
TOP-FAN

MORAVINO Valtice, winegrowing
RXA

NOVE VINARSTVI Drnholec, winegrowing
RXA + TOP-FAN

Vila Antonia, prestige offices Ostrava
RGA

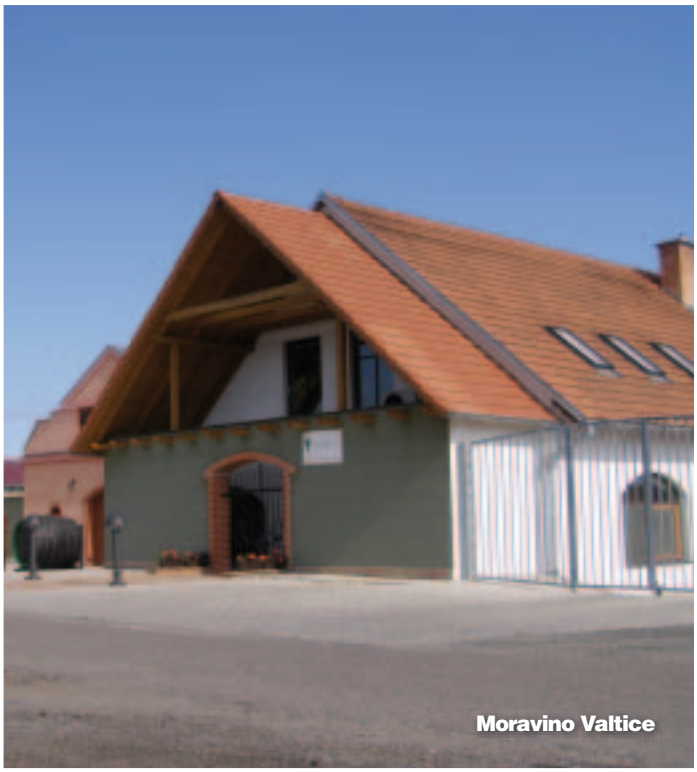
Mikro Trading Podivin, logistic and stocking centre of toys
RXA + TOP-FAN

>>> INDUSTRIAL AIR-CONDITIONING <<<


Vila Antonia Ostrava

Hotel Celnice Břeclav


Merlin Plus Břeclav


Moravino Valtice


Nove Vinarstvi Drnholec

> Ferroli's Russia & Republic of Belarus references

РОССИЯ - RUSSIA
РЕСПУБЛИКА БЕЛАРУСЬ - THE REPUBLIC OF BELARUS

> RUSSIA

Commercial Center " ARMADA" - Moscow,
RHV + VHF3

"Kuba Commercial Center" - Chelabinsk,
RHV + FCS

Medical Center of Tomographics - Chelabinsk,
RGA + FCS + TOP FAN

Commercial center" Moscow prospect" - Moscow,
RGA + TOP FAN VB-M + VHF3, RHV

"SBER-BANK Russia" Moscow office - Moscow,
RGA + CMA + TOP FAN

Bank "URASLIV" - Moscow,
RGA

Factory of Technical line production - Frazevo,
RGA

JEWELLER Department store - Krasnodar,
RGA + TOP FAN

"Kvaevitskiy Museum" - Krasnodar,
RGA + TOP FAN

"Medical center branch" - Moscow,
RGA + FCP

Business Hotel - Krassnodar,
RGA + RLA

"Historical - Archeological Museum - Felizina"
FCS

Sandwiches-panel Factory Shahty
RGA

Trade Center Fresh Rostov na Donu
RLA + RGA

Centre of a pozitronno-issue tomography Chelabinsk

> THE REPUBLIC OF BELARUS

The Skating Ring "Ice Palace" - Baranovichi,

Republican theoretical and practical Center "Mother and Child" - Minsk,

9- th municipal clinical hospital - Minsk,

Research and Production Corporation "Integral" - Minsk,

Business Center "BME BUSINESS CENTER" Minsk,

Republican theoretical and practical Center of oncology and medical radiology - Minsk,

BMW offices and service center - Minsk,

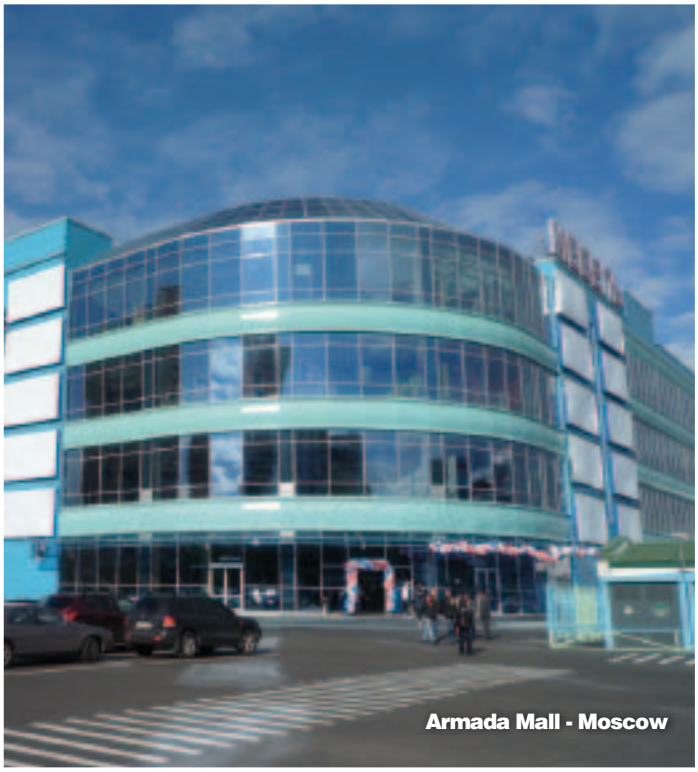
Business Center "Europe" - Minsk,

Unitary enterprise "Mucipal Bathhouses" - Minsk,

Belmicrosystems Reseach & Design Center Minsk,

Organizations of the NASB Department of Chemical and Earth Sciences - Minsk,

>>> INDUSTRIAL AIR-CONDITIONING <<<


Armada Mall - Moscow


Felizina - RUSSIA

Trade Center Fresh - Rostov

Prospekt Moscow - RUSSIA

> Ferroli's Turkey references

TURKEY - TÜRKÇE

> TURCHIA

Turkmenistan Projeleri - Turkmenistan,
RHV + RGA + RLA + RHA + FAN COIL + RFA

Aksoy plaza - Izmir,
RLA + TCX

Ticaret Odasi - Kocaeli,
RGA

EAGLE Burgmann - Kocaeli,
RXA + RMA

BS Press - Izmit,
RHV + TOP FAN

Tekirdag Trade Center - Tekirdağ,
FCS + TCX

Tekirdag Accounting center - Tekirdağ,
RMA + FCS

Işviçre Hospital - Istanbul,
RGA + TOP FAN

Lady Diana Hotel - Istanbul,
RHA + TOP FAN + UT REC DP F

Aslan Hotel - Küthya
RGA + AHU

Panorama Otelcilik - Kayseri
RHA

Eyüpoğlu Hotel - Istanbul,
RGA

Lidersan - Gaziantep,
RFA

Cemdag Plastik - Izmir,
RHA

Plasko Plastik - Tekirda
RLA + RGA + TCX

Yildiz Plastik - Istanbul,
RGA

Cemdağ Aydinlatma Plastik - Izmir,
RHA

Özmek Plastik - Istanbul,
RGA

Önder Plastik - Gebze
RXA + RGA

AUDI Showroom - Gaziantep,
RGA + FAN COIL

Mitsubishi Servis & Showroom - Istanbul,
RGA

Namlioğlu Restaurant - Istanbul,
RGA

Sultançiftliği Alişveriş Merkezi - Istanbul,
RGA + RHA

Izmit Skoda Plaza - Kocaeli,
RGA + FAN COIL

Mitsubishi Servis & Showroom - Istanbul,
RGA

Van Hastanesi - Van,
RGA

Yasam Hastanesi
RLA + TOP FAN + FCS

Kazakistan AVM
RHA + TOP FAN

Dokuz Eylül Üniversitesi Hastane - Izmir,
RGA

Ege Üniversitesi Ziraat Fakül
RMA

Izmit Ticaret Odasi - Izmit,
RHA

Metal Dizayn Tesisleri - Istanbul,
RLA

İzmit Karşiyaka Kültür Merkezi - Kocaeli,
RHA

Uğur Teneke Tesisleri Aydinlat - Kocaeli,
RHA + RLA + RMA

>>> INDUSTRIAL AIR-CONDITIONING <<<

Projeleri (Türkmenistan)

Projeleri (Türkmenistan)

Lady Diana Hotel

Plasko Plastik

> Ferroli's Poland references

INDUSTRIES / PLANT
HOTELE - RESTAURACJE / HOTELS - CATERING
SCHOOLS / SZKOLY
SZPIT AL CENTRU M MEDYCZNE MEDYCZNE / HOSPITAL AUTHORITIES

> INDUSTRIES

Budynki Biurowe BLACHOTRAPEZ Warszawa - Sękocin
RMA

Budynek biurowy ARCUS Gliwice
CMA + FCP and TOP FAN

Budynki Biurowe METALKOP Młyny k Buska Zdroju
CMA + FCS

Budynki Biurowe POLYNT - Niepołomice
RMA + TOP FAN

Budynki biurowe STACO - Niepołomice
RMA + TOP FAN

Budynek Biurowy ASSECO - Rzeszów
RGA + FCP

Linia technologiczna w Zakładach Produkcji Grzejników Stalowych BRUGMANN Legnicy
RGA

Budynek Biurowy PANTEON - Bytom
CMA + FCP + UT-REC

Budynki Biurowe GTM - Mysłowice
RXA + TOP FAN + UT-REC

Wylęgarnia Drobiu - Sierpc
CMA

Budynek Biurowy SOLAR-BIN - Rzeszów
RGA + TOP FAN + TCX

FIAT AUTO POLAND Bielsko - Biała
RLA

Drukarnia CGS - Poznań
RGA + roof-top RFA + TOP FAN + FCS + UT-REC + FCS

> HOTELE RESTAURACJE

Hotel ADAM - Szczyrk
FCS

Restauracja z hotelem Karczma Góralska” - Wałbrzych
CMA + TOP FAN

Dworek Kościuszko - Krakow
RMA + TOP FAN

> SZKOLY

Sala Sportowa przy Szkole Podstawowej w Porębie k - Zawiercia
rooftop RFA

Państwowa Szkoła Wyższa Zawodowa w - Krośno
CMA + FCS

Magistrat Urzędu Miasta i Gminy Niepołomice
RGA + RVL + TOP FAN + SOFFIO

> SZPIT AL CENTRU M MEDYCZNE

Szpital Wojewódzki Bielsko - Biała
RLA

Wojewódzka Stacja Weterynaryjna w Legnicy
RGA + TOP FAN

Medical Center SILESIA-MED. - Katowice
RGA + TOP FAN + FCS + UT-REC

Medical Center MEDICOR - Wrocław
RMA + FCP

>>> INDUSTRIAL AIR-CONDITIONING <<<


Drukarnia CGS Poznań


Biura (uffici/office) Inżynierska Łódź

FIAT AUTO POLAND Bielsko (Biała)

Biura Arcus Gliwice

> Ferroli's Balkan references

SRBIJA
CROATIA
BULGARIA
BIH

> SRBIJA

Dedinje 3 objekta - Beograd
RXA + TOP FAN

Shopping center New Nork - Novi Sad
RLA + FCS + UT REC DP

> CROATIA

Mrksina - Zagreb
RGA + RMA + TOP FAN

Bulvanova - Zagreb
RMC + TOP FAN

Dugopolje - Split
RGA + TOP FAN

AUTO CENTAR ŠKODA - Zagreb
RGA + TOP FAN

AUTO CENTAR CITREN - Zagreb
RGA + TOP FAN

MOTEL ZIR, Auto put A1
RMA + TOP FAN

Zgrada Gradske Uprave Belišće
RGA + TOP FAN

Upravna zgrada Miagro d.o.o. Našice
RGA + TOP FAN

Vinkovci, regionalni prodajni centri - Bosso
RGA + TOP FAN

> BULGARIA

Kamchia resort
RHA + RLA + TOP FAN

> BIH

FC - franšizni centar - Vitez
RGA + TOP FAN + FCS

FIS - Vitez
RGA + TOP FAN

Pivovara Sarajevo - Sarajevo
RGA

Hotel Central - Vitez
TOP FAN + FCS

Hotel Tilija - Gračanica
TOP FAN + FCS

Airport Dubrave - Tuzla
WATER CHILLERS

Jafa-Jase factory - Špionica
WATER CHILLERS + FAN COIL

Interex Shopping centers CDEB Sarajevo
WATER CHILLERS + FAN COIL + MERCURY

International building Kendi - Tuzla
TOP FAN

Trocal - Tuzla
TOP FAN

Hotel SAX - Vlašić
TOP FAN

MBI Development Malaysia Central Sarajevo
WATER CHILLERS + FAN COIL

Edo Slad ETNA - Gračanica
WATER CHILLERS + FAN COIL

BINGO d.o.o - Tuzla
WATER CHILLERS + FAN COIL + MERCURY

BINGO d.o.o - Brčko
WATER CHILLERS + FAN COIL + MERCURY

BINGO d.o.o - Gradačanica
WATER CHILLERS + FAN COIL + MERCURY

OMEGA d.o.o. - Tuzla
RLA + FAN COIL + MERCURY

Kopex Sarajlić - Sarajevo
WATER CHILLERS + FAN COIL

>>> INDUSTRIAL AIR-CONDITIONING <<<


Commercial Centre FC BIH


Kamchia Resort - Bulgaria

OMEGA d.o.o.

Sala Bingo

Edo Slad ETNA


New Nork Shopping Center

> Ferroli's Albania references

> ALBANIA

Drejtoria e policise - Tirane
RHA + TOP FAN

TEC - VLORE
RGA + FTP + TOP FAN

Center shqipetare
RLA + TOP FAN + TCX

Dieoqeza e rrethit mirdite
RGA + TOP FAN

American hospital - Tirana
RGA + TOP FAN + TCX + FTP

Drejtoria e policise - Durres
RGA + TOP FAN

Karburant - Alpet
RGA + TOP FAN

Bkt (banka kombetare tregetare) - Korçe
TOP FAN

Hotel Tomorri - Berat
RGA + TOP FAN

Reparti Ushtarak - Zallherr

>>> INDUSTRIAL AIR-CONDITIONING <<<


DREJTORIA E POLICISE


TEC – VLORE


Center Shqiptare

> Ferroli's Syria references

> SYRIA

Ghandour Factory - Damascus
RHV

Matouk's office - Damascus
RGA ST + TOP FAN

Semiramis Hotel - Palmira
AHU + TOP FAN

Massa Plaza (Malki Mall) - Damascus
FCS

Kalde Factory - Damascus
RLA

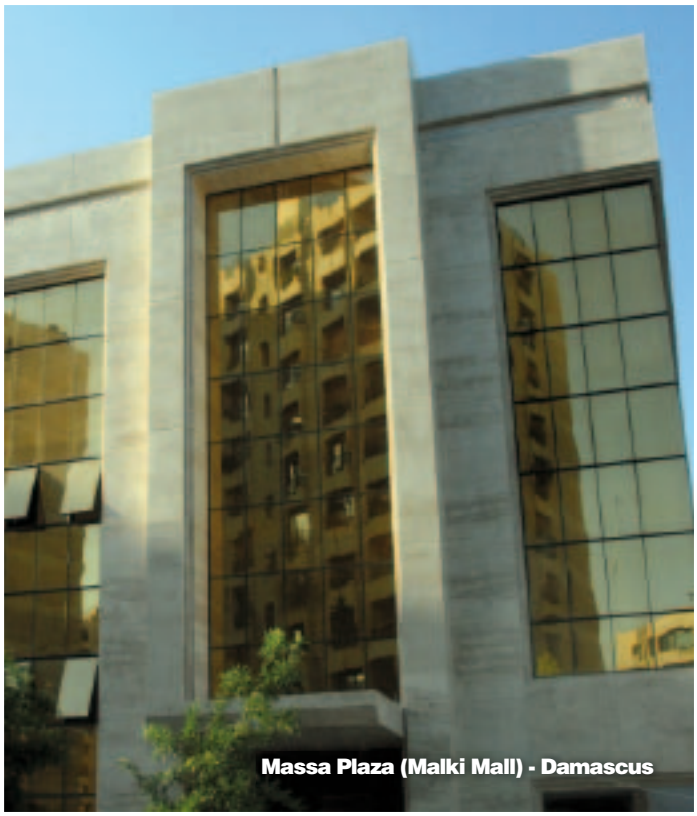
>>> INDUSTRIAL AIR-CONDITIONING <<<


Kalde Factory - Damascus


Ghandour Factory - Damascus

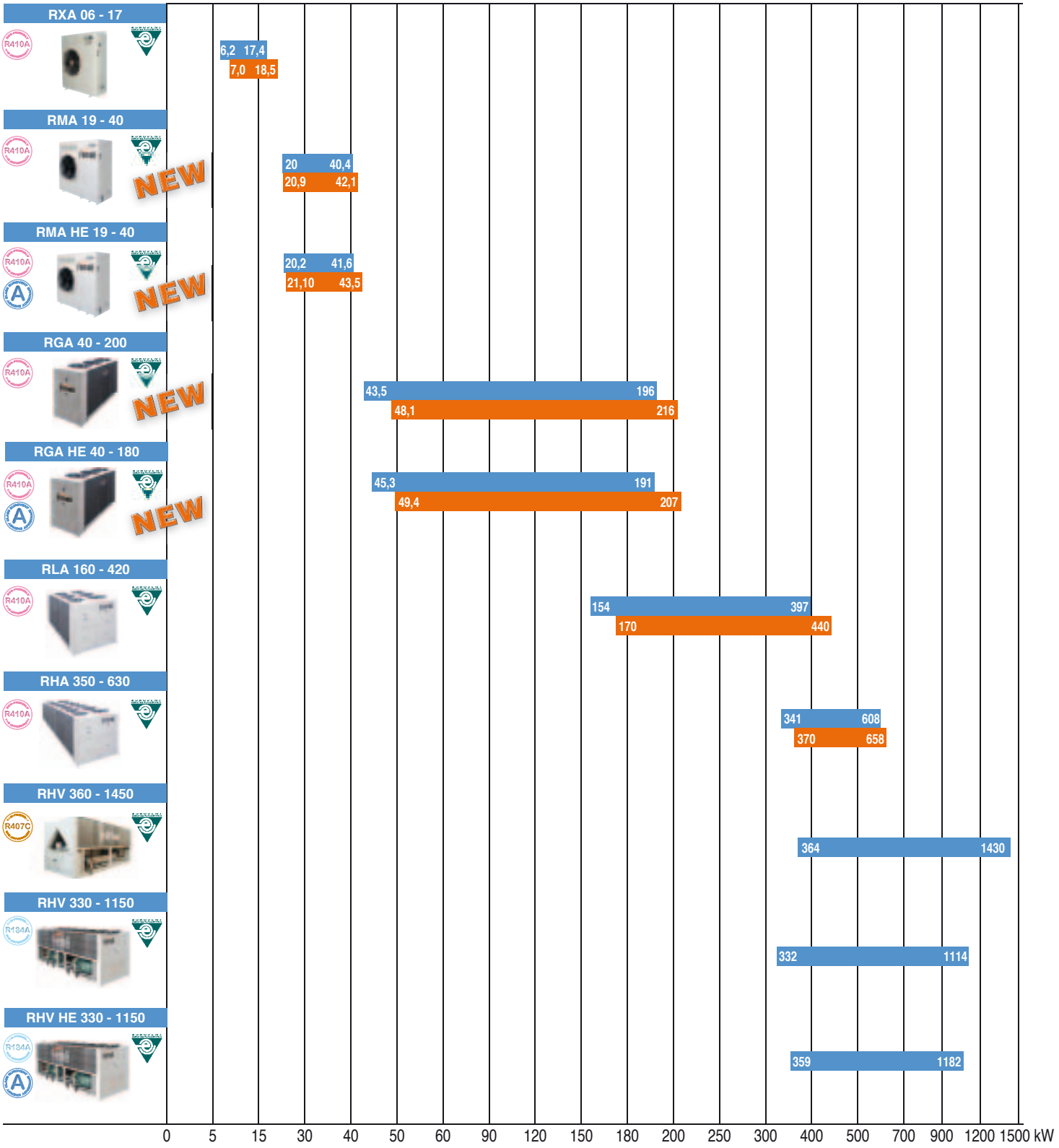

Matouk's Office - Damascus.


Semiramis Hotel - Palmira


Massa Plaza (Malki Mall) - Damascus

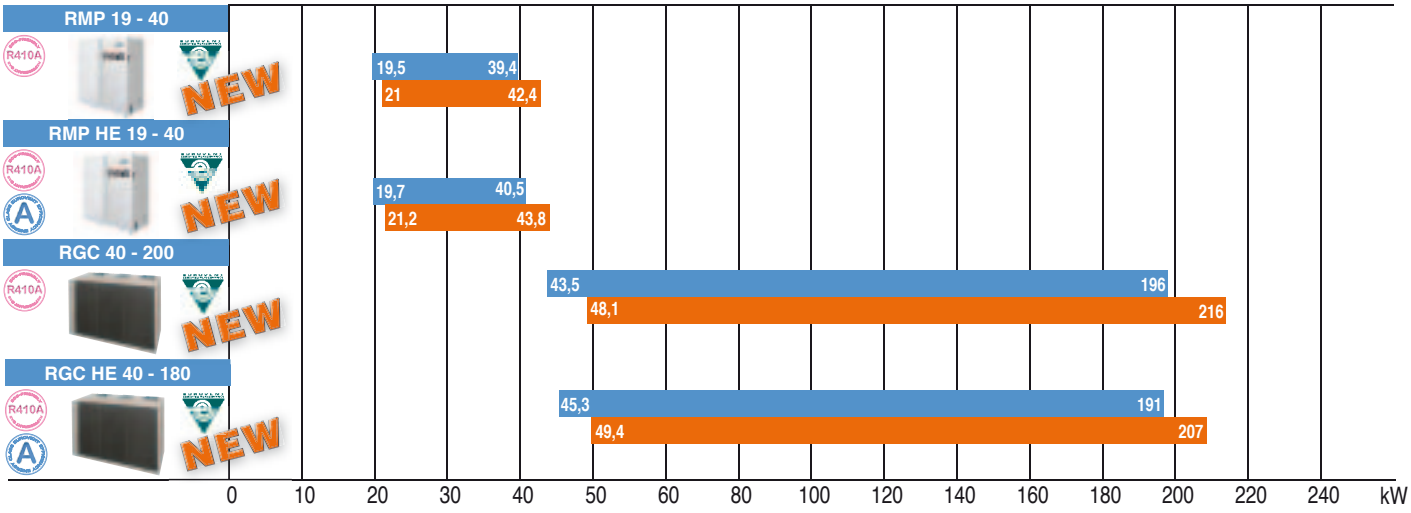
Ferroli product range

AIR COOLED WATER CHILLER WITH AXIAL FANS

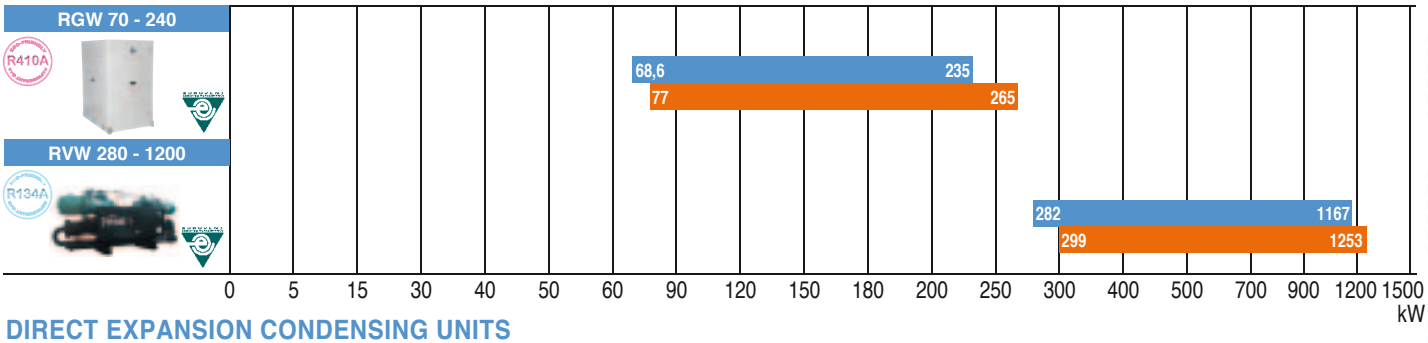


Ferroli product range

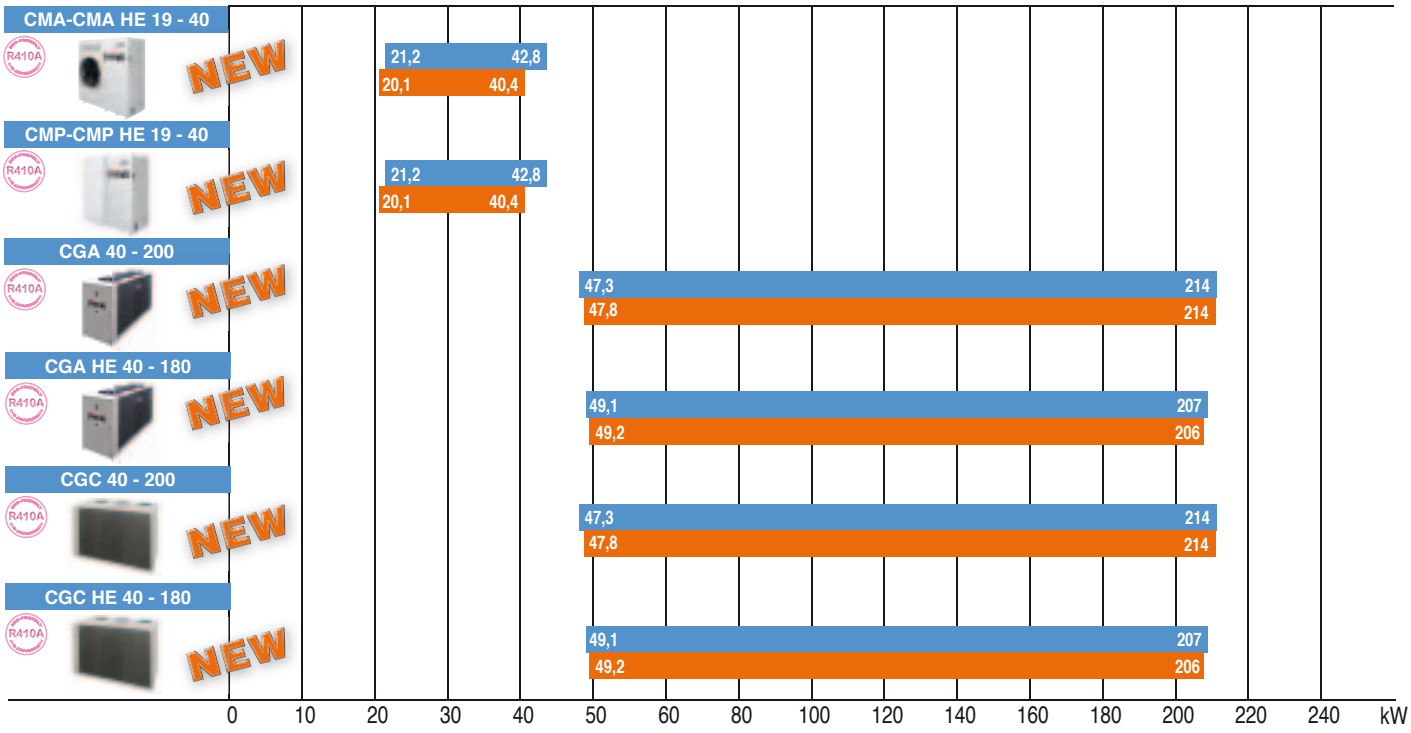
AIR COOLED WATER CHILLER WITH CENTRIFUGAL FANS



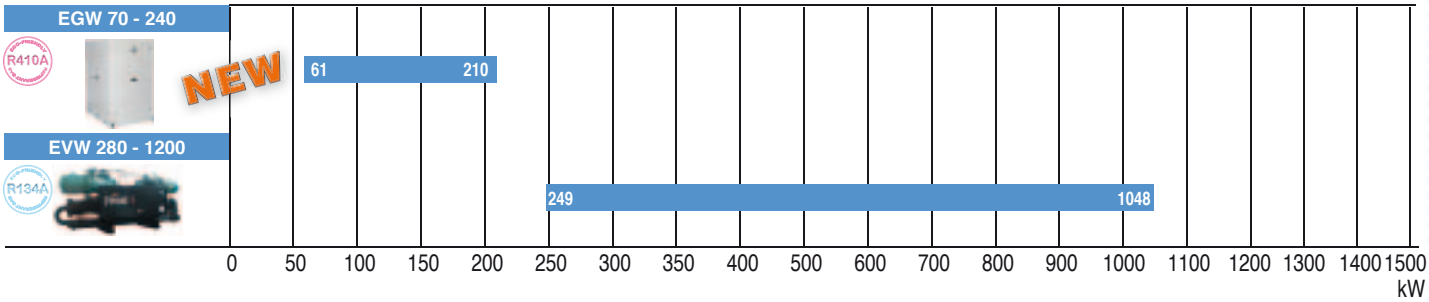
WATER COOLED WATER CHILLERS



DIRECT EXPANSION CONDENSING UNITS

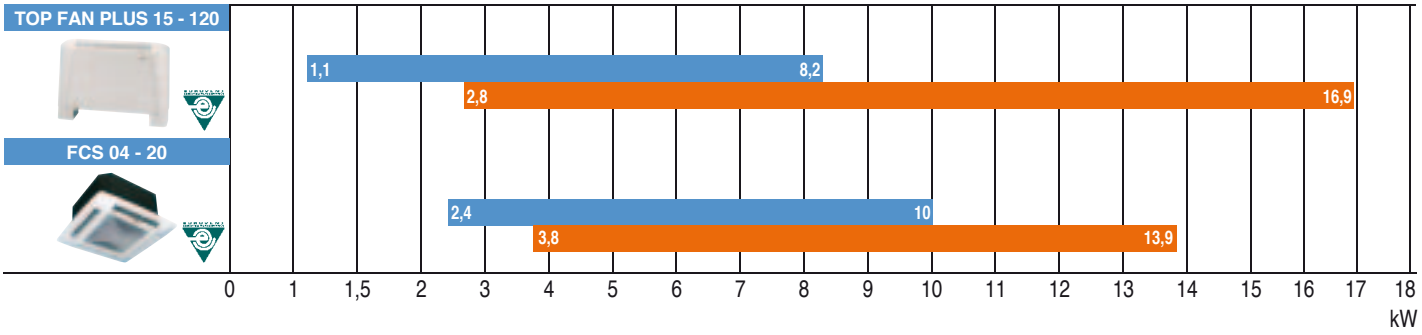


REMOTE AIR COOLED CHILLERS

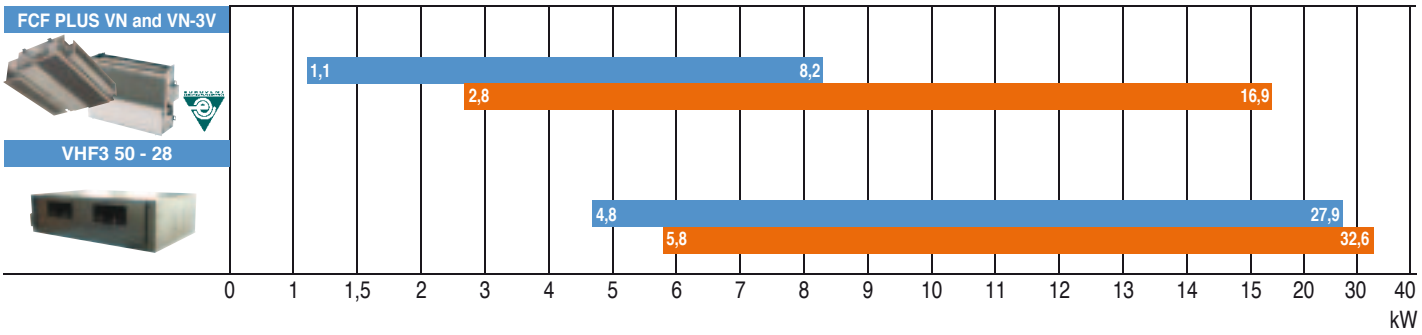


Ferroli product range

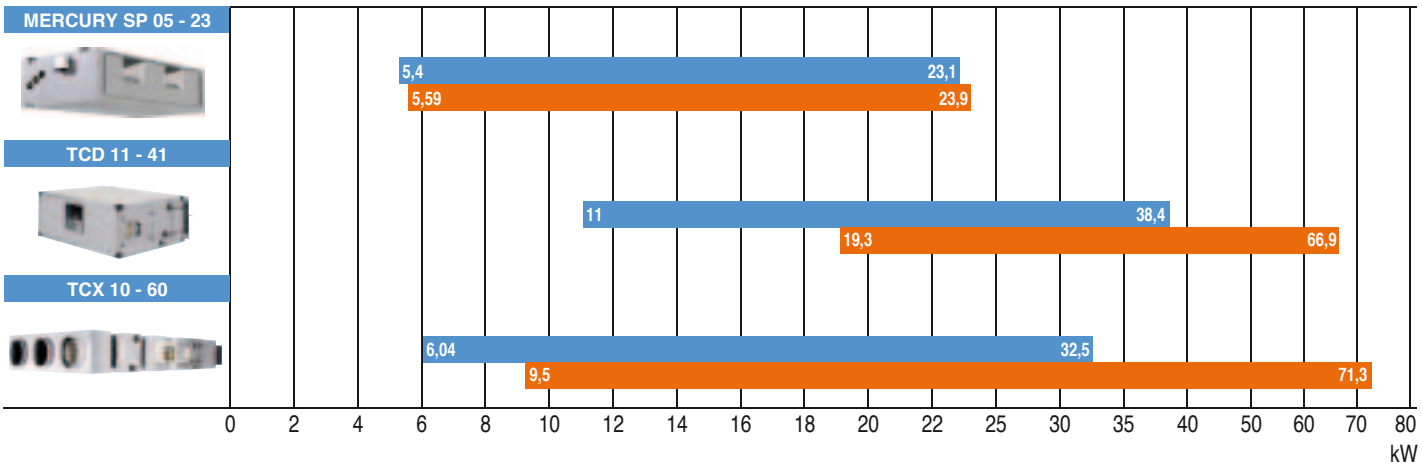
FAN COIL UNIT



CEILING CONCEALED



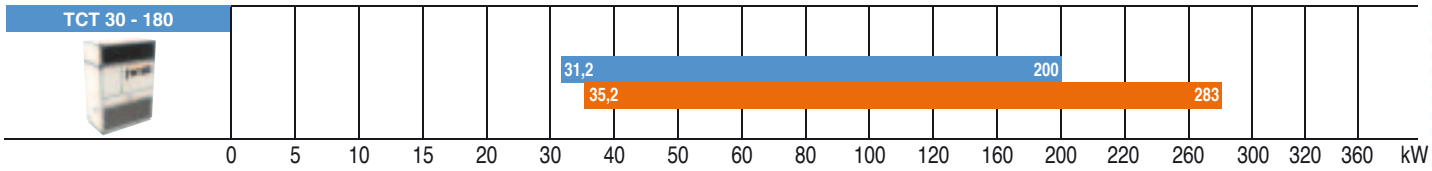
DUCTED FAN COIL



Ferroli product range

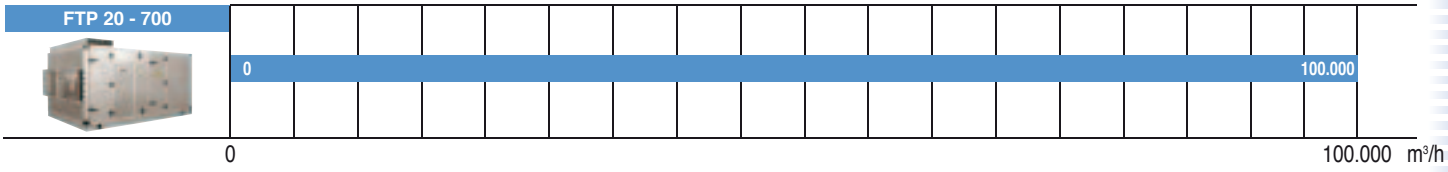
LARGE CAPACITY FAN COIL

TCT 30 - 180



AIR HANDLING UNITS

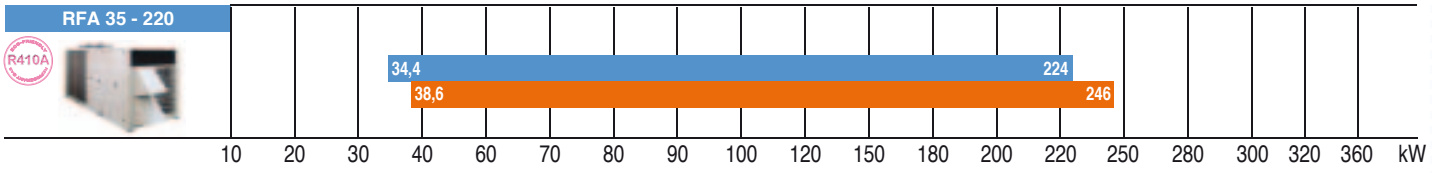
FTP 20 - 700



PACKAGED ROOF TOP AIR CONDITIONER

RFA 35 - 220

R410A

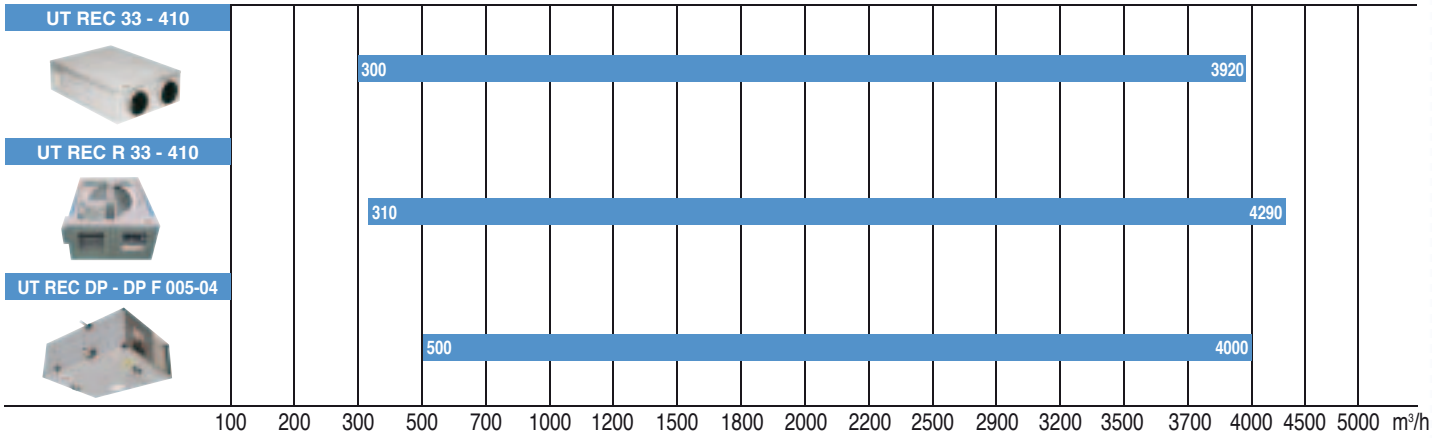


HEAT RECOVERY UNITS

UT REC 33 - 410

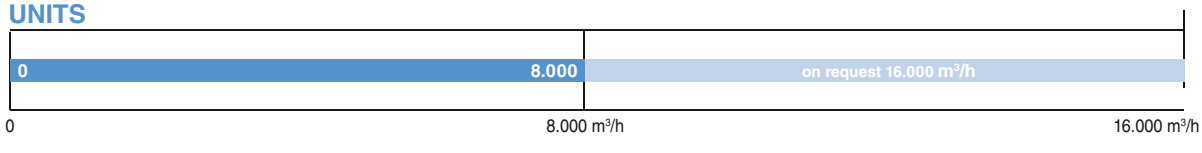
UT REC R 33 - 410

UT REC DP - DP F 005-04



EXHAUST AIR UNITS

EOLO FK



> News 2011

CHILLERS

> RMA
RMA HE

AIR-WATER CHILLERS AND HEAT PUMPS
FOR OUTDOOR INSTALLATION

Unit type

IR Chiller
IP Heat pump
(reversible on the refrigerant side)
BR Chiller Brine
BP Heat pump Brine
(reversible on the refrigerant side)

Versions

VB Base Version
VP Pump Version
VA Tank Version

Acoustic setting up

AB Base setting up
AS Low noise setting up

> RGA
RGA HE

AIR-WATER CHILLERS AND HEAT PUMPS
FOR OUTDOOR INSTALLATION

Unit type

IR Chiller
IP Heat pump
(reversible on the refrigerant side)
BR Chiller Brine
BP Heat pump Brine
(reversible on the refrigerant side)

Versions

VB Base Version
VD Desuperheater version
VR Total Heat Recovery Version

Acoustic setting up

AB Base setting up
AS Low noise setting up
AX eXtra Low Noise setting up

Operating range

M Medium Ambient temperature
A High Ambient temperature

EUROVENT CERTIFIED PERFORMANCE

NEWS

Ferroli
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> RMP
RMP HE

AIR-WATER CHILLERS
AND HEAT PUMPS
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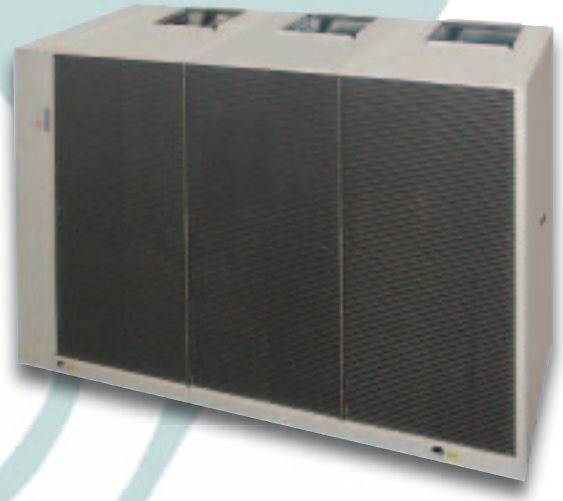
AB Base setting up
AS Low noise setting up



> RGC
RGC HE

AIR-WATER CHILLERS
AND HEAT PUMPS
FOR INDOOR INSTALLATION

Unit type

IR Chiller
IP Heat pump
(reversible on the refrigerant side)
BR Chiller Brine
BP Heat pump Brine
(reversible on the refrigerant side)

Versions

VB Base version
VD Desuperheater version
VR Total recovery version

Acoustic setting up

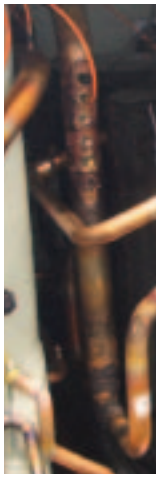
AB Base setting up
AS Low noise setting up
AX eXtra low noise setting up

Source temperature level

M Medium temperature level
A High temperature level

> Main characteristics water chillers

TECHNICAL SOLUTION
NOISE CONFIGURATION
HYDRAULIC SYSTEM ON THE UNIT
SETTINGS FOR PUMPING MODULES SAFETY



> TECHNICAL SOLUTIONS

TYPE OF INSTALLATION

I for installation in hydronic systems

B for installation in hydronic systems with Brine solution (process application)

OPERATION

R chiller

P reversible chiller

W water side reversible chiller

VERSIONS

Basic Version VB
cooling only IR or heat pump IP

De-superheated Version VD
heat recovery only in de-superheating phases for cooling only units **IR** or heat pump units **IP**

Total Recovery Version VR
total heat recovery where all the thermal energy extracted by the fans is recovered by a condenser sized for the type of application

> SOUND CONFIGURATION

Basic Configuration AB

Low noise Configuration AS
Reduction in the number of fan speed with compressor insulation and a housing compartment with sound-absorbing material (fig. a).

Extra Low noise Configuration AX
A further reduction in the speed number due to larger exchangers.

New-concept fans with plastic blades and lower noise, in addition new sound-absorbing materials for covering the compressor and housing compartment has created a considerable noise reduction during operation (fig. b).

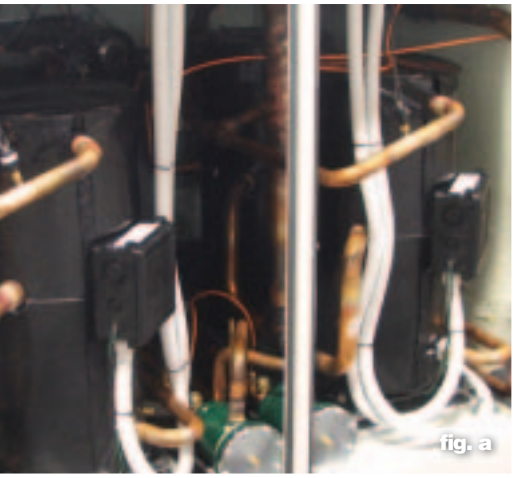


fig. a


fig. b


fig. c

> HYDRAULIC SYSTEM ON THE UNIT

The following accessories are available to allow the unit to be configured according to the system needs:

Storage Tank

Large capacity completely insulated and with air-vent, safety valves and drain.

Pumping module

- available with single pump or with backup pump,
- available **with variable-flow pump**;
- up to three levels of useful static pressure are available to adapt to any system design need,
- with a storage tank fitted, this allows configuration of the tank on the system delivery or primary circuit only.

Pumping-storage tank module

for installation next to the unit, the module is supplied complete with tank and pump or with twin pump version.

All the pumping accessories are complete with shut-off and safety valves, air vent, drain, expansion tank, one-way valves (only in case of twin pump), filter and pressure gauge for complete installation and easy service access (fig. c).

> SETTINGS FOR PUMPING MODULES SAFETY

The research and development of advanced electronics controls has enhanced the development of regulation logics. This ensures correct operation of the pumping systems.Therefore:

Unit with twin pump

The control system provides pump rotation to balance the hours of operation.

Unit with twin pump

If one pump shuts down, the second pump starts automatically and the UNIT CONTROL signals the fault.

Protection

If the unit remains on standby for long periods, the pump is started periodically to ensure correct and continuous operation.

Anti-freeze function

With the unit in standby, the setting starts the pump if the water probe detects a temperature below a certain threshold.

NB: please refer to each series solutions.

> Main characteristics water chillers

SETTING
EUROVENT
HIGH ESEER

> SETTING

Qualified Ferroli internal personnel have designed, developed and inspected the control logics for management of the unit, to ensure continuous operation and always with a view to energy-saving.

Settings for the technical use of the product are designed for residential, commercial or industrial units;
refer to each unit the specific settings.

CLIMATE CONTROL FUNCTION (SLIDING TEMPERATURE)

(this function is only available in presence of outside air probe);
in the heating mode, the Set point is adjusted according to the climatic conditions, optimising operation.
It is also available in cooling mode, after modifying the regulator parameters,

DYNAMIC DEFROST

(this function is only available in presence of outside air probe);
with harsh outside temperatures, the efficiency of the system is optimised, avoiding unnecessary defrosts.

TIME PROGRAMMING

Modifies the Set point to adapt unit operation to energy-saving.

ECOMOMY MODE

Modify the Set point to move the unit operation into energy saving mode.

DOUBLE SET POINT

In cooling or heat pump mode the Set Point can be changed to a second value controlled by keyboard.

ADVACED TEMPERATURE CONTROL (ATC)

In cooling mode, with outside temperatures above the limits, ATC prevents unit shut down by modulating the compressor steps, keeping the system active to ensure its continuous operation.

DEMAND LIMIT

Enables capacity control of the unit's maximum power absorption.

HEATING INTEGRATIVE

In the heat pump mode a heat generator (a conventional or condensing boiler) can be activated, for integration.

NOISE CONTROL

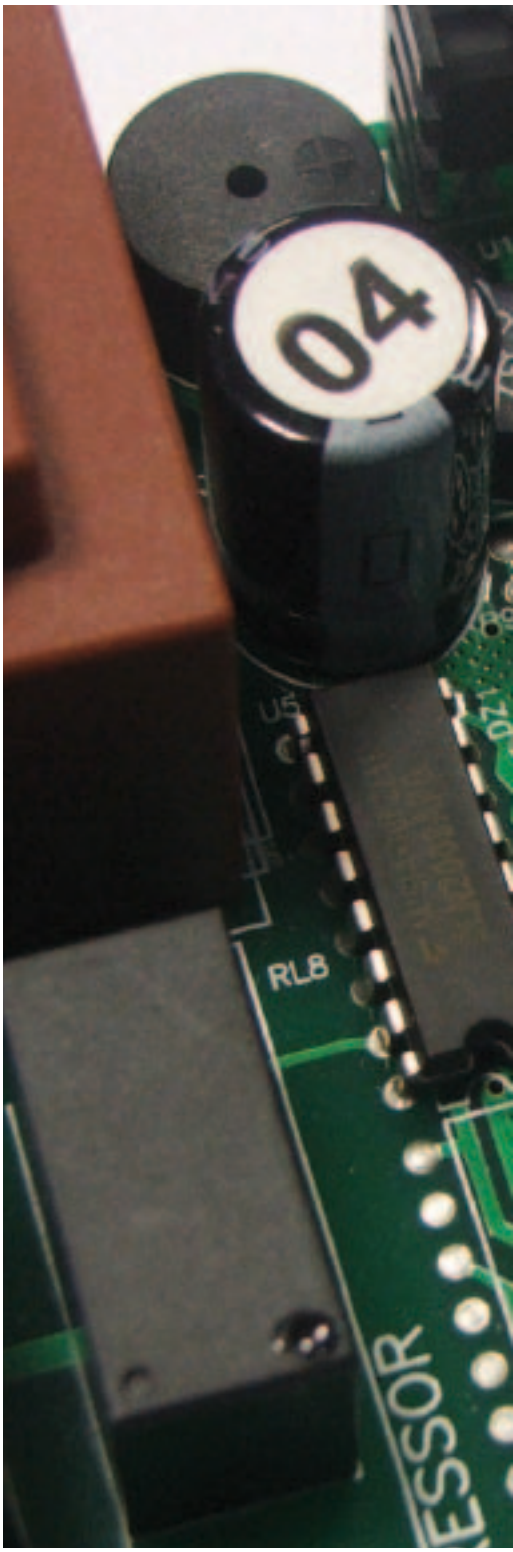
For multi-circuit Extra low noise units (AX), one of the circuits is saturated to minimise fan noise. The control system provides for a regulation logic enabling this system to be Low noise as much as possible.

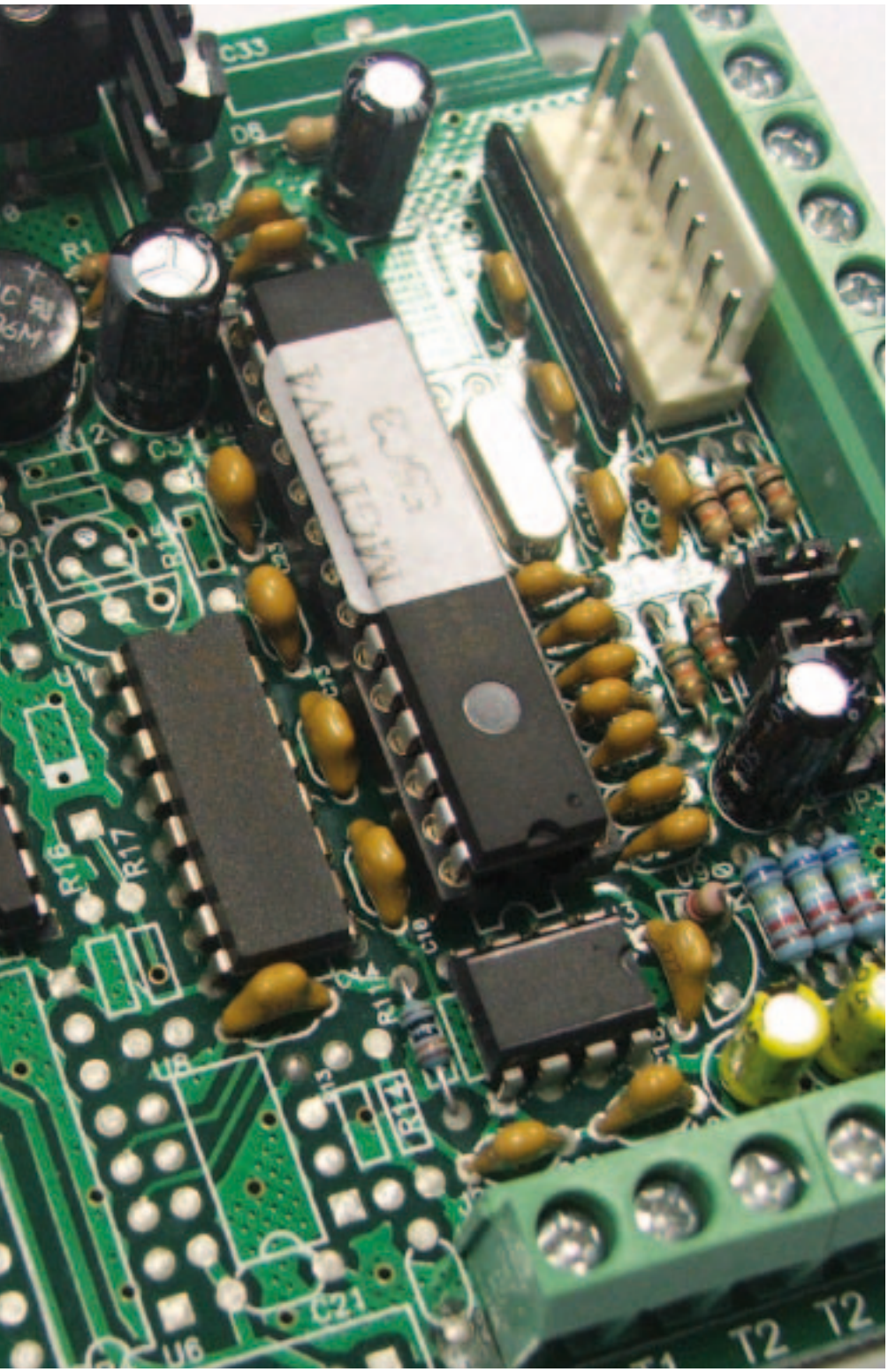
> EUROVENT

Ferroli is associated with formula
CERTIFY ALL

EUROVENT
CERTIFIED PERFORMANCE

Products and certification rules are present on the site:
www.eurovent-certification.com





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> HIGH ESEER

ESEER is calculated as follows:
ESEER = A×EER100% + B×EER75% + C×EER50% + D×EER25%

With the following weighting coefficients:
- A = 0,03 EER 100% amb. air 35°C
- B = 0,33 EER 75% amb. air 30°C
- C = 0,41 EER 50% amb. air 25°C
- D = 0,23 EER 25% amb. air 20°C

These coefficients indicate the significance and importance of the EER value according to the load and outside temperature.
Based on EUROVENT conditions, in a normal work cycle the units work at full load (35°C) for only 3% of the time.

A better capacity control of power delivered or absorbed at partial loads involves higher seasonal efficiencies.

Choice of unit should also take into account the ESEER value because it reflects the overall unit operation.

FERROLI follows this philosophy with Multiscroll solutions and Twin-screw compressors.
Single-circuit Double compressor units with multi stages have higher ESEER values than similar units Dual circuit type. For screw type double compressors units, the saturation of circuits occurs in parallel.
Everything converts into high efficiency at partial loads and therefore significant ESEER values are achieved.

NB: please refer to each series-specific adjustments.

> Main characteristics water chillers

SAFETY
RELIABILITY
CAREFUL DETAILS
RESPECTING THE ENVIRONMENT
AQUASEL

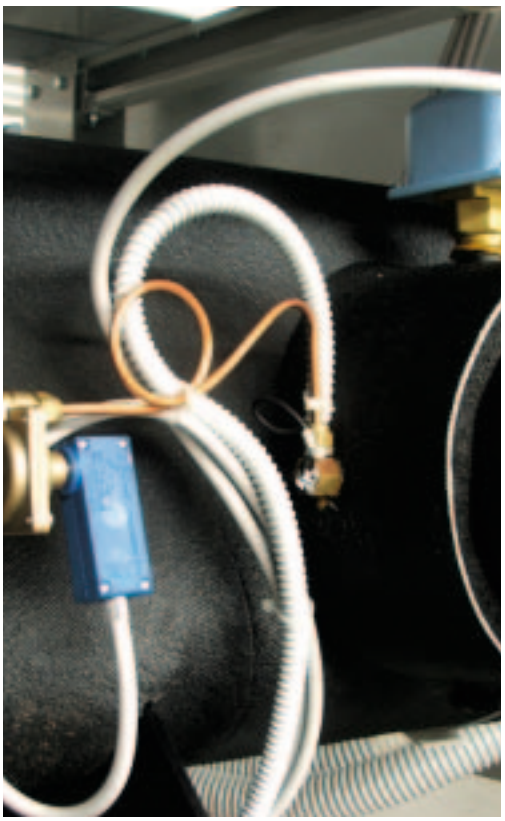
> SAFETY

The units as standard are complete with:
- differential pressure switch on the plate-type exchanger,
- antifreeze heater on the plate-type exchanger,
- compressor high temperature protection,
- PED safety valve

Available as accessories:
- condensation control (standard on some units),
- water flowswitch
- voltage monitor and sequence meter

> RELIABILITY

The design components chosen are highly reliable and the suppliers are all certified according to the current quality systems.

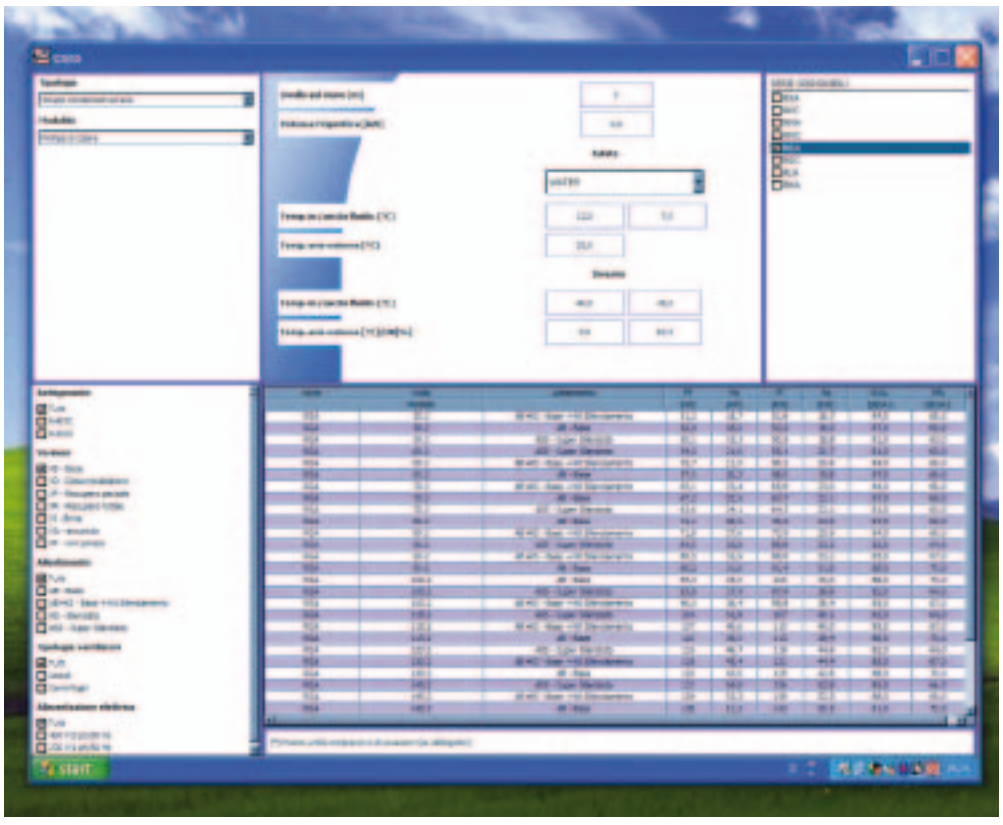


> CAREFUL DETAILS

Particular attention to the arrangement of the main components in the design stage, careful and scheduled testing, and the important stage of final production, ensure system that are easy serviceable and guarantee a lasting high performance package.

> RESPECTING ENVIRONMENT

Use of ecological refrigerant gases (ODP equal to 0) for obtaining optimum performance and **DO NOT** harm the ozone.



> AQUASEL

The Ferroli design staff have developed software for choosing the right unit for your system needs, calculating the performance values according to the air and water temperature, depending on the model or acoustic version.

There is also the selected choice of accessories the printing of the description of the unit's specifications and a complete technical data sheet.

At the end of selection the customer can have a list price or net price with discounts of all the selected units.

A sales tool much appreciated by professionals for its easy use and prompt answers.

For more information contact Ferroli Air conditioning Industrial department

> Main characteristics water chillers

CHILLERS SEQUENCER

Capacity control of system become a major point of discussion both in the design stage and that of production.

The Ferroli design team, has developed a logic control that allows you to manage and monitor the operation of more chiller to serve a single plant.

> CHILLERS SEQUENCER

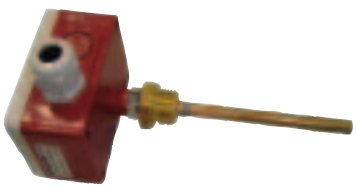
The controller, suitable for internal installation within a heating plant, as standard feature such as an electrical panel, (housed in a sheet metal enclosure) and complete with a main disconnecting switch, LEDs for displaying alarms and operation status (ON/OFF), manual summer/winter selector (provided for units with heat pump) and manual ON/OFF selector plus a large display for unit programming. A terminal block is fitted on a metal plate inside the panel to facilitate unit connections. The system comes standard complete with a telescopic-type water probe (picture below), IP65 protection rating, to facilitate reading the delivery temperature of the water inside the header or the hydraulic separator.

NTC-type sensitive element.

The sensor element is of the NTC.

System programming is designed to be clear and easy. Various menus can be accessed by buttons on the display for setting and programming management of the control system and units. Through the LCD display the following is possible:

- programming operation times,
- selecting the date and time,
- programming a holiday period,
- monitoring and modification of temperatures,
- monitoring and modification of control outputs,
- monitoring and modification of set-point,
- monitoring system status.



■ MANAGEMENT OF SEVERAL UNITS WITH PRIMARY PUMP

For correct system management the 3GFC and 6GFC controllers can control one pump (only 3GFC) or one twin pump (only 6GFC) serving the primary circuit if the units do not have them, as indicated in the example in figure A.

In this case the units are type **RMA VB AB 0M5** configured with just the pipe kit and connected in parallel. They are fed by a single pump. The choice of delivery pump is to the installer or designer. Pump electrical protection and power supply installation are the installer's responsibility.

■ MANAGEMENT OF UNITS WITH DOUBLE PRIMARY PUMP

Fig. A-1 implies the use of a 6GFC type panel enabling management of a twin pump serving the primary circuit.

NB: All the pumping accessories are complete with shut-off and safety valves, air vent, drain, expansion tank, one-way valves (only in case of twin pump), filter and pressure gauge for complete installation and easy service access.

All these components are the installer's responsibility.

The pumps electrical protection and power supply installation are the installer's responsibility.

Suggested connection diagram

Fig. **A**

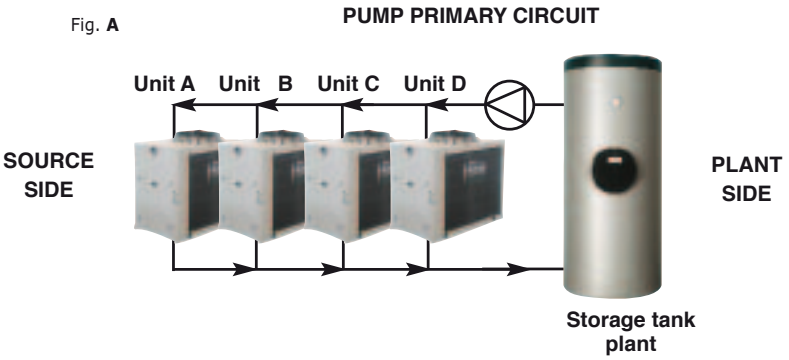
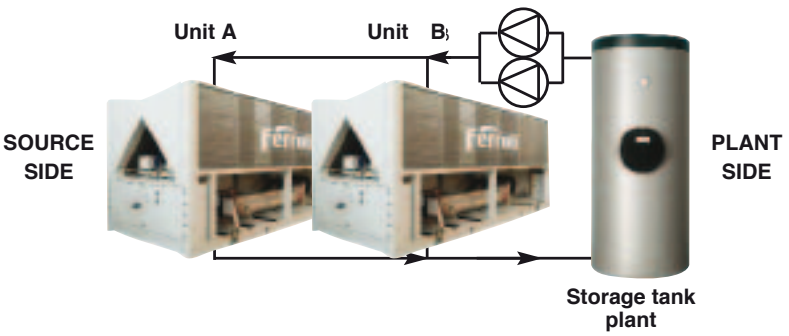


Fig. **A-1**

Suggested connection diagram



Connecting several units in cascade involves the calculation of a pumping system that correctly feeds each exchanger with the correct water flow-rate value given in the technical data of the units.
Qualified Ferroli personnel are available upon request to provide the delivery and pressure loss data of the units.

Ferroli
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Suggested connection diagram

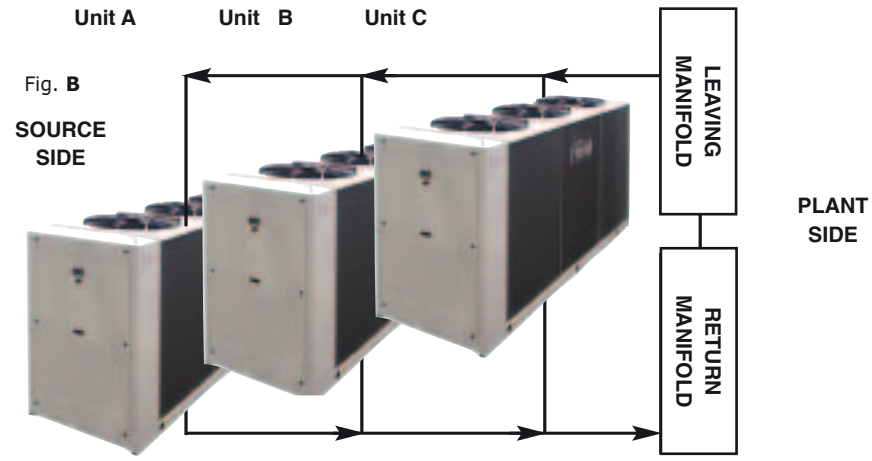


Fig. **B**

MANAGEMENT OF UNITS WITH PUMP FITTED INSIDE (ACCESSORY)

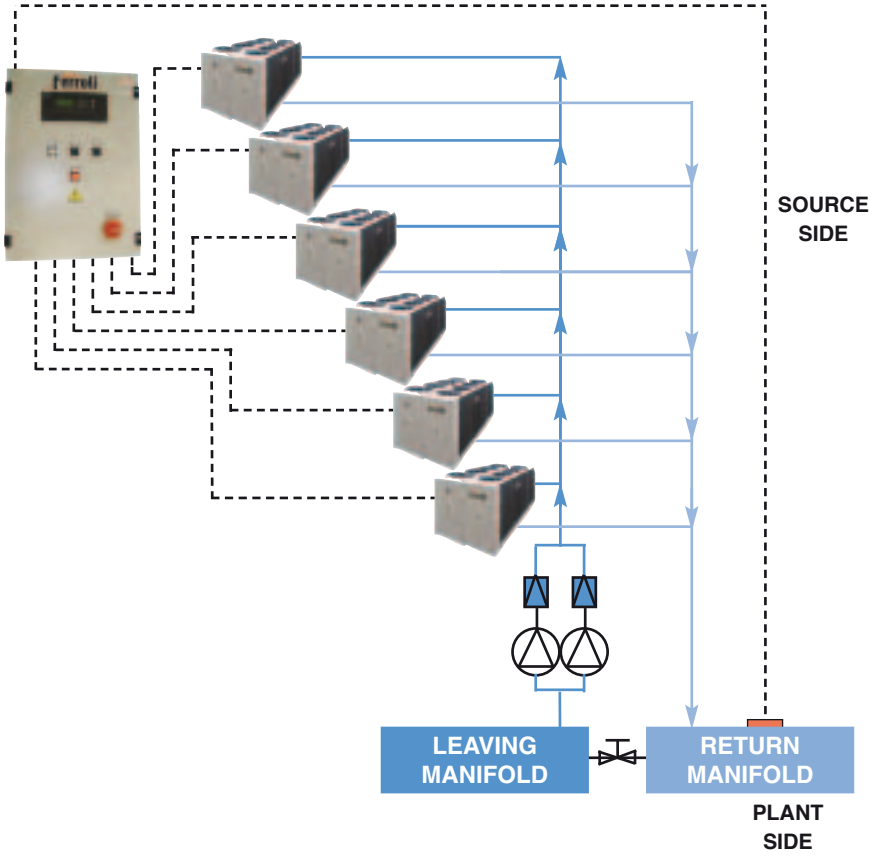
The Ferroli range encompasses (as an accessory when available), a range of pumping modules with tank, serving only the primary circuit (consisting of tank-pump-plate type exchanger) controlled directly by the microprocessor control.

This solution, as indicated in the example in figure B, enables the correct distribution of water even in the case of several units. The tank-pump (accessory) system is installed and tested at the factory.

NB: In specific cases, for correct operation and maintenance of the hydronic circuit all the components are fitted standard inside the unit (refer to the item "pumping modules" in the guide).

The installer only has to ensure the hydraulic connection of the units and the various electrical connections.

Suggested connection diagram



MANAGEMENT OF UNITS WITH PUMP FITTED INSIDE (ACCESSORY)

In the case opposite, six RLA units configured with just the Pipe Kit are connected to a 6GFC system.

The electrical panel controls the six units and the single or twin pump.

The pumps electrical protection and power supply installation are the installer's responsibility. The pumping system must be provided with a one-way valve (in case of twin pump), mesh filter, system calibration valves, expansion tank, safety valve and anything else necessary to make the system operational and easily serviced.

UNIT CONSENT MANAGEMENT

All the electrical connections for activation consent and for management of the units must be taken to the electrical panel and an NTC probe, supplied standard, and must be connected for the system water temperature reading.

> RXA

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION

EUROVENT CERTIFIED PERFORMANCE

ECO-FRIENDLY R410A REFRIGERANT GAS

ADAPTIVE FUNCTION

Available range

Unit type

IR Chiller

IP Heat pump
(reversible on the refrigerant side)

Versions

VB Base Version

VP Pump version

VA Tank version

Acoustic setting up

AB Base setting up

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of small and medium size.

All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with rotary or scroll compressor (according to the model) mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve, reverse cycle valve, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins. The circuit is protected by high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units are equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control.

All three-phase power supply units are provided with a phase presence and correct sequence controller device.

All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module

- not present (VB - base version)
- standard, high head or modulating pump (VP - pump version)
- tank and standard, high head or modulating pump (VA - tank version)

Integrative electrical heaters

- standard in the flow (only VB and VP versions)
- standard in the tank (only VA version)
- upsized in the tank (only VA version)

Compressor starting

- standard (contactors)
- soft starter

Accessories

Rubber vibration dampers
Coil protection grille
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller

NOMINAL performances - Standard plants

IR	Base acoustic setting up (AB)	6.1	7.1	9.1	11.1	14.1	17.1	
A35W7	Cooling capacity	6,24	7,24	9,12	10,6	14,1	16,7	kW
	Power input	2,31	2,81	3,52	4,16	5,25	6,49	kW
	EER	**2,70**	**2,58**	**2,59**	**2,55**	**2,69**	**2,57**	-
	Water flow rate	1074	1246	1573	1836	2437	2883	l/h
	Pressure drops	17	21	31	40	43	39	kPa
	Available static head (standard pump)	54	49	36	24	72	46	kPa
IP	**Base acoustic setting up (AB)**	**6.1**	**7.1**	**9.1**	**11.1**	**14.1**	**17.1**	
A35W7	Cooling capacity	6,12	7,10	8,95	10,4	13,8	16,4	kW
	Power input	2,31	2,81	3,51	4,15	5,24	6,49	kW
	EER	**2,65**	**2,53**	**2,55**	**2,51**	**2,63**	**2,53**	-
	Water flow rate	1054	1222	1543	1802	2385	2831	l/h
	Pressure drops	16	20	30	39	42	38	kPa
	Available static head (standard pump)	55	49	37	26	77	51	kPa
A7W45	Heating capacity	6,78	7,87	9,95	11,7	15,4	18,2	kW
	Power input	2,22	2,71	3,38	4,01	5,06	6,25	kW
	COP	**3,05**	**2,90**	**2,94**	**2,92**	**3,04**	**2,91**	-
	Water flow rate	1154	1339	1690	1981	2612	3090	l/h
	Pressure drops	18	24	35	45	48	43	kPa
	Available static head (standard pump)	52	46	31	17	57	25	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base acoustic setting up (AB)	6.1	7.1	9.1	11.1	14.1	17.1	
A35W7	Cooling capacity	6,23	7,45	9,44	10,9	13,9	17,4	kW
	Power input	2,12	2,80	3,66	4,08	5,05	6,54	kW
	EER	**2,94**	**2,66**	**2,58**	**2,67**	**2,75**	**2,66**	-
	ESEER	**3,33**	**3,01**	**2,92**	**3,02**	**3,11**	**3,01**	-
	Pressure drops	28	39	26	34	41	36	kPa
IP	**Base acoustic setting up (AB)**	**6.1**	**7.1**	**9.1**	**11.1**	**14.1**	**17.1**	
A35W7	Cooling capacity	6,02	7,14	9,24	10,7	13,7	17,2	kW
	Power input	2,13	2,81	3,67	4,08	5,06	6,54	kW
	EER	**2,83**	**2,54**	**2,52**	**2,62**	**2,71**	**2,63**	-
	ESEER	**3,21**	**2,88**	**2,85**	**2,97**	**3,07**	**2,98**	-
	Pressure drops	26	36	25	33	40	35	kPa
A7W45	Heating capacity	6,96	8,14	10,3	11,4	15,2	18,5	kW
	Power input	2,21	2,69	3,60	3,99	4,83	6,27	kW
	COP	**3,15**	**3,03**	**2,86**	**2,86**	**3,15**	**2,95**	-
	Pressure drops	34	45	31	37	48	40	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

NOMINAL performances - Radiant plants

IR	Base acoustic setting up (AB)	6.1	7.1	9.1	11.1	14.1	17.1	
A35W18	Cooling capacity	7,48	8,67	10,9	12,7	16,8	20,0	kW
	Power input	2,39	2,91	3,64	4,32	5,46	6,75	kW
	EER	**3,13**	**2,98**	**2,99**	**2,94**	**3,08**	**2,96**	-
	Water flow rate	1290	1496	1889	2198	2920	3469	l/h
	Pressure drops	22	29	42	53	58	53	kPa
	Available static head (standard pump)	47	39	22	6	25	-	kPa
IP	**Base acoustic setting up (AB)**	**6.1**	**7.1**	**9.1**	**11.1**	**14.1**	**17.1**	
A35W18	Cooling capacity	7,34	8,50	10,7	12,5	16,6	19,6	kW
	Power input	2,39	2,91	3,64	4,31	5,45	6,74	kW
	EER	**3,07**	**2,92**	**2,94**	**2,90**	**3,05**	**2,91**	-
	Water flow rate	1266	1467	1855	2164	2868	3400	l/h
	Pressure drops	22	28	41	52	56	51	kPa
	Available static head (standard pump)	48	40	23	8	30	-	kPa
A7W35	Heating capacity	6,92	8,03	10,2	11,9	15,7	18,6	kW
	Power input	1,87	2,28	2,86	3,39	4,27	5,28	kW
	COP	**3,70**	**3,52**	**3,57**	**3,51**	**3,68**	**3,52**	-
	Water flow rate	1183	1371	1731	2023	2674	3171	l/h
	Pressure drops	19	25	36	47	50	46	kPa
	Available static head (standard pump)	51	44	29	15	51	16	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base acoustic setting up (AB)	6.1	7.1	9.1	11.1	14.1	17.1	
	Sound power level	69	69	72	72	74	74	dB(A)
	Sound pressure level at 1 metre	55	55	57	57	59	59	dB(A)
	Sound pressure level at 5 metres	44	44	46	46	48	48	dB(A)
	Sound pressure level at 10 metres	38	38	41	41	43	43	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, IP	-10	48	-15	42	°C
Water outlet temperature	IR, IP	5	25	30	55	°C

TECHNICAL DATA	6.1	7.1	9.1	11.1	14.1	17.1	
Power supply	230 - 1 - 50	230 - 1 - 50	230 - 1 - 50 400 - 3N - 50	230 - 1 - 50 400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	rotary	rotary	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	n°
Plant side heat exchanger type	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	-
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Fans type	axial	axial	axial	axial	axial	axial	-
N° fans	1	1	1	1	1	1	n°
Tank volume	33	33	50	50	71	71	l
Hydraulic fittings	1" M	1" M	1" M	1" M	1" M	1" M	-

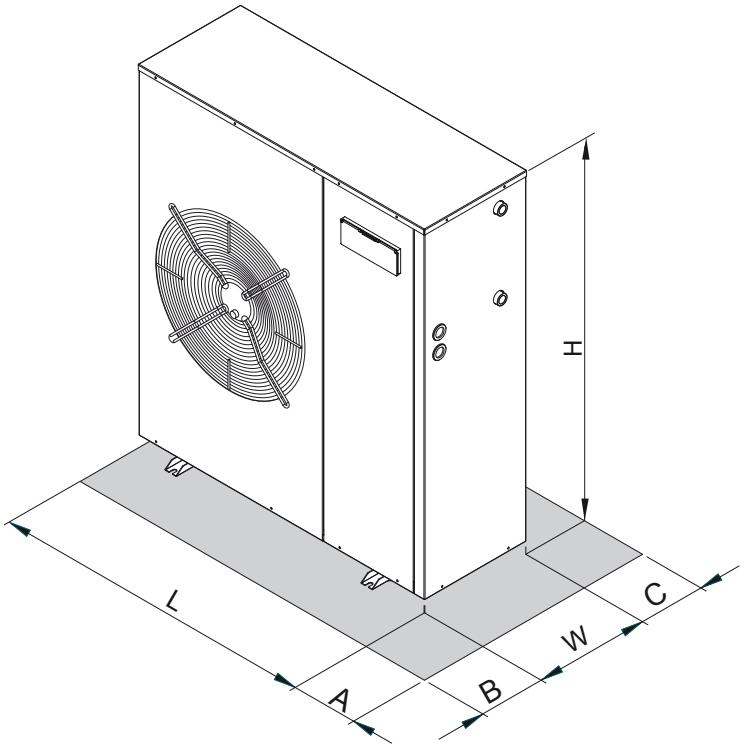
CONTROL SYSTEM

The unit is managed by a microprocessor controller to which, through a wiring board, all the electrical loads and the control devices are connected. The user interface is realized by a display and four buttons that allow to view and, if necessary, modify all the operating parameters of the unit. It's available, as an accessory, a remote control that reports all the functionalities of the user interface placed on the unit.

The main functions available are:

- water temperature management (through set point adjustment)
- climatic control in heating and in cooling mode (automatic set point adjustment according to outdoor air temperature)
- dynamic defrost cycle management according to outdoor air temperature
- alarm memory management and diagnostic
- fans management by means of continuous rotational speed control
- pump management
- integrative electrical heaters management in heating mode (2 step logic)
- compressor and pump operating hours recording
- serial communication through Modbus protocol
- remote stand by
- remote cooling-heating
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



	Version	6.1	7.1	9.1	11.1	14.1	17.1	
L	VB - VP	994	994	994	994	994	994	mm
	VA	1329	1329	1329	1329	1329	1329	mm
W	-	356	356	356	356	356	356	mm
H	-	903	903	1153	1153	1453	1453	mm
A	-	400	400	400	400	400	400	mm
B	-	600	600	600	600	600	600	mm
C	-	200	200	200	200	200	200	mm

> RMA

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION

ADAPTIVE FUNCTION

NEW

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Versions

VB	Base Version
VP	Pump version
VA	Tank version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of small and medium size.

All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressor mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve, reverse cycle valve, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins. The circuit is protected by high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors.

All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control. All the units are provided with a phase presence and correct sequence controller device. All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module
- not present (VB - base version)
- standard, high head or modulating pump (VP - pump version)
- tank and standard, high head or modulating pump (VA - tank version)

Integrative electrical heaters
- not present
- standard in the tank

Compressor starting
- standard (contactors)
- soft starter

Fans control
- on-off control
- modulating control (condensation / evaporation control)

Electrical loads protection
- fuses
- thermal magnetic circuit breakers

Compressor power factor correction

Accessories

Rubber vibration dampers
Coil protection grille
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller

NOMINAL performances - Standard plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,9	22,1	25,8	30,8	35,6	40,2	kW
	Power input	6,82	7,50	8,76	10,8	12,3	13,9	kW
	EER	2,92	2,95	2,95	2,85	2,89	2,89	-
	Water flow rate	3432	3809	4444	5319	6143	6932	l/h
	Pressure drops	26	31	26	36	31	38	kPa
	Available static head (standard pump)	146	135	130	104	130	111	kPa
IR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,1	21,2	24,8	29,6	34,2	38,6	kW
	Power input	7,34	8,09	9,42	11,6	13,3	15,0	kW
	EER	2,60	2,62	2,63	2,55	2,57	2,57	-
	Water flow rate	3295	3655	4273	5113	5903	6658	l/h
	Pressure drops	24	29	24	33	28	36	kPa
	Available static head (standard pump)	150	139	134	111	135	118	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,5	21,7	25,3	30,2	34,9	39,4	kW
	Power input	6,75	7,42	8,66	10,7	12,2	13,8	kW
	EER	2,89	2,92	2,92	2,82	2,86	2,86	-
	Water flow rate	3363	3741	4358	5216	6023	6795	l/h
	Pressure drops	25	30	25	35	29	37	kPa
	Available static head (standard pump)	148	137	132	108	132	114	kPa
A7W45	Heating capacity	21,0	23,3	27,1	32,5	37,6	42,4	kW
	Power input	6,49	7,14	8,33	10,3	11,7	13,4	kW
	COP	3,24	3,26	3,25	3,16	3,21	3,16	-
	Water flow rate	3568	3961	4610	5515	6386	7188	l/h
	Pressure drops	27	33	27	38	33	41	kPa
	Available static head (standard pump)	143	131	126	99	125	105	kPa
IP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	18,7	20,8	24,3	29,1	33,6	37,8	kW
	Power input	7,27	8,00	9,33	11,4	13,1	14,9	kW
	EER	2,57	2,60	2,60	2,55	2,56	2,54	-
	Water flow rate	3226	3586	4187	5010	5783	6520	l/h
	Pressure drops	23	28	23	32	27	34	kPa
	Available static head (standard pump)	152	142	137	114	137	121	kPa
A7W45	Heating capacity	19,9	22,2	25,8	31,0	35,8	40,3	kW
	Power input	6,22	6,85	7,98	9,88	11,3	12,8	kW
	COP	3,20	3,24	3,23	3,14	3,17	3,15	-
	Water flow rate	3381	3773	4388	5259	6078	6847	l/h
	Pressure drops	25	30	25	35	30	37	kPa
	Available static head (standard pump)	149	137	132	107	132	114	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	20,0	22,	25,9	31,0	35,8	40,4	kW
	Power input	6,74	7,39	8,65	10,6	12,1	13,7	kW
	EER	2,97	3,00	2,99	2,92	2,96	2,95	-
	ESEER	3,36	3,39	3,38	3,30	3,34	3,33	-
	Pressure drops	26	31	25	36	30	38	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,6	21,8	25,4	30,4	35,1	39,6	kW
	Power input	6,67	7,32	8,56	10,5	12,0	13,6	kW
	EER	2,94	2,98	2,97	2,90	2,93	2,91	-
	ESEER	3,32	3,37	3,36	3,28	3,31	3,29	-
	Pressure drops	25	30	25	34	29	37	kPa
A7W45	Heating capacity	20,9	23,2	27,0	32,3	37,4	42,1	kW
	Power input	6,40	7,02	8,21	10,1	11,5	13,1	kW
	COP	3,27	3,30	3,29	3,20	3,25	3,21	-
	Pressure drops	28	34	27	39	33	41	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

NOMINAL performances - Radiant plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	24,6	27,3	31,9	38,1	44,1	49,6	kW
	Power input	7,09	7,81	9,11	11,2	12,8	14,6	kW
	EER	3,47	3,50	3,50	3,40	3,45	3,40	-
	Water flow rate	4259	4723	5513	6595	7625	8604	l/h
	Pressure drops	39	47	38	54	46	58	kPa
	Available static head (standard pump)	120	104	99	65	93	66	kPa
IR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	23,7	26,2	30,7	36,7	42,4	47,7	kW
	Power input	7,62	8,41	9,79	12,0	13,8	15,6	kW
	EER	3,11	3,12	3,14	3,06	3,07	3,06	-
	Water flow rate	4087	4534	5307	6354	7333	8261	l/h
	Pressure drops	36	43	36	50	43	54	kPa
	Available static head (standard pump)	126	111	105	73	101	76	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	24,2	26,8	31,3	37,4	43,2	48,7	kW
	Power input	7,01	7,73	9,01	11,1	12,7	14,4	kW
	EER	3,45	3,47	3,47	3,37	3,40	3,38	-
	Water flow rate	4173	4637	5410	6475	7471	8432	l/h
	Pressure drops	37	45	37	52	44	56	kPa
	Available static head (standard pump)	123	107	102	69	97	71	kPa
A7W35	Heating capacity	21,40	23,80	27,70	33,20	38,40	43,30	kW
	Power input	5,48	6,03	7,03	8,71	9,91	11,30	kW
	COP	3,91	3,95	3,94	3,81	3,87	3,83	-
	Water flow rate	3651	4063	4731	5657	6549	7371	l/h
	Pressure drops	29	35	29	40	34	43	kPa
	Available static head (standard pump)	140	127	122	95	121	100	kPa
IP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	23,2	25,7	30,1	35,9	41,5	46,7	kW
	Power input	7,55	8,32	9,69	11,9	13,7	15,5	kW
	EER	3,07	3,09	3,11	3,02	3,03	3,01	-
	Water flow rate	4002	4448	5204	6217	7179	8089	l/h
	Pressure drops	34	42	34	48	41	51	kPa
	Available static head (standard pump)	129	114	108	77	105	81	kPa
A7W35	Heating capacity	20,3	22,6	26,3	31,6	36,5	41,2	kW
	Power input	5,24	5,77	6,73	8,34	9,49	10,9	kW
	COP	3,87	3,92	3,91	3,79	3,85	3,78	-
	Water flow rate	3463	3857	4491	5383	6223	7011	l/h
	Pressure drops	26	32	26	37	31	39	kPa
	Available static head (standard pump)	146	134	129	103	128	109	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	77	77	78	81	82	82	dB(A)
	Sound pressure level at 1 metre	61	62	62	65	66	66	dB(A)
	Sound pressure level at 5 metres	51	51	52	55	55	56	dB(A)
	Sound pressure level at 10 metres	46	46	47	50	50	50	dB(A)
	Low noise acoustic setting up (AS)	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
	Sound power level	74	74	75	78	79	79	dB(A)
	Sound pressure level at 1 metre	58	59	59	62	63	63	dB(A)
	Sound pressure level at 5 metres	48	48	49	52	53	53	dB(A)
	Sound pressure level at 10 metres	43	43	44	47	48	48	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	5	48	-15	42	°C
Water outlet temperature	IR, IP	5	25	30	55	°C
Water outlet temperature	BR, BP	-12	25	30	55	°C

TECHNICAL DATA	19.1	22.1	26.1	30.1	35.1	40.1	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	n°
Plant side heat exchanger type	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	-
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Fans type	axial	axial	axial	axial	axial	axial	-
N° fans	1	1	1	1	1	1	n°
Tank volume	85	85	85	85	85	85	l
Hydraulic fittings	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	-

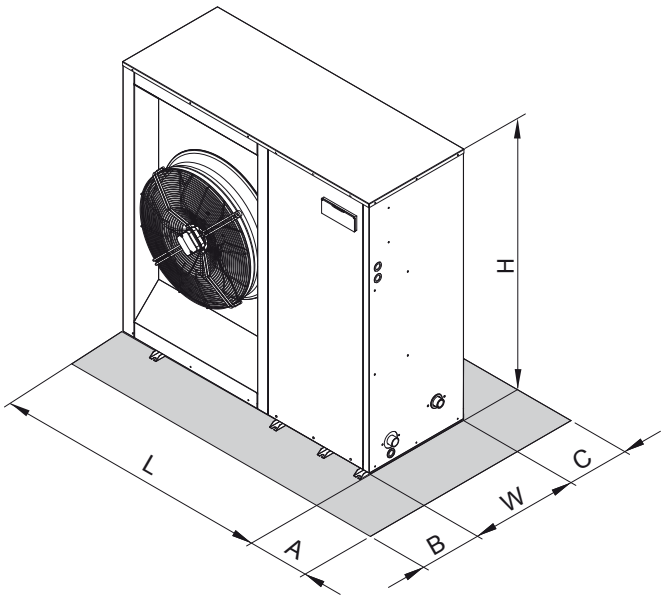
CONTROL SYSTEM

The unit is managed by a microprocessor controller to which, through a wiring board, all the electrical loads and the control devices are connected. The user interface is realized by a display and four buttons that allow to view and, if necessary, modify all the operating parameters of the unit. It’s available, as an accessory, a remote control that reports all the functionalities of the user interface placed on the unit.

The main functions available are:

- water temperature management (through set point adjustment)
- adaptive function
- climatic control in heating and in cooling mode (automatic set point adjustment according to outdoor air temperature)
- dynamic defrost cycle management according to outdoor air temperature
- alarm memory management and diagnostic
- fans management by means of continuous rotational speed control
- pump management
- integrative electrical heaters management in heating mode (2 step logic)
- compressor and pump operating hours recording
- serial communication through Modbus protocol
- remote stand by
- remote cooling-heating
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



	19.1	22.1	26.1	30.1	35.1	40.1	
L	1494	1494	1494	1704	1704	1704	mm
W	576	576	576	576	576	576	mm
H	1453	1453	1453	1453	1453	1453	mm
A	400	400	400	400	400	400	mm
B	600	600	600	600	600	600	mm
C	200	200	200	200	200	200	mm

> RMA HE

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION

NEW

ADAPTIVE FUNCTION

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Versions

VB	Base Version
VP	Pump version
VA	Tank version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of small and medium size.

All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressor mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve, reverse cycle valve, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins. The circuit is protected by high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors. All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control. All the units are provided with a phase presence and correct sequence controller device. All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module
- not present (VB - base version)
- standard, high head or modulating pump (VP - pump version)
- tank and standard, high head or modulating pump (VA - tank version)

Integrative electrical heaters
- not present
- standard in the tank

Compressor starting
- standard (contactors)
- soft starter

Fans control
- on-off control
- modulating control (condensation / evaporation control)

Electrical loads protection
- fuses
- thermal magnetic circuit breakers

Compressor power factor correction

Accessories

Rubber vibration dampers
Coil protection grille
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller

NOMINAL performances - Standard plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	20,10	22,30	26,10	31,50	36,60	41,30	kW
	Power input	6,51	7,15	8,29	10,30	11,90	13,50	kW
	EER	3,09	3,12	3,15	3,06	3,08	3,06	-
	Water flow rate	3466	3844	4496	5439	6315	7138	l/h
	Pressure drops	26	32	26	37	32	41	kPa
	Available static head (standard pump)	145	133	128	101	126	106	kPa
IR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,30	21,40	25,10	30,30	35,20	39,80	kW
	Power input	7,02	7,71	8,94	11,10	12,80	14,40	kW
	EER	2,75	2,78	2,81	2,73	2,75	2,76	-
	Water flow rate	3329	3689	4324	5234	6074	6864	l/h
	Pressure drops	24	29	24	35	30	38	kPa
	Available static head (standard pump)	149	138	133	107	131	113	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,70	21,90	25,60	30,90	35,90	40,50	kW
	Power input	6,45	7,08	8,20	10,20	11,80	13,40	kW
	EER	3,05	3,09	3,12	3,03	3,04	3,02	-
	Water flow rate	3398	3775	4410	5337	6194	7001	l/h
	Pressure drops	25	31	25	36	31	39	kPa
	Available static head (standard pump)	147	136	131	104	128	109	kPa
A7W45	Heating capacity	21,20	23,50	27,40	33,30	38,60	43,80	kW
	Power input	6,21	6,82	7,89	9,79	11,30	12,90	kW
	COP	3,41	3,45	3,47	3,40	3,42	3,40	-
	Water flow rate	3603	3995	4661	5651	6556	7427	l/h
	Pressure drops	28	34	28	40	34	43	kPa
	Available static head (standard pump)	142	130	125	95	121	99	kPa
IP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	18,90	21,00	24,60	29,70	34,50	39,00	kW
	Power input	6,95	7,63	8,84	11,00	12,70	14,30	kW
	EER	2,72	2,75	2,78	2,70	2,72	2,73	-
	Water flow rate	3260	3621	4238	5131	5954	6726	l/h
	Pressure drops	23	28	23	34	29	36	kPa
	Available static head (standard pump)	151	140	135	110	134	116	kPa
A7W45	Heating capacity	20,10	22,30	26,10	31,70	36,70	41,70	kW
	Power input	5,95	6,54	7,56	9,38	10,90	12,40	kW
	COP	3,38	3,41	3,45	3,38	3,37	3,36	-
	Water flow rate	3415	3790	4439	5378	6232	7069	l/h
	Pressure drops	25	31	25	36	31	40	kPa
	Available static head (standard pump)	148	136	131	104	129	108	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	20,20	22,40	26,20	31,70	36,80	41,60	kW
	Power input	6,43	7,04	8,18	10,10	11,70	13,20	kW
	EER	3,14	3,18	3,20	3,14	3,15	3,15	-
	ESEER	3,55	3,59	3,62	3,55	3,56	3,56	-
	Pressure drops	26	32	26	37	32	40	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,80	22,00	25,70	31,10	36,10	40,80	kW
	Power input	6,37	6,97	8,10	9,98	11,60	13,10	kW
	EER	3,11	3,16	3,17	3,12	3,11	3,11	-
	ESEER	3,51	3,57	3,58	3,53	3,51	3,51	-
	Pressure drops	25	31	25	36	31	39	kPa
A7W45	Heating capacity	21,10	23,40	27,30	33,10	38,40	43,50	kW
	Power input	6,12	6,69	7,77	9,58	11,10	12,60	kW
	COP	3,45	3,50	3,51	3,46	3,46	3,45	-
	Pressure drops	28	34	28	40	35	44	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

NOMINAL performances - Radiant plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	26,10	28,90	33,90	40,80	47,40	53,50	kW
	Power input	6,67	7,35	8,49	10,60	12,20	13,90	kW
	EER	3,91	3,93	3,99	3,85	3,89	3,85	-
	Water flow rate	4517	4998	5856	7076	8209	9291	l/h
	Pressure drops	43	52	43	62	53	67	kPa
	Available static head (standard pump)	111	94	88	50	77	46	kPa
IR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	25,00	27,80	32,60	39,30	45,60	51,50	kW
	Power input	7,18	7,91	9,14	11,40	13,10	14,80	kW
	EER	3,48	3,51	3,57	3,45	3,48	3,48	-
	Water flow rate	4328	4809	5633	6818	7900	8930	l/h
	Pressure drops	40	48	40	57	49	62	kPa
	Available static head (standard pump)	118	101	95	58	86	56	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	25,50	28,40	33,20	40,00	46,50	52,50	kW
	Power input	6,60	7,27	8,40	10,50	12,10	13,70	kW
	EER	3,86	3,91	3,95	3,81	3,84	3,83	-
	Water flow rate	4414	4912	5736	6938	8055	9102	l/h
	Pressure drops	41	50	41	59	51	64	kPa
	Available static head (standard pump)	115	97	92	54	82	51	kPa
A7W35	Heating capacity	21,60	24,00	28,00	34,00	39,40	44,70	kW
	Power input	5,24	5,76	6,66	8,28	9,57	10,90	kW
	COP	4,12	4,17	4,20	4,11	4,12	4,10	-
	Water flow rate	3686	4097	4783	5794	6720	7611	l/h
	Pressure drops	29	36	29	42	36	46	kPa
	Available static head (standard pump)	139	126	121	91	117	94	kPa
IP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	24,50	27,20	31,90	38,60	44,80	50,50	kW
	Power input	7,10	7,81	9,04	11,20	12,90	14,70	kW
	EER	3,45	3,48	3,53	3,45	3,47	3,44	-
	Water flow rate	4242	4706	5513	6681	7745	8759	l/h
	Pressure drops	38	47	38	55	47	60	kPa
	Available static head (standard pump)	121	104	99	63	90	62	kPa
A7W35	Heating capacity	20,50	22,80	26,60	32,30	37,40	42,50	kW
	Power input	5,02	5,52	6,38	7,92	9,17	10,50	kW
	COP	4,08	4,13	4,17	4,08	4,08	4,05	-
	Water flow rate	3497	3891	4543	5503	6377	7234	l/h
	Pressure drops	26	32	27	38	33	42	kPa
	Available static head (standard pump)	145	133	128	99	125	104	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	77	77	78	81	82	82	dB(A)
	Sound pressure level at 1 metre	61	62	62	65	66	66	dB(A)
	Sound pressure level at 5 metres	51	51	52	55	55	56	dB(A)
	Sound pressure level at 10 metres	46	46	47	50	50	50	dB(A)
	Low noise acoustic setting up (AS)	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
	Sound power level	74	74	75	78	79	79	dB(A)
	Sound pressure level at 1 metre	58	59	59	62	63	63	dB(A)
	Sound pressure level at 5 metres	48	48	49	52	53	53	dB(A)
	Sound pressure level at 10 metres	43	43	44	47	48	48	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	5	48	-15	42	°C
Water outlet temperature	IR, IP	5	25	30	55	°C
Water outlet temperature	BR, BP	-12	25	30	55	°C

TECHNICAL DATA	19.1	22.1	26.1	30.1	35.1	40.1	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	n°
Plant side heat exchanger type	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	-
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Fans type	axial	axial	axial	axial	axial	axial	-
N° fans	1	1	1	1	1	1	n°
Tank volume	85	85	85	85	85	85	l
Hydraulic fittings	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	-

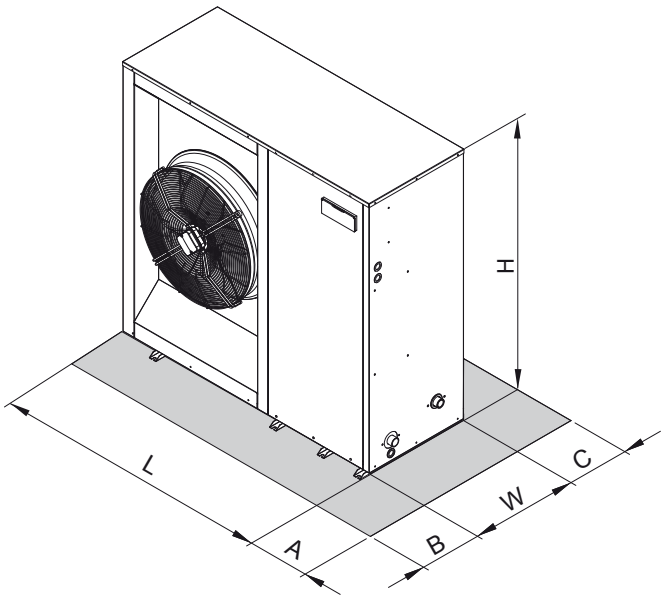
CONTROL SYSTEM

The unit is managed by a microprocessor controller to which, through a wiring board, all the electrical loads and the control devices are connected. The user interface is realized by a display and four buttons that allow to view and, if necessary, modify all the operating parameters of the unit. It’s available, as an accessory, a remote control that reports all the functionalities of the user interface placed on the unit.

The main functions available are:

- water temperature management (through set point adjustment)
- adaptive function
- climatic control in heating and in cooling mode (automatic set point adjustment according to outdoor air temperature)
- dynamic defrost cycle management according to outdoor air temperature
- alarm memory management and diagnostic
- fans management by means of continuous rotational speed control
- pump management
- integrative electrical heaters management in heating mode (2 step logic)
- compressor and pump operating hours recording
- serial communication through Modbus protocol
- remote stand by
- remote cooling-heating
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



> RGA

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION

EUROVENT CERTIFIED PERFORMANCE

ECO-FRIENDLY R410A REFRIGERANT GAS

ADAPTIVE FUNCTION

NEW

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of medium size. All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve (standard for IR) or electronic expansion valve (standard for IP / option for IR), reverse cycle valve, dehydrator filter, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches and differential pressure switch on the plate heat exchanger. The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

The eXtra low noise acoustic setting up (AX) is obtained, starting from the low noise setting up (AS), further reducing the rotational speed of the fans and using finned coil with bigger surface.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree. All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module available in the configurations :

- Storage tank arranged as buffer on the flow or as primary-secondary buffer
- 1 or 2 pumps
- standard or high head pump
- modulating pump

Expansion valve

- thermostatic
- electronic (standard for IP)

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection

- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for IP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Water flow switch
Victaulic hydraulic fittings

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	45,3	53,5	58,6	68,8	78,7	91,0	102	112	126	143	158	180	200	kW
	Power input	15,4	18,3	20,3	23,5	27,4	31,8	35,2	39,1	44,1	50,4	55,9	63,2	70,0	kW
	EER	2,94	2,92	2,89	2,93	2,87	2,86	2,90	2,86	2,86	2,84	2,83	2,85	2,86	-
	ESEER	4,18	4,15	4,10	4,16	4,08	4,18	4,11	4,18	4,06	4,14	4,01	4,04	4,06	-
	Pressure drops	40	56	55	51	50	48	46	44	48	47	48	48	50	kPa
IR	**Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	43,9	51,9	56,8	66,7	76,3	88,2	98,5	109	122	139	153	175	194	kW
	Power input	16,0	19,0	21,1	24,4	28,6	33,1	36,6	40,7	45,9	52,4	58,1	65,7	72,8	kW
	EER	2,74	2,73	2,69	2,73	2,67	2,66	2,69	2,68	2,66	2,65	2,63	2,66	2,66	-
	ESEER	4,05	4,03	3,98	4,04	3,94	4,05	3,97	4,07	3,93	4,03	3,89	3,93	3,94	-
	Pressure drops	38	53	52	48	47	45	43	42	45	44	45	45	47	kPa
IR	**eXtra low noise setting up (AX)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	42,9	50,7	55,5	65,2	74,5	86,2	96,2	106	119	135	150	170	189	kW
	Power input	16,1	19,4	21,7	24,9	29,4	32,2	37,7	41,9	47,3	53,4	59,3	67,6	74,9	kW
	EER	2,66	2,61	2,56	2,62	2,53	2,68	2,55	2,53	2,52	2,53	2,53	2,51	2,52	-
	ESEER	4,21	4,13	4,04	4,14	4,00	4,35	4,03	4,11	3,98	4,11	4,00	3,97	3,99	-
	Pressure drops	36	50	49	46	45	43	41	39	43	42	43	43	45	kPa
IP	**Base acoustic setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	43,8	52,9	57,5	67,2	74,1	89,2	99,0	110	122	138	154	178	198	kW
	Power input	15,2	18,5	20,2	23,6	26,5	31,6	35,0	39,0	43,6	49,3	55,2	62,2	69,7	kW
	EER	2,88	2,86	2,85	2,85	2,80	2,82	2,83	2,82	2,80	2,80	2,79	2,86	2,84	-
	ESEER	4,09	4,06	4,04	4,04	3,97	4,12	4,02	4,12	3,97	4,09	3,96	4,06	4,03	-
	Pressure drops	37	55	53	49	44	46	43	43	45	44	46	47	49	kPa
A7W45	Heating capacity	47,8	57,5	62,6	73,8	82,3	98,7	109	124	135	153	171	195	214	kW
	Power input	15,3	18,5	20,3	23,7	26,9	32,6	35,0	40,0	43,7	50,5	55,4	63,4	69,8	kW
	COP	3,12	3,11	3,08	3,11	3,06	3,03	3,11	3,10	3,09	3,03	3,09	3,08	3,07	-
	Pressure drops	45	65	63	59	55	57	53	54	55	54	56	56	57	kPa
IP	**Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	42,0	50,8	55,2	64,5	71,1	85,6	95,0	106	117	132	148	171	190	kW
	Power input	15,8	19,6	21,4	25,0	28,1	33,5	37,1	41,3	46,2	52,3	58,5	65,9	73,9	kW
	EER	2,66	2,59	2,58	2,58	2,53	2,56	2,56	2,57	2,53	2,52	2,53	2,59	2,57	-
	ESEER	3,93	3,83	3,81	3,81	3,74	3,88	3,78	3,90	3,74	3,83	3,74	3,83	3,80	-
	Pressure drops	35	50	49	45	41	42	40	39	41	40	42	43	45	kPa
A7W45	Heating capacity	46,6	56,0	61,1	71,9	80,2	96,2	106	121	132	149	167	190	209	kW
	Power input	14,6	17,7	19,4	22,6	25,7	31,1	33,4	38,2	41,7	48,2	52,9	60,5	66,7	kW
	COP	3,19	3,16	3,15	3,18	3,12	3,09	3,17	3,17	3,17	3,09	3,16	3,14	3,13	-
	Pressure drops	43	61	60	56	52	54	50	51	53	51	54	54	55	kPa
IP	**eXtra low noise setting up (AX)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	41,2	49,7	54,1	63,2	69,7	83,8	93,1	103	115	130	145	167	186	kW
	Power input	16,9	20,7	22,6	26,4	29,7	35,4	39,2	43,7	48,8	55,2	61,8	69,7	78,1	kW
	EER	2,44	2,40	2,39	2,39	2,35	2,37	2,38	2,36	2,36	2,36	2,35	2,40	2,38	-
	ESEER	3,85	3,79	3,78	3,78	3,71	3,85	3,75	3,83	3,72	3,83	3,71	3,79	3,76	-
	Pressure drops	33	48	47	43	39	41	38	37	40	39	40	41	43	kPa
A7W45	Heating capacity	44,9	54,0	58,9	69,4	77,4	92,8	103	117	127	144	161	183	201	kW
	Power input	13,9	16,8	18,5	21,6	24,5	29,7	31,9	36,4	39,8	46,0	50,4	57,7	63,5	kW
	COP	3,23	3,21	3,18	3,21	3,16	3,12	3,23	3,21	3,19	3,13	3,19	3,17	3,17	-
	Pressure drops	40	57	55	52	48	50	47	48	49	48	50	50	50	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Power supply	400 - 3+N - 50					400 - 3 - 50								V-ph-Hz
Compressor type	scroll													-
N° compressors / N° refrigerant circuits	2 / 1													n°
Plant side heat exchanger type	stainless steel brazed plates													-
Source side heat exchanger type	finned coil													-
Fans type	axial													-
N° fans	2		3			2				3		4		n°
Tank volume	200					400						460		l
Hydraulic fittings	2" VICTAULIC					2" 1/2 VICTAULIC								-

NOMINAL performances - Standard plants

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	45,0	53,0	58,1	68,2	78,1	90,3	101	111	125	142	157	179	198	kW
	Power input	15,7	18,8	20,8	24,1	28,0	32,5	35,9	39,9	45,1	51,5	57,1	64,6	71,6	kW
	EER	2,87	2,82	2,79	2,83	2,79	2,78	2,81	2,78	2,77	2,76	2,75	2,77	2,77	-
	Water flow rate	2,16	2,56	2,80	3,29	3,76	4,35	4,87	5,35	6,02	6,83	7,55	8,60	9,56	l/s
	Pressure drops	40	56	55	51	50	48	46	44	48	47	48	48	50	kPa
IP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	43,5	52,4	57,0	66,7	73,6	88,5	98	109	121	137	153	177	196	kW
	Power input	15,5	19,0	20,7	24,1	27,0	32,3	35,7	39,8	44,5	50,3	56,3	63,5	71,2	kW
	EER	2,81	2,76	2,75	2,77	2,73	2,74	2,75	2,74	2,72	2,72	2,72	2,79	2,75	-
	Water flow rate	2,09	2,53	2,75	3,21	3,54	4,26	4,73	5,26	5,83	6,59	7,36	8,50	9,46	l/s
	Pressure drops	37	55	53	49	44	46	43	43	45	44	46	47	49	kPa
A7W45	Heating capacity	48,1	58,1	63,2	74,5	83,0	99,6	110	125	136	154	173	197	216	kW
	Power input	15,6	19,1	20,9	24,4	27,6	33,5	35,9	41,1	44,9	51,8	56,9	65,1	71,7	kW
	COP	3,08	3,04	3,02	3,05	3,01	2,97	3,06	3,04	3,03	2,97	3,04	3,03	3,01	-
	Water flow rate	2,28	2,75	2,99	3,53	3,93	4,72	5,21	5,92	6,45	7,31	8,17	9,32	10,2	l/s
	Pressure drops	45	65	63	59	55	57	53	54	55	54	56	56	57	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Radiant plants

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W18	Cooling capacity	58,3	68,5	75,1	88,2	100,6	116	131	144	162	184	202	231	257	kW
	Power input	17,1	20,8	22,9	26,4	30,8	35,6	39,4	43,6	49,4	56,4	62,5	70,7	78,5	kW
	EER	3,41	3,29	3,28	3,34	3,27	3,26	3,32	3,30	3,28	3,26	3,23	3,27	3,27	-
	Water flow rate	2,81	3,33	3,64	4,27	4,87	5,64	6,35	6,98	7,84	8,89	9,8	11,2	12,4	l/s
	Pressure drops	68	95	93	86	84	81	78	75	81	80	81	81	84	kPa
IP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W18	Cooling capacity	56,3	67,8	73,7	86,3	95,2	115	127	141	157	177	198	228	254	kW
	Power input	16,9	20,9	22,8	26,4	29,7	35,2	39,0	43,4	48,8	54,9	61,7	69,5	78,1	kW
	EER	3,33	3,24	3,23	3,27	3,21	3,27	3,26	3,25	3,22	3,22	3,21	3,28	3,25	-
	Water flow rate	2,72	3,29	3,57	4,18	4,60	5,54	6,16	6,83	7,60	8,55	9,56	11,0	12,3	l/s
	Pressure drops	63	92	89	82	75	78	74	72	77	74	77	79	83	kPa
A7W35	Heating capacity	51,1	61,7	67,1	79,0	88,0	106	117	132	144	164	183	209	229	kW
	Power input	12,9	15,7	17,3	20,1	22,7	27,9	29,8	34,0	37,1	43,0	47,2	54,3	59,6	kW
	COP	3,96	3,93	3,88	3,93	3,88	3,80	3,93	3,88	3,88	3,81	3,88	3,85	3,84	-
	Water flow rate	2,42	2,91	3,17	3,74	4,17	5,02	5,54	6,26	6,83	7,74	8,65	9,89	10,8	l/s
	Pressure drops	50	72	70	66	61	64	60	60	62	60	63	63	64	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
	Sound power level	80	80	83	84	84	85	85	85	86	87	87	88	88	dB(A)
	Sound pressure level at 1 metre	62	62	65	66	66	67	67	67	68	69	69	69	69	dB(A)
	Sound pressure level at 5 metres	53	53	56	57	57	58	58	58	59	60	60	61	61	dB(A)
	Sound pressure level at 10 metres	48	48	51	52	52	53	53	53	54	55	55	56	56	dB(A)
	Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
	Sound power level	77	77	80	81	81	82	82	82	83	84	84	85	85	dB(A)
	Sound pressure level at 1 metre	59	59	62	63	63	64	64	64	65	66	66	66	66	dB(A)
	Sound pressure level at 5 metres	50	50	53	54	54	55	55	55	56	57	57	58	58	dB(A)
	Sound pressure level at 10 metres	45	45	48	49	49	50	50	50	51	52	52	53	53	dB(A)
	eXtra low noise setting up (AX)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
	Sound power level	75	75	78	79	79	80	80	80	81	82	82	83	83	dB(A)
	Sound pressure level at 1 metre	57	57	60	61	61	62	62	62	63	64	64	64	64	dB(A)
	Sound pressure level at 5 metres	48	48	51	52	52	53	53	53	54	55	55	56	56	dB(A)
	Sound pressure level at 10 metres	43	43	46	47	47	48	48	48	49	50	50	51	51	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	50	-10	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	25	30	55	(°C)
Water outlet temperature (VD)	IR, BR, IP, BP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR, BR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45	Cooling capacity	47,1	55,6	60,9	71,6	81,8	94,6	106	116	131	149	164	187	208	kW
	Total power input	15,0	17,8	19,7	22,8	26,6	31,0	34,3	38,0	42,9	49,1	54,4	61,5	68,1	kW
	EER	**3,14**	**3,12**	**3,09**	**3,14**	**3,08**	**3,05**	**3,09**	**3,05**	**3,05**	**3,03**	**3,01**	**3,04**	**3,05**	-
	Water flow rate	2,25	2,66	2,91	3,42	3,91	4,52	5,06	5,54	6,26	7,12	7,84	8,93	9,94	l/s
	Water pressure drop	43	60	59	55	54	52	50	47	52	51	52	52	54	kPa
	Heating recovery capacity	13,5	15,7	17,6	20,0	23,6	27,1	30,4	34,4	38,4	44,0	49,3	55,4	61,3	kW
	Water flow rate recovery	0,65	0,75	0,84	0,96	1,13	1,29	1,45	1,64	1,83	2,10	2,36	2,65	2,93	l/s
	Water pressure drop recovery	6	9	11	14	19	15	18	11	14	18	22	18	21	kPa
IP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7 - W45	Cooling capacity	45,6	55,0	59,8	69,9	77,1	92,8	103	114	127	144	160	185	206	kW
	Total power input	14,8	18,0	19,6	22,9	25,8	30,8	34,1	37,9	42,4	48,0	53,7	60,6	67,8	kW
	EER	**3,08**	**3,06**	**3,05**	**3,05**	**2,99**	**3,01**	**3,02**	**3,01**	**3,00**	**3,00**	**2,98**	**3,05**	**3,04**	-
	Water flow rate	2,18	2,63	2,86	3,34	3,68	4,43	4,92	5,45	6,07	6,88	7,64	8,84	9,84	l/s
	Water pressure drop	41	59	57	53	48	50	47	46	49	48	49	51	53	kPa
	Heating recovery capacity	13,0	15,2	17,0	19,4	22,9	26,2	29,2	33,2	37,1	42,4	47,5	52,4	58,1	kW
	Water flow rate recovery	0,62	0,73	0,81	0,93	1,09	1,25	1,40	1,59	1,77	2,03	2,27	2,50	2,78	l/s
	Water pressure drop recovery	6	8	10	13	18	14	17	10	13	17	21	16	19	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45	Cooling capacity	47,1	55,6	60,9	71,6	81,8	94,6	106	116	131	149	164	187	208	kW
	Total power input	13,6	16,4	17,8	20,8	24,6	27,1	30,3	34,1	38,9	43,2	48,5	53,8	60,3	kW
	EER	**3,46**	**3,39**	**3,42**	**3,44**	**3,33**	**3,49**	**3,50**	**3,40**	**3,37**	**3,45**	**3,38**	**3,48**	**3,45**	-
	EER with recovery	**7,88**	**7,73**	**7,79**	**7,84**	**7,59**	**7,92**	**7,95**	**7,74**	**7,69**	**7,85**	**7,71**	**7,90**	**7,84**	-
	Water flow rate	2,25	2,66	2,91	3,42	3,91	4,52	5,06	5,54	6,26	7,12	7,84	8,93	9,94	l/s
	Water pressure drop	43	60	59	55	54	52	50	47	52	51	52	52	54	kPa
	Heating recovery capacity	60,0	71,2	77,8	91,4	105	120	135	148	168	190	210	238	265	kW
	Water flow rate recovery	2,87	3,40	3,72	4,37	5,02	5,73	6,45	7,07	8,03	9,08	10,0	11,4	12,7	l/s
	Water pressure drop recovery	35	49	41	45	50	48	52	47	52	51	52	55	55	kPa

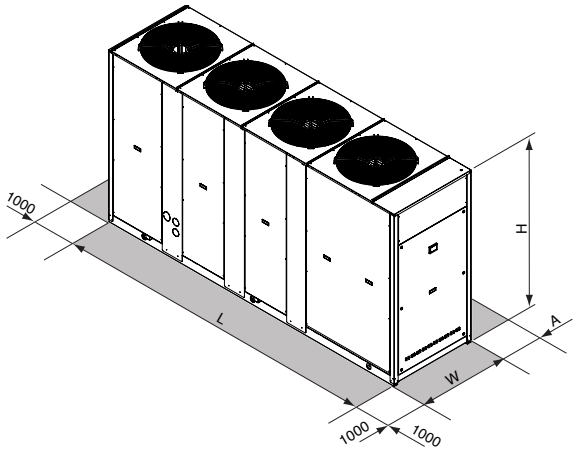
A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions :

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
L	2501					3343			3343			4097		mm
W	954					1104			1104			1104		mm
H	1930					1793			2193			2193		mm
A	1600								2000					mm
Operating maximum weight	1027	1031	1053	1088	1107	1587	1668	1749	1833	1891	1935	2260	2296	kg

> RGA HE

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION

NEW

ADAPTIVE FUNCTION

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of medium size.

All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve (standard for IR) or electronic expansion valve (standard for IP / option for IR), reverse cycle valve, dehydrator filter, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches and differential pressure switch on the plate heat exchanger. The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

The eXtra low noise acoustic setting up (AX) is obtained, starting from the low noise setting up (AS), further reducing the rotational speed of the fans and using finned coil with bigger surface.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree. All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module available in the configurations :

- Storage tank arranged as buffer on the flow or as primary-secondary buffer
- 1 or 2 pumps
- standard or high head pump
- modulating pump

Expansion valve

- thermostatic
- electronic (standard for IP)

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection

- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for IP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Water flow switch
Victaulic hydraulic fittings

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	47,4	56,2	63,4	71,0	83,8	95,4	107	121	134	154	174	198	kW
	Power input	14,7	16,9	19,5	21,6	26,8	30,7	34,0	38,0	42,0	49,1	54,4	63,4	kW
	EER	3,22	3,33	3,25	3,29	3,13	3,11	3,15	3,18	3,19	3,14	3,20	3,12	-
	ESEER	4,58	4,72	4,62	4,67	4,44	4,54	4,47	4,65	4,53	4,58	4,54	4,43	-
	Pressure drops	24	34	33	41	31	32	34	33	35	35	38	39	kPa
IR	Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	45,2	53,6	60,4	67,7	79,9	90,9	102	115	128	147	166	189	kW
	Power input	15,3	17,6	20,3	22,5	27,3	31,5	35,1	39,3	43,6	50,6	56,3	65,2	kW
	EER	2,95	3,05	2,98	3,01	2,93	2,89	2,91	2,93	2,94	2,91	2,95	2,90	-
	ESEER	4,36	4,50	4,39	4,44	4,32	4,38	4,29	4,44	4,34	4,41	4,35	4,28	-
	Pressure drops	22	31	30	37	28	29	31	30	32	32	35	36	kPa
IR	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	44,4	52,6	59,4	66,5	78,5	89,4	100	113	126	144	163	185	kW
	Power input	15,5	17,9	20,5	22,8	27,6	31,9	35,5	39,9	44,3	51,1	56,9	65,9	kW
	EER	2,86	2,94	2,90	2,92	2,84	2,80	2,82	2,83	2,84	2,82	2,86	2,81	-
	ESEER	4,53	4,64	4,58	4,61	4,49	4,55	4,45	4,60	4,49	4,58	4,53	4,44	-
	Pressure drops	21	30	29	36	27	28	30	29	31	31	33	34	kPa
IP	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	45,5	53,9	61,0	68,2	81,7	92,8	104	116	129	148	167	192	kW
	Power input	14,4	16,8	19,1	21,3	26,3	29,8	33,3	37,2	41,1	47,7	53,4	61,7	kW
	EER	3,16	3,21	3,19	3,20	3,11	3,11	3,12	3,12	3,14	3,10	3,13	3,11	-
	ESEER	4,49	4,56	4,54	4,55	4,41	4,55	4,43	4,55	4,46	4,53	4,44	4,42	-
	Pressure drops	22	31	30	38	29	30	32	30	32	32	35	37	kPa
A7W45	Heating capacity	49,2	58,0	65,6	73,6	87,9	99,8	112	125	140	160	180	206	kW
	Power input	15,3	17,8	20,4	22,9	27,4	31,0	34,8	39,0	43,5	50,0	55,9	64,2	kW
	COP	3,22	3,26	3,22	3,21	3,21	3,22	3,22	3,21	3,22	3,20	3,22	3,21	-
	Pressure drops	26	36	35	44	34	35	37	35	38	38	41	42	kPa
IP	Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	43,3	51,3	58,1	65,0	77,8	88,4	99,1	110	123	141	159	183	kW
	Power input	15,0	17,5	19,8	22,2	26,8	30,6	34,3	38,5	42,7	49,1	55,3	63,4	kW
	EER	2,89	2,93	2,93	2,93	2,90	2,89	2,89	2,86	2,88	2,87	2,88	2,89	-
	ESEER	4,26	4,33	4,33	4,32	4,29	4,39	4,27	4,34	4,25	4,36	4,25	4,26	-
	Pressure drops	20	28	28	35	27	27	29	27	30	29	32	33	kPa
A7W45	Heating capacity	47,9	56,5	63,9	71,7	85,6	97,2	109	122	136	156	175	201	kW
	Power input	14,7	17,2	19,7	22,2	26,0	29,6	33,4	37,5	42,0	47,9	53,7	61,4	kW
	COP	3,26	3,28	3,24	3,23	3,29	3,28	3,26	3,25	3,24	3,26	3,26	3,27	-
	Pressure drops	25	34	33	42	32	33	35	34	36	36	38	40	kPa
IP	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	42,6	50,5	57,1	63,9	76,5	86,9	97,4	109	121	139	156	180	kW
	Power input	15,2	17,8	20,1	22,5	27,1	31,0	34,8	39,1	43,4	49,6	55,9	64,1	kW
	EER	2,80	2,84	2,84	2,84	2,82	2,80	2,80	2,79	2,79	2,80	2,79	2,81	-
	ESEER	4,43	4,48	4,49	4,49	4,46	4,55	4,42	4,53	4,41	4,55	4,41	4,44	-
	Pressure drops	20	27	27	33	26	27	28	27	29	28	31	32	kPa
A7W45	Heating capacity	47,4	55,8	63,1	70,8	84,6	96,0	108	120	135	154	173	198	kW
	Power input	14,5	16,9	19,3	21,7	25,5	29,0	32,7	36,8	41,2	46,8	52,6	60,1	kW
	COP	3,27	3,30	3,27	3,26	3,32	3,31	3,30	3,26	3,28	3,29	3,29	3,29	-
	Pressure drops	24	33	33	41	32	32	35	32	36	35	38	39	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Power supply	400 - 3+N - 50				400 - 3 - 50								V-ph-Hz
Compressor type	scroll												-
N° compressors / N° refrigerant circuits	2 / 1												n°
Plant side heat exchanger type	stainless steel brazed plates												-
Source side heat exchanger type	finned coil												-
Fans type	axial												-
N° fans	2		3		2				3		4		n°
Tank volume	200				400					460			l
Hydraulic fittings	2" VICTAULIC				2" 1/2 VICTAULIC								-

NOMINAL performances - Standard plants

IR	Base setting up (AB)	40,2	50,2	60,2	70,2	80,2	90,2	100,2	115,2	130,2	145,2	160,2	180,2	
A35W7	Cooling capacity	47,2	55,9	63,1	70,5	83,4	94,9	106	120	133	153	173	197	kW
	Power input	14,9	17,2	19,8	22,1	27,2	31,2	34,6	38,6	42,7	50,0	55,5	64,6	kW
	EER	3,17	3,25	3,19	3,19	3,07	3,04	3,06	3,11	3,11	3,06	3,12	3,05	-
	Water flow rate	2,26	2,69	3,03	3,39	4,00	4,56	5,11	5,78	6,40	7,36	8,31	9,46	l/s
	Pressure drops	24	34	33	41	31	32	34	33	35	35	38	39	kPa
IP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W7	Cooling capacity	45,3	53,6	60,7	67,8	81,3	92,4	103	115	128	147	166	191	kW
	Power input	14,6	17,1	19,4	21,7	26,7	30,2	33,8	37,8	41,8	48,5	54,3	62,8	kW
	EER	3,10	3,13	3,13	3,12	3,04	3,06	3,05	3,04	3,06	3,03	3,06	3,04	-
	Water flow rate	2,17	2,58	2,91	3,26	3,90	4,43	4,97	5,54	6,16	7,07	7,98	9,17	l/s
	Pressure drops	22	31	30	38	29	30	32	30	32	32	35	37	kPa
A7W45	Heating capacity	49,4	58,3	66,0	74,1	88,4	100	113	126	141	161	181	207	kW
	Power input	15,5	18,1	20,8	23,4	27,9	31,6	35,5	39,7	44,3	51,0	57,1	65,6	kW
	COP	3,19	3,22	3,17	3,17	3,17	3,16	3,18	3,17	3,18	3,16	3,17	3,16	-
	Water flow rate	2,35	2,77	3,13	3,52	4,20	4,77	5,35	5,97	6,69	7,64	8,60	9,84	l/s
	Pressure drops	26	36	35	44	34	35	37	35	38	38	41	42	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Radiant plants

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W18	Cooling capacity	61,2	72,4	81,7	91,3	108	123	138	156	172	198	224	254	kW
	Power input	16,2	18,9	21,6	24,2	29,6	34,0	37,7	42,2	46,7	54,5	60,6	70,6	kW
	EER	3,78	3,83	3,78	3,77	3,65	3,62	3,66	3,70	3,68	3,63	3,70	3,60	-
	Water flow rate	2,94	3,49	3,94	4,41	5,21	5,92	6,64	7,50	8,31	9,56	10,8	12,3	l/s
	Pressure drops	41	57	56	69	53	54	57	56	59	59	64	66	kPa
IP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W18	Cooling capacity	58,8	69,5	78,6	87,8	105	120	134	150	167	190	215	248	kW
	Power input	15,9	18,6	21,2	23,8	28,9	32,9	36,9	41,1	45,6	52,8	59,3	68,6	kW
	EER	3,70	3,74	3,71	3,69	3,63	3,65	3,63	3,65	3,66	3,60	3,63	3,62	-
	Water flow rate	2,83	3,35	3,79	4,24	5,06	5,78	6,45	7,21	8,03	9,17	10,40	11,9	l/s
	Pressure drops	38	53	52	64	50	51	54	51	55	54	60	62	kPa
A7W35	Heating capacity	52,4	61,9	69,9	78,6	93,8	107	120	134	149	171	192	220	kW
	Power input	12,7	14,9	17,1	19,3	23,2	26,2	29,4	32,7	36,5	42,3	47,2	54,4	kW
	COP	4,13	4,15	4,09	4,07	4,04	4,08	4,08	4,10	4,08	4,04	4,07	4,04	-
	Water flow rate	2,49	2,94	3,32	3,73	4,45	5,06	5,69	6,35	7,07	8,12	9,13	10,4	l/s
	Pressure drops	29	41	40	50	38	39	42	40	43	43	46	47	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
	Sound power level	82	82	83	84	85	85	85	85	86	87	87	88	dB(A)
	Sound pressure level at 1 metre	64	64	65	66	67	67	67	67	68	69	69	69	dB(A)
	Sound pressure level at 5 metres	55	55	56	57	58	58	58	58	59	60	60	61	dB(A)
	Sound pressure level at 10 metres	50	50	51	52	53	53	53	53	54	55	55	56	dB(A)
	Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
	Sound power level	79	79	80	81	82	82	82	82	83	84	84	85	dB(A)
	Sound pressure level at 1 metre	61	61	62	63	64	64	64	64	65	66	66	66	dB(A)
	Sound pressure level at 5 metres	52	52	53	54	55	55	55	55	56	57	57	58	dB(A)
	Sound pressure level at 10 metres	47	47	48	49	50	50	50	50	51	52	52	53	dB(A)
	eXtra low noise setting up (AX)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
	Sound power level	77	77	78	79	80	80	80	80	81	82	82	83	dB(A)
	Sound pressure level at 1 metre	59	59	60	61	62	62	62	62	63	64	64	64	dB(A)
	Sound pressure level at 5 metres	50	50	51	52	53	53	53	53	54	55	55	56	dB(A)
	Sound pressure level at 10 metres	45	45	46	47	48	48	48	48	49	50	50	51	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	50	-15	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	25	30	55	(°C)
Water outlet temperature (VD)	IR, BR, IP, BP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR, BR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7 - W45	Cooling capacity	49,3	58,4	65,9	73,8	87,2	99,2	111	126	139	160	181	206	kW
	Total power input	14,3	16,4	19,0	21,0	26,1	29,9	33,1	37,0	40,8	47,8	52,9	61,7	kW
	EER	**3,45**	**3,56**	**3,47**	**3,51**	**3,34**	**3,32**	**3,35**	**3,41**	**3,41**	**3,35**	**3,42**	**3,34**	-
	Water flow rate	2,36	2,79	3,15	3,53	4,17	4,74	5,30	6,02	6,64	7,64	8,65	9,84	l/s
	Water pressure drop	26	37	36	44	34	35	37	36	38	38	41	42	kPa
	Heating recovery capacity	14,2	16,9	19,0	21,3	25,1	28,6	32,1	36,2	40,3	46,3	52,3	59,4	kW
	Water flow rate recovery	0,68	0,81	0,91	1,02	1,20	1,37	1,53	1,73	1,93	2,21	2,50	2,84	l/s
	Water pressure drop recovery	7	10	13	16	21	16	20	12	15	20	25	20	kPa
IP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W7 - W45	Cooling capacity	47,3	56,1	63,4	70,9	85,0	96,5	108	121	134	154	174	200	kW
	Total power input	14,0	16,3	18,6	20,7	25,6	29,0	32,4	36,2	40,0	46,4	52,0	60,1	kW
	EER	**3,38**	**3,44**	**3,41**	**3,43**	**3,32**	**3,33**	**3,33**	**3,34**	**3,35**	**3,32**	**3,35**	**3,33**	-
	Water flow rate	2,26	2,68	3,03	3,39	4,06	4,61	5,16	5,78	6,40	7,36	8,31	9,56	l/s
	Water pressure drop	24	34	33	41	32	33	35	33	35	35	38	40	kPa
	Heating recovery capacity	13,6	16,2	18,3	20,5	24,5	27,9	31,1	34,7	38,6	44,4	50,1	57,5	kW
	Water flow rate recovery	0,65	0,77	0,87	0,98	1,17	1,33	1,49	1,66	1,84	2,12	2,39	2,75	l/s
	Water pressure drop recovery	7	9	12	14	20	16	19	11	14	18	23	19	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7 - W45	Cooling capacity	49,3	58,4	65,9	73,8	87,2	99,2	111	126	139	160	181	206	kW
	Total power input	13,0	15,1	17,0	19,0	22,3	26,0	29,2	33,0	36,9	42,0	47,0	54,0	kW
	EER	**3,79**	**3,87**	**3,88**	**3,88**	**3,91**	**3,82**	**3,80**	**3,82**	**3,77**	**3,81**	**3,85**	**3,81**	-
	EER with recovery	**8,54**	**8,68**	**8,71**	**8,72**	**8,75**	**8,58**	**8,56**	**8,58**	**8,48**	**8,57**	**8,66**	**8,57**	-
	Water flow rate	2,36	2,79	3,15	3,53	4,17	4,74	5,30	6,02	6,64	7,64	8,65	9,84	l/s
	Water pressure drop	26	37	36	44	34	35	37	36	38	38	41	42	kPa
	Heating recovery capacity	61,7	72,7	82,1	91,9	108	124	139	157	174	200	226	257	kW
	Water flow rate recovery	2,95	3,47	3,92	4,39	5,16	5,92	6,64	7,50	8,31	9,56	10,8	12,3	l/s
	Water pressure drop recovery	34	47	42	41	48	47	52	49	51	50	54	53	kPa

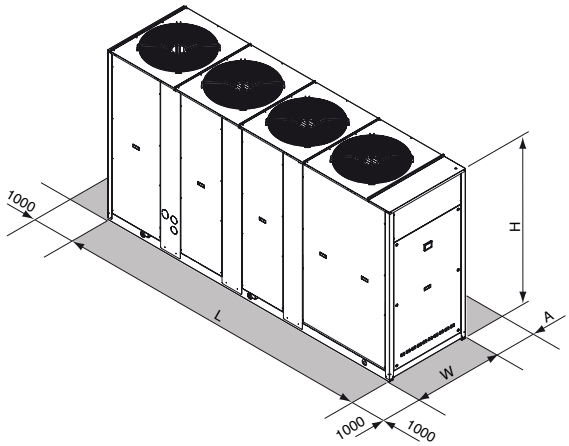
A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions :

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
L	2501				3343			3343			4097		mm
W	954				1104			1104			1104		mm
H	1930				1793			2193			2193		mm
A	1600							2000					mm
Operating maximum weight	1068	1072	1095	1132	1569	1650	1735	1877	1906	1967	2292	2350	kg

> RLA

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of medium-large size.

All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, brazed plate heat exchanger, electronic expansion valve, reverse cycle valve, dehydrator filter, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches and differential pressure switch on the plate heat exchanger. The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses. All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions. The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness. The eXtra low noise acoustic setting up (AX) is obtained, starting from the low noise setting up (AS), further reducing the rotational speed of the fans and using finned coil with bigger surface. All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree. All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module available in the configurations :

- storage tank arranged as buffer on the flow or as primary-secondary buffer
- 1 or 2 pumps
- standard or high head pump

Refrigerant circuit pressures visualization

- high and low pressure gauges
- high and low pressure transducers

High temperature thermostat

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection

- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Water flow switch
Victaulic hydraulic fittings

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	162	179	201	230	257	292	326	371	413	kW
	Power input	54,9	61,2	69,1	78,3	88,2	100	112	127	142	kW
	EER	2,95	2,92	2,91	2,94	2,91	2,92	2,91	2,92	2,91	-
	ESEER	4,13	4,09	4,07	4,11	4,08	4,09	4,08	4,09	4,07	-
	Pressure drops	55	54	62	65	67	71	59	61	62	kPa
IR	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	156	172	193	221	247	280	313	356	396	kW
	Power input	58,7	65,5	74,1	84,0	94,4	108	120	135	152	kW
	EER	2,66	2,63	2,60	2,63	2,62	2,59	2,61	2,64	2,61	-
	ESEER	4,09	4,04	4,01	4,05	4,03	3,99	4,02	4,06	4,01	-
	Pressure drops	51	50	57	60	62	65	55	57	57	kPa
IR	eXtra low noise setting up (AX)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	152	168	189	216	242	274	306	349	388	kW
	Power input	60,1	67,1	75,9	86,1	96,7	110	123	138	156	kW
	EER	2,53	2,50	2,49	2,51	2,50	2,49	2,49	2,53	2,49	-
	ESEER	4,10	4,06	4,03	4,06	4,05	4,04	4,03	4,10	4,03	-
	Pressure drops	48	47	55	57	60	62	52	55	55	kPa
IP	Base acoustic setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	155	172	194	217	246	278	312	360	401	kW
	Power input	54,2	60,5	67,9	76,7	87,7	99,2	111	126	140	kW
	EER	2,86	2,84	2,86	2,83	2,81	2,80	2,81	2,86	2,86	-
	ESEER	4,00	3,98	4,00	3,96	3,93	3,92	3,94	4,00	4,01	-
	Pressure drops	50	50	58	58	62	64	54	58	59	kPa
A7W45	Heating capacity	168	189	213	238	270	305	342	391	435	kW
	Power input	55,3	62,3	70,1	78,9	89,8	101	113	128	143	kW
	COP	3,04	3,03	3,04	3,02	3,01	3,02	3,03	3,05	3,04	-
	Pressure drops	59	60	70	69	74	77	65	68	69	kPa
IP	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	149	165	186	208	236	267	300	346	385	kW
	Power input	58,0	64,8	72,8	82,3	93,9	106	119	134	149	kW
	EER	2,57	2,55	2,55	2,53	2,51	2,52	2,52	2,58	2,58	-
	ESEER	3,96	3,92	3,93	3,89	3,87	3,88	3,88	3,98	3,98	-
	Pressure drops	46	46	53	53	57	59	50	53	54	kPa
A7W45	Heating capacity	161	181	204	228	259	293	328	375	418	kW
	Power input	52,9	59,5	67,0	75,3	85,9	96,7	108	122	137	kW
	COP	3,04	3,04	3,04	3,03	3,02	3,03	3,04	3,07	3,05	-
	Pressure drops	54	55	64	63	69	71	60	63	64	kPa
IP	eXtra low noise setting up (AX)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	146	162	182	204	231	261	293	338	377	kW
	Power input	59,4	66,4	74,6	84,3	96,2	109	122	137	153	kW
	EER	2,46	2,44	2,44	2,42	2,40	2,39	2,40	2,47	2,46	-
	ESEER	3,98	3,95	3,95	3,92	3,89	3,88	3,89	4,00	3,99	-
	Pressure drops	44	44	51	51	54	57	48	51	52	kPa
A7W45	Heating capacity	160	180	202	226	257	290	325	371	413	kW
	Power input	51,9	58,4	65,7	73,9	84,3	94,9	106	120	134	kW
	COP	3,08	3,08	3,07	3,06	3,05	3,06	3,07	3,09	3,08	-
	Pressure drops	53	54	63	62	67	70	59	61	62	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

TECHNICAL DATA	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
Power supply	400 - 3 - 50									V-ph-Hz
Compressor type	scroll									-
N° compressors / N° refrigerant circuits	4 / 2									n°
Plant side heat exchanger type	stainless steel brazed plates									-
Source side heat exchanger type	finned coil									-
Fans type	axial									-
N° fans	4				6			8		n°
Tank volume	325						710			l
Hydraulic fittings	3" VICTAULIC						4" VICTAULIC			-

NOMINAL performances - Standard plants

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	161	177	199	228	254	289	323	367	409	kW
	Power input	56,3	62,7	71,1	80,7	91,0	103	115	131	146	kW
	EER	**2,86**	**2,82**	**2,80**	**2,83**	**2,79**	**2,81**	**2,81**	**2,80**	**2,80**	-
	Water flow rate	7,74	8,55	9,60	11,0	12,3	14,0	15,6	17,7	19,7	l/s
	Pressure drops	55	54	62	65	67	71	59	61	62	kPa
IP	**Base setting up (AB)**	**160.4**	**180.4**	**200.4**	**230.4**	**260.4**	**290.4**	**330.4**	**375.4**	**420.4**	
A35W7	Cooling capacity	154	171	192	215	244	275	309	357	397	kW
	Power input	55,4	61,9	69,7	78,7	90,1	102	114	129	144	kW
	EER	**2,78**	**2,76**	**2,75**	**2,73**	**2,71**	**2,70**	**2,71**	**2,77**	**2,76**	-
	Water flow rate	7,41	8,22	9,27	10,4	11,8	13,3	14,9	17,2	19,2	l/s
	Pressure drops	50	50	58	58	62	64	54	58	59	kPa
A7W45	Heating capacity	170	191	215	241	273	309	346	395	440	kW
	Power input	56,9	64,1	72,5	81,5	93,0	105	117	132	148	kW
	COP	**2,99**	**2,98**	**2,97**	**2,96**	**2,94**	**2,94**	**2,96**	**2,99**	**2,97**	-
	Water flow rate	8,03	9,03	10,2	11,4	12,9	14,6	16,3	18,7	20,8	l/s
	Pressure drops	59	60	70	69	74	77	65	68	69	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Radiant plants

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W18	Cooling capacity	204	226	253	289	323	367	411	467	520	kW
	Power input	60,7	67,6	77,0	87,6	98,6	113	124	141	159	kW
	EER	**3,36**	**3,34**	**3,29**	**3,30**	**3,28**	**3,25**	**3,31**	**3,31**	**3,27**	-
	Water flow rate	9,91	10,9	12,3	14,1	15,7	17,9	19,9	22,7	25,3	l/s
	Pressure drops	90	87	102	106	110	116	97	101	102	kPa
IP	**Base setting up (AB)**	**160.4**	**180.4**	**200.4**	**230.4**	**260.4**	**290.4**	**330.4**	**375.4**	**420.4**	
A35W18	Cooling capacity	196	217	245	274	310	350	394	454	505	kW
	Power input	59,6	66,5	75,3	85,1	97,3	110	122	139	155	kW
	EER	**3,29**	**3,26**	**3,25**	**3,22**	**3,19**	**3,18**	**3,23**	**3,27**	**3,26**	-
	Water flow rate	9,48	10,5	11,9	13,3	15,0	17,0	19,1	22,0	24,5	l/s
	Pressure drops	82	81	95	95	100	105	89	95	96	kPa
A7W35	Heating capacity	180	202	229	255	290	328	367	420	467	kW
	Power input	50,0	56,2	63,5	71,3	81,8	92,0	102	116	130	kW
	COP	**3,60**	**3,59**	**3,61**	**3,58**	**3,55**	**3,57**	**3,60**	**3,62**	**3,59**	-
	Water flow rate	8,51	9,57	10,8	12,1	13,7	15,4	17,3	19,8	22,0	l/s
	Pressure drops	66	67	79	78	84	86	73	77	77	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
	Sound power level	91	92	92	92	93	94	94	95	95	dB(A)
	Sound pressure level at 1 metre	72	73	73	73	74	75	74	75	75	dB(A)
	Sound pressure level at 5 metres	64	65	65	65	66	67	67	68	68	dB(A)
	Sound pressure level at 10 metres	59	60	60	60	61	62	62	63	63	dB(A)
	Low noise setting up (AS)	**160.4**	**180.4**	**200.4**	**230.4**	**260.4**	**290.4**	**330.4**	**375.4**	**420.4**	
	Sound power level	85	86	86	86	87	88	88	89	89	dB(A)
	Sound pressure level at 1 metre	66	67	67	67	68	69	68	69	69	dB(A)
	Sound pressure level at 5 metres	58	59	59	59	60	61	61	62	62	dB(A)
	Sound pressure level at 10 metres	53	54	54	54	55	56	56	57	57	dB(A)
	eXtra low noise setting up (AX)	**160.4**	**180.4**	**200.4**	**230.4**	**260.4**	**290.4**	**330.4**	**375.4**	**420.4**	
	Sound power level	82	83	83	83	84	85	85	86	86	dB(A)
	Sound pressure level at 1 metre	63	64	64	64	65	66	65	66	66	dB(A)
	Sound pressure level at 5 metres	55	56	56	56	57	58	58	59	59	dB(A)
	Sound pressure level at 10 metres	50	51	51	51	52	53	53	54	54	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	55**	-10	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	25	30	55	(°C)
Water outlet temperature (VD)	IR, BR, IP, BP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR, BR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)
** with ATC outdoor high temperature protection fuction

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7 - W45	Cooling capacity	169	186	209	239	267	304	339	385	430	kW
	Total power input	53,5	59,6	67,2	76,2	85,8	97,8	109	124	138	kW
	EER	3,16	3,12	3,11	3,14	3,11	3,11	3,11	3,10	3,12	-
	Water flow rate	8,06	8,89	10,0	11,4	12,8	14,5	16,2	18,4	20,5	l/s
	Water pressure drop	59	58	67	69	73	76	64	66	67	kPa
	Heating recovery capacity	47,2	52,2	59,1	65,7	74,3	84,2	97,8	111	125	kW
	Water flow rate recovery	2,26	2,49	2,82	3,14	3,55	4,02	4,67	5,30	5,97	l/s
	Water pressure drop recovery	5	7	8	10	13	16	16	21	25	kPa
IP	**Base setting up (AB)**	**160.4**	**180.4**	**200.4**	**230.4**	**260.4**	**290.4**	**330.4**	**375.4**	**420.4**	
A35W7 - W45	Cooling capacity	161	179	202	226	256	289	324	374	417	kW
	Total power input	52,8	58,9	66,1	74,6	85,4	96,5	108	122	136	kW
	EER	3,05	3,04	3,06	3,03	3,00	2,99	3,00	3,07	3,07	-
	Water flow rate	7,70	8,55	9,64	10,8	12,2	13,8	15,5	17,9	19,9	l/s
	Water pressure drop	54	54	63	62	66	69	59	63	63	kPa
	Heating recovery capacity	44,8	51,6	58,1	65,6	73,3	84,0	94,7	108	121	kW
	Water flow rate recovery	2,14	2,47	2,78	3,13	3,50	4,01	4,52	5,16	5,78	l/s
	Water pressure drop recovery	5	6	8	10	13	16	15	19	24	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7 - W45	Cooling capacity	169	186	209	239	267	304	339	385	430	kW
	Total power input	45,8	51,8	59,4	68,3	74,3	86,1	97,4	108	122	kW
	EER	3,69	3,59	3,52	3,50	3,59	3,53	3,48	3,56	3,52	-
	EER with recovery	**8,31**	**8,12**	**8,00**	**7,95**	**8,15**	**8,00**	**7,92**	**8,09**	**7,96**	**-**
	Water flow rate	8,06	8,89	10,0	11,4	12,8	14,5	16,2	18,4	20,5	l/s
	Water pressure drop	59	58	67	69	73	76	64	66	67	kPa
	Heating recovery capacity	212	235	266	304	338	385	432	488	546	kW
	Water flow rate recovery	10,1	11,2	12,7	14,5	16,1	18,4	20,6	23,3	26,1	l/s
	Water pressure drop recovery	44	42	44	45	46	49	48	50	51	kPa

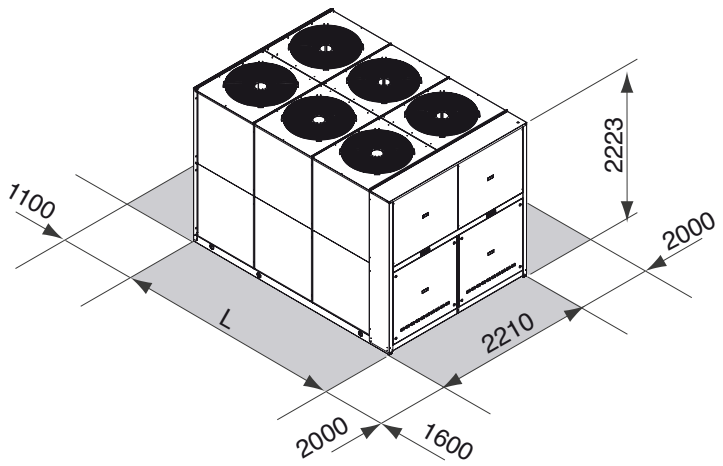
A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- ATC outdoor high temperature protection function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Double set point function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
L	3164	3164	3164	3164	3164	3164	4097	4097	4097	mm
Operating maximum weight	2441	2633	2829	3005	3069	3096	3790	3907	3980	kg

> RHA

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of large size. All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, brazed plate heat exchanger, electronic expansion valve, reverse cycle valve, dehydrator filter, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins. The circuit is protected by a safety gas valve, high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

The eXtra low noise acoustic setting up (AX) is obtained, starting from the low noise setting up (AS), further reducing the rotational speed of the fans and using finned coil with bigger surface.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module available in the configurations:
- storage tank arranged as buffer on the flow or as primary-secondary buffer
- 1 or 2 pumps
- standard or high head pump

Refrigerant circuit pressures visualization
- high and low pressure gauges
- high and low pressure transducers

High temperature thermostat

Compressor starting
- standard (contactors)
- soft starter

Fans control
- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection
- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Water flow switch
Victaulic hydraulic fittings

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base setting up (AB)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7	Cooling capacity	351	374	439	494	558	625	kW
	Power input	120	128	149	169	189	213	kW
	EER	2,93	2,92	2,95	2,92	2,95	2,93	-
	ESEER	4,24	4,24	4,27	4,24	4,28	4,25	-
	Pressure drops	47	54	48	60	45	56	kPa
IR	Low noise setting up (AS)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7	Cooling capacity	337	359	421	474	536	600	kW
	Power input	127	137	159	181	203	228	kW
	EER	2,65	2,62	2,65	2,62	2,64	2,63	-
	ESEER	4,11	4,06	4,10	4,06	4,09	4,08	-
	Pressure drops	43	50	44	55	41	52	kPa
IR	eXtra low noise setting up (AX)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7	Cooling capacity	330	352	413	464	525	588	kW
	Power input	131	141	163	186	208	234	kW
	EER	2,52	2,50	2,53	2,49	2,52	2,51	-
	ESEER	4,21	4,17	4,23	4,17	4,22	4,20	-
	Pressure drops	42	47	42	53	40	49	kPa
IP	Base acoustic setting up (AB)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7	Cooling capacity	341	364	426	480	540	608	kW
	Power input	118	127	148	167	187	211	kW
	EER	2,89	2,87	2,88	2,87	2,89	2,88	-
	ESEER	4,19	4,16	4,17	4,17	4,19	4,18	-
	Pressure drops	45	51	45	57	42	53	kPa
A7W45	Heating capacity	370	393	456	516	576	658	kW
	Power input	120	128	148	169	188	217	kW
	COP	3,08	3,07	3,08	3,05	3,06	3,03	-
	Pressure drops	53	59	51	66	48	62	kPa
IP	Low noise setting up (AS)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7	Cooling capacity	327	349	409	461	518	584	kW
	Power input	126	135	158	179	201	226	kW
	EER	2,60	2,59	2,59	2,58	2,58	2,58	-
	ESEER	4,02	4,01	4,01	3,99	3,99	4,01	-
	Pressure drops	41	47	41	52	38	49	kPa
A7W45	Heating capacity	355	377	438	495	553	632	kW
	Power input	115	122	142	161	180	207	kW
	COP	3,09	3,09	3,08	3,07	3,07	3,05	-
	Pressure drops	48	54	47	61	44	57	kPa
IP	eXtra low noise setting up (AX)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7	Cooling capacity	321	342	400	451	508	572	kW
	Power input	129	138	162	183	206	232	kW
	EER	2,49	2,48	2,47	2,46	2,47	2,47	-
	ESEER	4,16	4,14	4,12	4,12	4,12	4,12	-
	Pressure drops	39	45	39	50	37	47	kPa
A7W45	Heating capacity	352	373	433	490	547	625	kW
	Power input	113	120	139	158	176	203	kW
	COP	3,12	3,11	3,12	3,10	3,11	3,08	-
	Pressure drops	47	53	46	59	43	56	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

TECHNICAL DATA	350.5	390.6	440.6	490.6	560.6	630.6	
Power supply	400 - 3 - 50						V-ph-Hz
Compressor type	scroll						-
N° compressors / N° refrigerant circuits	5 / 2	6 / 2					n°
Plant side heat exchanger type	stainless steel brazed plates						-
Source side heat exchanger type	finned coil						-
Fans type	axial						-
N° fans	8		10		12		n°
Tank volume	700						l
Hydraulic fittings	4" VICTAULIC						-

NOMINAL performances - Standard plants

IR	Base setting up (AB)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7	Cooling capacity	348	371	436	489	554	619	kW
	Power input	123	131	152	174	193	219	kW
	EER	**2,83**	**2,83**	**2,87**	**2,81**	**2,87**	**2,83**	-
	Water flow rate	16,8	17,9	21,0	23,6	26,7	29,9	l/s
	Pressure drops	47	54	48	60	45	56	kPa
IP	**Base setting up (AB)**	**350.5**	**390.6**	**440.6**	**490.6**	**560.6**	**630.6**	
A35W7	Cooling capacity	339	361	423	476	536	603	kW
	Power input	120	130	151	171	191	216	kW
	EER	**2,83**	**2,78**	**2,80**	**2,78**	**2,81**	**2,79**	-
	Water flow rate	16,3	17,4	20,4	22,9	25,8	29,0	l/s
	Pressure drops	45	51	45	57	42	53	kPa
A7W45	Heating capacity	373	397	460	521	580	664	kW
	Power input	123	132	152	174	192	223	kW
	COP	**3,03**	**3,01**	**3,03**	**2,99**	**3,02**	**2,98**	-
	Water flow rate	17,7	18,8	21,8	24,7	27,5	31,4	l/s
	Pressure drops	53	59	51	66	48	62	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Radiant plants

IR	Base setting up (AB)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W18	Cooling capacity	444	472	555	622	706	788	kW
	Power input	131	142	164	188	208	236	kW
	EER	**3,39**	**3,32**	**3,38**	**3,31**	**3,39**	**3,34**	-
	Water flow rate	21,5	22,9	26,8	30,2	34,1	38,2	l/s
	Pressure drops	77	88	78	98	73	91	kPa
IP	**Base setting up (AB)**	**350.5**	**390.6**	**440.6**	**490.6**	**560.6**	**630.6**	
A35W18	Cooling capacity	431	460	539	605	684	767	kW
	Power input	130	139	162	185	205	233	kW
	EER	**3,32**	**3,31**	**3,33**	**3,27**	**3,34**	**3,29**	-
	Water flow rate	20,9	22,3	26,1	29,4	33,0	37,2	l/s
	Pressure drops	73	83	74	93	68	87	kPa
A7W35	Heating capacity	378	402	466	528	588	673	kW
	Power input	103	110	127	146	160	186	kW
	COP	**3,67**	**3,65**	**3,67**	**3,62**	**3,68**	**3,62**	-
	Water flow rate	17,9	19,0	22,1	25,0	27,9	31,8	l/s
	Pressure drops	54	61	53	67	49	63	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	350.5	390.6	440.6	490.6	560.6	630.6	
	Sound power level	95	95	96	96	97	97	dB(A)
	Sound pressure level at 1 metre	75	75	76	76	76	76	dB(A)
	Sound pressure level at 5 metres	67	67	68	68	69	69	dB(A)
	Sound pressure level at 10 metres	63	63	64	64	65	65	dB(A)
	Low noise setting up (AS)	**350.5**	**390.6**	**440.6**	**490.6**	**560.6**	**630.6**	
	Sound power level	89	89	90	90	91	91	dB(A)
	Sound pressure level at 1 metre	69	69	70	70	70	70	dB(A)
	Sound pressure level at 5 metres	61	61	62	62	63	63	dB(A)
	Sound pressure level at 10 metres	57	57	58	58	59	59	dB(A)
	eXtra low noise setting up (AX)	**350.5**	**390.6**	**440.6**	**490.6**	**560.6**	**630.6**	
	Sound power level	86	86	87	87	88	88	dB(A)
	Sound pressure level at 1 metre	66	66	67	67	67	67	dB(A)
	Sound pressure level at 5 metres	58	58	59	59	60	60	dB(A)
	Sound pressure level at 10 metres	54	54	55	55	56	56	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	55**	-10	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	25	30	55	(°C)
Water outlet temperature (VD)	IR, BR, IP, BP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR, BR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)
** with ATC outdoor high temperature protection fuction

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

IR	Base setting up (AB)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7 - W45	Cooling capacity	365	389	457	514	581	650	kW
	Total power input	117	125	146	165	184	207	kW
	EER	**3,12**	**3,11**	**3,13**	**3,12**	**3,16**	**3,14**	-
	Water flow rate	17,5	18,6	21,8	24,6	27,8	31,0	l/s
	Water pressure drop	51	58	51	65	49	60	kPa
	Heating recovery capacity	87,7	93,4	110	123	139	156	kW
	Water flow rate recovery	4,19	4,46	5,26	5,88	6,64	7,45	l/s
	Water pressure drop recovery	24	27	25	32	31	39	kPa
IP	**Base setting up (AB)**	**350.5**	**390.6**	**440.6**	**490.6**	**560.6**	**630.6**	
A35W7 - W45	Cooling capacity	355	379	443	499	562	632	kW
	Total power input	115	123	144	163	183	205	kW
	EER	**3,09**	**3,08**	**3,08**	**3,06**	**3,07**	**3,08**	-
	Water flow rate	16,9	18,1	21,2	23,9	26,8	30,2	l/s
	Water pressure drop	48	55	49	62	45	57	kPa
	Heating recovery capacity	85,2	90,7	106	120	135	152	kW
	Water flow rate recovery	4,07	4,33	5,06	5,73	6,45	7,26	l/s
	Water pressure drop recovery	23	26	24	30	29	36	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	350.5	390.6	440.6	490.6	560.6	630.6	
A35W7 - W45	Cooling capacity	365	389	457	514	581	650	kW
	Total power input	101	109	126	145	161	184	kW
	EER	**3,61**	**3,57**	**3,63**	**3,54**	**3,61**	**3,53**	-
	EER with recovery	**8,17**	**8,08**	**8,19**	**8,03**	**8,16**	**8,03**	-
	Water flow rate	17,5	18,6	21,8	24,6	27,8	31,0	l/s
	Water pressure drop	51	58	51	65	49	60	kPa
	Heating recovery capacity	461	493	577	652	734	824	kW
	Water flow rate recovery	22,0	23,6	27,6	31,2	35,1	39,4	l/s
	Water pressure drop recovery	52	60	51	66	54	68	kPa

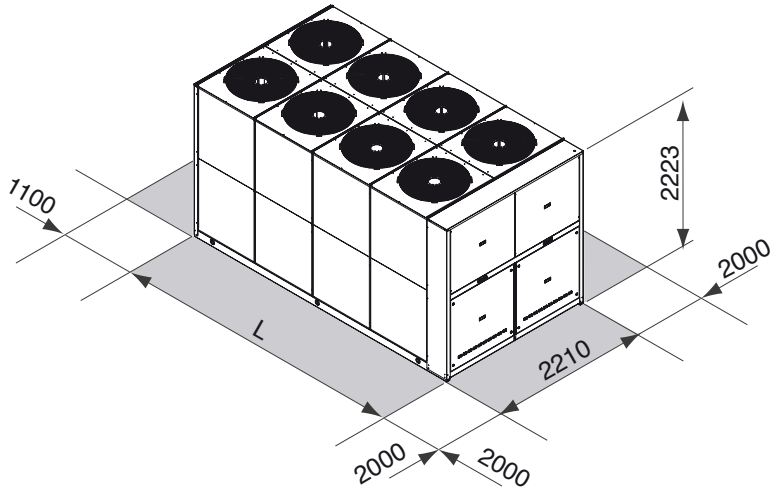
A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- ATC outdoor high temperature protection function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Double set point function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	350.5	390.6	440.6	490.6	560.6	630.6	
L	5030	5030	5030	5030	5963	5963	mm
Operating maximum weight	4849	5058	5120	5199	5489	5568	kg

> RHV

AIR COOLED WATER CHILLERS

Units Series

Type
IR chiller
BR chiller brine

Available version
VB Basic
VD and VR on request

Available configuration
AB Basic
AS Low noise

VB unit specifications

The RHV units are air-cooled water chillers using R407C ecological gas.
When developing the unit, special attention was paid to the issue of noise, in order to comply with increasingly strict laws on noise pollution. In fact, two noise attenuation levels are available (Basic, Low noise).
The range is completed with numerous accessories and options, including the possibility of having units equipped with pumping modules with 2 pumps 2 poles (for Basic Version) and 4 poles (for low noise Version).
The units are carefully built and tested, therefore installation only requires the electrical and hydraulic

Basic Version (VB) and Basic Configuration (AB)

- COMPRESSOR: 2 TWIN-SCREW semihermetic compressors able to modulate the COOLING capacity from 12,5 to 100%, mounted on rubber vibration dampers.
- REFRIGERANT CIRCUIT: 2 independent refrigerant circuits, complete with maximum and minimum pressure switches, PED safety valves, dehydrator filter, liquid/humidity indicator, compressor delivery and liquid shut-off valves, high and low pressure transducers electronic expansion valve which optimises the unit efficiency.
- PLANT SIDE HEAT EXCHANGER: shell and tube evaporator, fitted inside a shell of thermal insulation material to prevent condensation and heat exchange with the outside, protected to a minimum air temperature of -10°C by means of a water differential pressure switch and an antifreeze heater.
- SOURCE SIDE HEAT EXCHANGER: finned coils with large heat exchange surface, made with copper pipes and notched aluminium fins,
- FANS: helical fans with crescent-shaped blades to limit noise
- ELECTRICAL PANEL: control electrical panel with a main door lock disconnecting switch, sequence meter, microprocessor controller with display (4 lines of 20 characters) containing the electrical equipment and all the components with minimum protection rating IP54.

Basic Version (VB) and Low noise Configuration (AS)

In addition to the specification in Basic version (AB), the Low Noise version (AS) provides for the following configurations:

- FANS: reduced speed
- COMPRESSORS: positioned inside a soundproofed cabin, made with profiles and panels insulated with optimum sound-absorbing material.

Main accessories/Options

Integrated Pumping Modules with 2 pumps, supplied in 4 different configurations:
• Pumps 2 poles standard head
• Pumps 2 poles high head
• Pumps 2 poles extra high head
• Pumps 4 poles standard head
Condensation Control Device (standard for AS), enables unit operation to outside air temperatures =-10°C
Unit external Storage and Pumping Module complete with insulated tank, single or twin pump and all hydronic components.
Remote Control,
Compressor Soft-starter,
Compressor retiming condensers,
Compressor and fan thermal magnet switches

USER INTERFACING

The controller on the unit is designed to ensure energy-saving and efficiency.
It enables the setting of:
- Double Set Point
- Demand Limit
- Noise control
- Heating in integration
- ATC function to protect in high ambient air conditions
- Function climate control evolved (temperature scrolling)

Common Data		360.2	410.2	460.2	520.2	580.2	630.2	680.2	780.2	900.2	1000.2	1150.2	1300.2	1450.2	
Supply		400 V – 3 ph – 50Hz													V-ph-Hz
Quantity-type compressor. N° circ-Part load		2 - TWIN SCREW - 2 - 13/100%													-
Quantity type evaporator		1 - SHELL & TUBE													-
Water content evaporator		106	103	153	148	262	262	262	248	241	413	398	405	543	l
Water connection IN/OUT		4" DN100		5" DN125		6" DN150					8" DN200				DN
Quantity fan	AB - AS	8	8	8	8	10	10	10	12	14	14	16	20	24	n°
Fan speed	AB - AS	900	900	900	900	900	900	900	900	900	900	900	900	900	rpm
Operation weight	AB	3570	3580	3992	4328	4894	5089	5284	5826	6823	7928	8260	9216	9922	kg
	AS	3769	3779	4206	4557	5123	5318	5513	6055	7087	8192	8524	9480	10186	kg
F.L.A. Full load ampere		298	336	371	406	458	492	526	534	702	792	878	978	994	A

Basic Configuration (AB)

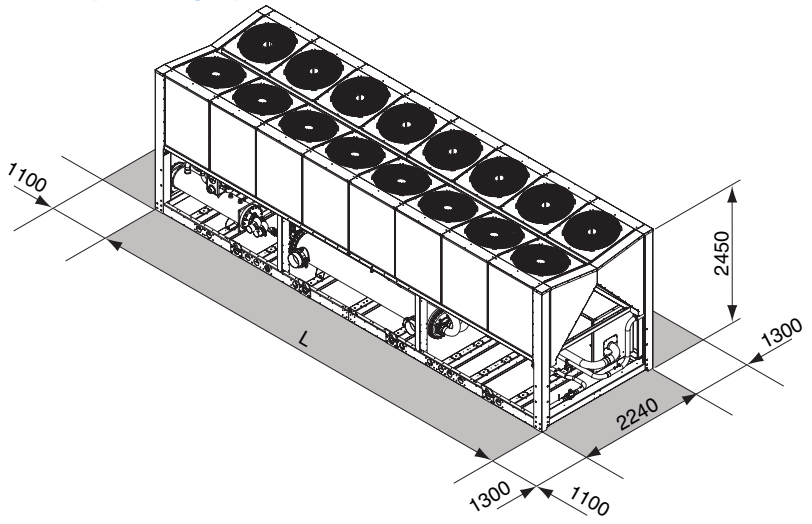
_	360.2	410.2	460.2	520.2	580.2	630.2	680.2	780.2	900.2	1000.2	1150.2	1300.2	1450.2	
Cooling capacity	364	410	452	511	576	621	672	771	882	995	1149	1308	1430	kW
Total power input	145	168	186	205	228	247	261	293	340	391	446	509	494	kW
EER	**2,51**	**2,44**	**2,43**	**2,49**	**2,53**	**2,51**	**2,57**	**2,63**	**2,60**	**2,55**	**2,57**	**2,57**	**2,90**	-
ESEER	**3,28**	**3,21**	**3,20**	**3,30**	**3,35**	**3,33**	**3,41**	**3,53**	**3,46**	**3,40**	**3,46**	**3,47**	**3,95**	-
Water flow rate	17,4	19,6	21,6	24,4	27,5	29,7	32,1	36,8	42,1	47,5	54,9	62,5	68,3	l/s
Water pressure drop	54	50	44	50	39	45	53	43	55	57	46	56	46	kPa
Available static head	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sound level	**360.2**	**410.2**	**460.2**	**520.2**	**580.2**	**630.2**	**680.2**	**780.2**	**900.2**	**1000.2**	**1150.2**	**1300.2**	**1450.2**	
Totale - SWL	99	99	99	100	100	100	100	101	102	102	103	104	105	dB(A)
SPL 1 m	79	79	79	80	80	80	80	80	81	81	82	82	82	dB(A)
SPL 5 m	71	71	71	72	72	72	72	73	74	74	75	75	76	dB(A)
SPL 10 m	67	67	67	68	68	68	68	69	70	69	70	71	72	dB(A)

Low noise Configuration (AS)

_	360.2	410.2	460.2	520.2	580.2	630.2	680.2	780.2	900.2	1000.2	1150.2	1300.2	1450.2	
Cooling capacity	350	396	435	494	555	601	650	743	853	963	1104	1260	1384	kW
Total power input	146	169	188	207	230	249	263	295	342	394	453	515	494	kW
EER	**2,41**	**2,34**	**2,32**	**2,38**	**2,41**	**2,42**	**2,47**	**2,52**	**2,50**	**2,45**	**2,44**	**2,45**	**2,80**	-
ESEER	**3,15**	**3,08**	**3,06**	**3,16**	**3,20**	**3,20**	**3,27**	**3,37**	**3,33**	**3,26**	**3,28**	**3,30**	**3,82**	-
Water flow rate	16,7	18,9	20,8	23,6	26,5	28,7	31,0	35,5	40,7	46,0	52,8	60,2	66,1	l/s
Water pressure drop	50	47	41	47	36	42	50	40	51	53	42	52	43	kPa
Available static head	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sound level	**360.2**	**410.2**	**460.2**	**520.2**	**580.2**	**630.2**	**680.2**	**780.2**	**900.2**	**1000.2**	**1150.2**	**1300.2**	**1450.2**	
Totale - SWL	94	94	94	95	95	95	95	96	97	97	98	99	100	dB(A)
SPL 1 m	74	74	74	75	75	75	75	75	76	76	77	77	77	dB(A)
SPL 5 m	66	66	66	67	67	67	67	68	69	69	70	70	71	dB(A)
SPL 10 m	62	62	62	63	63	63	63	64	64	64	65	66	67	dB(A)

NOTES:
Cooling performance values measured with EWT/LWT 12/7°C - AT 35°C D.B.
ESEER : European seasonal efficiency rating in cooling.
SWL Sound power levels, with reference to $1x10^{-12}$ W in dB(A) measured in compliance with ISO 9614 standards, is certified according to the Eurovent certification program. Eurovent certification (E) exclusively refers to the Total Sound Power in db(A), which is therefore the only binding acoustic specification.
SPL Sound pressure levels, with reference to $2x10^{-5}$ Pa calculated by applying the ISO-3744 relation (Eurovent 8/1) and refer to a distance of 1/5/10 meter away from the external surface of units operating in standard condition (ambient air T=35°C, water 12/7°C) in cooling mode, in open field with directivity factor 2.

Dimensions and minimun operating space



	360.2	410.2	460.2	520.2	580.2	630.2	680.2	780.2	900.2	1000.2	1150.2	1300.2	1450.2	
L	4070	4070	4070	4070	5000	5000	5000	5950	6900	6900	7850	10000	11900	mm

> RHV

AIR WATER CHILLER
FOR OUTDOOR INSTALLATION

Available range

Unit type
IR Chiller
BR Chiller Brine

Version
VB Base version
VD Desuperheater version
VR Total recovery version

Acoustic setting up
AB Base setting up
AS Low noise setting up
AX eXtra low noise setting up

Source temperature level
M Medium temperature level
A High temperature level

Unit description

This range of air-water chillers are designed to meet the climate control and air conditioning needs of large capacity systems in the industrial and commercial sectors. Suitable for outdoor installation, as standard the units are equipped with 2 TWIN-SCREW semihermetic compressors mounted on rubber vibration dampers, able to modulate the capacity of the unit from minimum 12.5 (not for all configurations) to 100%, plant side exchanger shell and tube type complete with Victaulic water connections, fitted inside a shell of thermal insulation material to prevent condensation and heat exchange with the outside, optimised for R134a with high efficiency grooved tubes, protected by means of a water differential pressure switch and from the winter freeze to a minimum air temperature of -10°C by means of an antifreeze heater, source side exchanger finned coils with large heat exchange surface, made with copper pipes and louvered aluminium fins, 2 independent refrigerant circuits, complete with electronic expansion valve which optimises unit efficiency at full and partial loads and enables maximum seasonal efficiency, maximum and minimum pressure switch, PED safety valves, dehydrator filter, liquid/moisture indicator, compressor discharge and liquid shut-off valves, high and low pressure transducers, electrical panel with minimum protection IP54 containing the electrical equipment and all the components to control and command the unit complete with main supply breaker with door lock function, phase sequence control device, microprocessor controller with display (4 lines of 20 characters). In addition to the standard features the Low noise setting up (AS) is equipped with fans reduced speed and compressors positioned inside a soundproofed cabin, made with profiles and panels insulated with acoustic material. in addition to the standard features the eXtra low noise setting up (AX) is equipped with coils with larger surface in order to further reduce the fans speed and compressors positioned inside a soundproofed cabin, made with profiles and panels insulated with superior acoustic material. The range is completed with numerous accessories and options, including the possibility of having units equipped with pumping modules with 2 pumps, 2 poles for Basic Version and 4 poles for Low Noise and Extra Low Noise setting up. The units are carefully built and tested, therefore installation only requires the electrical and hydraulic connections.

Options

Compressor starting
- standard (contactors)
- soft starter

Compressors power factor correction
Electrical load protection
- standard (fuses)
- thermal magnetic circuit breakers

Accessories

Integrated Pumping Modules with 2 pumps, supplied in 4 different configurations:
- Pumps 2 poles standard head
- Pumps 2 poles high head
- Pumps 2 poles extra high head
- Pumps 4 poles standard head

Condensation Control Device (standard for AS and AX), enables unit operation to outside air temperatures =-10°C)
Spring vibration dampers
Coil protection grilles
Antintrusion protection grilles
External Water Storage Tank and Pumping Module complete with insulated carbon steel tank, single or twin pump and all hydronic components.
Antifreeze electrical heaters for Storage tank
Remote controller
Serial Interface Modbus on RS 485
Programmer clock
Phase sequence and voltage controller
High and low pressure gauges
Compressor suction shut-off valve
Water flow switch

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7	Cooling capacity	332	366	415	468	511	594	665	743	802	892	987	1114	kW
	Power input	119	136	151	165	188	210	225	260	281	323	352	379	kW
	EER	2,78	2,69	2,75	2,83	2,72	2,83	2,96	2,86	2,86	2,76	2,80	2,94	-
	ESEER	3,63	3,51	3,62	3,74	3,60	3,76	3,85	3,82	3,81	3,72	3,78	4,01	-
	Pressure drops	49	57	44	56	53	53	44	45	52	60	42	56	kPa
IR	**Low noise setting up (AS)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	321	354	399	447	494	567	642	715	769	856	943	1080	kW
	Power input	118	136	151	167	187	215	235	265	290	327	361	391	kW
	EER	2,72	2,61	2,63	2,68	2,64	2,64	2,73	2,70	2,65	2,62	2,61	2,76	-
	ESEER	3,75	3,58	3,61	3,67	3,61	3,60	3,74	3,68	3,64	3,61	3,60	3,86	-
	Pressure drops	46	54	40	51	50	48	41	41	47	55	39	53	kPa
IR	**eXtra low noise setting up (AX)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	307	351	391	435	490	551	636	699	754	865	943	1076	kW
	Power input	123	138	155	173	190	226	245	273	298	329	368	403	kW
	EER	2,49	2,55	2,52	2,51	2,58	2,44	2,60	2,56	2,53	2,63	2,56	2,67	-
	ESEER	3,50	3,58	3,50	3,48	3,56	3,37	3,61	3,56	3,52	3,69	3,59	3,78	-
	Pressure drops	42	53	39	48	49	46	40	40	46	56	39	52	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C

TECHNICAL DATA	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
Power supply	400 - 3 - 50												V-ph-Hz
Compressor type	twin-screw												-
N° compressors / N° refrigerant circuits	2 / 2												n°
Part load	12.5 / 100% stepless												
Plant side heat exchanger type	shell & tube												-
Source side heat exchanger type	finned coil												-
Fans type	axial												-
N° fans (AB / AS)	8	8	8	8	10	10	10	12	12	14	14	16	n°
N° fans (AX)	8	8	8	8	10	10	12	14	14	16	16	20	
Hydraulic fittings (victaulic)	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150	DN150	DN200	DN200	DN200	-

USER INTERFACING

The controller on the unit is designed to ensure energy-saving and efficiency.
It enables the setting of:

- Double Set Point
- Demand Limit
- ATC function to avoid the block of the unit with high outdoor air temperature
- Dinamic set point
- Noise emission control
- Remote stand by

NOMINAL performances - Standard plants

IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7	Cooling capacity	329	363	412	464	507	589	660	738	795	883	980	1104	kW
	Power input	122	140	154	169	192	215	230	265	287	331	359	389	kW
	EER	2,70	2,60	2,68	2,74	2,63	2,74	2,88	2,79	2,77	2,67	2,73	2,84	-
	Water flow rate	15,9	17,5	19,8	22,4	24,4	28,4	31,8	35,5	38,3	42,6	47,2	53,2	l/s
	Pressure drops	49	57	44	56	53	53	44	45	52	60	42	56	kPa
IR	**Low noise setting up (AS)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	319	351	396	444	491	563	638	710	763	849	937	1071	kW
	Power input	120	139	154	171	191	219	240	270	296	335	367	400	kW
	EER	2,65	2,53	2,57	2,60	2,56	2,57	2,66	2,63	2,58	2,54	2,55	2,68	-
	Water flow rate	15,3	16,9	19,1	21,4	23,6	27,1	30,7	34,2	36,7	40,9	45,1	51,6	l/s
	Pressure drops	46	54	40	51	50	48	41	41	47	55	39	53	kPa
IR	**eXtra low noise setting up (AX)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	305	348	389	432	486	547	632	694	749	857	937	1067	kW
	Power input	125	141	158	177	194	230	249	278	304	337	374	412	kW
	EER	2,43	2,48	2,46	2,44	2,51	2,38	2,54	2,50	2,47	2,54	2,51	2,59	-
	Water flow rate	14,6	16,8	18,7	20,8	23,4	26,3	30,4	33,4	36,0	41,3	45,1	51,4	l/s
	Pressure drops	42	53	39	48	49	46	40	40	46	56	39	52	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
	Sound power level (E)	98	98	98	98	100	100	100	101	101	102	102	103	dB(A)
	Sound pressure level at 1 meter	79	79	79	79	80	80	80	80	80	81	81	82	dB(A)
	Sound pressure level at 5 meters	71	71	71	71	72	72	72	73	73	74	73	74	dB(A)
	Sound pressure level at 10 meters	66	66	66	66	67	67	67	69	69	69	69	70	dB(A)
	Low noise setting up (AS)	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
	Sound power level (E)	93	93	93	93	94	94	94	96	96	97	97	98	dB(A)
	Sound pressure level at 1 meter	73	73	73	73	74	74	74	75	75	75	75	76	dB(A)
	Sound pressure level at 5 meters	65	65	65	65	67	66	66	67	67	68	68	69	dB(A)
	Sound pressure level at 10 meters	61	61	61	61	62	62	62	63	63	64	64	65	dB(A)
	eXtra low noise setting up (AX)	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
	Sound power level (E)	87	87	87	87	88	88	90	91	91	92	92	93	dB(A)
	Sound pressure level at 1 meter	67	67	67	67	68	68	69	69	69	70	70	71	dB(A)
	Sound pressure level at 5 meters	59	59	59	59	61	60	62	63	63	63	63	65	dB(A)
	Sound pressure level at 10 meters	55	55	55	55	56	56	57	58	58	59	59	60	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.
(E): EUROVENT certified data

Cooling

OPERATING LIMITS	Unit type	min	max	
Outdoor air inlet temperature	IR, BR, IP, BP	15 (-10*)	46 (50**)	(°C)
Water outlet temperature	IR, IP	5	15	(°C)
Water outlet temperature	BR, BP	-8	5	(°C)
Water outlet temperature Desuperheater (VD)	IR, BR, IP, BP	35	50	(°C)
Water outlet temperature total Recovery (VR)	IR, BR	35	50	(°C)

* with condensation control device

** with ATC function to avoid the block of the unit with high outdoor air temperature

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

DESUPERHEATERS VERSION VD

Allows the production of cold water as in the standard version and, simultaneously, of hot water at temperatures from 35 to 50°C. This is achieved by inserting, between the compressor and finned coil, a heat exchanger water-gas cooler which allows for heat recovery from 15 to 20% of thermal power.

TOTAL RECOVERY VERSION VR

Allows the production of cold water and simultaneously of hot water at temperatures from 35 to 50 °C by using a heat exchanger, water-gas cooler which allows the total recovery of thermal power. The inclusion and exclusion of the total heat recovery, is done by a valve placed on the discharge of the compressors on each circuit.

Desupeheater Version (VD)

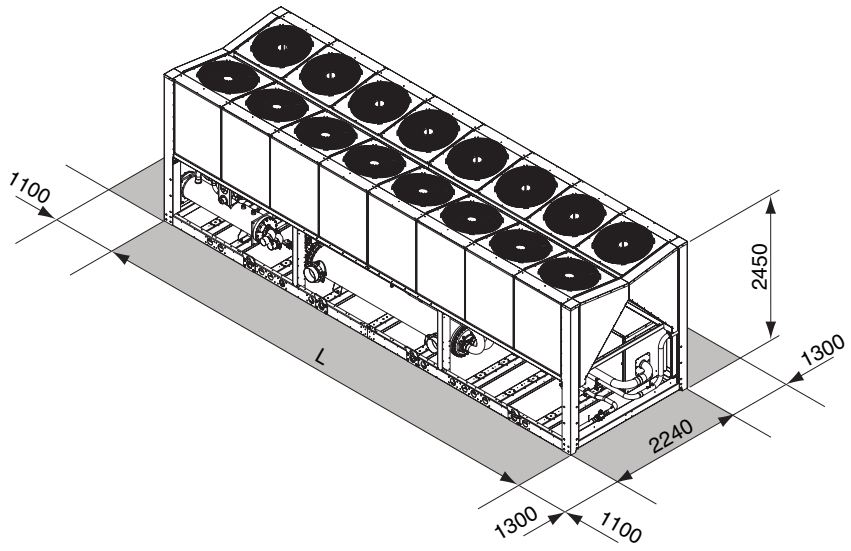
IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7 - W45	Cooling capacity	345	381	432	487	531	618	692	773	834	928	1026	1159	kW
	Total power input	115	132	146	160	182	203	218	251	272	313	341	367	kW
	EER	**2,99**	**2,89**	**2,96**	**3,04**	**2,92**	**3,04**	**3,18**	**3,08**	**3,07**	**2,97**	**3,01**	**3,16**	-
	Water flow rate	16,5	18,2	20,6	23,3	25,4	29,5	33,0	36,9	39,9	44,3	49,0	55,4	l/s
	Water pressure drop	53	62	47	60	58	57	47	48	56	65	46	61	kPa
	Recovery heating capacity	93	109	122	135	152	171	185	212	231	266	292	313	kW
	Recovery water flow rate	4,5	5,2	5,8	6,4	7,2	8,2	8,8	10,2	11,1	12,7	14,0	15,0	l/s
	Recovery water pressure drop	10	13	17	10	13	12	14	18	15	12	15	17	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7 - W45	Cooling capacity	328	362	416	472	524	598	658	747	806	906	996	1132	kW
	Total power input	106	123	136	149	164	188	207	233	256	288	323	342	kW
	EER	**3,09**	**2,94**	**3,06**	**3,17**	**3,20**	**3,18**	**3,18**	**3,21**	**3,15**	**3,15**	**3,08**	**3,31**	-
	EER with recovery	**7,14**	**6,84**	**7,07**	**7,29**	**7,34**	**7,31**	**7,31**	**7,36**	**7,25**	**7,24**	**7,12**	**7,57**	-
	Water flow rate	15,7	17,3	19,9	22,6	25,0	28,6	31,4	35,7	38,5	43,3	47,6	54,1	l/s
	Water pressure drop	48	56	44	56	56	54	43	45	52	62	43	58	kPa
	Recovery heating capacity	429	479	545	614	680	777	855	968	1049	1180	1303	1457	kW
	Recovery water flow rate	20,5	22,9	26,0	29,3	32,5	37,1	40,8	46,3	50,1	56,4	62,2	69,6	l/s
	Recovery water pressure drop	27	33	43	45	47	43	47	44	52	47	48	50	kPa

A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



		330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
L	AB	4070	4070	4070	4070	5005	5005	5005	5950	5950	6900	6900	7810	mm
L	AS	4070	4070	4070	4070	5005	5005	5005	5950	5950	6900	6900	7810	mm
L	AX	4070	4070	4070	4070	5005	5005	5950	6900	6900	7810	7810	10000	mm
Operating maximum weight		3734	3800	4192	4534	4731	5059	5318	6567	6715	7377	8032	9091	kg

> RHV HE

AIR WATER CHILLER
FOR OUTDOOR INSTALLATION

Available range

Unit type
IR Chiller
BR Chiller Brine

Version
VB Base version
VD Desuperheater version
VR Total recovery version

Acoustic setting up
AB Base setting up
AS Low noise setting up
AX eXtra low noise setting up

Source temperature level
M Medium temperature level
A High temperature level

Unit description

This range of air-water chillers are designed to meet the climate control and air conditioning needs of large capacity systems in the industrial and commercial sectors. Suitable for outdoor installation, as standard the units are equipped with 2 TWIN-SCREW semihermetic compressors mounted on rubber vibration dampers, able to modulate the capacity of the unit from minimum 12.5 (not for all configurations) to 100%, plant side exchanger shell and tube type complete with Victaulic water connections, fitted inside a shell of thermal insulation material to prevent condensation and heat exchange with the outside, optimised for R134a with high efficiency grooved tubes, protected by means of a water differential pressure switch and from the winter freeze to a minimum air temperature of -10°C by means of an antifreeze heater, source side exchanger finned coils with large heat exchange surface, made with copper pipes and louvered aluminium fins, 2 independent refrigerant circuits, complete with electronic expansion valve which optimises unit efficiency at full and partial loads and enables maximum seasonal efficiency, maximum and minimum pressure switch, PED safety valves, dehydrator filter, liquid/moisture indicator, compressor discharge and liquid shut-off valves, high and low pressure transducers, electrical panel with minimum protection IP54 containing the electrical equipment and all the components to control and command the unit complete with main supply breaker with door lock function, phase sequence control device, microprocessor controller with display (4 lines of 20 characters). In addition to the standard features the Low noise setting up (AS) is equipped with fans reduced speed and compressors positioned inside a soundproofed cabin, made with profiles and panels insulated with acoustic material. in addition to the standard features the eXtra low noise setting up (AX) is equipped with coils with larger surface in order to further reduce the fans speed and compressors positioned inside a soundproofed cabin, made with profiles and panels insulated with superior acoustic material. The range is completed with numerous accessories and options, including the possibility of having units equipped with pumping modules with 2 pumps, 2 poles for Basic Version and 4 poles for Low Noise and Extra Low Noise setting up. The units are carefully built and tested, therefore installation only requires the electrical and hydraulic connections.

Options

Compressor starting
- standard (contactors)
- soft starter

Compressors power factor correction
Electrical load protection
- standard (fuses)
- thermal magnetic circuit breakers

Accessories

Integrated Pumping Modules with 2 pumps, supplied in 4 different configurations:
- Pumps 2 poles standard head
- Pumps 2 poles high head
- Pumps 2 poles extra high head
- Pumps 4 poles standard head

Condensation Control Device (standard for AS and AX), enables unit operation to outside air temperatures =-10°C)
Spring vibration dampers
Coil protection grilles
Antintrusion protection grilles
External Water Storage Tank and Pumping Module complete with insulated carbon steel tank, single or twin pump and all hydronic components.
Antifreeze electrical heaters for Storage tank
Remote controller
Serial Interface Modbus on RS 485
Programmer clock
Phase sequence and voltage controller
High and low pressure gauges
Compressor suction shut-off valve
Water flow switch

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7	Cooling capacity	359	398	454	506	560	643	692	803	865	978	1090	1182	kW
	Power input	115	127	144	159	174	201	214	250	271	310	338	358	kW
	EER	3,12	3,13	3,15	3,18	3,22	3,20	3,23	3,21	3,19	3,15	3,22	3,30	-
	ESEER	3,92	3,95	3,97	4,01	4,04	4,07	4,10	4,06	4,06	4,02	4,09	4,21	-
	Pressure drops	51	45	40	48	39	49	52	57	50	51	64	53	kPa
IR	**Low noise setting up (AS)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	350	389	441	489	547	623	681	781	838	948	1054	1161	kW
	Power input	112	125	142	159	172	203	221	252	277	311	340	365	kW
	EER	3,13	3,11	3,11	3,08	3,18	3,07	3,08	3,10	3,03	3,05	3,10	3,18	-
	ESEER	4,14	4,13	4,12	4,00	4,20	4,17	4,19	4,20	4,09	4,15	4,21	4,33	-
	Pressure drops	49	43	38	45	37	46	51	54	47	48	60	51	kPa
IR	**eXtra low noise setting up (AX)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	337	378	424	466	532	594	655	747	805	920	1031	1130	kW
	Power input	115	128	147	166	179	214	233	263	288	316	353	385	kW
	EER	2,93	2,95	2,88	2,81	2,97	2,78	2,81	2,84	2,80	2,91	2,92	2,94	-
	ESEER	4,01	4,03	3,98	3,96	4,09	3,94	3,96	4,01	3,98	4,09	4,06	4,11	-
	Pressure drops	45	41	35	41	35	42	47	49	43	45	57	48	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C

TECHNICAL DATA	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
Power supply	400 - 3 - 50												V-ph-Hz
Compressor type	twin-screw												-
N° compressors / N° refrigerant circuits	2 / 2												n°
Part load	12.5 / 100% stepless												
Plant side heat exchanger type	shell & tube												-
Source side heat exchanger type	finned coil												-
Fans type	axial												-
N° fans	8		10			12		14		16	20		n°
Hydraulic fittings (victaulic)	DN150	DN200											-

USER INTERFACING

The controller on the unit is designed to ensure energy-saving and efficiency.
It enables the setting of:

- Double Set Point
- Demand Limit
- ATC function to avoid the block of the unit with high outdoor air temperature
- Dinamic set point
- Noise emission control
- Remote stand by

NOMINAL performances - Standard plants

IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7	Cooling capacity	356	395	451	502	557	638	686	796	858	970	1079	1172	kW
	Power input	118	130	147	163	177	206	220	257	278	318	349	368	kW
	EER	**3,02**	**3,04**	**3,07**	**3,08**	**3,14**	**3,10**	**3,12**	**3,09**	**3,09**	**3,05**	**3,09**	**3,19**	-
	Water flow rate	17,2	19,0	21,7	24,2	26,8	30,7	33,1	38,4	41,3	46,7	52,1	56,5	l/s
	Pressure drops	51	45	40	48	39	49	52	57	50	51	64	53	kPa
IR	**Low noise setting up (AS)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	347	386	438	486	544	618	676	774	832	941	1044	1152	kW
	Power input	115	128	145	162	175	208	226	259	283	318	350	374	kW
	EER	**3,03**	**3,03**	**3,03**	**2,99**	**3,10**	**2,98**	**2,98**	**2,99**	**2,94**	**2,96**	**2,98**	**3,08**	-
	Water flow rate	16,7	18,6	21,1	23,4	26,1	29,8	32,5	37,3	40,0	45,3	50,4	55,5	l/s
	Pressure drops	49	43	38	45	37	46	51	54	47	48	60	51	kPa
IR	**eXtra low noise setting up (AX)**	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
A35W7	Cooling capacity	335	376	422	463	529	590	650	741	799	913	1022	1121	kW
	Power input	117	130	149	169	182	218	238	269	294	323	362	394	kW
	EER	**2,85**	**2,88**	**2,82**	**2,74**	**2,91**	**2,71**	**2,73**	**2,76**	**2,72**	**2,83**	**2,82**	**2,85**	-
	Water flow rate	16,1	18,1	20,3	22,3	25,4	28,4	31,3	35,7	38,5	44,0	49,3	54,0	l/s
	Pressure drops	45	41	35	41	35	42	47	49	43	45	57	48	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
	Sound power level (E)	97	97	97	97	99	99	99	100	100	101	101	102	dB(A)
	Sound pressure level at 1 meter	77	77	77	77	79	78	78	79	79	80	79	80	dB(A)
	Sound pressure level at 5 meters	69	69	69	69	71	71	71	72	72	73	72	73	dB(A)
	Sound pressure level at 10 meters	65	65	65	65	67	67	67	67	67	68	68	69	dB(A)
	Low noise setting up (AS)	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
	Sound power level (E)	92	92	92	92	93	93	93	95	95	96	96	97	dB(A)
	Sound pressure level at 1 meter	72	72	72	72	73	72	72	74	74	75	74	75	dB(A)
	Sound pressure level at 5 meters	64	64	64	64	65	65	65	67	67	68	67	68	dB(A)
	Sound pressure level at 10 meters	60	60	60	60	61	61	61	62	62	63	63	64	dB(A)
	eXtra low noise setting up (AX)	**330.2**	**370.2**	**420.2**	**470.2**	**510.2**	**590.2**	**670.2**	**740.2**	**800.2**	**900.2**	**1000.2**	**1150.2**	
	Sound power level (E)	87	87	88	88	90	90	90	91	91	92	92	93	dB(A)
	Sound pressure level at 1 meter	67	67	68	68	70	69	69	70	70	71	70	71	dB(A)
	Sound pressure level at 5 meters	59	59	60	60	62	62	62	63	63	64	63	64	dB(A)
	Sound pressure level at 10 meters	55	55	56	56	58	58	58	58	58	59	59	60	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.
(E): EUROVENT certified data

Cooling

OPERATING LIMITS	Unit type	min	max	
Outdoor air inlet temperature	IR, BR, IP, BP	15 (-10*)	50 (55**)	(°C)
Water outlet temperature	IR, IP	5	15	(°C)
Water outlet temperature	BR, BP	-8	5	(°C)
Water outlet temperature Desuperheater (VD)	IR, BR, IP, BP	35	50	(°C)
Water outlet temperature total Recovery (VR)	IR, BR	35	50	(°C)

* with condensation control device

** with ATC function to avoid the block of the unit with high outdoor air temperature

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

DESUPERHEATERS VERSION VD

Allows the production of cold water as in the standard version and, simultaneously, of hot water at temperatures from 35 to 50°C. This is achieved by inserting, between the compressor and finned coil, a heat exchanger water-gas cooler which allows for heat recovery from 15 to 20% of thermal power.

TOTAL RECOVERY VERSION VR

Allows the production of cold water and simultaneously of hot water at temperatures from 35 to 50 °C by using a heat exchanger, water-gas cooler which allows the total recovery of thermal power. The inclusion and exclusion of the total heat recovery, is done by a valve placed on the discharge of the compressors on each circuit.

Desupeheater Version (VD)

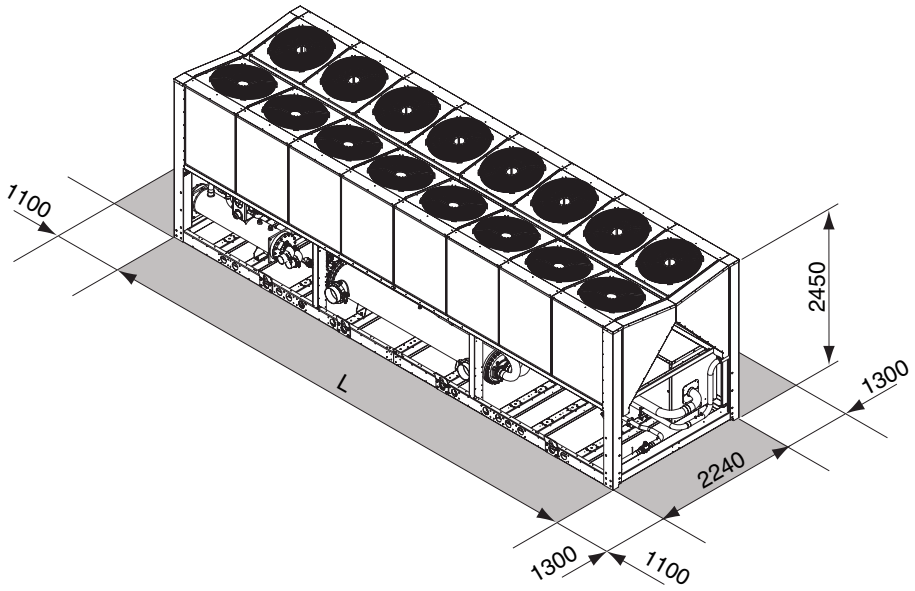
IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7 - W45	Cooling capacity	373	414	472	526	582	669	720	835	900	1017	1134	1229	kW
	Total power input	112	124	140	155	169	196	208	243	264	302	329	348	kW
	EER	3,33	3,35	3,37	3,40	3,44	3,42	3,46	3,43	3,41	3,37	3,45	3,53	-
	Water flow rate	17,8	19,8	22,6	25,1	27,8	31,9	34,4	39,9	43,0	48,6	54,2	58,7	l/s
	Water pressure drop	65	58	52	61	51	62	61	72	63	66	84	65	kPa
	Recovery heating capacity	93	104	116	130	144	165	177	207	227	259	278	297	kW
	Recovery water flow rate	4,4	5,0	5,5	6,2	6,9	7,9	8,5	9,9	10,8	12,4	13,3	14,2	l/s
	Recovery water pressure drop	10	12	15	9	11	11	13	18	15	11	14	15	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
A35W7 - W45	Cooling capacity	357	393	450	503	555	640	690	801	872	1000	1093	1179	kW
	Total power input	104	118	130	143	158	182	194	226	244	275	302	323	kW
	EER	3,43	3,33	3,46	3,52	3,51	3,52	3,56	3,54	3,57	3,64	3,62	3,65	-
	EER with recovery	**7,82**	**7,61**	**7,88**	**7,99**	**7,97**	**7,98**	**8,06**	**8,04**	**8,10**	**8,22**	**8,19**	**8,25**	-
	Water flow rate	17,1	18,8	21,5	24,0	26,5	30,6	33,0	38,3	41,7	47,8	52,2	56,3	l/s
	Water pressure drop	59	52	47	55	46	57	56	66	59	64	78	59	kPa
	Recovery heating capacity	456	505	574	639	705	813	874	1016	1104	1261	1380	1486	kW
	Recovery water flow rate	21,8	24,1	27,4	30,5	33,7	38,8	41,8	48,5	52,7	60,3	65,9	71,0	l/s
	Recovery water pressure drop	30	37	48	49	51	47	49	49	58	54	54	52	kPa

A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	330.2	370.2	420.2	470.2	510.2	590.2	670.2	740.2	800.2	900.2	1000.2	1150.2	
L (AB-AS-AX)	4070		5005			5950		6900		7810	10000		mm
Operating maximum weight	3950	4116	4971	5303	5546	5687	6004	7345	7378	8589	9494	10220	kg

> RMP

AIR-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION

EUROVENT CERTIFIED PERFORMANCE

ECO-FRIENDLY R410A REFRIGERANT GAS

ADAPTIVE FUNCTION

NEW

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Versions

VB	Base Version
VP	Pump version
VA	Tank version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of small and medium size. All the units are suitable for indoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressor mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve, reverse cycle valve, centrifugal fans (plug fan), finned coil made of copper pipes and aluminium louvered fins. The circuit is protected by high and low pressure switches and differential pressure switch on the plate heat exchanger. The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units are equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors.

All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control. All the units are provided with a phase presence and correct sequence controller device. All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module
- not present (VB - base version)
- standard, high head or modulating pump (VP - pump version)
- tank and standard, high head or modulating pump (VA - tank version)

Integrative electrical heaters
- not present
- standard in the tank

Compressor starting
- standard (contactors)
- soft starter

Electrical loads protection
- fuses
- thermal magnetic circuit breakers

Compressor power factor correction

Accessories

Rubber vibration dampers
Coil protection grille
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller

NOMINAL performances - Standard plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,9	22,1	25,8	30,8	35,6	40,2	kW
	Power input	6,82	7,50	8,76	10,8	12,3	13,9	kW
	EER	2,92	2,95	2,95	2,85	2,89	2,89	-
	Water flow rate	3432	3809	4444	5319	6143	6932	l/h
	Pressure drops	26	31	26	36	31	38	kPa
	Available static head (standard pump)	146	135	130	104	130	111	kPa
IR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,1	21,2	24,8	29,6	34,2	38,6	kW
	Power input	7,34	8,09	9,42	11,6	13,3	15,0	kW
	EER	2,60	2,62	2,63	2,55	2,57	2,57	-
	Water flow rate	3295	3655	4273	5113	5903	6658	l/h
	Pressure drops	24	29	24	33	28	36	kPa
	Available static head (standard pump)	150	139	134	111	135	118	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,5	21,7	25,3	30,2	34,9	39,4	kW
	Power input	6,75	7,42	8,66	10,7	12,2	13,8	kW
	EER	2,89	2,92	2,92	2,82	2,86	2,86	-
	Water flow rate	3363	3741	4358	5216	6023	6795	l/h
	Pressure drops	25	30	25	35	29	37	kPa
	Available static head (standard pump)	148	137	132	108	132	114	kPa
A7W45	Heating capacity	21,0	23,3	27,1	32,5	37,6	42,4	kW
	Power input	6,49	7,14	8,33	10,3	11,7	13,4	kW
	COP	3,24	3,26	3,25	3,16	3,21	3,16	-
	Water flow rate	3568	3961	4610	5515	6386	7188	l/h
	Pressure drops	27	33	27	38	33	41	kPa
	Available static head (standard pump)	143	131	126	99	125	105	kPa
IP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	18,7	20,8	24,3	29,1	33,6	37,8	kW
	Power input	7,27	8,00	9,33	11,4	13,1	14,9	kW
	EER	2,57	2,60	2,60	2,55	2,56	2,54	-
	Water flow rate	3226	3586	4187	5010	5783	6520	l/h
	Pressure drops	23	28	23	32	27	34	kPa
	Available static head (standard pump)	152	142	137	114	137	121	kPa
A7W45	Heating capacity	19,9	22,2	25,8	31,0	35,8	40,3	kW
	Power input	6,22	6,85	7,98	9,88	11,3	12,8	kW
	COP	3,20	3,24	3,23	3,14	3,17	3,15	-
	Water flow rate	3381	3773	4388	5259	6078	6847	l/h
	Pressure drops	25	30	25	35	30	37	kPa
	Available static head (standard pump)	149	137	132	107	132	114	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	20,0	22,	25,9	31,0	35,8	40,4	kW
	Power input	6,74	7,39	8,65	10,6	12,1	13,7	kW
	EER	2,97	3,00	2,99	2,92	2,96	2,95	-
	ESEER	3,36	3,39	3,38	3,30	3,34	3,33	-
	Pressure drops	26	31	25	36	30	38	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W7	Cooling capacity	19,6	21,8	25,4	30,4	35,1	39,6	kW
	Power input	6,67	7,32	8,56	10,5	12,0	13,6	kW
	EER	2,94	2,98	2,97	2,90	2,93	2,91	-
	ESEER	3,32	3,37	3,36	3,28	3,31	3,29	-
	Pressure drops	25	30	25	34	29	37	kPa
A7W45	Heating capacity	20,9	23,2	27,0	32,3	37,4	42,1	kW
	Power input	6,40	7,02	8,21	10,1	11,5	13,1	kW
	COP	3,27	3,30	3,29	3,20	3,25	3,21	-
	Pressure drops	28	34	27	39	33	41	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

NOMINAL performances - Radiant plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	24,6	27,3	31,9	38,1	44,1	49,6	kW
	Power input	7,09	7,81	9,11	11,2	12,8	14,6	kW
	EER	3,47	3,50	3,50	3,40	3,45	3,40	-
	Water flow rate	4259	4723	5513	6595	7625	8604	l/h
	Pressure drops	39	47	38	54	46	58	kPa
	Available static head (standard pump)	120	104	99	65	93	66	kPa
IR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	23,7	26,2	30,7	36,7	42,4	47,7	kW
	Power input	7,62	8,41	9,79	12,0	13,8	15,6	kW
	EER	3,11	3,12	3,14	3,06	3,07	3,06	-
	Water flow rate	4087	4534	5307	6354	7333	8261	l/h
	Pressure drops	36	43	36	50	43	54	kPa
	Available static head (standard pump)	126	111	105	73	101	76	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	24,2	26,8	31,3	37,4	43,2	48,7	kW
	Power input	7,01	7,73	9,01	11,1	12,7	14,4	kW
	EER	3,45	3,47	3,47	3,37	3,40	3,38	-
	Water flow rate	4173	4637	5410	6475	7471	8432	l/h
	Pressure drops	37	45	37	52	44	56	kPa
	Available static head (standard pump)	123	107	102	69	97	71	kPa
A7W35	Heating capacity	21,40	23,80	27,70	33,20	38,40	43,30	kW
	Power input	5,48	6,03	7,03	8,71	9,91	11,30	kW
	COP	3,91	3,95	3,94	3,81	3,87	3,83	-
	Water flow rate	3651	4063	4731	5657	6549	7371	l/h
	Pressure drops	29	35	29	40	34	43	kPa
	Available static head (standard pump)	140	127	122	95	121	100	kPa
IP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	23,2	25,7	30,1	35,9	41,5	46,7	kW
	Power input	7,55	8,32	9,69	11,9	13,7	15,5	kW
	EER	3,07	3,09	3,11	3,02	3,03	3,01	-
	Water flow rate	4002	4448	5204	6217	7179	8089	l/h
	Pressure drops	34	42	34	48	41	51	kPa
	Available static head (standard pump)	129	114	108	77	105	81	kPa
A7W35	Heating capacity	20,3	22,6	26,3	31,6	36,5	41,2	kW
	Power input	5,24	5,77	6,73	8,34	9,49	10,9	kW
	COP	3,87	3,92	3,91	3,79	3,85	3,78	-
	Water flow rate	3463	3857	4491	5383	6223	7011	l/h
	Pressure drops	26	32	26	37	31	39	kPa
	Available static head (standard pump)	146	134	129	103	128	109	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	76	76	77	80	81	81	dB(A)
	Sound pressure level at 1 metre	60	60	61	64	65	65	dB(A)
	Sound pressure level at 5 metres	50	50	51	54	55	55	dB(A)
	Sound pressure level at 10 metres	45	45	46	49	49	50	dB(A)
	Low noise acoustic setting up (AS)	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
	Sound power level	74	74	75	78	79	79	dB(A)
	Sound pressure level at 1 metre	58	58	59	62	63	63	dB(A)
	Sound pressure level at 5 metres	48	48	49	52	53	53	dB(A)
	Sound pressure level at 10 metres	43	43	44	47	47	48	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
Unit ducted on the sunction and on the flow side for 2 meters.
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

AERAULIC PERFORMANCES	19.1	22.1	26.1	30.1	35.1	40.1	
Available static head	150	150	150	150	150	150	Pa

		Cooling		Heating		
OPERATING LIMITS	Unit type	min	max	min	max	
Outdoor air inlet temperature	IR, BR, IP, BP	5	48	-15	42	°C
Water outlet temperature	IR, IP	5	25	30	55	°C
Water outlet temperature	BR, BP	-12	25	30	55	°C

TECHNICAL DATA	19.1	22.1	26.1	30.1	35.1	40.1	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	n°
Plant side heat exchanger type	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	-
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Fans type	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	-
N° fans	1	1	1	1	1	1	n°
Tank volume	85	85	85	85	85	85	l
Hydraulic fittings	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	-

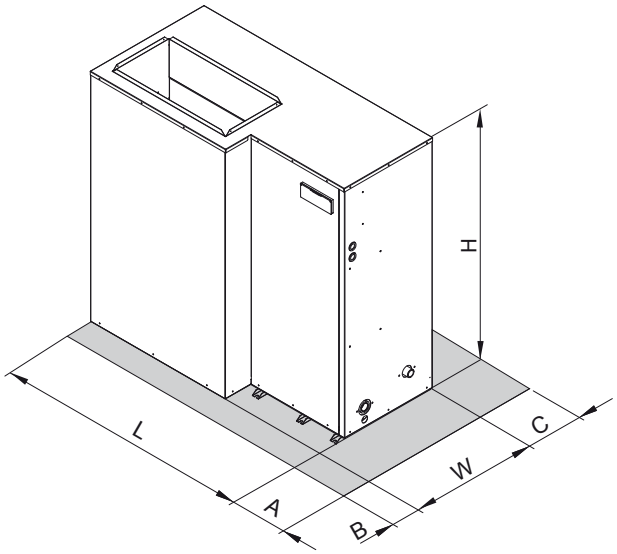
CONTROL SYSTEM

The unit is managed by a microprocessor controller to which, through a wiring board, all the electrical loads and the control devices are connected. The user interface is realized by a display and four buttons that allow to view and, if necessary, modify all the operating parameters of the unit. It’s available, as an accessory, a remote control that reports all the functionalities of the user interface placed on the unit.

The main functions available are :

- water temperature management (through set point adjustment)
- adaptive function
- climatic control in heating and in cooling mode (automatic set point adjustment according to outdoor air temperature)
- dynamic defrost cycle management according to outdoor air temperature
- alarm memory management and diagnostic
- fans management by means of continuous rotational speed control
- pump management
- integrative electrical heaters management in heating mode (2 step logic)
- compressor and pump operating hours recording
- serial communication through Modbus protocol
- remote stand by
- remote cooling-heating
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



	19.1	22.1	26.1	30.1	35.1	40.1	
L	1494	1494	1494	1704	1704	1704	mm
W	744	744	744	744	744	744	mm
H	1453	1453	1453	1453	1453	1453	mm
A	400	400	400	400	400	400	mm
B	450	450	450	450	450	450	mm
C	200	200	200	200	200	200	mm

> RMP HE

AIR-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION

EUROVENT CERTIFIED PERFORMANCE

ECO-FRIENDLY R410A REFRIGERANT GAS

ENERGY EFFICIENCY CLASS EUROVENT A

ADAPTIVE FUNCTION

NEW

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Versions

VB	Base Version
VP	Pump version
VA	Tank version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of small and medium size. All the units are suitable for indoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants. The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressor mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve, reverse cycle valve, centrifugal fans (plug fan), finned coil made of copper pipes and aluminium louvered fins. The circuit is protected by high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units are equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors. All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control. All the units are provided with a phase presence and correct sequence controller device. All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module
- not present (VB - base version)
- standard, high head or modulating pump (VP - pump version)
- tank and standard, high head or modulating pump (VA - tank version)

Integrative electrical heaters
- not present
- standard in the tank

Compressor starting
- standard (contactors)
- soft starter

Electrical loads protection
- fuses
- thermal magnetic circuit breakers

Compressor power factor correction

Accessories

Rubber vibration dampers
Coil protection grille
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller

NOMINAL performances - Standard plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	20,10	22,30	26,10	31,50	36,60	41,30	kW
	Power input	6,51	7,15	8,29	10,30	11,90	13,50	kW
	EER	3,09	3,12	3,15	3,06	3,08	3,06	-
	Water flow rate	3466	3844	4496	5439	6315	7138	l/h
	Pressure drops	26	32	26	37	32	41	kPa
	Available static head (standard pump)	145	133	128	101	126	106	kPa
IR	Low noise acoustic setting up (AS)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,30	21,40	25,10	30,30	35,20	39,80	kW
	Power input	7,02	7,71	8,94	11,10	12,80	14,40	kW
	EER	2,75	2,78	2,81	2,73	2,75	2,76	-
	Water flow rate	3329	3689	4324	5234	6074	6864	l/h
	Pressure drops	24	29	24	35	30	38	kPa
	Available static head (standard pump)	149	138	133	107	131	113	kPa
IP	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,70	21,90	25,60	30,90	35,90	40,50	kW
	Power input	6,45	7,08	8,20	10,20	11,80	13,40	kW
	EER	3,05	3,09	3,12	3,03	3,04	3,02	-
	Water flow rate	3398	3775	4410	5337	6194	7001	l/h
	Pressure drops	25	31	25	36	31	39	kPa
	Available static head (standard pump)	147	136	131	104	128	109	kPa
A7W45	Heating capacity	21,20	23,50	27,40	33,30	38,60	43,80	kW
	Power input	6,21	6,82	7,89	9,79	11,30	12,90	kW
	COP	3,41	3,45	3,47	3,40	3,42	3,40	-
	Water flow rate	3603	3995	4661	5651	6556	7427	l/h
	Pressure drops	28	34	28	40	34	43	kPa
	Available static head (standard pump)	142	130	125	95	121	99	kPa
IP	Low noise acoustic setting up (AS)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	18,90	21,00	24,60	29,70	34,50	39,00	kW
	Power input	6,95	7,63	8,84	11,00	12,70	14,30	kW
	EER	2,72	2,75	2,78	2,70	2,72	2,73	-
	Water flow rate	3260	3621	4238	5131	5954	6726	l/h
	Pressure drops	23	28	23	34	29	36	kPa
	Available static head (standard pump)	151	140	135	110	134	116	kPa
A7W45	Heating capacity	20,10	22,30	26,10	31,70	36,70	41,70	kW
	Power input	5,95	6,54	7,56	9,38	10,90	12,40	kW
	COP	3,38	3,41	3,45	3,38	3,37	3,36	-
	Water flow rate	3415	3790	4439	5378	6232	7069	l/h
	Pressure drops	25	31	25	36	31	40	kPa
	Available static head (standard pump)	148	136	131	104	129	108	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	20,20	22,40	26,20	31,70	36,80	41,60	kW
	Power input	6,43	7,04	8,18	10,10	11,70	13,20	kW
	EER	3,14	3,18	3,20	3,14	3,15	3,15	-
	ESEER	3,55	3,59	3,62	3,55	3,56	3,56	-
	Pressure drops	26	32	26	37	32	40	kPa
IP	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,80	22,00	25,70	31,10	36,10	40,80	kW
	Power input	6,37	6,97	8,10	9,98	11,60	13,10	kW
	EER	3,11	3,16	3,17	3,12	3,11	3,11	-
	ESEER	3,51	3,57	3,58	3,53	3,51	3,51	-
	Pressure drops	25	31	25	36	31	39	kPa
A7W45	Heating capacity	21,10	23,40	27,30	33,10	38,40	43,50	kW
	Power input	6,12	6,69	7,77	9,58	11,10	12,60	kW
	COP	3,45	3,50	3,51	3,46	3,46	3,45	-
	Pressure drops	28	34	28	40	35	44	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

NOMINAL performances - Radiant plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	26,10	28,90	33,90	40,80	47,40	53,50	kW
	Power input	6,67	7,35	8,49	10,60	12,20	13,90	kW
	EER	3,91	3,93	3,99	3,85	3,89	3,85	-
	Water flow rate	4517	4998	5856	7076	8209	9291	l/h
	Pressure drops	43	52	43	62	53	67	kPa
	Available static head (standard pump)	111	94	88	50	77	46	kPa
IR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	25,00	27,80	32,60	39,30	45,60	51,50	kW
	Power input	7,18	7,91	9,14	11,40	13,10	14,80	kW
	EER	3,48	3,51	3,57	3,45	3,48	3,48	-
	Water flow rate	4328	4809	5633	6818	7900	8930	l/h
	Pressure drops	40	48	40	57	49	62	kPa
	Available static head (standard pump)	118	101	95	58	86	56	kPa
IP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	25,50	28,40	33,20	40,00	46,50	52,50	kW
	Power input	6,60	7,27	8,40	10,50	12,10	13,70	kW
	EER	3,86	3,91	3,95	3,81	3,84	3,83	-
	Water flow rate	4414	4912	5736	6938	8055	9102	l/h
	Pressure drops	41	50	41	59	51	64	kPa
	Available static head (standard pump)	115	97	92	54	82	51	kPa
A7W35	Heating capacity	21,60	24,00	28,00	34,00	39,40	44,70	kW
	Power input	5,24	5,76	6,66	8,28	9,57	10,90	kW
	COP	4,12	4,17	4,20	4,11	4,12	4,10	-
	Water flow rate	3686	4097	4783	5794	6720	7611	l/h
	Pressure drops	29	36	29	42	36	46	kPa
	Available static head (standard pump)	139	126	121	91	117	94	kPa
IP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35W18	Cooling capacity	24,50	27,20	31,90	38,60	44,80	50,50	kW
	Power input	7,10	7,81	9,04	11,20	12,90	14,70	kW
	EER	3,45	3,48	3,53	3,45	3,47	3,44	-
	Water flow rate	4242	4706	5513	6681	7745	8759	l/h
	Pressure drops	38	47	38	55	47	60	kPa
	Available static head (standard pump)	121	104	99	63	90	62	kPa
A7W35	Heating capacity	20,50	22,80	26,60	32,30	37,40	42,50	kW
	Power input	5,02	5,52	6,38	7,92	9,17	10,50	kW
	COP	4,08	4,13	4,17	4,08	4,08	4,05	-
	Water flow rate	3497	3891	4543	5503	6377	7234	l/h
	Pressure drops	26	32	27	38	33	42	kPa
	Available static head (standard pump)	145	133	128	99	125	104	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	76	76	77	80	81	81	dB(A)
	Sound pressure level at 1 metre	60	60	61	64	65	65	dB(A)
	Sound pressure level at 5 metres	50	50	51	54	55	55	dB(A)
	Sound pressure level at 10 metres	45	45	46	49	49	50	dB(A)
	Low noise acoustic setting up (AS)	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
	Sound power level	74	74	75	78	79	79	dB(A)
	Sound pressure level at 1 metre	58	58	59	62	63	63	dB(A)
	Sound pressure level at 5 metres	48	48	49	52	53	53	dB(A)
	Sound pressure level at 10 metres	43	43	44	47	47	48	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
Unit ducted on the sunction and on the flow side for 2 meters.
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

AERAULIC PERFORMANCES	19.1	22.1	26.1	30.1	35.1	40.1	
Available static head	150	150	150	150	150	150	Pa

		Cooling		Heating		
OPERATING LIMITS	Unit type	min	max	min	max	
Outdoor air inlet temperature	IR, BR, IP, BP	5	48	-15	42	°C
Water outlet temperature	IR, IP	5	25	30	55	°C
Water outlet temperature	BR, BP	-12	25	30	55	°C

TECHNICAL DATA	19.1	22.1	26.1	30.1	35.1	40.1	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	n°
Plant side heat exchanger type	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	stainless steel brazed plates	-
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Fans type	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	-
N° fans	1	1	1	1	1	1	n°
Tank volume	85	85	85	85	85	85	l
Hydraulic fittings	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	1”1/4	-

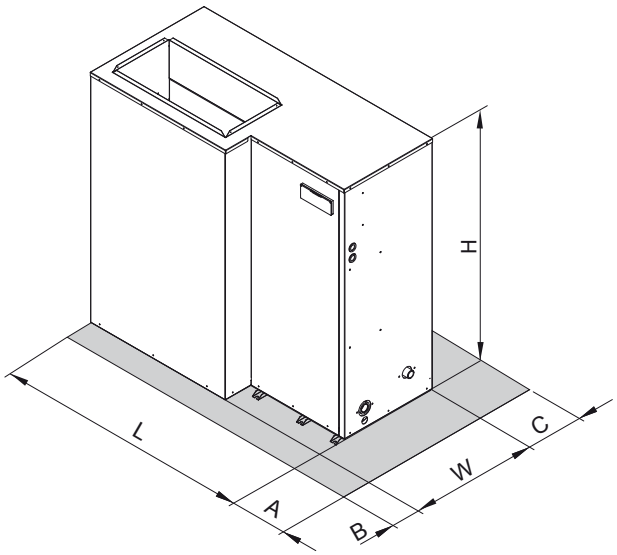
CONTROL SYSTEM

The unit is managed by a microprocessor controller to which, through a wiring board, all the electrical loads and the control devices are connected. The user interface is realized by a display and four buttons that allow to view and, if necessary, modify all the operating parameters of the unit. It’s available, as an accessory, a remote control that reports all the functionalities of the user interface placed on the unit.

The main functions available are:

- water temperature management (through set point adjustment)
- adaptive function
- climatic control in heating and in cooling mode (automatic set point adjustment according to outdoor air temperature)
- dynamic defrost cycle management according to outdoor air temperature
- alarm memory management and diagnostic
- fans management by means of continuous rotational speed control
- pump management
- integrative electrical heaters management in heating mode (2 step logic)
- compressor and pump operating hours recording
- serial communication through Modbus protocol
- remote stand by
- remote cooling-heating
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



	19.1	22.1	26.1	30.1	35.1	40.1	
L	1494	1494	1494	1704	1704	1704	mm
W	744	744	744	744	744	744	mm
H	1453	1453	1453	1453	1453	1453	mm
A	400	400	400	400	400	400	mm
B	450	450	450	450	450	450	mm
C	200	200	200	200	200	200	mm

> RGC

AIR-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION

EUROVENT CERTIFIED PERFORMANCE

ECO-FRIENDLY R410A REFRIGERANT GAS

ADAPTIVE FUNCTION

NEW

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of medium size.

All the units are suitable for indoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve (standard for IR) or electronic expansion valve (standard for IP / option for IR), reverse cycle valve, dehydrator filter, double inlet centrifugal fans with forward curved blades, finned coil made of copper pipes and aluminium louvered fins with subcooling section.

The circuit is protected by a safety gas valve, high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module available in the configurations:

- Storage tank arranged as buffer on the flow or as primary-secondary buffer
- 1 or 2 pumps
- standard or high head pump
- modulating pump

Expansion valve

- thermostatic
- electronic (standard for IP)

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection

- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for IP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Water flow switch
Victaulic hydraulic fittings

NOMINAL performances - Standard plants - EUROVENT certified data

	IR Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	45,3	53,5	58,6	68,8	78,7	91,0	102	112	126	143	158	180	200	kW
	Power input	15,4	18,3	20,3	23,5	27,4	31,8	35,2	39,1	44,1	50,4	55,9	63,2	70,0	kW
	EER	2,94	2,92	2,89	2,93	2,87	2,86	2,90	2,86	2,86	2,84	2,83	2,85	2,86	-
	ESEER	4,18	4,15	4,10	4,16	4,08	4,18	4,11	4,18	4,06	4,14	4,01	4,04	4,06	-
	Pressure drops	40	56	55	51	50	48	46	44	48	47	48	48	50	kPa
	IR Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	45,3	53,5	58,6	68,8	78,7	91,0	102	112	126	143	158	180	200	kW
	Power input	15,4	18,3	20,3	23,5	27,4	31,8	35,2	39,1	44,1	50,4	55,9	63,2	70,0	kW
	EER	2,94	2,92	2,89	2,93	2,87	2,86	2,90	2,86	2,86	2,84	2,83	2,85	2,86	-
	ESEER	4,18	4,15	4,10	4,16	4,08	4,18	4,11	4,18	4,06	4,14	4,01	4,04	4,06	-
	Pressure drops	40	56	55	51	50	48	46	44	48	47	48	48	50	kPa
	IP Base acoustic setting up (AB)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	43,8	52,9	57,5	67,2	74,1	89,2	99,0	110	122	138	154	178	198	kW
	Power input	15,2	18,5	20,2	23,6	26,5	31,6	35,0	39,0	43,6	49,3	55,2	62,2	69,7	kW
	EER	2,88	2,86	2,85	2,85	2,80	2,82	2,83	2,82	2,80	2,80	2,79	2,86	2,84	-
	ESEER	4,09	4,06	4,04	4,04	3,97	4,12	4,02	4,12	3,97	4,09	3,96	4,06	4,03	-
	Pressure drops	37	55	53	49	44	46	43	43	45	44	46	47	49	kPa
A7W45	Heating capacity	47,8	57,5	62,6	73,8	82,3	98,7	109	124	135	153	171	195	214	kW
	Power input	15,3	18,5	20,3	23,7	26,9	32,6	35,0	40,0	43,7	50,5	55,4	63,4	69,8	kW
	COP	3,12	3,11	3,08	3,11	3,06	3,03	3,11	3,10	3,09	3,03	3,09	3,08	3,07	-
	Pressure drops	45	65	63	59	55	57	53	54	55	54	56	56	57	kPa
	IP Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	43,8	52,9	57,5	67,2	74,1	89,2	99,0	110	122	138	154	178	198	kW
	Power input	15,2	18,5	20,2	23,6	26,5	31,6	35,0	39,0	43,6	49,3	55,2	62,2	69,7	kW
	EER	2,88	2,86	2,85	2,85	2,80	2,82	2,83	2,82	2,80	2,80	2,79	2,86	2,84	-
	ESEER	4,09	4,06	4,04	4,04	3,97	4,12	4,02	4,12	3,97	4,09	3,96	4,06	4,03	-
	Pressure drops	37	55	53	49	44	46	43	43	45	44	46	47	49	kPa
A7W45	Heating capacity	47,8	57,5	62,6	73,8	82,3	98,7	109	124	135	153	171	195	214	kW
	Power input	15,3	18,5	20,3	23,7	26,9	32,6	35,0	40,0	43,7	50,5	55,4	63,4	69,8	kW
	COP	3,12	3,11	3,08	3,11	3,06	3,03	3,11	3,10	3,09	3,03	3,09	3,08	3,07	-
	Pressure drops	45	65	63	59	55	57	53	54	55	54	56	56	57	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Power supply	400 - 3 - 50													V-ph-Hz
Compressor type	scroll													-
N° compressors / N° refrigerant circuits	2 / 1													n°
Plant side heat exchanger type	stainless steel brazed plates													-
Source side heat exchanger type	finned coil													-
Fans type	centrifugal													-
N° fans	1					2			3			4		n°
Tank volume	200					400						460		l
Hydraulic fittings	2" VICTAULIC					2" 1/2 VICTAULIC								-

AERAULIC PERFORMANCE	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Available static head	150	150	150	150	150	150	150	150	150	150	150	150	150	Pa

NOMINAL performances - Standard plants

IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	45,0	53,0	58,1	68,2	78,1	90,3	101	111	125	142	157	179	198	kW
	Power input	15,7	18,8	20,8	24,1	28,0	32,5	35,9	39,9	45,1	51,5	57,1	64,6	71,6	kW
	EER	2,87	2,82	2,79	2,83	2,79	2,78	2,81	2,78	2,77	2,76	2,75	2,77	2,77	-
	Water flow rate	2,16	2,56	2,80	3,29	3,76	4,35	4,87	5,35	6,02	6,83	7,55	8,60	9,56	l/s
	Pressure drops	40	56	55	51	50	48	46	44	48	47	48	48	50	kPa
IP	**Base setting up (AB) and Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W7	Cooling capacity	43,5	52,4	57,0	66,7	73,6	88,5	98,3	109	121	137	153	177	196	kW
	Power input	15,5	19,0	20,7	24,1	27,0	32,3	35,7	39,8	44,5	50,3	56,3	63,5	71,2	kW
	EER	2,81	2,76	2,75	2,77	2,73	2,74	2,75	2,74	2,72	2,72	2,72	2,79	2,75	-
	Water flow rate	2,09	2,53	2,75	3,21	3,54	4,26	4,73	5,26	5,83	6,59	7,36	8,50	9,46	l/s
	Pressure drops	37	55	53	49	44	46	43	43	45	44	46	47	49	kPa
A7W45	Heating capacity	48,1	58,1	63,2	74,5	83,0	99,6	110	125	136	154	173	197	216	kW
	Power input	15,6	19,1	20,9	24,4	27,6	33,5	35,9	41,1	44,9	51,8	56,9	65,1	71,7	kW
	COP	3,08	3,04	3,02	3,05	3,01	2,97	3,06	3,04	3,03	2,97	3,04	3,03	3,01	-
	Water flow rate	2,28	2,75	2,99	3,53	3,93	4,72	5,21	5,92	6,45	7,31	8,17	9,32	10,2	l/s
	Pressure drops	45	65	63	59	55	57	53	54	55	54	56	56	57	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Radiant plants

IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W18	Cooling capacity	58,3	68,5	75,1	88,2	100,6	116	131	144	162	184	202	231	257	kW
	Power input	17,1	20,8	22,9	26,4	30,8	35,6	39,4	43,6	49,4	56,4	62,5	70,7	78,5	kW
	EER	3,41	3,29	3,28	3,34	3,27	3,26	3,32	3,30	3,28	3,26	3,23	3,27	3,27	-
	Water flow rate	2,81	3,33	3,64	4,27	4,87	5,64	6,35	6,98	7,84	8,89	9,8	11,2	12,4	l/s
	Pressure drops	68	95	93	86	84	81	78	75	81	80	81	81	84	kPa
IP	**Base setting up (AB) and Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35W18	Cooling capacity	56,3	67,8	73,7	86,3	95,2	115	127	141	157	177	198	228	254	kW
	Power input	16,9	20,9	22,8	26,4	29,7	35,2	39,0	43,4	48,8	54,9	61,7	69,5	78,1	kW
	EER	3,33	3,24	3,23	3,27	3,21	3,27	3,26	3,25	3,22	3,22	3,21	3,28	3,25	-
	Water flow rate	2,72	3,29	3,57	4,18	4,60	5,54	6,16	6,83	7,60	8,55	9,56	11,0	12,3	l/s
	Pressure drops	63	92	89	82	75	78	74	72	77	74	77	79	83	kPa
A7W35	Heating capacity	51,1	61,7	67,1	79,0	88,0	106	117	132	144	164	183	209	229	kW
	Power input	12,9	15,7	17,3	20,1	22,7	27,9	29,8	34,0	37,1	43,0	47,2	54,3	59,6	kW
	COP	3,96	3,93	3,88	3,93	3,88	3,80	3,93	3,88	3,88	3,81	3,88	3,85	3,84	-
	Water flow rate	2,42	2,91	3,17	3,74	4,17	5,02	5,54	6,26	6,83	7,74	8,65	9,89	10,8	l/s
	Pressure drops	50	72	70	66	61	64	60	60	62	60	63	63	64	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
	Sound power level	88	88	89	89	89	91	91	91	96	97	97	98	98	dB(A)
	Sound pressure level at 1 metre	70	70	71	71	71	73	73	73	78	79	79	80	80	dB(A)
	Sound pressure level at 5 metres	61	61	62	62	62	65	65	65	69	70	70	71	71	dB(A)
	Sound pressure level at 10 metres	56	56	57	57	57	59	59	59	64	65	65	66	66	dB(A)
	Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
	Sound power level	85	85	86	86	86	88	88	88	93	94	94	95	95	dB(A)
	Sound pressure level at 1 metre	67	67	68	68	68	70	70	70	75	76	76	77	77	dB(A)
	Sound pressure level at 5 metres	58	58	59	59	59	62	62	62	66	67	67	68	68	dB(A)
	Sound pressure level at 10 metres	53	53	54	54	54	56	56	56	61	62	62	63	63	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
Unit ducted on the sunction and on the flow side for 2 meters.
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	50	-10	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	25	30	55	(°C)
Water outlet temperature (VD)	IR, BR, IP, BP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR, BR	30	55	-	-	(°C)

* with fan modulating control option (condensation / evaporation control)

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The Desuperheater Version (VD) allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

	IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45		Cooling capacity	47,1	55,6	60,9	71,6	81,8	94,6	106	116	131	149	164	187	208	kW
		Total power input	15,0	17,8	19,7	22,8	26,6	31,0	34,3	38,0	42,9	49,1	54,4	61,5	68,1	kW
		EER	3,14	3,12	3,09	3,14	3,08	3,05	3,09	3,05	3,05	3,03	3,01	3,04	3,05	-
		Water flow rate	2,25	2,66	2,91	3,42	3,91	4,52	5,06	5,54	6,26	7,12	7,84	8,93	9,94	l/s
		Water pressure drop	43	60	59	55	54	52	50	47	52	51	52	52	54	kPa
		Heating recovery capacity	13,5	15,7	17,6	20,0	23,6	27,1	30,4	34,4	38,4	44,0	49,3	55,4	61,3	kW
		Water flow rate recovery	0,65	0,75	0,84	0,96	1,13	1,29	1,45	1,64	1,83	2,10	2,36	2,65	2,93	l/s
		Water pressure drop recovery	6	9	11	14	19	15	18	11	14	18	22	18	21	kPa
	IP	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45		Cooling capacity	45,6	55,0	59,8	69,9	77,1	92,8	103	114	127	144	160	185	206	kW
		Total power input	14,8	18,0	19,6	22,9	25,8	30,8	34,1	37,9	42,4	48,0	53,7	60,6	67,8	kW
		EER	3,08	3,06	3,05	3,05	2,99	3,01	3,02	3,01	3,00	3,00	2,98	3,05	3,04	-
		Water flow rate	2,18	2,63	2,86	3,34	3,68	4,43	4,92	5,45	6,07	6,88	7,64	8,84	9,84	l/s
		Water pressure drop	41	59	57	53	48	50	47	46	49	48	49	51	53	kPa
		Heating recovery capacity	13,0	15,2	17,0	19,4	22,9	26,2	29,2	33,2	37,1	42,4	47,5	52,4	58,1	kW
		Water flow rate recovery	0,62	0,73	0,81	0,93	1,09	1,25	1,40	1,59	1,77	2,03	2,27	2,50	2,78	l/s
		Water pressure drop recovery	6	8	10	13	18	14	17	10	13	17	21	16	19	kPa

Total Recovery Version (VR)

	IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45		Cooling capacity	47,1	55,6	60,9	71,6	81,8	94,6	106	116	131	149	164	187	208	kW
		Total power input	14,8	18,0	19,6	22,9	25,8	30,8	34,1	37,9	42,4	48,0	53,7	60,6	67,8	kW
		EER	3,08	3,06	3,05	3,05	2,99	3,01	3,02	3,01	3,00	3,00	2,98	3,05	3,04	-
		EER with recovery	**7,88**	**7,73**	**7,79**	**7,84**	**7,59**	**7,92**	**7,95**	**7,74**	**7,69**	**7,85**	**7,71**	**7,90**	**7,84**	-
		Water flow rate	2,25	2,66	2,91	3,42	3,91	4,52	5,06	5,54	6,26	7,12	7,84	8,93	9,94	l/s
		Water pressure drop	43	60	59	55	54	52	50	47	52	51	52	52	54	kPa
		Heating recovery capacity	60,0	71,2	77,8	91,4	105	120	135	148	168	190	210	238	265	kW
		Water flow rate recovery	2,87	3,40	3,72	4,37	5,02	5,73	6,45	7,07	8,03	9,08	10,0	11,4	12,7	l/s
		Water pressure drop recovery	35	49	41	45	50	48	52	47	52	51	52	55	55	kPa

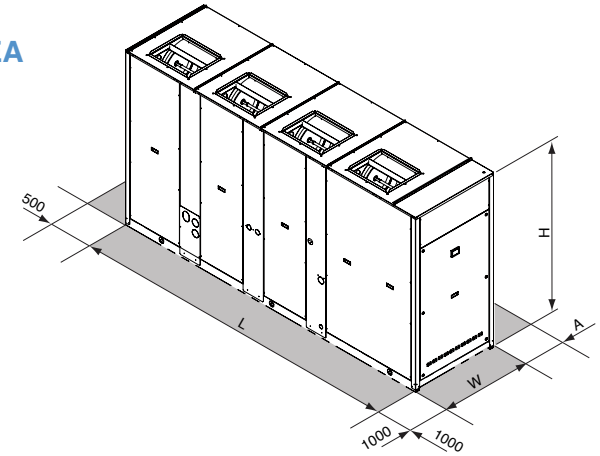
A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

DIMENSIONS
MINIMUM OPERATING AREA
WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
L	2501					3343			3343			4097		mm
W	954					1104			1104			1104		mm
H	1930					1793			2193			2193		mm
A	1600								2000					mm
Operating maximum weight	1078	1082	1102	1143	1168	1684	1765	1825	2000	2042	2094	2423	2467	kg

> RGC HE

AIR-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION

EUROVENT CERTIFIED PERFORMANCE

ECO-FRIENDLY R410A REFRIGERANT GAS

CLASS EUROVENT ENERGY EFFICIENCY A

ADAPTIVE FUNCTION

NEW

Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of medium size.

All the units are suitable for indoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, brazed plate heat exchanger, thermostatic expansion valve (standard for IR) or electronic expansion valve (standard for IP / option for IR), reverse cycle valve, dehydrator filter, double inlet centrifugal fans with forward curved blades, finned coil made of copper pipes and aluminium louvered fins with subcooling section.

The circuit is protected by a safety gas valve, high and low pressure switches and differential pressure switch on the plate heat exchanger.

The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module available in the configurations:

- Storage tank arranged as buffer on the flow or as primary-secondary buffer
- 1 or 2 pumps
- standard or high head pump
- modulating pump

Expansion valve

- thermostatic
- electronic (standard for IP)

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection

- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Tank antifreeze electrical heater
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for IP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Water flow switch
Victaulic hydraulic fittings

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	47,4	56,2	63,4	71,0	83,8	95,4	107	121	134	154	174	198	kW
	Power input	14,7	16,9	19,5	21,6	26,8	30,7	34,0	38,0	42,0	49,1	54,4	63,4	kW
	EER	3,22	3,33	3,25	3,29	3,13	3,11	3,15	3,18	3,19	3,14	3,20	3,12	-
	ESEER	4,58	4,72	4,62	4,67	4,44	4,54	4,47	4,65	4,53	4,58	4,54	4,43	-
	Pressure drops	24	34	33	41	31	32	34	33	35	35	38	39	kPa
IR	**Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W7	Cooling capacity	47,4	56,2	63,4	71,0	83,8	95,4	107	121	134	154	174	198	kW
	Power input	14,7	16,9	19,5	21,6	26,8	30,7	34,0	38,0	42,0	49,1	54,4	63,4	kW
	EER	3,22	3,33	3,25	3,29	3,13	3,11	3,15	3,18	3,19	3,14	3,20	3,12	-
	ESEER	4,58	4,72	4,62	4,67	4,44	4,54	4,47	4,65	4,53	4,58	4,54	4,43	-
	Pressure drops	24	34	33	41	31	32	34	33	35	35	38	39	kPa
IP	**Base acoustic setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W7	Cooling capacity	45,5	53,9	61,0	68,2	81,7	92,8	104	116	129	148	167	192	kW
	Power input	14,4	16,8	19,1	21,3	26,3	29,8	33,3	37,2	41,1	47,7	53,4	61,7	kW
	EER	3,16	3,21	3,19	3,20	3,11	3,11	3,12	3,12	3,14	3,10	3,13	3,11	-
	ESEER	4,49	4,56	4,54	4,55	4,41	4,55	4,43	4,55	4,46	4,53	4,44	4,42	-
	Pressure drops	22	31	30	38	29	30	32	30	32	32	35	37	kPa
A7W45	Heating capacity	49,2	58,0	65,6	73,6	87,9	99,8	112	125	140	160	180	206	kW
	Power input	15,3	17,8	20,4	22,9	27,4	31,0	34,8	39,0	43,5	50,0	55,9	64,2	kW
	COP	3,22	3,26	3,22	3,21	3,21	3,22	3,22	3,21	3,22	3,20	3,22	3,21	-
	Pressure drops	26	36	35	44	34	35	37	35	38	38	41	42	kPa
IP	**Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W7	Cooling capacity	45,5	53,9	61,0	68,2	81,7	92,8	104	116	129	148	167	192	kW
	Power input	14,4	16,8	19,1	21,3	26,3	29,8	33,3	37,2	41,1	47,7	53,4	61,7	kW
	EER	3,16	3,21	3,19	3,20	3,11	3,11	3,12	3,12	3,14	3,10	3,13	3,11	-
	ESEER	4,49	4,56	4,54	4,55	4,41	4,55	4,43	4,55	4,46	4,53	4,44	4,42	-
	Pressure drops	22	31	30	38	29	30	32	30	32	32	35	37	kPa
A7W45	Heating capacity	49,2	58,0	65,6	73,6	87,9	99,8	112	125	140	160	180	206	kW
	Power input	15,3	17,8	20,4	22,9	27,4	31,0	34,8	39,0	43,5	50,0	55,9	64,2	kW
	COP	3,22	3,26	3,22	3,21	3,21	3,22	3,22	3,21	3,22	3,20	3,22	3,21	-
	Pressure drops	26	36	35	44	34	35	37	35	38	38	41	42	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C
A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C
A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C
A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Power supply	400 - 3 - 50												V-ph-Hz
Compressor type	scroll												-
N° compressors / N° refrigerant circuits	2 / 1												n°
Plant side heat exchanger type	stainless steel brazed plates												-
Source side heat exchanger type	finned coil												-
Fans type	centrifugal												-
N° fans	1				2			3				4	n°
Tank volume	200				400						460		l
Hydraulic fittings	2" VICTAULIC				2" 1/2 VICTAULIC								-

AERAULIC PERFORMANCE	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Available static head	150	150	150	150	150	150	150	150	150	150	150	150	Pa

NOMINAL performances - Standard plants

IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7	Cooling capacity	47,2	55,9	63,1	70,5	83,4	94,9	106	120	133	153	173	197	kW
	Power input	14,9	17,2	19,8	22,1	27,2	31,2	34,6	38,6	42,7	50,0	55,5	64,6	kW
	EER	3,17	3,25	3,19	3,19	3,07	3,04	3,06	3,11	3,11	3,06	3,12	3,05	-
	Water flow rate	2,26	2,69	3,03	3,39	4,00	4,56	5,11	5,78	6,40	7,36	8,31	9,46	l/s
	Pressure drops	24	34	33	41	31	32	34	33	35	35	38	39	kPa
IP	**Base setting up (AB) and Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W7	Cooling capacity	45,3	53,6	60,7	67,8	81,3	92,4	103	115	128	147	166	191	kW
	Power input	14,6	17,1	19,4	21,7	26,7	30,2	33,8	37,8	41,8	48,5	54,3	62,8	kW
	EER	3,10	3,13	3,13	3,12	3,04	3,06	3,05	3,04	3,06	3,03	3,06	3,04	-
	Water flow rate	2,17	2,58	2,91	3,26	3,90	4,43	4,97	5,54	6,16	7,07	7,98	9,17	l/s
	Pressure drops	22	31	30	38	29	30	32	30	32	32	35	37	kPa
A7W45	Heating capacity	49,4	58,3	66,0	74,1	88,4	100	113	126	141	161	181	207	kW
	Power input	15,5	18,1	20,8	23,4	27,9	31,6	35,5	39,7	44,3	51,0	57,1	65,6	kW
	COP	3,19	3,22	3,17	3,17	3,17	3,16	3,18	3,17	3,18	3,16	3,17	3,16	-
	Water flow rate	2,35	2,77	3,13	3,52	4,20	4,77	5,35	5,97	6,69	7,64	8,60	9,84	l/s
	Pressure drops	26	36	35	44	34	35	37	35	38	38	41	42	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

NOMINAL performances - Radiant plants

IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W18	Cooling capacity	61,2	72,4	81,7	91,3	108	123	138	156	172	198	224	254	kW
	Power input	16,2	18,9	21,6	24,2	29,6	34,0	37,7	42,2	46,7	54,5	60,6	70,6	kW
	EER	3,78	3,83	3,78	3,77	3,65	3,62	3,66	3,70	3,68	3,63	3,70	3,60	-
	Water flow rate	2,94	3,49	3,94	4,41	5,21	5,92	6,64	7,50	8,31	9,56	10,8	12,3	l/s
	Pressure drops	41	57	56	69	53	54	57	56	59	59	64	66	kPa
IP	**Base setting up (AB) and Low noise setting up (AS)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35W18	Cooling capacity	58,8	69,5	78,6	87,8	105	120	134	150	167	190	215	248	kW
	Power input	15,9	18,6	21,2	23,8	28,9	32,9	36,9	41,1	45,6	52,8	59,3	68,6	kW
	EER	3,70	3,74	3,71	3,69	3,63	3,65	3,63	3,65	3,66	3,60	3,63	3,62	-
	Water flow rate	2,83	3,35	3,79	4,24	5,06	5,78	6,45	7,21	8,03	9,17	10,40	11,9	l/s
	Pressure drops	38	53	52	64	50	51	54	51	55	54	60	62	kPa
A7W35	Heating capacity	52,4	61,9	69,9	78,6	93,8	107	120	134	149	171	192	220	kW
	Power input	12,7	14,9	17,1	19,3	23,2	26,2	29,4	32,7	36,5	42,3	47,2	54,4	kW
	COP	4,13	4,15	4,09	4,07	4,04	4,08	4,08	4,10	4,08	4,04	4,07	4,04	-
	Water flow rate	2,49	2,94	3,32	3,73	4,45	5,06	5,69	6,35	7,07	8,12	9,13	10,4	l/s
	Pressure drops	29	41	40	50	38	39	42	40	43	43	46	47	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
Unit ducted on the sunction and on the flow side for 2 meters.
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	50	-15	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	25	30	55	(°C)
Water outlet temperature (VD)	IR, BR, IP, BP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR, BR	30	55	-	-	(°C)

* with fan modulating control option (condensation / evaporation control)

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The Desuperheater Version (VD) allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7 - W45	Cooling capacity	49,3	58,4	65,9	73,8	87,2	99,2	111	126	139	160	181	206	kW
	Total power input	14,3	16,4	19,0	21,0	26,1	29,9	33,1	37,0	40,8	47,8	52,9	61,7	kW
	EER	3,45	3,56	3,47	3,51	3,34	3,32	3,35	3,41	3,41	3,35	3,42	3,34	-
	Water flow rate	2,36	2,79	3,15	3,53	4,17	4,74	5,30	6,02	6,64	7,64	8,65	9,84	l/s
	Water pressure drop	26	37	36	44	34	35	37	36	38	38	41	42	kPa
	Heating recovery capacity	14,2	16,9	19,0	21,3	25,1	28,6	32,1	36,2	40,3	46,3	52,3	59,4	kW
	Water flow rate recovery	0,68	0,81	0,91	1,02	1,20	1,37	1,53	1,73	1,93	2,21	2,50	2,84	l/s
	Water pressure drop recovery	7	10	13	16	21	16	20	12	15	20	25	20	kPa

IP	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7 - W45	Cooling capacity	47,3	56,1	63,4	70,9	85,0	96,5	108	121	134	154	174	200	kW
	Total power input	14,0	16,3	18,6	20,7	25,6	29,0	32,4	36,2	40,0	46,4	52,0	60,1	kW
	EER	3,38	3,44	3,41	3,43	3,32	3,33	3,33	3,34	3,35	3,32	3,35	3,33	-
	Water flow rate	2,26	2,68	3,03	3,39	4,06	4,61	5,16	5,78	6,40	7,36	8,31	9,56	l/s
	Water pressure drop	24	34	33	41	32	33	35	33	35	35	38	40	kPa
	Heating recovery capacity	13,6	16,2	18,3	20,5	24,5	27,9	31,1	34,7	38,6	44,4	50,1	57,5	kW
	Water flow rate recovery	0,65	0,77	0,87	0,98	1,17	1,33	1,49	1,66	1,84	2,12	2,39	2,75	l/s
	Water pressure drop recovery	7	9	12	14	20	16	19	11	14	18	23	19	kPa

Total Recovery Version (VR)

IR	Base setting up (AB) and Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35W7 - W45	Cooling capacity	49,3	58,4	65,9	73,8	87,2	99,2	111	126	139	160	181	206	kW
	Total power input	13,0	15,1	17,0	19,0	22,3	26,0	29,2	33,0	36,9	42,0	47,0	54,0	kW
	EER	3,79	3,87	3,88	3,88	3,91	3,82	3,80	3,82	3,77	3,81	3,85	3,81	-
	EER with recovery	**8,54**	**8,68**	**8,71**	**8,72**	**8,75**	**8,58**	**8,56**	**8,58**	**8,48**	**8,57**	**8,66**	**8,57**	-
	Water flow rate	2,36	2,79	3,15	3,53	4,17	4,74	5,30	6,02	6,64	7,64	8,65	9,84	l/s
	Water pressure drop	26	37	36	44	34	35	37	36	38	38	41	42	kPa
	Heating recovery capacity	61,7	72,7	82,1	91,9	108	124	139	157	174	200	226	257	kW
	Water flow rate recovery	2,95	3,47	3,92	4,39	5,16	5,92	6,64	7,50	8,31	9,56	10,8	12,3	l/s
	Water pressure drop recovery	34	47	42	41	48	47	52	49	51	50	54	53	kPa

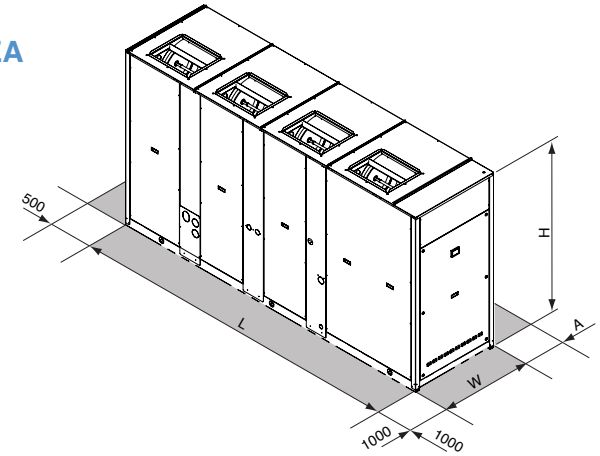
A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

DIMENSIONS
MINIMUM OPERATING AREA
WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
L	2501				3343			3343			4097		mm
W	954				1104			1104			1104		mm
H	1930				1793			2193			2193		mm
A	1600							2000					mm
Operating maximum weight	1121	1125	1146	1189	1670	1751	1836	2051	2080	2124	2478	2520	kg

> RGW

WATER-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION

Unit with closing panels

Available range

Unit type

IR	Chiller
IW	Heat pump (reversible on the water side)
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BW	Heat pump Brine (reversible on the water side)
BP	Heat pump Brine (reversible on the refrigerant side)

Version

VB	Base version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Unit description

This series of water-water chillers and heat pumps satisfies the cooling and heating requirements of commercial and industrial plants of medium size.

All the units are suitable for indoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit is equipped with 2 scroll compressors, mounted on rubber vibration-damper supports, plant side heat exchanger brazed plate-type in stainless steel (AISI 316), complete with thermal insulation shell and differential pressure switch, source side exchanger brazed plate-type in stainless steel (AISI 316), complete with ithermal insulation (IW, IP, BW, BP only) and differential pressure switch. (IP, BP only), thermostatic expansion valve or electronic expansion valve (standard for IP, BP), 4-way valve, dehydrator filter, refrigerant circuit protected by refrigerant safety valve, low and high pressure switches, electrical panel for power and control complete with main breaker power supply with door lock function microprocessor controller with keyboard-display, and phase sequence controller (standard). When developing the range special attention has been paid to the choice of heat exchangers in order to obtain high efficiencies at full and partial loads to maximise the seasonal efficiency rating (ESEER) and therefore reduce consumption and running costs. The units can be chosen in Basic setting up (AB) (unit without closing panels), Low noise setting up (AS), featuring closing panels coated with acoustic material, Extra Low noise setting up (AX) featuring closing panels coated with superior acoustic material and soundproofing jackets on the compressors.

A wide range of accessories completes the commercial offer. These include pumping modules with 1 or 2 pumps available with standard or high head with a maximum of 4 pumps: 2 on plant side and 2 on source side. The electronic controller can manage the various condensation control systems of the numerous applications required, enabling the control of 2-way or 3-way modulating valves (also offered as accessories) or the control of pumps under INVERTER. The units can therefore by combined with liquid coolers (dry-coolers), cooling towers, geothermal boreholes or use for water cooling city or well water. All the units are carefully built in compliance with the current regulations and individually tested. Installation therefore only requires the electrical and hydraulic connection.

Options

Pumping Modules

Available on various configurations:

- 1 o 2 pumps plant side
- 1 o 2 pumps source side
- pumps standard, high and extra high pressure head

Expansion valve

- thermostatic
- electronic (standard for IP, BP)

Suitable for outdoor installation

Accessories

Rubber vibration dampers
Remote controller
Serial Interface Modbus-RS 485
Programmer clock
Phase sequence and voltage controller
Low temperature kit
High and low pressure gauges
High temperature thermostat
Compressors shut-off valves
(for IR, BR, IW, BW only)
Outdoor air sensor
Water flow switch
Victaulic hydraulic fittings
Victaulic bends
Victaulic water shut-off valves
Victaulic water filter
2-way valve for cond./evap control
3-way valve for cond./evap control
Compressors start-up with soft starter
Compressors power factor correction
Electrical load protection with thermal magnetic circuit breakers

NOMINAL performances - Standard plants - EUROVENT certified data

IR		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
W30W7	Cooling capacity	70,0	79,0	92,0	105	118	133	148	170	192	216	240	kW
	Power input	15,0	16,8	20,3	23,3	26,3	29,8	33,3	37,8	42,3	48,4	54,5	kW
	EER	4,67	4,70	4,53	4,51	4,49	4,46	4,44	4,50	4,54	4,46	4,40	-
	ESEER	6,07	6,16	6,00	5,87	5,94	5,81	5,86	5,95	5,90	5,91	5,74	-
	Pressure drops plant side	47	38	40	41	44	42	45	46	48	48	49	kPa
	Pressure drops source side	68	55	59	60	65	62	66	67	70	71	72	kPa
IW		**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
W30W7	Cooling capacity	70,0	79,0	92,0	105	118	133	148	170	192	216	240	kW
	Power input	15,0	16,8	20,3	23,3	26,3	29,8	33,3	37,8	42,3	48,4	54,5	kW
	EER	4,67	4,70	4,53	4,51	4,49	4,46	4,44	4,50	4,54	4,46	4,40	-
	ESEER	6,07	6,16	6,00	5,87	5,94	5,81	5,86	5,95	5,90	5,91	5,74	-
	Pressure drops plant side	47	38	40	41	44	42	45	46	48	48	49	kPa
	Pressure drops source side	68	55	59	60	65	62	66	67	70	71	72	kPa
W10W45	Heating capacity	78,0	87,0	103	117	131	148	165	189	213	240	268	kW
	Power input	19,0	21,0	25,2	28,7	32,2	36,4	40,7	46,3	51,9	58,6	65,4	kW
	COP	4,11	4,14	4,09	4,08	4,07	4,07	4,05	4,08	4,10	4,10	4,10	-
	Pressure drops plant side	58	46	50	51	54	52	56	57	59	59	61	kPa
	Pressure drops source side	68	55	59	60	65	62	66	67	70	71	72	kPa
IP		**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
W30W7	Cooling capacity	68,6	77,4	90,2	103	116	130	145	167	188	212	235	kW
	Power input	14,9	16,6	20,1	23,1	26,0	29,5	33,0	37,4	41,9	47,9	54,0	kW
	EER	4,62	4,65	4,49	4,46	4,44	4,42	4,40	4,45	4,49	4,42	4,36	-
	ESEER	6,01	6,10	5,94	5,81	5,88	5,75	5,80	5,89	5,84	5,85	5,68	-
	Pressure drops plant side	45	36	38	39	42	40	43	44	46	46	47	kPa
	Pressure drops source side	66	53	56	58	62	60	64	65	68	68	70	kPa
W10W45	Heating capacity	77,0	86,0	102	116	130	147	164	187	211	238	265	kW
	Power input	19,1	21,1	25,3	28,9	32,4	36,6	41,0	46,5	52,0	59,0	65,9	kW
	COP	4,03	4,08	4,03	4,01	4,00	4,00	4,00	4,02	4,06	4,03	4,03	-
	Pressure drops plant side	57	45	49	50	53	51	55	56	58	58	60	kPa
	Pressure drops source side	66	53	56	58	62	60	64	65	68	68	70	kPa

W30W7 = source : water in 30°C out 35°C / plant : water in 12°C out 7°C
W10W45 = source : water in 10°C / plant : water in 40°C out 45°C

TECHNICAL DATA	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Power supply	400 - 3 - 50											V-ph-Hz
Compressor type	scroll											-
N° compressors / N° refrigerant circuits	2 / 1											n°
Plant side heat exchanger type	stainless steel brazed plates											-
Source side heat exchanger type	stainless steel brazed plates											-
IN/OUT Plant side hydraulic fittings	2" 1/2 VICTAULIC											"
IN/OUT Source side hydraulic fittings	2" 1/2 VICTAULIC											"

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Condensation / evaporation control
- Remote stand by
- Remote cooling-heating

NOMINAL performances - Standard plants

IR		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
W30W7	Cooling capacity	69,5	78,5	91,4	104	117	132	147	169	191	214	238	kW
	Power input	16,4	18,1	21,9	25,2	28,6	32,3	36,3	41,3	46,4	53,0	59,7	kW
	EER	4,23	4,34	4,17	4,14	4,10	4,09	4,05	4,09	4,11	4,04	3,99	-
	Water flow rate plant side	3,3	3,8	4,4	5,0	5,6	6,4	7,1	8,1	9,2	10,3	11,5	l/s
	Pressure drops plant side	47	38	40	41	44	42	45	46	48	48	49	kPa
	Water flow rate source side	4,0	4,5	5,3	6,1	6,8	7,7	8,6	9,8	11,1	12,5	13,9	l/s
	Pressure drops source side	68	55	59	60	65	62	66	67	70	71	72	kPa
IW		**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
W30W7	Cooling capacity	69,5	78,5	91,4	104	117	132	147	169	191	214	238	kW
	Power input	16,4	18,1	21,9	25,2	28,6	32,3	36,3	41,3	46,4	53,0	59,7	kW
	EER	4,23	4,34	4,17	4,14	4,10	4,09	4,05	4,09	4,11	4,04	3,99	-
	Water flow rate plant side	3,3	3,8	4,4	5,0	5,6	6,4	7,1	8,1	9,2	10,3	11,5	l/s
	Pressure drops plant side	47	38	40	41	44	42	45	46	48	48	49	kPa
	Water flow rate source side	4,0	4,5	5,3	6,1	6,8	7,7	8,6	9,8	11,1	12,5	13,9	l/s
	Pressure drops source side	68	55	59	60	65	62	66	67	70	71	72	kPa
W10W45	Heating capacity	78,7	87,6	104	118	132	149	167	191	215	242	271	kW
	Power input	20,6	22,5	27,1	30,9	34,8	39,2	44,1	50,2	56,5	63,8	71,4	kW
	COP	3,81	3,90	3,84	3,82	3,80	3,81	3,78	3,80	3,81	3,80	3,79	-
	Water flow rate plant side	3,7	4,2	4,9	5,6	6,3	7,1	7,9	9,0	10,2	11,5	12,8	l/s
	Pressure drops plant side	58	46	50	51	54	52	56	57	59	59	61	kPa
	Water flow rate source side	4,0	4,5	5,3	6,1	6,8	7,7	8,6	9,8	11,1	12,5	13,9	l/s
	Pressure drops source side	68	55	59	60	65	62	66	67	70	71	72	kPa
IP		**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
W30W7	Cooling capacity	68,1	77,0	89,6	102	115	130	144	165	187	210	233	kW
	Power input	16,2	17,9	21,6	24,9	28,2	31,8	35,8	40,7	45,7	52,3	58,9	kW
	EER	4,20	4,31	4,14	4,11	4,07	4,07	4,03	4,07	4,09	4,02	3,96	-
	Water flow rate plant side	3,3	3,7	4,3	4,9	5,5	6,2	6,9	8,0	9,0	10,1	11,2	l/s
	Pressure drops plant side	45	36	38	39	42	40	43	44	46	46	47	kPa
	Water flow rate source side	4,0	4,5	5,2	6,0	6,7	7,6	8,4	9,7	10,9	12,3	13,7	l/s
	Pressure drops source side	66	53	56	58	62	60	64	65	68	68	70	kPa
W10W45	Heating capacity	77,7	86,6	103	117	131	148	165	189	213	240	268	kW
	Power input	20,7	22,5	27,1	31,0	34,9	39,3	44,2	50,3	56,4	64,0	71,6	kW
	COP	3,76	3,85	3,80	3,77	3,75	3,76	3,74	3,76	3,77	3,75	3,74	-
	Water flow rate plant side	3,7	4,1	4,9	5,5	6,2	7,0	7,8	8,9	10,1	11,4	12,7	l/s
	Pressure drops plant side	57	45	49	50	53	51	55	56	58	58	60	kPa
	Water flow rate source side	4,0	4,5	5,2	6,0	6,7	7,6	8,4	9,7	10,9	12,3	13,7	l/s
	Pressure drops source side	66	53	56	58	62	60	64	65	68	68	70	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base setting up (AB)	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
	Sound power level (E)	75	76	77	77	77	78	78	79	79	80	80	dB(A)
	Sound pressure level at 1 meter	59	60	61	61	61	62	62	63	63	64	64	dB(A)
	Sound pressure level at 5 meters	49	50	51	51	51	52	52	53	53	54	54	dB(A)
	Sound pressure level at 10 meters	44	45	46	46	46	47	47	48	48	49	49	dB(A)
	Low noise setting up (AS)	**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
	Sound power level (E)	71	72	73	73	73	74	74	75	75	76	76	dB(A)
	Sound pressure level at 1 meter	55	56	57	57	57	58	58	59	59	60	60	dB(A)
	Sound pressure level at 5 meters	45	46	47	47	47	48	48	49	49	50	50	dB(A)
	Sound pressure level at 10 meters	40	41	42	42	42	43	43	44	44	45	45	dB(A)
	eXtra low noise setting up (AX)	**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
	Sound power level (E)	67	68	69	69	69	70	70	71	71	72	72	dB(A)
	Sound pressure level at 1 meter	51	52	53	53	53	54	54	55	55	56	56	dB(A)
	Sound pressure level at 5 meters	41	42	43	43	43	44	44	45	45	46	46	dB(A)
	Sound pressure level at 10 meters	36	37	38	38	38	39	39	40	40	41	41	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.
(E): EUROVENT certified data

		Cooling		Heating		
	Unit type	min	max	min	max	
Water inlet temperature source side	IR, IW, IP, BR, BP	20 (5*)	50	10	25 (40*)	(°C)
Water outlet temperature plant side	IR, IW, IP	5	20	25	55	(°C)
Water outlet temperature plant side	BR, BP	-10	5	25	55	(°C)

* with condensation / evaporation control devices

NOMINAL performances - Radiant plants

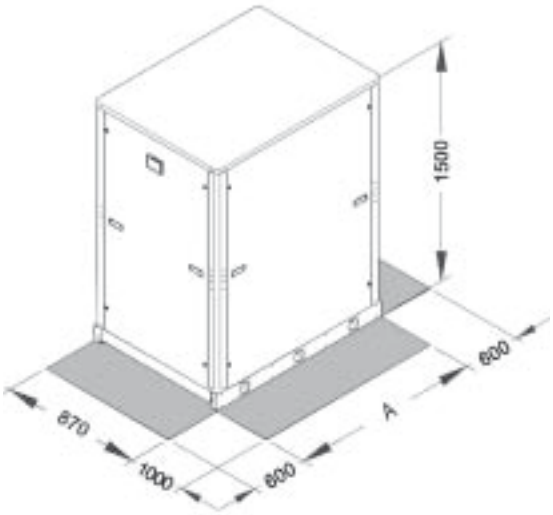
IR		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
W30W18	Cooling capacity	94,0	105	121	140	159	178	198	227	257	289	321	kW
	Power input	18,8	20,3	24,5	28,4	32,6	36,6	41,3	47,1	53,2	60,7	68,6	kW
	EER	**5,01**	**5,19**	**4,95**	**4,94**	**4,86**	**4,88**	**4,79**	**4,82**	**4,83**	**4,76**	**4,69**	-
	Water flow rate side side	4,6	5,1	5,9	6,8	7,7	8,6	9,6	11,0	12,5	14,0	15,6	l/s
	Pressure drops plant side	87	69	71	75	82	78	82	84	89	88	90	kPa
	Water flow rate source side	5,3	5,9	6,8	7,9	8,9	10,0	11,1	12,8	14,5	16,3	17*	l/s
	Pressure drops source side	116	92	96	101	110	105	111	114	119	119	108	kPa
IW		**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
W30W18	Cooling capacity	94,0	105	121	140	159	178	198	227	257	289	321	kW
	Power input	18,8	20,3	24,5	28,4	32,6	36,6	41,3	47,1	53,2	60,7	68,6	kW
	EER	**5,01**	**5,19**	**4,95**	**4,94**	**4,86**	**4,88**	**4,79**	**4,82**	**4,83**	**4,76**	**4,69**	-
	Water flow rate side side	4,6	5,1	5,9	6,8	7,7	8,6	9,6	11,0	12,5	14,0	15,6	l/s
	Pressure drops plant side	87	69	71	75	82	78	82	84	89	88	90	kPa
	Water flow rate source side	5,3	5,9	6,8	7,9	8,9	10,0	11,1	12,8	14,5	16,3	17*	l/s
	Pressure drops source side	116	92	96	101	110	105	111	114	119	119	108	kPa
W10W35	Heating capacity	85,2	95,8	112	128	145	163	182	208	235	265	295	kW
	Power input	17,9	19,4	23,5	27,2	31,0	34,9	39,3	44,9	50,6	57,8	65,3	kW
	COP	**4,75**	**4,93**	**4,78**	**4,73**	**4,65**	**4,67**	**4,61**	**4,64**	**4,64**	**4,58**	**4,52**	-
	Water flow rate side side	4,0	4,5	5,3	6,1	6,8	7,7	8,6	9,8	11,1	12,5	13,9	l/s
	Pressure drops plant side	68	55	59	60	65	62	66	67	70	71	72	kPa
	Water flow rate source side	5,3	5,9	6,8	7,9	8,9	10,0	11,1	12,8	14,5	16,3	17*	l/s
	Pressure drops source side	116	92	96	101	110	105	111	114	119	119	108	kPa
IP		**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
W30W18	Cooling capacity	90,8	101	117	135	153	172	191	219	248	278	310	kW
	Power input	19,0	20,1	24,1	28,1	32,3	36,1	41,0	46,7	52,5	59,5	66,6	kW
	EER	**4,79**	**5,01**	**4,85**	**4,80**	**4,74**	**4,77**	**4,65**	**4,69**	**4,72**	**4,68**	**4,65**	-
	Water flow rate side side	4,4	4,9	5,7	6,5	7,4	8,3	9,2	10,6	12,0	13,5	15,0	l/s
	Pressure drops plant side	81	63	66	69	76	72	77	78	82	82	84	kPa
	Water flow rate source side	5,1	5,7	6,6	7,6	8,6	9,7	10,8	12,4	14,0	15,8	17*	l/s
	Pressure drops source side	110	86	90	95	103	98	105	107	111	112	108	kPa
W10W35	Heating capacity	83,7	94,0	110	126	142	160	178	205	230	260	290	kW
	Power input	17,6	19,0	23,1	26,7	30,4	34,2	38,6	43,9	49,5	56,6	63,9	kW
	COP	**4,74**	**4,95**	**4,78**	**4,73**	**4,68**	**4,67**	**4,62**	**4,66**	**4,65**	**4,60**	**4,53**	-
	Water flow rate side side	4,0	4,5	5,2	6,0	6,7	7,6	8,4	9,7	10,9	12,3	13,7	l/s
	Pressure drops plant side	66	53	56	58	63	59	64	65	68	68	70	kPa
	Water flow rate source side	5,1	5,7	6,6	7,6	8,6	9,7	10,8	12,4	14,0	15,8	17*	l/s
	Pressure drops source side	110	86	90	95	103	98	105	107	111	112	108	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

W30W18 = source : water in 30°C out 35°C / plant : water in 23°C out 18°C
W10W35 = source : water in 10°C / plant : water in 30°C out 35°C
* = maximum admissible water flow rate

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT

(reference drawing: unit with closing panel)



		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
STANDARD UNIT	A		880					1175					mm
	Operating maximum weight	404	416	427	548	635	668	696	741	771	812	844	kg
STANDARD UNIT+ PUMPING MODULE MP	A (2+2 extra high head pumps)		2055					2350					mm
	Operating maximum weight (2+2 extra high head pumps)	809	817	828	1059	1146	1225	1253	1321	1351	1415	1447	kg

> RVW

WATER-WATER CHILLERS FOR INDOOR INSTALLATION

Available range

Unit type
- IR Chiller
- IW Heat pump (reversible on the water side)
- BR Chiller Brine
- BW Heat pump Brine (reversible on the water side)

Version
- VB Base version
- VD Desuperheater version
- VR Total recovery version

Acoustic setting up
- AB Base setting up
- AS Low noise setting up

Condenser Options
- T cooling tower water
- P well water
- S sea water

Unit description

This range of water-water chillers are designed to meet the climate control and air conditioning needs of large capacity systems in the industrial and commercial sectors. All the units are suitable for indoor installation and can be applied to fan coil plants and radiant floor plants.
Suitable for indoor installation, as standard the units are equipped with 1 or 2 TWIN-SCREW semihermetic compressors mounted on rubber vibration dampers able to modulate the capacity from minimum 25 (not for all configurations) to 100%, plant side exchanger shell and tube type complete with Victaulic water connections, fitted inside a shell of thermal insulation material to prevent condensation and heat exchange with the outside, optimised for R134a with high efficiency grooved tubes, protected by means of a water differential pressure switch, source side exchanger shell and tube type optimised for R134a with high efficiency grooved tubes complete with Victaulic water connections, fitted inside a shell of thermal insulation material to prevent heat exchange (IW, BW only) 1 or 2 independent refrigerant circuits, complete with electronic expansion valve which optimises unit efficiency at full and partial loads and enables maximum seasonal efficiency, maximum and minimum pressure switch, PED safety valves, dehydrator filter, liquid/moisture indicator, compressor discharge and liquid shut-off valves, high and low pressure transducers, electrical panel with minimum protection IP54 containing the electrical equipment and all the components to control and command the unit complete with main supply breaker with door lock function, phase sequence control device, microprocessor controller with display (4 lines of 20 characters).
When developing the range special attention has been paid to the choice of heat exchangers in order to obtain high efficiencies at full loads and partial loads to maximise the seasonal efficiency rating (ESEER) and therefore reduce consumption and running costs. The units can be selected as Base setting up (AB) or as Low noise setting up (AS) that provides that compressor are positioned inside a soundproofed cabin, made with profiles and panels insulated with acoustic material. The range is completed with numerous accessories and options.
The electronic controller can manage the various condensation control systems of the numerous applications required, enabling the control of 2-way or 3-way modulating valves or the control of pumps under INVERTER. The units can therefore by combined with liquid coolers (dry-coolers), cooling towers, geothermal boreholes or use for water cooling city or well water (condenser option P) or sea water (condenser option S). All the units are carefully built in compliance with the current regulations and individually tested. Installation therefore only requires the electrical and hydraulic connection.

Options

Compressor starting
- standard (contactors)
- soft starter

Compressors power factor correction
Electrical load protection
- standard (fuses)
- thermal magnetic circuit breakers

Evaporator flow switch (mounted)
Evaporator insulation higher thickness
Evaporator electrical heater for winter antifreeze
High and low pressure gauges
Compressor suction shut-off valve

Accessories

Rubber vibration dampers
External Water Storage Tank and Pumping Module complete with insulated carbon steel tank, single or twin pump and all hydronic components.
Antifreeze electrical heaters for Storage tank
Remote controller
Serial Interface Modbus on RS 485
Programmer clock
Phase sequence and voltage controller
Water flow switch

NOMINAL performances - Standard plants - EUROVENT certified data

IR		280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
W30W7	Cooling capacity	282	317	356	412	478	536	592	704	818	935	1066	1167	kW
	Power input	59,0	67,0	75,0	86,0	100	114	125	150	172	200	228	249	kW
	EER	**4,78**	**4,73**	**4,75**	**4,79**	**4,78**	**4,70**	**4,74**	**4,69**	**4,76**	**4,68**	**4,68**	**4,69**	-
	ESEER	**5,55**	**5,49**	**5,50**	**5,56**	**5,56**	**5,50**	**5,56**	**5,54**	**5,63**	**5,55**	**5,58**	**5,6**	-
	Pressure drops plant side	46	37	46	44	55	43	54	**52**	45	57	59	45	kPa
	Pressure drops source side	29	25	26	28	38	27	25	26	28	38	27	25	kPa
IW		**280.1**	**320.1**	**360.1**	**420.1**	**480.1**	**540.1**	**600.1**	**710.2**	**820.2**	**950.2**	**1100.2**	**1200.2**	
W30W7	Cooling capacity	282	317	356	412	478	536	592	704	818	935	1066	1167	kW
	Power input	59,0	67,0	75,0	86,0	100	114	125	150	172	200	228	249	kW
	EER	**4,78**	**4,73**	**4,75**	**4,79**	**4,78**	**4,70**	**4,74**	**4,69**	**4,76**	**4,68**	**4,68**	**4,69**	-
	ESEER	**5,55**	**5,49**	**5,50**	**5,56**	**5,56**	**5,50**	**5,56**	**5,54**	**5,63**	**5,55**	**5,58**	**5,60**	-
	Pressure drops plant side	46	37	46	44	55	43	54	52	45	57	59	45	kPa
	Pressure drops source side	29	25	26	28	38	27	25	26	28	38	27	25	kPa
W10W45	Heating capacity	299	338	381	435	512	569	634	754	870	1010	1133	1253	kW
	Power input	69,0	79,0	90,0	101	121	133	149	179	204	243	265	298	kW
	COP	**4,33**	**4,28**	**4,23**	**4,31**	**4,23**	**4,28**	**4,26**	**4,21**	**4,26**	**4,16**	**4,28**	**4,20**	-
	Pressure drops plant side	22	19	20	21	30	21	20	20	22	30	21	20	kPa
	Pressure drops source side	30	25	31	29	37	29	36	35	30	38	39	30	kPa

W30W7 = source : water in 30°C out 35°C / plant : water in 12°C out 7°C
W10W45 = source : water in 10°C / plant : water in 40°C out 45°C

TECHNICAL DATA	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Power supply	400 - 3 - 50												V-ph-Hz
Compressor type	twin-screw												-
N° compressors / N° refrigerant circuits	1 / 1							2 / 2					n°
Part load	25 / 100% continuous							12.5 / 100% continuous					
Plant side heat exchanger type / N°	shell and tube / 1												-
Source side heat exchanger type / N°	shell and tube / 1							shell and tube / 2					-
IN/OUT Plant hydraulic fittings (victaulic)	DN125	DN125	DN125	DN150	DN150	DN150	DN200	DN150	DN200	DN200	DN200	DN200	-
IN/OUT Source hydraulic fittings (victaulic)	DN100	DN100	DN100	DN100	DN100	DN125	DN125	DN100	DN100	DN100	DN125	DN125	-

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Double Set Point
- Demand Limit
- Dinamic set point
- Integrative heating
- Condensation / evaporation control
- Remote stand by
- Remote cooling-heating

NOMINAL performances - Standard plants

IR		280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
W30W7	Cooling capacity	278	314	352	407	470	530	584	694	807	920	1050	1153	kW
	Power input	62,6	70,4	79,4	91,1	108	120	133	159	182	215	244	263	kW
	EER	**4,44**	**4,45**	**4,43**	**4,47**	**4,37**	**4,40**	**4,39**	**4,36**	**4,43**	**4,27**	**4,31**	**4,38**	-
	Water flow rate plant side	13,5	15,1	17,0	19,7	22,8	25,6	28,3	33,6	39,1	44,7	50,9	55,8	l/s
	Pressure drops plant side	46	37	46	44	55	43	54	**52**	45	57	59	45	kPa
	Water flow rate source side	16,3	18,3	20,6	23,8	27,6	31,1	34,3	40,8	47,3	54,2	61,8	67,7	l/s
	Pressure drops source side	29	25	26	28	38	27	25	26	28	38	27	25	kPa
IW		**280.1**	**320.1**	**360.1**	**420.1**	**480.1**	**540.1**	**600.1**	**710.2**	**820.2**	**950.2**	**1100.2**	**1200.2**	
W30W7	Cooling capacity	278	314	352	407	470	530	584	694	807	920	1050	1153	kW
	Power input	62,6	70,4	79,4	91,1	108	120	133	159	182	215	244	263	kW
	EER	**4,44**	**4,45**	**4,43**	**4,47**	**4,37**	**4,40**	**4,39**	**4,36**	**4,43**	**4,27**	**4,31**	**4,38**	-
	Water flow rate plant side	13,5	15,1	17,0	19,7	22,8	25,6	28,3	33,6	39,1	44,7	50,9	55,8	l/s
	Pressure drops plant side	46	37	46	44	55	43	54	52	45	57	59	45	kPa
	Water flow rate source side	16,3	18,3	20,6	23,8	27,6	31,1	34,3	40,8	47,3	54,2	61,8	67,7	l/s
	Pressure drops source side	29	25	26	28	38	27	25	26	28	38	27	25	kPa
W10W45	Heating capacity	301	340	384	438	517	573	639	760	876	1020	1142	1261	kW
	Power input	71,6	81,5	92,9	103,5	125,3	136,5	154,2	185,0	210,4	252,7	274,4	306,1	kW
	COP	**4,20**	**4,17**	**4,13**	**4,23**	**4,13**	**4,20**	**4,14**	**4,11**	**4,16**	**4,04**	**4,16**	**4,12**	-
	Water flow rate plant side	14,3	16,1	18,2	20,8	24,5	27,2	30,3	36,0	41,6	48,3	54,1	59,8	l/s
	Pressure drops plant side	22	19	20	21	30	21	20	20	22	30	21	20	kPa
	Water flow rate source side	11,0	12,3	13,9	16,0	18,7	20,9	23,1	27,5	31,8	36,7	41,5	45,6	l/s
	Pressure drops source side	30	25	31	29	37	29	36	35	30	38	39	30	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

W30W7 = source : water in 30°C out 35°C / plant : water in 12°C out 7°C
W10W45 = source : water in 10°C / plant : water in 40°C out 45°C

Acoustic performances

	Base setting up (AB)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
	Sound power level (E)	97	97	97	98	98	98	98	99	100	100	100	100	dB(A)
	Sound pressure level at 1 meter	79	79	79	80	80	80	80	80	81	81	81	81	dB(A)
	Sound pressure level at 5 meters	70	70	70	72	72	72	71	72	73	73	73	73	dB(A)
	Sound pressure level at 10 meters	65	65	65	67	67	67	66	67	68	68	68	68	dB(A)
	Low noise setting up (AS)	**280.1**	**320.1**	**360.1**	**420.1**	**480.1**	**540.1**	**600.1**	**710.2**	**820.2**	**950.2**	**1100.2**	**1200.2**	
	Sound power level (E)	92	93	92	93	93	94	94	94	95	95	96	96	dB(A)
	Sound pressure level at 1 meter	74	75	74	75	75	76	76	75	76	76	77	77	dB(A)
	Sound pressure level at 5 meters	65	66	65	66	66	67	67	67	68	68	69	69	dB(A)
	Sound pressure level at 10 meters	60	61	60	61	61	62	62	62	63	63	64	64	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions W30W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.
(E): EUROVENT certified data

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Water inlet temperature source side	IR, IW, BR	20 (5*)	50	10	25 (40*)	(°C)
Water outlet temperature plant side	IR, IW	5	15	25	55	(°C)
Water outlet temperature plant side	BR	-8	5	25	55	(°C)
Water outlet temperature Desuperheater (VD)	IR, BR	35	50	-	-	(°C)
Water outlet temperature total Recovery (VR)	IR, BR	25	55	-	-	(°C)

* with condensation / evaporation control devices

VD and VR versions

These units allow to recover the heating power through an additional heat exchanger.

DESUPERHEATERS VERSION VD

Allows the production of cold water as in the base version and, simultaneously, of hot water at temperatures from 35 to 50°C. This is achieved by inserting, between the compressor and condenser, a heat exchanger water-gas cooler which allows for heat recovery from 15 to 20% of thermal power.

TOTAL RECOVERY VERSION VR

Allows the production of cold water and simultaneously of hot water at temperatures from 25 to 55 °C. This is achieved using a suitable heat exchanger that has a double water circuit: one for condensation and a second for heat recovery. The management to the two hydraulic circuits is in charge of the user.

Desupeheater Version (VD)

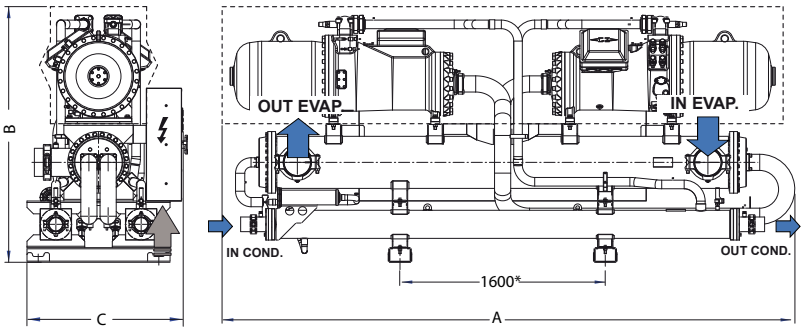
IR	Base setting up (AB)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
W30W7 - W45	Cooling capacity	293	330	370	428	497	557	616	732	851	972	1109	1214	kW
	Total power input	57,2	65	72,8	83,4	97	111	121	146	167	194	221	242	kW
	EER	**5,12**	**5,07**	**5,09**	**5,14**	**5,12**	**5,04**	**5,08**	**5,03**	**5,1**	**5,01**	**5,01**	**5,02**	-
	Water flow rate	14	15,8	17,7	20,5	23,8	26,6	29,4	35	40,6	46,5	53	58	l/s
	Water pressure drop	50	40	50	48	60	47	58	56	49	62	64	49	kPa
	Recovery heating capacity	54,4	61,7	69,1	79,2	92,2	105	115	138	158	184	210	229	kW
	Recovery water flow rate	2,6	2,95	3,3	3,79	4,4	5,02	5,5	6,6	7,57	8,81	10	10,9	l/s
	Recovery water pressure drop	6	8	7	10	9	7	9	7	10	9	7	9	kPa

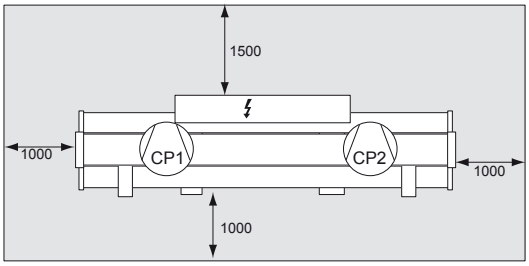
Total Recovery Version (VR)

IR	Base setting up (AB)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
W30W7 - W45	Cooling capacity	288	323	363	420	488	547	604	718	834	954	1087	1190	kW
	Total power input	58,4	66,3	74,3	85,1	99	113	124	149	171	198	226	247	kW
	EER	**4,92**	**4,87**	**4,89**	**4,94**	**4,92**	**4,84**	**4,88**	**4,84**	**4,9**	**4,82**	**4,82**	**4,83**	-
	EER with recovery	**10,57**	**10,45**	**10,48**	**10,58**	**10,56**	**10,39**	**10,44**	**10,34**	**10,46**	**10,34**	**10,33**	**10,34**	-
	Water flow rate	13,7	15,4	17,3	20,1	23,3	26,1	28,9	34,3	39,9	45,6	51,9	56,9	l/s
	Water pressure drop	48	39	48	46	57	45	56	54	47	59	61	47	kPa
	Recovery heating capacity	329	370	416	480	557	627	691	823	954	1094	1247	1365	kW
	Recovery water flow rate	15,7	17,7	19,9	22,9	26,6	29,9	33	39,3	45,6	52,3	59,6	65,2	l/s
	Recovery water pressure drop	27	23	24	26	35	26	23	24	26	35	26	23	kPa

W30W7 - W45 = source : water in 30°C out 35°C / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT





Models	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
A	4084	4084	4084	4084	4084	4114	4114	4320	4463	4463	4463	4463	mm
B	1878	1878	1878	1904	1904	2002	2089	1932	1993	1993	2090	2090	mm
C	1043	1043	1043	1118	1118	1118	1118	1218	1218	1218	1256	1256	mm
Operating maximum weight	1929	1947	1984	2585	2618	2785	3134	3747	5042	5059	5512	5682	kg

> CMA - CMA HE

CONDENSING UNITS FOR OUTDOOR INSTALLATION

ECO-FRIENDLY R410A REFRIGERANT GAS

NEW

Available range

Unit type

SR Condensing unit

SP Reversible condensing unit (reversible on the refrigerant side)

Versions

VB Base Version

Acoustic setting up

AB Base setting up

AS Low noise setting up

Unit description

This series of condensing units satisfies the cooling and heating requirements of residential plants of small and medium size. All the units are suitable for outdoor installation and can be connected to a remote heat exchanger properly designed in order to transfer to the plant all the cooling (and heating for reversible units) power generated.

It is possible for example to connect direct expansion coils placed inside air handling units or remote plate heat exchangers placed inside technical rooms. In both cases the lack of outdoor hydraulic pipes eliminates the freezing problems and avoids brine solutions to be used.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressor mounted on damper supports, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins and shut off valves on the liquid line and on the gas line. The reversible units are moreover supplied with reverse cycle valve, thermostatic expansion valve (working in heating mode) and liquid receiver.

The circuit is protected by high and low pressure switches.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors.

All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control. All the units are provided with a phase presence and correct sequence controller device.

All the units are accurately built and individually tested in the factory.

All the units are supplied with refrigerant charge inside. Only electric and refrigerant connections (between condensing unit and remote heat exchanger) are required for installation.

Options

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Electrical loads protection

- fuses
- thermal magnetic circuit breakers

Compressor power factor correction

Accessories

Rubber vibration dampers

Coil protection grille

Remote control

Modbus serial interface on RS485

Programmer clock

Phase sequence and voltage controller

Remote plate heat exchanger

Liquid line

NO INAL performances - CMA

SR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35E5	Cooling capacity	21,6	24,0	28,0	33,5	38,7	43,6	kW
	Power input	6,79	7,45	8,72	10,7	12,2	13,8	kW
	EER	3,18	3,21	3,20	3,13	3,17	3,16	-
SR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	20,7	23,0	26,9	32,2	37,2	41,9	kW
	Power input	7,33	8,05	9,40	11,5	13,2	14,9	kW
	EER	2,83	2,86	2,86	2,80	2,82	2,81	-
SP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	21,2	23,5	27,4	32,8	37,9	42,8	kW
	Power input	6,72	7,38	8,63	10,6	12,1	13,7	kW
	EER	3,15	3,19	3,18	3,11	3,14	3,12	-
A7C50	Heating capacity	20,1	22,3	25,9	31,0	35,9	40,4	kW
	Power input	6,72	7,37	8,62	10,6	12,1	13,8	kW
	COP	2,99	3,03	3,00	2,92	2,97	2,93	-
A7C45	Heating capacity	22,2	24,6	28,6	34,2	39,6	44,6	kW
	Power input	5,92	6,49	7,59	9,34	10,6	12,1	kW
	COP	3,75	3,79	3,77	3,66	3,74	3,69	-
SP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	20,3	22,6	26,4	31,5	36,4	41,0	kW
	Power input	7,26	7,97	9,31	11,4	13,1	14,8	kW
	EER	2,80	2,83	2,83	2,76	2,78	2,78	-
A7C50	Heating capacity	19,0	21,2	24,7	29,6	34,2	38,5	kW
	Power input	6,45	7,08	8,27	10,2	11,7	13,2	kW
	COP	2,94	3,00	2,98	2,90	2,93	2,91	-
A7C45	Heating capacity	21,0	23,4	27,2	32,6	37,7	42,5	kW
	Power input	5,68	6,23	7,29	8,98	10,3	11,7	kW
	COP	3,69	3,76	3,74	3,63	3,68	3,64	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : temperatura di condensazione (dew point) 45°C - superheating 5°C - subcooling 5°C

Acoustic performances

	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	77	77	78	81	82	82	dB(A)
	Sound pressure level at 1 metre	61	62	62	65	66	66	dB(A)
	Sound pressure level at 5 metres	51	51	52	55	55	56	dB(A)
	Sound pressure level at 10 metres	46	46	47	50	50	50	dB(A)
	Low noise acoustic setting up (AS)	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
	Sound power level	74	74	75	78	79	79	dB(A)
	Sound pressure level at 1 metre	58	59	59	62	63	63	dB(A)
	Sound pressure level at 5 metres	48	48	49	52	53	53	dB(A)
	Sound pressure level at 10 metres	43	43	44	47	48	48	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35E5.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

NOMINAL performances - CMA HE

SR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35E5	Cooling capacity	21,8	24,2	28,3	34,2	39,7	44,9	kW
	Power input	6,48	7,10	8,25	10,2	11,8	13,3	kW
	EER	**3,36**	**3,41**	**3,43**	**3,36**	**3,38**	**3,38**	-
SR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	21,0	23,2	27,2	32,9	38,2	43,2	kW
	Power input	7,01	7,67	8,91	11,00	12,70	14,30	kW
	EER	**2,99**	**3,03**	**3,05**	**3,00**	**3,01**	**3,02**	-
SP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	21,4	23,8	27,8	33,6	39,0	44,1	kW
	Power input	6,42	7,03	8,16	10,1	11,7	13,2	kW
	EER	**3,33**	**3,39**	**3,40**	**3,34**	**3,33**	**3,33**	-
A7C50	Heating capacity	20,3	22,5	26,2	31,8	36,9	41,8	kW
	Power input	6,43	7,02	8,16	10,1	11,7	13,2	kW
	COP	**3,16**	**3,21**	**3,21**	**3,15**	**3,15**	**3,17**	-
A7C45	Heating capacity	22,4	24,8	28,9	35,1	40,7	46,1	kW
	Power input	5,66	6,19	7,19	8,86	10,3	11,7	kW
	COP	**3,96**	**4,01**	**4,02**	**3,96**	**3,95**	**3,94**	-
SP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	20,5	22,8	26,7	32,3	37,5	42,3	kW
	Power input	6,94	7,59	8,82	10,9	12,6	14,2	kW
	EER	**2,96**	**3,00**	**3,02**	**2,97**	**2,98**	**2,98**	-
A7C50	Heating capacity	19,2	21,3	25,0	30,2	35,0	39,7	kW
	Power input	6,16	6,75	7,83	9,66	11,2	12,7	kW
	COP	**3,12**	**3,15**	**3,19**	**3,13**	**3,12**	**3,13**	-
A7C45	Heating capacity	21,2	23,5	27,6	33,4	38,7	43,9	kW
	Power input	5,43	5,95	6,90	8,51	9,90	11,2	kW
	COP	**3,91**	**3,95**	**4,00**	**3,92**	**3,91**	**3,92**	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : temperatura di condensazione (dew point) 45°C - superheating 5°C - subcooling 5°C

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	SR, SP	5	48	-15	42	°C
Evaporating temperature (dew point)	SR, SP	1	20	-	-	°C
Condensing temperature (dew point)	SP	-	-	35	60	°C

TECHNICAL DATA	19.1	22.1	26.1	30.1	35.1	40.1	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	n°
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Fans type	axial	axial	axial	axial	axial	axial	-
N° fans	1	1	1	1	1	1	n°
Liquid line connection	5/8”	5/8”	5/8”	5/8”	5/8”	5/8”	-
Gas line connection	7/8”	7/8”	7/8”	7/8”	7/8”	7/8”	-

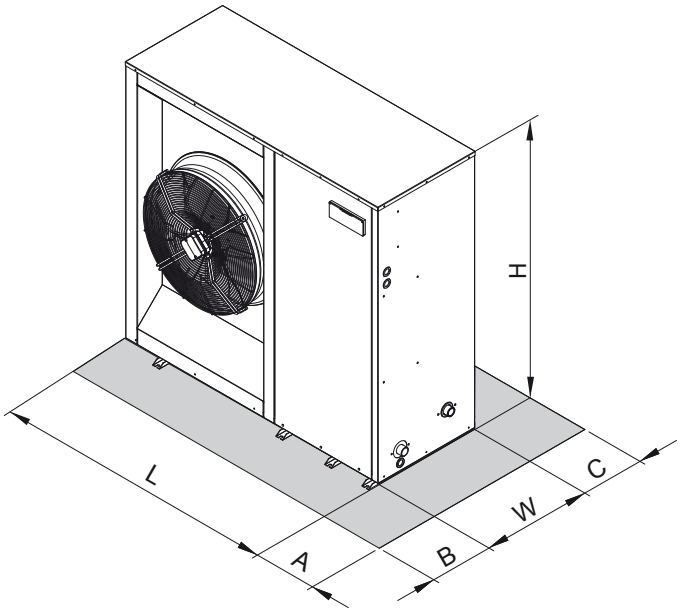
CONTROL SYSTEM

The unit is managed by a microprocessor controller to which, through a wiring board, all the electrical loads and the control devices are connected. The user interface is realized by a display and four buttons that allow to view and, if necessary, modify all the operating parameters of the unit. It’s available, as an accessory, a remote control that reports all the functionalities of the user interface placed on the unit.

The main functions available are:

- water or air temperature management (through set point adjustment)
- adaptive function
- climatic control in heating and in cooling mode (automatic set point adjustment according to outdoor air temperature)
- dynamic defrost cycle management according to outdoor air temperature
- alarm memory management and diagnostic
- fans management by means of continuous rotational speed control
- pump or fan management on the plant side
- integrative electrical heaters management in heating mode (2 step logic)
- compressor and pump or fan operating hours recording
- serial communication through Modbus protocol
- remote stand by
- remote cooling-heating
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



	19.1	22.1	26.1	30.1	35.1	40.1	
L	1494	1494	1494	1704	1704	1704	mm
W	576	576	576	576	576	576	mm
H	1453	1453	1453	1453	1453	1453	mm
A	400	400	400	400	400	400	mm
B	600	600	600	600	600	600	mm
C	200	200	200	200	200	200	mm

> CMP - CMP HE

CONDENSING UNITS FOR INDOOR INSTALLATION

Available range

Unit type

SR	Condensing unit
SP	Reversible condensing unit (reversible on the refrigerant side)

Versions

VB	Base Version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Unit description

This series of condensing units satisfies the cooling and heating requirements of residential plants of small and medium size. All the units are suitable for indoor installation and can be connected to a remote heat exchanger properly designed in order to transfer to the plant all the cooling (and heating for reversible units) power generated.

It is possible for example to connect direct expansion coils placed inside air handling units or remote plate heat exchangers placed inside technical rooms. In both cases the lack of outdoor hydraulic pipes eliminates the freezing problems and avoids brine solutions to be used.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressor mounted on damper supports, centrifugal fans (plug fan), finned coil made of copper pipes and aluminium louvered fins and shut off valves on the liquid line and on the gas line. The reversible units are moreover supplied with reverse cycle valve, thermostatic expansion valve (working in heating mode) and liquid receiver.

The circuit is protected by high and low pressure switches.

All the units are equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors. All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control.

All the units are provided with a phase presence and correct sequence controller device. All the units are accurately built and individually tested in the factory.

All the units are supplied with refrigerant charge inside. Only electric and refrigerant connections (between condensing unit and remote heat exchanger) are required for installation.

Options

Compressor starting

- standard (contactors)
- soft starter

Electrical loads protection

- fuses
- thermal magnetic circuit breakers

Compressor power factor correction

Accessories

Rubber vibration dampers
Coil protection grille
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Remote plate heat exchanger
Liquid line

NOMINAL performances - CMP

SR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35E5	Cooling capacity	21,6	24,0	28,0	33,5	38,7	43,6	kW
	Power input	6,79	7,45	8,72	10,7	12,2	13,8	kW
	EER	3,18	3,21	3,20	3,13	3,17	3,16	-
SR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	20,7	23,0	26,9	32,2	37,2	41,9	kW
	Power input	7,33	8,05	9,40	11,5	13,2	14,9	kW
	EER	2,83	2,86	2,86	2,80	2,82	2,81	-
SP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	21,2	23,5	27,4	32,8	37,9	42,8	kW
	Power input	6,72	7,38	8,63	10,6	12,1	13,7	kW
	EER	3,15	3,19	3,18	3,11	3,14	3,12	-
A7C50	Heating capacity	20,1	22,3	25,9	31,0	35,9	40,4	kW
	Power input	6,72	7,37	8,62	10,6	12,1	13,8	kW
	COP	2,99	3,03	3,00	2,92	2,97	2,93	-
A7C45	Heating capacity	22,2	24,6	28,6	34,2	39,6	44,6	kW
	Power input	5,92	6,49	7,59	9,34	10,6	12,1	kW
	COP	3,75	3,79	3,77	3,66	3,74	3,69	-
SP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	20,3	22,6	26,4	31,5	36,4	41,0	kW
	Power input	7,26	7,97	9,31	11,4	13,1	14,8	kW
	EER	2,80	2,83	2,83	2,76	2,78	2,78	-
A7C50	Heating capacity	19,0	21,2	24,7	29,6	34,2	38,5	kW
	Power input	6,45	7,08	8,27	10,2	11,7	13,2	kW
	COP	2,94	3,00	2,98	2,90	2,93	2,91	-
A7C45	Heating capacity	21,0	23,4	27,2	32,6	37,7	42,5	kW
	Power input	5,68	6,23	7,29	8,98	10,3	11,7	kW
	COP	3,69	3,76	3,74	3,63	3,68	3,64	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : temperatura di condensazione (dew point) 45°C - superheating 5°C - subcooling 5°C

Acoustic performances

	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	76	76	77	80	81	81	dB(A)
	Sound pressure level at 1 metre	60	60	61	64	65	65	dB(A)
	Sound pressure level at 5 metres	50	50	51	54	55	55	dB(A)
	Sound pressure level at 10 metres	45	45	46	49	49	50	dB(A)
	Low noise acoustic setting up (AS)	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
	Sound power level	74	74	75	78	79	79	dB(A)
	Sound pressure level at 1 metre	58	58	59	62	63	63	dB(A)
	Sound pressure level at 5 metres	48	48	49	52	53	53	dB(A)
	Sound pressure level at 10 metres	43	43	44	47	47	48	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35E5.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

NOMINAL performances - CMP HE

SR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35E5	Cooling capacity	21,8	24,2	28,3	34,2	39,7	44,9	kW
	Power input	6,48	7,10	8,25	10,2	11,8	13,3	kW
	EER	**3,36**	**3,41**	**3,43**	**3,36**	**3,38**	**3,38**	-
SR	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	21,0	23,2	27,2	32,9	38,2	43,2	kW
	Power input	7,01	7,67	8,91	11,00	12,70	14,30	kW
	EER	**2,99**	**3,03**	**3,05**	**3,00**	**3,01**	**3,02**	-
SP	**Base acoustic setting up (AB)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	21,4	23,8	27,8	33,6	39,0	44,1	kW
	Power input	6,42	7,03	8,16	10,1	11,7	13,2	kW
	EER	**3,33**	**3,39**	**3,40**	**3,34**	**3,33**	**3,33**	-
A7C50	Heating capacity	20,3	22,5	26,2	31,8	36,9	41,8	kW
	Power input	6,43	7,02	8,16	10,1	11,7	13,2	kW
	COP	**3,16**	**3,21**	**3,21**	**3,15**	**3,15**	**3,17**	-
A7C45	Heating capacity	22,4	24,8	28,9	35,1	40,7	46,1	kW
	Power input	5,66	6,19	7,19	8,86	10,3	11,7	kW
	COP	**3,96**	**4,01**	**4,02**	**3,96**	**3,95**	**3,94**	-
SP	**Low noise acoustic setting up (AS)**	**19.1**	**22.1**	**26.1**	**30.1**	**35.1**	**40.1**	
A35E5	Cooling capacity	20,5	22,8	26,7	32,3	37,5	42,3	kW
	Power input	6,94	7,59	8,82	10,9	12,6	14,2	kW
	EER	**2,96**	**3,00**	**3,02**	**2,97**	**2,98**	**2,98**	-
A7C50	Heating capacity	19,2	21,3	25,0	30,2	35,0	39,7	kW
	Power input	6,16	6,75	7,83	9,66	11,2	12,7	kW
	COP	**3,12**	**3,15**	**3,19**	**3,13**	**3,12**	**3,13**	-
A7C45	Heating capacity	21,2	23,5	27,6	33,4	38,7	43,9	kW
	Power input	5,43	5,95	6,90	8,51	9,90	11,2	kW
	COP	**3,91**	**3,95**	**4,00**	**3,92**	**3,91**	**3,92**	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : temperatura di condensazione (dew point) 45°C - superheating 5°C - subcooling 5°C

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	SR, SP	5	48	-15	42	°C
Evaporating temperature (dew point)	SR, SP	1	20	-	-	°C
Condensing temperature (dew point)	SP	-	-	35	60	°C

TECHNICAL DATA	19.1	22.1	26.1	30.1	35.1	40.1	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	n°
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Fans type	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	centrifugal (plug fan)	-
N° fans	1	1	1	1	1	1	n°
Liquid line connection	5/8”	5/8”	5/8”	5/8”	5/8”	5/8”	-
Gas line connection	7/8”	7/8”	7/8”	7/8”	7/8”	7/8”	-

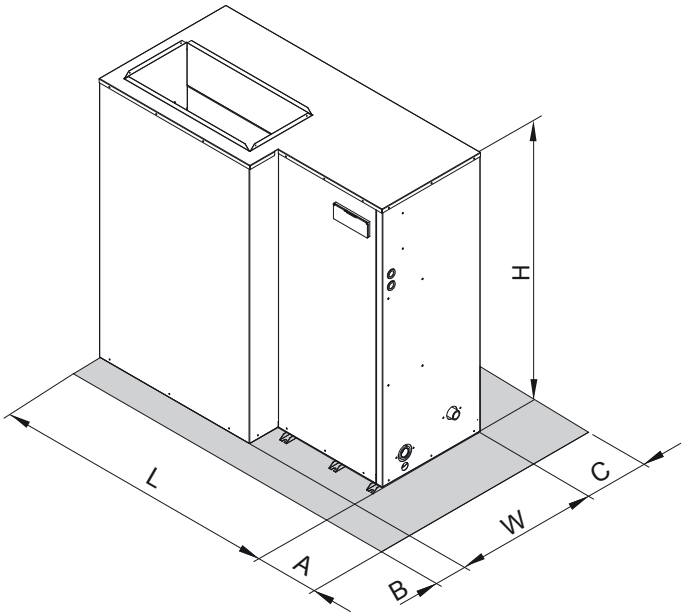
CONTROL SYSTEM

The unit is managed by a microprocessor controller to which, through a wiring board, all the electrical loads and the control devices are connected. The user interface is realized by a display and four buttons that allow to view and, if necessary, modify all the operating parameters of the unit. It’s available, as an accessory, a remote control that reports all the functionalities of the user interface placed on the unit.

The main functions available are:

- water or air temperature management (through set point adjustment)
- adaptive function
- climatic control in heating and in cooling mode (automatic set point adjustment according to outdoor air temperature)
- dynamic defrost cycle management according to outdoor air temperature
- alarm memory management and diagnostic
- fans management by means of continuous rotational speed control
- pump or fan management on the plant side
- integrative electrical heaters management in heating mode (2 step logic)
- compressor and pump or fan operating hours recording
- serial communication through Modbus protocol
- remote stand by
- remote cooling-heating
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



	19.1	22.1	26.1	30.1	35.1	40.1	
L	1494	1494	1494	1704	1704	1704	mm
W	744	744	744	744	744	744	mm
H	1453	1453	1453	1453	1453	1453	mm
A	400	400	400	400	400	400	mm
B	450	450	450	450	450	450	mm
C	200	200	200	200	200	200	mm

> CGA

CONDENSING UNITS FOR OUTDOOR INSTALLATION

ECO-FRIENDLY R410A REFRIGERANT GAS

NEW

Available range

Unit type

SR	Condensing unit
SP	Heat pump condensing unit (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of condensing units satisfies the cooling and heating requirements of residential plants of medium size.

All the units are suitable for outdoor installation and can be connected to a remote heat exchanger properly designed in order to transfer to the plant all the cooling (and heating for reversible units) power generated.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, thermostatic expansion valve (only for SP), reverse cycle valve, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches. All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions. The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

The eXtra low noise acoustic setting up (AX) is obtained, starting from the low noise setting up (AS), further reducing the rotational speed of the fans and using finned coil with bigger surface.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory.

All the units are supplied with refrigerant charge inside. Only electric and refrigerant connections (between condensing unit and remote heat exchanger) are required for installation.

Options

Compressor starting
- standard (contactors)
- soft starter

Fans control
- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection
- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for SP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Remote plate heat exchanger
Liquid line

NOMINAL performances

SR	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	48,9	57,8	63,3	74,3	85,0	98,3	110	121	136	154	171	194	216	kW
	Power input	15,5	18,4	20,5	23,7	27,6	32,1	35,5	39,4	44,5	50,8	56,3	63,7	70,6	kW
	EER	3,15	3,14	3,09	3,14	3,08	3,06	3,10	3,07	3,06	3,03	3,04	3,05	3,06	-
SR	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	47,4	56,1	61,3	72,0	82,4	95,3	106	118	132	150	165	189	210	kW
	Power input	16,1	19,2	21,3	24,6	28,8	33,4	36,9	41,0	46,3	52,8	58,6	66,2	73,4	kW
	EER	2,94	2,92	2,88	2,93	2,86	2,85	2,87	2,88	2,85	2,84	2,82	2,85	2,86	-
SR	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	46,3	54,8	59,9	70,4	80,5	93,1	104	114	129	146	162	184	204	kW
	Power input	16,2	19,6	21,9	25,1	29,6	32,5	38,0	42,2	47,7	53,8	59,8	68,1	75,5	kW
	EER	2,86	2,80	2,74	2,80	2,72	2,86	2,74	2,70	2,70	2,71	2,71	2,70	2,70	-
SP	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	47,3	57,1	62,1	72,6	80,0	96,3	107	119	132	149	166	192	214	kW
	Power input	15,3	18,6	20,4	23,8	26,7	31,9	35,3	39,3	43,9	49,7	55,6	62,7	70,3	kW
	EER	3,09	3,07	3,04	3,05	3,00	3,02	3,03	3,03	3,01	3,00	2,99	3,06	3,04	-
A7C50	Heating capacity	47,8	57,5	62,6	73,8	82,3	98,7	109	124	135	153	171	195	214	kW
	Power input	15,3	18,5	20,3	23,7	26,9	32,6	35,0	40,0	43,7	50,5	55,4	63,4	69,8	kW
	COP	3,12	3,11	3,08	3,11	3,06	3,03	3,11	3,10	3,09	3,03	3,09	3,08	3,07	-
A7C45	Heating capacity	52,6	63,3	68,9	81,2	90,5	109	120	136	149	168	188	215	235	kW
	Power input	13,5	16,3	17,9	20,9	23,7	28,7	30,8	35,2	38,5	44,4	48,8	55,8	61,4	kW
	COP	3,90	3,88	3,85	3,89	3,82	3,80	3,90	3,86	3,87	3,78	3,85	3,85	3,83	-
SP	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	45,4	54,9	59,6	69,7	76,8	92,4	103	114	126	143	160	185	205	kW
	Power input	15,9	19,8	21,6	25,2	28,3	33,8	37,4	41,6	46,6	52,7	59,0	66,4	74,5	kW
	EER	2,86	2,77	2,76	2,77	2,71	2,73	2,75	2,74	2,70	2,71	2,71	2,79	2,75	-
A7C50	Heating capacity	46,6	56,0	61,1	71,9	80,2	96,2	106	121	132	149	167	190	209	kW
	Power input	14,6	17,7	19,4	22,6	25,7	31,1	33,4	38,2	41,7	48,2	52,9	60,5	66,7	kW
	COP	3,19	3,16	3,15	3,18	3,12	3,09	3,17	3,17	3,17	3,09	3,16	3,14	3,13	-
A7C45	Heating capacity	51,3	61,6	67,2	79,1	88,2	106	117	133	145	164	184	209	230	kW
	Power input	12,8	15,6	17,1	19,9	22,6	27,4	29,4	33,6	36,7	42,4	46,6	53,2	58,7	kW
	COP	4,01	3,95	3,93	3,97	3,90	3,87	3,98	3,96	3,95	3,87	3,95	3,93	3,92	-
SP	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	44,5	53,7	58,4	68,3	75,3	90,5	101	111	124	140	157	180	201	kW
	Power input	17,0	20,9	22,8	26,6	29,9	35,7	39,5	44,0	49,2	55,6	62,3	70,3	78,7	kW
	EER	2,62	2,57	2,56	2,57	2,52	2,54	2,56	2,52	2,52	2,52	2,52	2,56	2,55	-
A7C50	Heating capacity	44,9	54,0	58,9	69,4	77,4	92,8	103	117	127	144	161	183	201	kW
	Power input	13,9	16,8	18,5	21,6	24,5	29,7	31,9	36,4	39,8	46,0	50,4	57,7	63,5	kW
	COP	3,23	3,21	3,18	3,21	3,16	3,12	3,23	3,21	3,19	3,13	3,19	3,17	3,17	-
A7C45	Heating capacity	49,4	59,4	64,8	76,3	85,1	102	113	129	140	158	177	201	221	kW
	Power input	12,2	14,8	16,3	19,0	21,6	26,1	28,1	32,0	35,0	40,5	44,4	50,8	55,9	kW
	COP	4,05	4,01	3,98	4,02	3,94	3,91	4,02	4,03	4,00	3,90	3,99	3,96	3,95	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 45°C - superheating 5°C - subcooling 5°C

Acoustic performances

Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Sound power level	82	82	83	84	84	85	85	85	86	87	87	88	88	dB(A)
Sound pressure level at 1 metre	64	64	65	66	66	67	67	67	68	69	69	69	69	dB(A)
Sound pressure level at 5 metres	55	55	56	57	57	58	58	58	59	60	60	61	61	dB(A)
Sound pressure level at 10 metres	50	50	51	52	52	53	53	53	54	55	55	56	56	dB(A)
Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
Sound power level	79	79	80	81	81	82	82	82	83	84	84	85	85	dB(A)
Sound pressure level at 1 metre	61	61	62	63	63	64	64	64	65	66	66	66	66	dB(A)
Sound pressure level at 5 metres	52	52	53	54	54	55	55	55	56	57	57	58	58	dB(A)
Sound pressure level at 10 metres	47	47	48	49	49	50	50	50	51	52	52	53	53	dB(A)
eXtra low noise setting up (AX)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
Sound power level	77	77	78	79	79	80	80	80	81	82	82	83	83	dB(A)
Sound pressure level at 1 metre	59	59	60	61	61	62	62	62	63	64	64	64	64	dB(A)
Sound pressure level at 5 metres	50	50	51	52	52	53	53	53	54	55	55	56	56	dB(A)
Sound pressure level at 10 metres	45	45	46	47	47	48	48	48	49	50	50	51	51	dB(A)

The values are referred to units without options and accessories.

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35E5.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	SR, SP	-10*	48	-10	40*	°C
Evaporating temperature (dew point)	SR, SP	1	20	-	-	°C
Condensing temperature (dew point)	SP	-	-	35	60	°C
Water outlet temperature (VD)	SR, SP	30	70	30	70	(°C)
Water outlet temperature (VR)	SR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Power supply	400 - 3+N - 50					400 - 3 - 50								V-ph-Hz
Compressor type	scroll													-
N° compressors / N° refrigerant circuits	2 / 1													n°
Source side heat exchanger type	finned coil													-
Fans type	axial													-
N° fans	2		3			2				3		4		n°
Liquid line connection	7/8”					1 1/8”						1 3/8”		-
Gas line connection	1 5/8”					2 1/8”								-

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

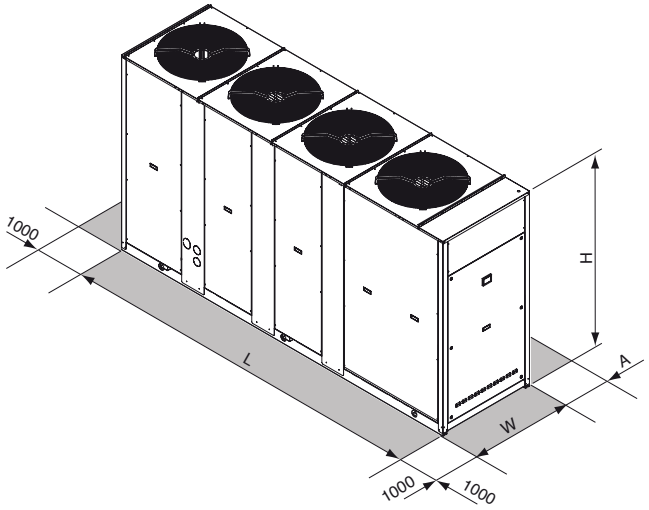
SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5 - W45	Cooling capacity	50,9	60,1	65,8	77,3	88,4	102	115	126	142	161	177	202	225	kW
	Total power input	15,1	17,9	19,8	23,0	26,8	31,1	34,4	38,2	43,1	49,3	54,7	61,8	68,4	kW
	EER	3,37	3,36	3,32	3,36	3,30	3,28	3,34	3,30	3,29	3,27	3,24	3,27	3,29	-
	Heating recovery capacity	14,8	17,4	19,1	22,4	25,6	29,6	33,2	36,5	41,0	46,6	51,5	58,6	65,1	kW
	Water flow rate recovery	0,70	0,83	0,91	1,07	1,22	1,42	1,59	1,74	1,96	2,23	2,46	2,80	3,11	l/s
	Water pressure drop recovery	7	11	13	17	22	18	22	12	16	20	24	20	24	kPa
SP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35E5 - W45	Cooling capacity	49,2	59,4	64,6	75,5	83,2	100	111	124	137	155	173	200	222	kW
	Total power input	14,9	18,1	19,8	23,1	25,9	30,9	34,2	38,1	42,6	48,2	54,0	60,8	68,1	kW
	EER	3,30	3,28	3,26	3,27	3,21	3,24	3,25	3,25	3,22	3,22	3,20	3,29	3,26	-
	Heating recovery capacity	14,3	17,2	18,7	21,9	24,1	29,1	32,2	35,8	39,7	45,0	50,2	58,0	64,5	kW
	Water flow rate recovery	0,68	0,82	0,89	1,05	1,15	1,39	1,54	1,71	1,90	2,15	2,40	2,77	3,08	l/s
	Water pressure drop recovery	7	11	12	17	20	17	20	12	15	19	23	20	23	kPa

Total Recovery Version (VR)

SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5 - W45	Cooling capacity	50,9	60,1	65,8	77,3	88,4	102	115	126	142	161	177	202	225	kW
	Total power input	14,9	17,7	19,6	22,7	26,5	30,8	34,1	37,8	42,7	48,8	54,1	61,2	67,7	kW
	EER	3,42	3,40	3,36	3,41	3,34	3,31	3,37	3,33	3,33	3,30	3,27	3,30	3,32	-
	Heating recovery capacity	65,0	76,9	84,5	98,9	114	131	147	162	182	207	229	260	289	kW
	Water flow rate recovery	3,11	3,67	4,04	4,73	5,43	6,28	7,02	7,73	8,70	9,89	10,9	12,4	13,8	l/s
	Water pressure drop recovery	41	57	48	53	59	58	62	56	61	61	62	65	65	kPa

A35E5 - W45 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C - Recovery : water in 40°C out 45°C

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
L	2501					3343			3343			4097		mm
W	954					1104			1104			1104		mm
H	1930					1793			2193			2193		mm
A	1600								2000					mm
Operating maximum weight	635	639	639	680	705	953	1034	1065	1181	1240	1292	1435	1481	kg

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CONDENSING UNITS FOR OUTDOOR INSTALLATION

ECO-FRIENDLY R410A REFRIGERANT GAS

NEW

Available range

Unit type

SR	Condensing unit
SP	Heat pump condensing unit (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of condensing units satisfies the cooling and heating requirements of residential plants of medium size.

All the units are suitable for outdoor installation and can be connected to a remote heat exchanger properly designed in order to transfer to the plant all the cooling (and heating for reversible units) power generated.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, thermostatic expansion valve (only for SP), reverse cycle valve, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches. All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions. The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

The eXtra low noise acoustic setting up (AX) is obtained, starting from the low noise setting up (AS), further reducing the rotational speed of the fans and using finned coil with bigger surface.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory.

All the units are supplied with refrigerant charge inside. Only electric and refrigerant connections (between condensing unit and remote heat exchanger) are required for installation.

Options

Compressor starting
- standard (contactors)
- soft starter

Fans control
- on-off control
- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection
- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for SP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Remote plate heat exchanger
Liquid line

NOMINAL performances

SR	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	51,2	60,7	68,5	76,7	90,5	103,0	116	131	145	166	188	214	kW
	Power input	14,8	17,0	19,7	21,8	27,0	30,9	34,3	38,3	42,3	49,5	54,8	63,9	kW
	EER	3,46	3,57	3,48	3,52	3,35	3,33	3,38	3,42	3,43	3,35	3,43	3,35	-
SR	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	48,8	57,9	65,2	73,1	86,3	98,2	110	124	138	159	179	204	kW
	Power input	15,4	17,7	20,5	22,7	27,5	31,8	35,4	39,6	43,9	51,0	56,8	65,7	kW
	EER	3,17	3,27	3,18	3,22	3,14	3,09	3,11	3,13	3,14	3,12	3,15	3,11	-
SR	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	48,0	56,8	64,2	71,8	84,8	96,6	108	122	136	156	176	200	kW
	Power input	15,6	18,0	20,7	23,0	27,8	32,2	35,8	40,2	44,7	51,5	57,4	66,4	kW
	EER	3,08	3,16	3,10	3,12	3,05	3,00	3,02	3,03	3,04	3,03	3,07	3,01	-
SP	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	49,1	58,2	65,9	73,7	88,2	100,2	112	125	139	160	180	207	kW
	Power input	14,5	16,9	19,3	21,5	26,5	30,0	33,6	37,5	41,4	48,1	53,8	62,2	kW
	EER	3,39	3,44	3,41	3,43	3,33	3,34	3,33	3,33	3,36	3,33	3,35	3,33	-
A7C50	Heating capacity	49,2	58,0	65,6	73,6	87,9	99,8	112	125	140	160	180	206	kW
	Power input	15,3	17,8	20,4	22,9	27,4	31,0	34,8	39,0	43,5	50,0	55,9	64,2	kW
	COP	3,22	3,26	3,22	3,21	3,21	3,22	3,22	3,21	3,22	3,20	3,22	3,21	-
A7C45	Heating capacity	54,1	63,8	72,2	81,0	96,7	110	123	138	154	176	198	227	kW
	Power input	13,5	15,7	18,0	20,2	24,1	27,3	30,6	34,3	38,3	44,0	49,2	56,5	kW
	COP	4,01	4,06	4,01	4,01	4,01	4,03	4,02	4,02	4,02	4,00	4,02	4,02	-
SP	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	46,8	55,4	62,7	70,2	84,0	95,5	107	119	133	152	172	198	kW
	Power input	15,1	17,6	20,0	22,4	27,0	30,8	34,6	38,8	43,0	49,5	55,7	63,9	kW
	EER	3,10	3,15	3,14	3,13	3,11	3,10	3,09	3,07	3,09	3,07	3,09	3,10	-
A7C50	Heating capacity	47,9	56,5	63,9	71,7	85,6	97,2	109	122	136	156	175	201	kW
	Power input	14,7	17,2	19,7	22,2	26,0	29,6	33,4	37,5	42,0	47,9	53,7	61,4	kW
	COP	3,26	3,28	3,24	3,23	3,29	3,28	3,26	3,25	3,24	3,26	3,26	3,27	-
A7C45	Heating capacity	52,7	62,2	70,3	78,9	94,2	107	120	134	150	172	193	221	kW
	Power input	12,9	15,1	17,3	19,5	22,9	26,0	29,4	33,0	37,0	42,2	47,3	54,0	kW
	COP	4,09	4,12	4,06	4,05	4,11	4,12	4,08	4,06	4,05	4,08	4,08	4,09	-
SP	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	46,0	54,5	61,7	69,0	82,6	93,9	105	118	131	150	168	194	kW
	Power input	15,3	17,9	20,3	22,7	27,3	31,2	35,1	39,4	43,7	50,0	56,3	64,6	kW
	EER	3,01	3,04	3,04	3,04	3,03	3,01	2,99	2,99	3,00	3,00	2,98	3,00	-
A7C50	Heating capacity	47,4	55,8	63,1	70,8	84,6	96,0	108	120	135	154	173	198	kW
	Power input	14,5	16,9	19,3	21,7	25,5	29,0	32,7	36,8	41,2	46,8	52,6	60,1	kW
	COP	3,27	3,30	3,27	3,26	3,32	3,31	3,30	3,26	3,28	3,29	3,29	3,29	-
A7C45	Heating capacity	52,1	61,4	69,4	77,9	93,1	106	119	132	149	169	190	218	kW
	Power input	12,8	14,9	17,0	19,1	22,4	25,5	28,8	32,4	36,3	41,2	46,3	52,9	kW
	COP	4,07	4,12	4,08	4,08	4,16	4,16	4,13	4,07	4,10	4,10	4,10	4,12	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 45°C - superheating 5°C - subcooling 5°C

Acoustic performances

Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Sound power level	82	82	83	84	85	85	85	85	86	87	87	88	dB(A)
Sound pressure level at 1 metre	64	64	65	66	67	67	67	67	68	69	69	69	dB(A)
Sound pressure level at 5 metres	55	55	56	57	58	58	58	58	59	60	60	61	dB(A)
Sound pressure level at 10 metres	50	50	51	52	53	53	53	53	54	55	55	56	dB(A)
Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
Sound power level	79	79	80	81	82	82	82	82	83	84	84	85	dB(A)
Sound pressure level at 1 metre	61	61	62	63	64	64	64	64	65	66	66	66	dB(A)
Sound pressure level at 5 metres	52	52	53	54	55	55	55	55	56	57	57	58	dB(A)
Sound pressure level at 10 metres	47	47	48	49	50	50	50	50	51	52	52	53	dB(A)
eXtra low noise setting up (AX)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
Sound power level	77	77	78	79	80	80	80	80	81	82	82	83	dB(A)
Sound pressure level at 1 metre	59	59	60	61	62	62	62	62	63	64	64	64	dB(A)
Sound pressure level at 5 metres	50	50	51	52	53	53	53	53	54	55	55	56	dB(A)
Sound pressure level at 10 metres	45	45	46	47	48	48	48	48	49	50	50	51	dB(A)

The values are referred to units without options and accessories.

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35E5.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	SR, SP	-10*	48	-15	40*	°C
Evaporating temperature (dew point)	SR, SP	1	20	-	-	°C
Condensing temperature (dew point)	SP	-	-	35	60	°C
Water outlet temperature (VD)	SR, SP	30	70	30	70	(°C)
Water outlet temperature (VR)	SR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Power supply	400 - 3+N - 50				400 - 3 - 50								V-ph-Hz
Compressor type	scroll												-
N° compressors / N° refrigerant circuits	2 / 1												n°
Source side heat exchanger type	finned coil												
Fans type	axial												
N° fans	2		3		2				3		4		n°
Liquid line connection	7/8”				1 1/8”					1 3/8”			-
Gas line connection	1 5/8”				2 1/8”								-

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

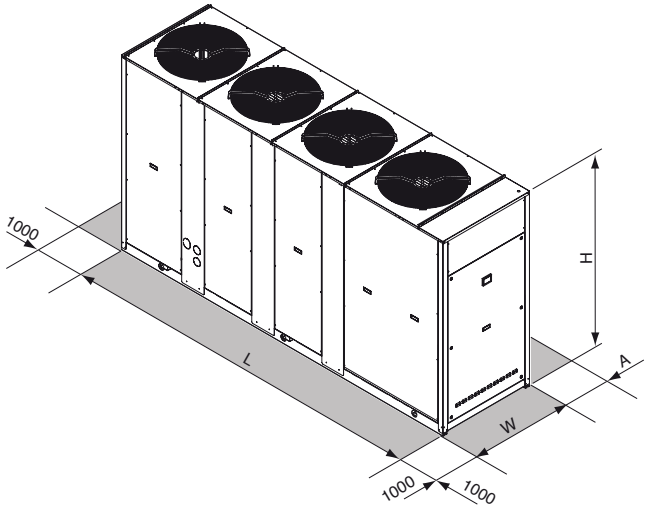
SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5 - W45	Cooling capacity	53,2	63,1	71,2	79,7	94,1	107	120	136	151	173	195	222	kW
	Total power input	14,4	16,5	19,1	21,1	26,2	30,0	33,2	37,2	41,1	48,0	53,2	62,0	kW
	EER	**3,69**	**3,82**	**3,73**	**3,78**	**3,59**	**3,57**	**3,61**	**3,66**	**3,67**	**3,60**	**3,67**	**3,58**	-
	Heating recovery capacity	15,4	18,3	20,7	23,1	27,3	31,1	34,9	39,4	43,6	50,2	56,7	64,5	kW
	Water flow rate recovery	0,74	0,87	0,99	1,10	1,30	1,48	1,67	1,88	2,09	2,40	2,71	3,08	l/s
	Water pressure drop recovery	8	12	15	18	25	20	24	14	18	24	29	24	kPa
SP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
A35E5 - W45	Cooling capacity	51,1	60,5	68,5	76,6	91,8	104	117	130	145	166	188	216	kW
	Total power input	14,1	16,4	18,7	20,8	25,7	29,1	32,6	36,4	40,2	46,6	52,2	60,3	kW
	EER	**3,62**	**3,69**	**3,66**	**3,68**	**3,57**	**3,57**	**3,59**	**3,57**	**3,61**	**3,56**	**3,60**	**3,58**	-
	Heating recovery capacity	14,8	17,6	19,9	22,2	26,6	30,2	33,9	37,8	42,0	48,2	54,4	62,5	kW
	Water flow rate recovery	0,71	0,84	0,95	1,06	1,27	1,44	1,62	1,81	2,01	2,30	2,60	2,99	l/s
	Water pressure drop recovery	7	11	14	17	24	19	22	13	17	22	27	23	kPa

Total Recovery Version (VR)

SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5 - W45	Cooling capacity	53,2	63,1	71,2	79,7	94,1	107	120	136	151	173	195	222	kW
	Total power input	14,2	16,4	18,9	20,9	25,9	29,7	32,9	36,8	40,6	47,5	52,6	61,4	kW
	EER	**3,75**	**3,85**	**3,77**	**3,81**	**3,63**	**3,60**	**3,65**	**3,70**	**3,72**	**3,64**	**3,71**	**3,62**	-
	Heating recovery capacity	66,8	78,7	89,1	99,6	119	135	151	171	189	218	245	281	kW
	Water flow rate recovery	3,19	3,76	4,26	4,76	5,68	6,47	7,23	8,16	9,03	10,42	11,7	13,4	l/s
	Water pressure drop recovery	43	60	54	53	64	61	65	63	66	67	71	76	kPa

A35E5 - W45 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
- Recovery : water in 40°C out 45°C

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
L	2501				3343			3343			4097		mm
W	954				1104			1104			1104		mm
H	1930				1793			2193			2193		mm
A	1600							2000					mm
Operating maximum weight	635	639	639	680	705	953	1034	1065	1181	1240	1292	1435	kg

> CGC

CONDENSING UNITS FOR INDOOR INSTALLATION

ECO-FRIENDLY R410A REFRIGERANT GAS

NEW

Available range

Unit type

SR	Condensing unit
SP	Heat pump condensing unit (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of condensing units satisfies the cooling and heating requirements of residential plants of medium size.

All the units are suitable for outdoor installation and can be connected to a remote heat exchanger properly designed in order to transfer to the plant all the cooling (and heating for reversible units) power generated.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, thermostatic expansion valve (only for SP), reverse cycle valve, double inlet centrifugal fans with forward curved blades, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory.

All the units are supplied with refrigerant charge inside. Only electric and refrigerant connections (between condensing unit and remote heat exchanger) are required for installation.

Options

Compressor starting
- standard (contactors)
- soft starter

Fans control
- on-off control
- modulating control INVERTER (condensation / evaporation control)

Compressor power factor correction

Electrical load protection
- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for SP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Remote plate heat exchanger
Liquid line

NOMINAL performances

SR	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	48,9	57,8	63,3	74,3	85,0	98,3	110	121	136	154	171	194	216	kW
	Power input	15,5	18,4	20,5	23,7	27,6	32,1	35,5	39,4	44,5	50,8	56,3	63,7	70,6	kW
	EER	3,15	3,14	3,09	3,14	3,08	3,06	3,10	3,07	3,06	3,03	3,04	3,05	3,06	-
SR	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	48,9	57,8	63,3	74,3	85,0	98,3	110	121	136	154	171	194	216	kW
	Power input	15,5	18,4	20,5	23,7	27,6	32,1	35,5	39,4	44,5	50,8	56,3	63,7	70,6	kW
	EER	3,15	3,14	3,09	3,14	3,08	3,06	3,10	3,07	3,06	3,03	3,04	3,05	3,06	-
SP	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	47,3	57,1	62,1	72,6	80,0	96,3	107	119	132	149	166	192	214	kW
	Power input	15,3	18,6	20,4	23,8	26,7	31,9	35,3	39,3	43,9	49,7	55,6	62,7	70,3	kW
	EER	3,09	3,07	3,04	3,05	3,00	3,02	3,03	3,03	3,01	3,00	2,99	3,06	3,04	-
A7C50	Heating capacity	47,8	57,5	62,6	73,8	82,3	98,7	109	124	135	153	171	195	214	kW
	Power input	15,3	18,5	20,3	23,7	26,9	32,6	35,0	40,0	43,7	50,5	55,4	63,4	69,8	kW
	COP	3,12	3,11	3,08	3,11	3,06	3,03	3,11	3,10	3,09	3,03	3,09	3,08	3,07	-
A7C45	Heating capacity	52,6	63,3	68,9	81,2	90,5	109	120	136	149	168	188	215	235	kW
	Power input	13,5	16,3	17,9	20,9	23,7	28,7	30,8	35,2	38,5	44,4	48,8	55,8	61,4	kW
	COP	3,90	3,88	3,85	3,89	3,82	3,80	3,90	3,86	3,87	3,78	3,85	3,85	3,83	-
SP	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5	Cooling capacity	47,3	57,1	62,1	72,6	80,0	96,3	107	119	132	149	166	192	214	kW
	Power input	15,3	18,6	20,4	23,8	26,7	31,9	35,3	39,3	43,9	49,7	55,6	62,7	70,3	kW
	EER	3,09	3,07	3,04	3,05	3,00	3,02	3,03	3,03	3,01	3,00	2,99	3,06	3,04	-
A7C50	Heating capacity	47,8	57,5	62,6	73,8	82,3	98,7	109	124	135	153	171	195	214	kW
	Power input	15,3	18,5	20,3	23,7	26,9	32,6	35,0	40,0	43,7	50,5	55,4	63,4	69,8	kW
	COP	3,12	3,11	3,08	3,11	3,06	3,03	3,11	3,10	3,09	3,03	3,09	3,08	3,07	-
A7C45	Heating capacity	52,6	63,3	68,9	81,2	90,5	109	120	136	149	168	188	215	235	kW
	Power input	13,5	16,3	17,9	20,9	23,7	28,7	30,8	35,2	38,5	44,4	48,8	55,8	61,4	kW
	COP	3,90	3,88	3,85	3,89	3,82	3,80	3,90	3,86	3,87	3,78	3,85	3,85	3,83	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 45°C - superheating 5°C - subcooling 5°C

Acoustic performances

Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Sound power level	88	88	89	89	89	91	91	91	96	97	97	98	98	dB(A)
Sound pressure level at 1 metre	70	70	71	71	71	73	73	73	78	79	79	80	80	dB(A)
Sound pressure level at 5 metres	61	61	62	62	62	65	65	65	69	70	70	71	71	dB(A)
Sound pressure level at 10 metres	56	56	57	57	57	59	59	59	64	65	65	66	66	dB(A)
Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
Sound power level	85	85	86	86	86	88	88	88	93	94	94	95	95	dB(A)
Sound pressure level at 1 metre	67	67	68	68	68	70	70	70	75	76	76	77	77	dB(A)
Sound pressure level at 5 metres	58	58	59	59	59	62	62	62	66	67	67	68	68	dB(A)
Sound pressure level at 10 metres	53	53	54	54	54	56	56	56	61	62	62	63	63	dB(A)

The values are referred to units without options and accessories.

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35E5.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	SR, SP	-10*	48	-10	40*	°C
Evaporating temperature (dew point)	SR, SP	1	20	-	-	°C
Condensing temperature (dew point)	SP	-	-	35	60	°C
Water outlet temperature (VD)	SR, SP	30	70	30	70	(°C)
Water outlet temperature (VR)	SR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Power supply	400 - 3 - 50													V-ph-Hz
Compressor type	scroll													-
N° compressors / N° refrigerant circuits	2 / 1													n°
Source side heat exchanger type	finned coil													-
Fans type	centrifugal													-
N° fans	1					2			3			4		n°
Liquid line connection	7/8”					1 1/8”						1 3/8”		-
Gas line connection	1 5/8”					2 1/8”								-

AERAULIC PERFORMANCE	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Available static head	150	150	150	150	150	150	150	150	150	150	150	150	150	Pa

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

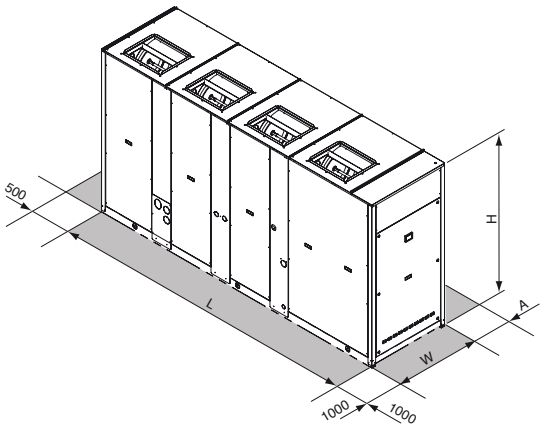
SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5 - W45	Cooling capacity	50,9	60,1	65,8	77,3	88,4	102	115	126	142	161	177	202	225	kW
	Total power input	15,1	17,9	19,8	23,0	26,8	31,1	34,4	38,2	43,1	49,3	54,7	61,8	68,4	kW
	EER	3,37	3,36	3,32	3,36	3,30	3,28	3,34	3,30	3,29	3,27	3,24	3,27	3,29	-
	Heating recovery capacity	14,8	17,4	19,1	22,4	25,6	29,6	33,2	36,5	41,0	46,6	51,5	58,6	65,1	kW
	Water flow rate recovery	0,70	0,83	0,91	1,07	1,22	1,42	1,59	1,74	1,96	2,23	2,46	2,80	3,11	l/s
	Water pressure drop recovery	7	11	13	17	22	18	22	12	16	20	24	20	24	kPa
SP	**Base setting up (AB)**	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	**200.2**	
A35E5 - W45	Cooling capacity	49,2	59,4	64,6	75,5	83,2	100	111	124	137	155	173	200	222	kW
	Total power input	14,9	18,1	19,8	23,1	25,9	30,9	34,2	38,1	42,6	48,2	54,0	60,8	68,1	kW
	EER	3,30	3,28	3,26	3,27	3,21	3,24	3,25	3,25	3,22	3,22	3,20	3,29	3,26	-
	Heating recovery capacity	14,3	17,2	18,7	21,9	24,1	29,1	32,2	35,8	39,7	45,0	50,2	58,0	64,5	kW
	Water flow rate recovery	0,68	0,82	0,89	1,05	1,15	1,39	1,54	1,71	1,90	2,15	2,40	2,77	3,08	l/s
	Water pressure drop recovery	7	11	12	17	20	17	20	12	15	19	23	20	23	kPa

Total Recovery Version (VR)

SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35E5 - W45	Cooling capacity	50,9	60,1	65,8	77,3	88,4	102	115	126	142	161	177	202	225	kW
	Total power input	14,9	17,7	19,6	22,7	26,5	30,8	34,1	37,8	42,7	48,8	54,1	61,2	67,7	kW
	EER	3,42	3,40	3,36	3,41	3,34	3,31	3,37	3,33	3,33	3,30	3,27	3,30	3,32	-
	Heating recovery capacity	65,0	76,9	84,5	98,9	114	131	147	162	182	207	229	260	289	kW
	Water flow rate recovery	3,11	3,67	4,04	4,73	5,43	6,28	7,02	7,73	8,70	9,89	10,9	12,4	13,8	l/s
	Water pressure drop recovery	41	57	48	53	59	58	62	56	61	61	62	65	65	kPa

A35E5 - W45 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
- Recovery : water in 40°C out 45°C

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
L	2501					3343			3343			4097		mm
W	954					1104			1104			1104		mm
H	1930					1793			2193			2193		mm
A	1600								2000					mm
Operating maximum weight	1078	1082	1102	1143	1168	1684	1765	1825	2000	2042	2094	2423	2467	kg

> CGC HE

CONDENSING UNITS FOR INDOOR INSTALLATION

ECO-FRIENDLY R410A REFRIGERANT GAS

NEW

Available range

Unit type

SR	Condensing unit
SP	Heat pump condensing unit (reversible on the refrigerant side)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of condensing units satisfies the cooling and heating requirements of residential plants of medium size.

All the units are suitable for outdoor installation and can be connected to a remote heat exchanger properly designed in order to transfer to the plant all the cooling (and heating for reversible units) power generated.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports, thermostatic expansion valve (only for SP), reverse cycle valve, double inlet centrifugal fans with forward curved blades, finned coil made of copper pipes and aluminium louvered fins with subcooling section. The circuit is protected by a safety gas valve, high and low pressure switches.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

All the units are accurately built and individually tested in the factory.

All the units are supplied with refrigerant charge inside. Only electric and refrigerant connections (between condensing unit and remote heat exchanger) are required for installation.

Options

Compressor starting
- standard (contactors)
- soft starter

Fans control
- on-off control
- modulating control INVERTER (condensation / evaporation control)

Compressor power factor correction

Electrical load protection
- fuses
- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers
Spring vibration dampers
Coil protection grilles
Remote control
Modbus serial interface on RS485
Programmer clock
Phase sequence and voltage controller
Low temperature kit (standard for SP)
High and low pressure gauges
High temperature thermostat
Coil shut off valves
Outdoor air sensor
Remote plate heat exchanger
Liquid line

NOMINAL performances

SR	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	51,2	60,7	68,5	76,7	90,5	103,0	116	131	145	166	188	214	kW
	Power input	14,8	17,0	19,7	21,8	27,0	30,9	34,3	38,3	42,3	49,5	54,8	63,9	kW
	EER	3,46	3,57	3,48	3,52	3,35	3,33	3,38	3,42	3,43	3,35	3,43	3,35	-
SR	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	51,2	60,7	68,5	76,7	90,5	103,0	116	131	145	166	188	214	kW
	Power input	14,8	17,0	19,7	21,8	27,0	30,9	34,3	38,3	42,3	49,5	54,8	63,9	kW
	EER	3,46	3,57	3,48	3,52	3,35	3,33	3,38	3,42	3,43	3,35	3,43	3,35	-
SP	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	49,1	58,2	65,9	73,7	88,2	100,2	112	125	139	160	180	207	kW
	Power input	14,5	16,9	19,3	21,5	26,5	30,0	33,6	37,5	41,4	48,1	53,8	62,2	kW
	EER	3,39	3,44	3,41	3,43	3,33	3,34	3,33	3,33	3,36	3,33	3,35	3,33	-
A7C50	Heating capacity	49,2	58,0	65,6	73,6	87,9	99,8	112	125	140	160	180	206	kW
	Power input	15,3	17,8	20,4	22,9	27,4	31,0	34,8	39,0	43,5	50,0	55,9	64,2	kW
	COP	3,22	3,26	3,22	3,21	3,21	3,22	3,22	3,21	3,22	3,20	3,22	3,21	-
A7C45	Heating capacity	54,1	63,8	72,2	81,0	96,7	110	123	138	154	176	198	227	kW
	Power input	13,5	15,7	18,0	20,2	24,1	27,3	30,6	34,3	38,3	44,0	49,2	56,5	kW
	COP	4,01	4,06	4,01	4,01	4,01	4,03	4,02	4,02	4,02	4,00	4,02	4,02	-
SP	Low noise acoustic setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5	Cooling capacity	49,1	58,2	65,9	73,7	88,2	100,2	112	125	139	160	180	207	kW
	Power input	14,5	16,9	19,3	21,5	26,5	30,0	33,6	37,5	41,4	48,1	53,8	62,2	kW
	EER	3,39	3,44	3,41	3,43	3,33	3,34	3,33	3,33	3,36	3,33	3,35	3,33	-
A7C50	Heating capacity	49,2	58,0	65,6	73,6	87,9	99,8	112	125	140	160	180	206	kW
	Power input	15,3	17,8	20,4	22,9	27,4	31,0	34,8	39,0	43,5	50,0	55,9	64,2	kW
	COP	3,22	3,26	3,22	3,21	3,21	3,22	3,22	3,21	3,22	3,20	3,22	3,21	-
A7C45	Heating capacity	54,1	63,8	72,2	81,0	96,7	110	123	138	154	176	198	227	kW
	Power input	13,5	15,7	18,0	20,2	24,1	27,3	30,6	34,3	38,3	44,0	49,2	56,5	kW
	COP	4,01	4,06	4,01	4,01	4,01	4,03	4,02	4,02	4,02	4,00	4,02	4,02	-

The values are referred to units without options and accessories.

A35E5 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C
A7C50 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 50°C - superheating 5°C - subcooling 5°C
A7C45 = source : air in 7°C d.b. 6°C w.b. / plant : condensation temperature (dew point) 45°C - superheating 5°C - subcooling 5°C

Acoustic performances

Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Sound power level	88	88	89	89	91	91	91	96	96	97	97	98	dB(A)
Sound pressure level at 1 metre	70	70	71	71	73	73	73	78	78	79	79	80	dB(A)
Sound pressure level at 5 metres	61	61	62	62	65	65	65	69	69	70	70	71	dB(A)
Sound pressure level at 10 metres	56	56	57	57	59	59	59	64	64	65	65	66	dB(A)
Low noise setting up (AS)	**40.2**	**50.2**	**60.2**	**70.2**	**80.2**	**90.2**	**100.2**	**115.2**	**130.2**	**145.2**	**160.2**	**180.2**	
Sound power level	85	85	86	86	88	88	88	93	93	94	94	95	dB(A)
Sound pressure level at 1 metre	67	67	68	68	70	70	70	75	75	76	76	77	dB(A)
Sound pressure level at 5 metres	58	58	59	59	62	62	62	66	66	67	67	68	dB(A)
Sound pressure level at 10 metres	53	53	54	54	56	56	56	61	61	62	62	63	dB(A)

The values are referred to units without options and accessories.

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35E5.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	SR, SP	-10*	48	-15	40*	°C
Evaporating temperature (dew point)	SR, SP	1	20	-	-	°C
Condensing temperature (dew point)	SP	-	-	35	60	°C
Water outlet temperature (VD)	SR, SP	30	70	30	70	(°C)
Water outlet temperature (VR)	SR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)

TECHNICAL DATA	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Power supply	400 - 3 - 50												V-ph-Hz
Compressor type	scroll												-
N° compressors / N° refrigerant circuits	2 / 1												n°
Source side heat exchanger type	finned coil												-
Fans type	centrifugal												-
N° fans		1				2			3			4	n°
Liquid line connection		7/8”					1 1/8”				1 3/8”		-
Gas line connection		1 5/8”					2 1/8”						-

AERAULIC PERFORMANCE	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
Available static head	150	150	150	150	150	150	150	150	150	150	150	150	Pa

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The Total Recovery Version (VR) allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desupeheater Version (VD)

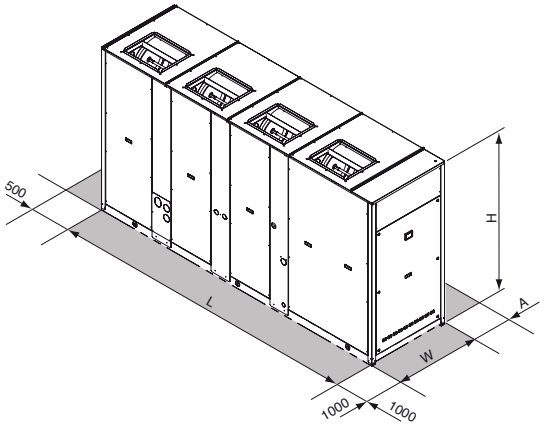
SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5 - W45	Cooling capacity	53,2	63,1	71,2	79,7	94,1	107	120	136	151	173	195	222	kW
	Total power input	14,4	16,5	19,1	21,1	26,2	30,0	33,2	37,2	41,1	48,0	53,2	62,0	kW
	EER	3,69	3,82	3,73	3,78	3,59	3,57	3,61	3,66	3,67	3,60	3,67	3,58	-
	Heating recovery capacity	15,4	18,3	20,7	23,1	27,3	31,1	34,9	39,4	43,6	50,2	56,7	64,5	kW
	Water flow rate recovery	0,74	0,87	0,99	1,10	1,30	1,48	1,67	1,88	2,09	2,40	2,71	3,08	l/s
	Water pressure drop recovery	8	12	15	18	25	20	24	14	18	24	29	24	kPa
SP	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5 - W45	Cooling capacity	51,1	60,5	68,5	76,6	91,8	104	117	130	145	166	188	216	kW
	Total power input	14,1	16,4	18,7	20,8	25,7	29,1	32,6	36,4	40,2	46,6	52,2	60,3	kW
	EER	3,62	3,69	3,66	3,68	3,57	3,57	3,59	3,57	3,61	3,56	3,60	3,58	-
	Heating recovery capacity	14,8	17,6	19,9	22,2	26,6	30,2	33,9	37,8	42,0	48,2	54,4	62,5	kW
	Water flow rate recovery	0,71	0,84	0,95	1,06	1,27	1,44	1,62	1,81	2,01	2,30	2,60	2,99	l/s
	Water pressure drop recovery	7	11	14	17	24	19	22	13	17	22	27	23	kPa

Total Recovery Version (VR)

SR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
A35E5 - W45	Cooling capacity	53,2	63,1	71,2	79,7	94,1	107	120	136	151	173	195	222	kW
	Total power input	14,2	16,4	18,9	20,9	25,9	29,7	32,9	36,8	40,6	47,5	52,6	61,4	kW
	EER	3,75	3,85	3,77	3,81	3,63	3,60	3,65	3,70	3,72	3,64	3,71	3,62	-
	Heating recovery capacity	66,8	78,7	89,1	99,6	119	135	151	171	189	218	245	281	kW
	Water flow rate recovery	3,19	3,76	4,26	4,76	5,68	6,47	7,23	8,16	9,03	10,42	11,7	13,4	l/s
	Water pressure drop recovery	43	60	54	53	64	61	65	63	66	67	71	76	kPa

A35E5 - W45 = source : air in 35°C d.b. / plant : evaporation temperature (dew point) 5°C - superheating 5°C - subcooling 5°C - Recovery : water in 40°C out 45°C

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
L	2501				3343			3343			4097		mm
W	954				1104			1104			1104		mm
H	1930				1793			2193			2193		mm
A	1600							2000					mm
Operating maximum weight	1121	1125	1146	1189	1670	1751	1836	2051	2080	2124	2478	2520	kg

> EGW

CONDENSERLESS UNITS FOR INDOOR INSTALLATION

ECO-FRIENDLY R410A REFRIGERANT GAS

NEW

Unit with closing panels

Available range

Unit type
IR Condenserless unit
BR Condenserless unit Brine

Version
VB Base version

Acoustic setting up
AB Base setting up
AS Low noise setting up
AX eXtra low noise setting up

Unit description

This series of condenserless unit satisfies the cooling and heating requirements of commercial and industrial plants of medium size.
All the units are suitable for indoor installation and can be applied to fan coil plants and radiant floor plants.
The refrigerant circuit is equipped with 2 scroll compressors, mounted on rubber vibration-damper supports, plant side heat exchanger brazed plate-type in stainless steel (AISI 316), complete with thermal insulation shell and differential pressure switch, thermostatic expansion valve or electronic expansion valve (as option), dehydrator filter, solenoid valve to shut-off the liquid line, shut-off ball valves on the discharge and liquid lines, refrigerant circuit protected by refrigerant safety valve, low and high pressure switches, electrical panel for power and control complete with main breaker power supply with door lock function microprocessor controller with keyboard-display, and phase sequence controller (standard).
The units can be chosen in Basic setting up (AB) (unit without closing panels), Low noise setting up (AS), featuring closing panels coated with acoustic material, Extra Low noise setting up (AX) featuring closing panels coated with superior acoustic material and soundproofing jackets on the compressors.
The units are suitable to be combined with remote condensers cooled by air (coil and fans) or remote condensers cooled by water (plates or shel and tube heat exchanger). The electronic controller can manage the numerous ways used on the market for the head pressure control for condensation by air and for condensation by water. A wide range of options and accessories completes the commercial offer. All the units are carefully built in compliance with the current regulations and individually tested.
The units are supplied with charge of NITROGEN in order to avoid the entrance of air inside the refrigerant circuit.

Options

Expansion valve
• thermostatic
• electronic
Suitable for outdoor installation

Accessories

Rubber vibration dampers
Remote controller
Serial Interface Modbus-RS 485
Programmer clock
Phase sequence and voltage controller
Low temperature kit
High and low pressure gauges
High temperature thermostat
Compressors shut-off valves
Outdoor air sensor
Water flow switch
Victaulic hydraulic fittings
Victaulic bends
Victaulic water shut-off valves
Victaulic water filter
2-way valve for condensing control
3-way valve for condensing control
Compressors start-up with soft starter
Compressors power factor correction
Electrical load protection with thermal magnetic circuit breakers
Remote condenser cooled by air

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions:

- Adaptive function
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Condensation control
- Remote stand by

NOMINAL performances

IR		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
C50W7	Cooling capacity	61	68	81	92	103	116	130	149	168	190	210	kW
	Power input	19,4	21,4	25,8	29,3	32,9	37,2	41,5	47,2	53,0	59,9	66,8	kW
	EER	3,15	3,18	3,14	3,13	3,13	3,12	3,13	3,15	3,17	3,17	3,15	-
	Water flow rate plant side	2,9	3,2	3,9	4,4	4,9	5,5	6,2	7,1	8,0	9,1	10,0	l/s
	Pressure drops plant side	36	28	31	31	34	32	35	35	37	37	38	kPa

C50W7 = condensing temperature (dew point) = 50 °C - subcooling = 5°C - plant : water in 12°C out 7°C;

TECHNICAL DATA	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Power supply	400 - 3 - 50											V-ph-Hz
Max working pressure (HP-PS)	43											bar
Compressor type	scroll											-
N° compressors / N° refrigerant circuits	2 / 1											n°
Plant side heat exchanger type	stainless steel brazed plates											-
IN/OUT Plant side hydraulic fittings	2" 1/2 VICTAULIC											"
Refrigerant liquid line fitting	28 ODS			35 ODS								mm
Refrigerant gas line fitting	42 ODS											mm

Acoustic performances

	Base setting up (AB)	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
	Sound power level	75	76	77	77	77	78	78	79	79	80	80	dB(A)
	Sound pressure level at 1 meter	59	60	61	61	61	62	62	63	63	64	64	dB(A)
	Sound pressure level at 5 meters	49	50	51	51	51	52	52	53	53	54	54	dB(A)
	Sound pressure level at 10 meters	44	45	46	46	46	47	47	48	48	49	49	dB(A)
	Low noise setting up (AS)	**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
	Sound power level	71	72	73	73	73	74	74	75	75	76	76	dB(A)
	Sound pressure level at 1 meter	55	56	57	57	57	58	58	59	59	60	60	dB(A)
	Sound pressure level at 5 meters	45	46	47	47	47	48	48	49	49	50	50	dB(A)
	Sound pressure level at 10 meters	40	41	42	42	42	43	43	44	44	45	45	dB(A)
	eXtra low noise setting up (AX)	**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
	Sound power level	67	68	69	69	69	70	70	71	71	72	72	dB(A)
	Sound pressure level at 1 meter	51	52	53	53	53	54	54	55	55	56	56	dB(A)
	Sound pressure level at 5 meters	41	42	43	43	43	44	44	45	45	46	46	dB(A)
	Sound pressure level at 10 meters	36	37	38	38	38	39	39	40	40	41	41	dB(A)

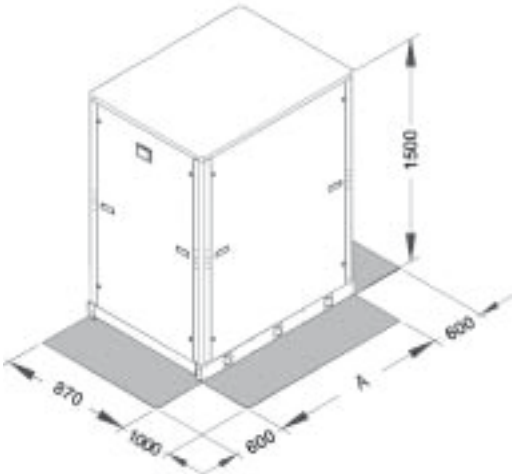
The acoustic performances are referred to units operating in cooling mode at nominal conditions C50W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

Cooling

	Unit type	min	max	
Condensing temp (dew point)	IR, BR	30	60	(°C)
Water outlet temperature plant side	IR	5	20	(°C)
Water outlet temperature plant side	BR	-10	5	(°C)

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT

(reference drawing: unit with closing panel)



Models	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
A	880			1175								mm
Operating maximum weight	368	378	385	501	581	607	632	669	694	724	747	kg

Remote condenser

This series of remote axial condensers uses copper pipes with special internal riffling and a high efficiency fin.
The fin has been specially designed to guarantee a high thermal exchange coefficient with low air pressure drops. By combining both special tubes and fins the following features can be achieved:
- Maximum capacity related to the heat exchanger's dimensions.
- Minimum refrigerant charge.
- The most strict environment standards for sound pollution can be met.

This new series of axial condensers is equipped with fans with scythe-shaped blades to reduce the sound emission. From the noise level point of view, all models can be supplied as basic version (AB), low noise version (AS) or extra low noise version (AX).
To guarantee solidity, strength and the maximum resistance to atmospheric agents the bearing and the casing are manufactured with galvanized steel and oven painted with a polyurethane resin (the standard colour is RAL 7035).

Options

- Special fins (Copper, Painted Aluminium, ecc.).
- Special motors
- Vertical / Horizontal air flow
- EC fans

Accessories

All models can be equipped with several accessories as:
- Rubber Vibrations Dampers
- Modulating control of the fans with cut of phase regulator
- Modulating control of the fans with inverter regulator
- Electrical Wiring Box, allows a fast and safe electrical installation of the unit since all wires and thermal protections of the fans are connected inside a waterproof box (IP54) to a terminal block where the installer connect the electrical supply and the fans thermal switches signal.
- Electrical Panel CE this accessory (like the electrical wiring box) allows a fast and safe electrical installation and moreover simplify the standard and non standard maintenance of the unit. The accessory is in fact composed by main electrical switch, fuses and contactors of the fans, transformer to supply an alarm auxiliary relè, terminal block for remote ON-OFF (i.e. sent by the condenserless unit).

TECHNICAL DATA	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Power supply	400 - 3 - 50											V-ph-Hz
Fan type	axial											-
Max working pressure (PS)	45											bar
Coil exchanger type	Aluminum fins and copper tubes											-

Acoustic performances

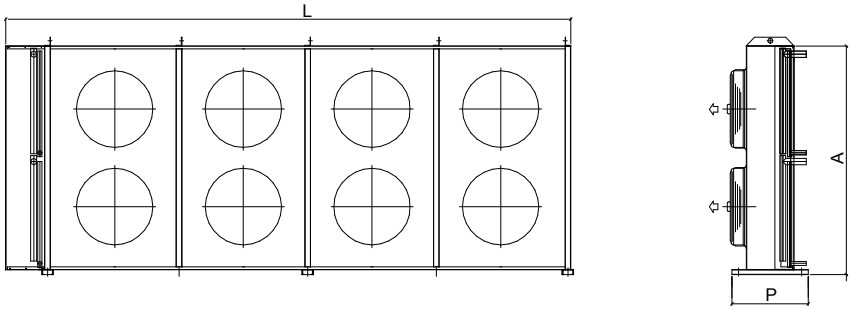
Base setting up (AB)	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Sound power level	80	80	82	83	83	83	83	85	85	85	85	dB(A)
Sound pressure level at 1 meter	63	63	65	66	66	66	66	68	68	68	68	dB(A)
Sound pressure level at 5 meters	53	53	55	56	56	56	56	58	58	58	58	dB(A)
Sound pressure level at 10 meters	48	48	50	51	51	51	51	53	53	53	53	dB(A)
Low noise setting up (AS)	**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
Sound power level	75	75	76	76	76	76	76	76	77	77	77	dB(A)
Sound pressure level at 1 meter	58	58	57	57	57	59	59	59	60	60	60	dB(A)
Sound pressure level at 5 meters	48	48	47	47	47	49	49	49	50	50	50	dB(A)
Sound pressure level at 10 meters	43	43	42	42	42	44	44	44	45	45	45	dB(A)
eXtra low noise setting up (AX)	**70.2**	**80.2**	**90.2**	**105.2**	**120.2**	**135.2**	**150.2**	**170.2**	**190.2**	**215.2**	**240.2**	
Sound power level	68	68	68	68	70	70	70	71	71	73	73	dB(A)
Sound pressure level at 1 meter	51	51	51	51	53	53	53	54	54	56	56	dB(A)
Sound pressure level at 5 meters	41	41	41	41	43	43	43	44	44	46	46	dB(A)
Sound pressure level at 10 meters	36	36	36	36	38	38	38	39	39	41	41	dB(A)

Base setting up (AB)		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Refrigerant connections	Gas	1x42	1x42	1x42	1x42	1x42	1x42	1x42	1x42	1x54	1x54	1x54	n° x Ø
	Liquid	1x35	1x35	1x35	1x28	1x35	1x35	1x35	1x35	1x42	1x42	1x42	n° x Ø
Fan specification	Fan	2	2	3	2	2	2	2	3	3	3	3	n°
	Diameter	630	630	630	800	800	800	800	800	800	800	800	mm
	Air flow rate	5556	5556	8917	11778	10889	10889	10222	17667	16333	15333	15333	l/s
	Power input	1,46	1,46	2,19	4,00	4,00	4,00	4,00	6,00	6,00	6,00	6,00	kW
Standard configuration	Length [L]	2630	2630	3770	3230	3230	3230	3230	4580	4580	4580	4580	mm
	Height [A]	1230	1230	1230	1370	1370	1370	1370	1370	1370	1370	1370	mm
	Depth [P]	600	600	600	800	800	800	800	800	800	800	800	mm
Configuration with support brackets	Length [L]	2630	2630	3770	3230	3230	3230	3230	4580	4580	4580	4580	mm
	Height [A]	990	990	990	1565	1565	1565	1565	1565	1565	1565	1565	mm
	Depth [P]	1230	1230	1230	1370	1370	1370	1370	1370	1370	1370	1370	mm
Weight		166	166	221	279	302	302	324	413	447	481	481	kg

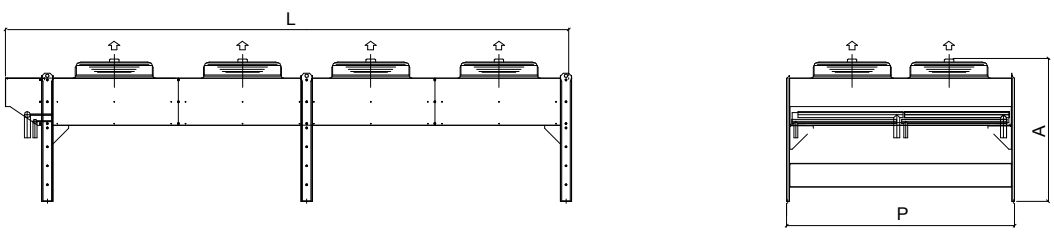
Low noise setting up (AS)		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Refrigerant connections	Gas	1x42	1x42	1x42	1x42	1x42	1x42	1x54	1x54	2x42	2x42	2x42	n° x Ø
	Liquid	1x35	1x35	1x28	1x35	1x35	1x35	1x42	1x42	2x35	2x35	2x35	n° x Ø
Fan specification	Fan	3	3	2	2	2	3	3	3	4	4	4	n°
	Diameter	630	630	800	800	800	800	800	800	800	800	800	mm
	Air flow rate	6250	6250	9389	7944	7444	14083	11917	11167	15222	14111	14111	l/s
	Power input	0,99	0,99	1,96	1,96	1,96	2,94	2,94	2,94	3,92	3,92	3,92	kW
Standard configuration	Length [L]	3770	3770	3230	3230	3230	4580	4580	4580	3230	3230	3230	mm
	Height [A]	1230	1230	1370	1370	1370	1370	1370	1370	2390	2390	2390	mm
	Depth [P]	600	600	800	800	800	800	800	800	800	800	800	mm
Configuration with support brackets	Length [L]	3770	3770	3230	3230	3230	4580	4580	4580	3230	3230	3230	mm
	Height [A]	990	990	1565	1565	1565	1565	1565	1565	1565	1565	1565	mm
	Depth [P]	1230	1230	1370	1370	1370	1370	1370	1370	2390	2390	2390	mm
Weight		221	221	279	302	324	413	447	481	502	543	543	kg

eXtra low noise setting up (AX)		70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Refrigerant connections	Gas	1x42	1x42	1x42	1x42	1x42	1x54	1x54	2x42	2x42	2x42	2x42	n° x Ø
	Liquid	1x28	1x28	1x35	1x35	1x35	1x42	1x42	2x35	2x35	2x35	2x35	n° x Ø
Fan specification	Fan	2	2	2	2	3	3	3	4	4	4	4	n°
	Diameter	800	800	800	800	800	800	800	800	800	800	800	mm
	Air flow rate	6778	6778	6111	5611	10167	9167	8417	11556	10667	19333	19333	l/s
	Power input	1,18	1,18	1,18	1,18	1,77	1,77	1,77	2,36	2,36	2,36	2,36	kW
Standard configuration	Length [L]	3230	3230	3230	3230	4580	4580	4580	3230	3230	4580	4580	mm
	Height [A]	1370	1370	1370	1370	1370	1370	1370	2390	2390	2390	2390	mm
	Depth [P]	800	800	800	800	800	800	800	800	800	800	800	mm
Configuration with support brackets	Length [L]	3230	3230	3230	3230	4580	4580	4580	3230	3230	4580	4580	mm
	Height [A]	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	mm
	Depth [P]	1370	1370	1370	1370	1370	1370	1370	2390	2390	2390	2390	mm
Weight		279	279	302	324	413	447	481	502	543	680	680	kg

Standard configuration (horizontal air flow)



Configuration with Support Brackets (vertical air flow)



> EVW

CONDENSERLESS UNITS FOR INDOOR INSTALLATION

Available range

Unit type
IR Condenserless unit
BR Condenserless unit Brine

Version
VB Base version
VD Desuperheaters version

Acoustic setting up
AB Base setting up
AS Low noise setting up

Unit description

This range of condenserless units are designed to meet the climate control and air conditioning needs of large capacity systems in the industrial and commercial sectors. All the units are suitable for indoor installation and can be applied to fan coil plants. Suitable for indoor installation, as standard the units are equipped with 1 or 2 TWIN-SCREW semihermetic compressors mounted on rubber vibration dampers able to modulate the capacity from minimum 25 (not for all configurations) to 100%, plant side exchanger shell and tube type complete with Victaulic water connections, fitted inside a shell of thermal insulation material to prevent condensation and heat exchange with the outside, optimised for R134a with high efficiency grooved tubes, protected by means of a water differential pressure switch, 1 or 2 independent refrigerant circuits, complete with electronic expansion valve which optimises unit efficiency at full and partial loads and enables maximum seasonal efficiency, maximum and minimum pressure switch, PED safety valves, dehydrator filter, liquid/moisture indicator, compressor discharge and liquid shut-off valves, high and low pressure transducers, electrical panel with minimum protection IP54 containing the electrical equipment and all the components to control and command the unit complete with main supply breaker with door lock function, phase sequence control device, microprocessor controller with display (4 lines of 20 characters).
The units can be selected as Base setting up (AB) or as Low noise setting up (AS) that provides that compressor are positioned inside a soundproofed cabin, made with profiles and panels insulated with acoustic material.
The units are suitable to be combined with remote condensers cooled by air (coil and fans) or remote condensers cooled by water (plate or shel and tube heat exchanger). The electronic controller can manage the numerous ways used on the market for the head pressure control for condensation by air and for condensation by water. A wide range of options and accessories completes the commercial offer. All the units are carefully built in compliance with the current regulations and individually tested.
The units are supplied with charge of NITROGEN in order to avoid the entrance of air inside the refrigerant circuit.

Options

Compressor starting
- standard (contactors)
- soft starter

Compressors power factor correction
Electrical load protection
- standard (fuses)
- thermal magnetic circuit breakers

Evaporator flow switch (mounted)
Evaporator insulation higher thickness
Evaporator electrical heater for winter antifreeze
High and low pressure gauges
Compressor suction shut-off valve

Accessories

Rubber vibration dampers
External Water Storage Tank and Pumping Module complete with insulated carbon steel tank, single or twin pump and all hydronic components.
Antifreeze electrical heaters for Storage tank
Remote controller
Serial Interface Modbus on RS 485
Programmer clock
Phase sequence and voltage controller
Water flow switch
Remote condenser cooled by air

CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency.
Available functions:
- Double Set Point
- Demand Limit
- Dinamic set point
- Condensation control
- Remote stand by

NOMINAL performances

IR		280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
C50W7	Cooling capacity	249	276	314	361	423	475	524	627	723	846	950	1048	kW
	Power input	72	79	90	103	121	137	151	181	207	243	274	301	kW
	EER	3.46	3.49	3.49	3.50	3.48	3.47	3.48	3.46	3.50	3.48	3.47	3.48	-
	Water flow rate source side	11.9	13.2	15.0	17.3	20.2	22.7	25.0	30.0	34.5	40.4	45.4	50.1	l/s
	Pressure drops source side	36	28	36	34	43	34	42	41	35	47	47	36	kPa

C50W7 = condensing temperature (dew point) = 50 °C - subcooling = 5°C - plant : water in 12°C out 7°C;

TECHNICAL DATA	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Power supply	400 - 3 - 50												V-ph-Hz
Max working pressure (HP-PS)	20												bar
Compressor type	twin-screw												-
N° compressors / N° refrigerant circuits	1 / 1							2 / 2					n°
Part load	25 / 100% continuous							12.5 / 100% continuous					
Plant side heat exchanger typex	shell and tube												-
IN/OUT Plant side hydraulic fittings	DN125	DN125	DN125	DN150	DN150	DN150	DN200	DN150	DN200	DN200	DN200	DN200	-
Refrigerant liquid line fitting	1x42	1x42	1x42	1x42	1x42	1x54	1x54	2x42	2x42	2x42	2x54	2x54	n° x Ø
Refrigerant gas line fitting	1x67	1x67	1x67	1x67	1x67	1x76	1x76	2x67	2x67	2x67	2x76	2x76	n° x Ø

Acoustic performances

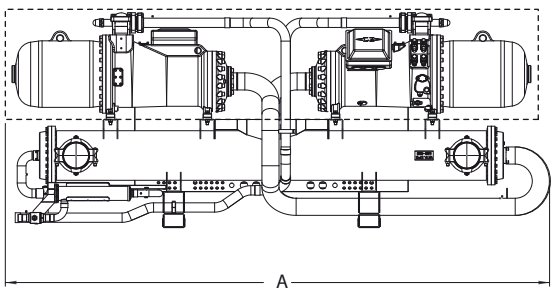
Base setting up (AB)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Sound power level	97	97	97	98	98	98	98	99	100	100	100	100	dB(A)
Sound pressure level at 1 meter	79	79	79	80	80	80	80	80	81	81	81	81	dB(A)
Sound pressure level at 5 meters	70	70	70	72	72	72	71	72	73	73	73	73	dB(A)
Sound pressure level at 10 meters	65	65	65	67	67	67	66	67	68	68	68	68	dB(A)
Low noise setting up (AS)	**280.1**	**320.1**	**360.1**	**420.1**	**480.1**	**540.1**	**600.1**	**710.2**	**820.2**	**950.2**	**1100.2**	**1200.2**	
Sound power level	92	93	92	93	93	94	94	94	95	95	96	96	dB(A)
Sound pressure level at 1 meter	74	75	74	75	75	76	76	75	76	76	77	77	dB(A)
Sound pressure level at 5 meters	65	66	65	66	66	67	67	67	68	68	69	69	dB(A)
Sound pressure level at 10 meters	60	61	60	61	61	62	62	62	63	63	64	64	dB(A)

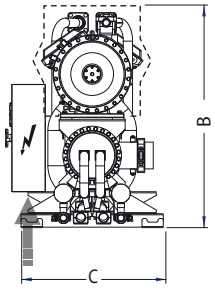
The acoustic performances are referred to units operating in cooling mode at nominal conditions C50W7.
Unit placed in free field on reflecting surface (directional factor equal to 2).
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

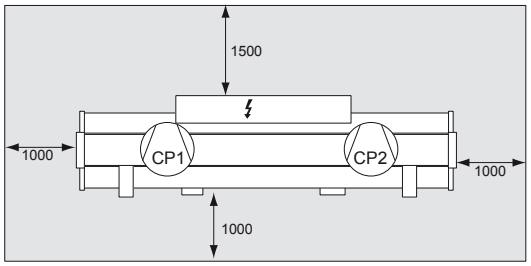
Cooling

	Unit type	min	max	
Condensing temp (dew point)	IR, BR	30	60	(°C)
Water outlet temperature plant side	IR	5	15	(°C)
Water outlet temperature plant side	BR	-8	5	(°C)

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT







Models	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
A	3704	3704	3704	3620	3620	3732	3745	4320	4447	4447	4480	4480	mm
B	1534	1534	1534	1599	1599	1637	1725	1751	1741	1741	1780	1780	mm
C	997	997	997	1032	1032	1032	1032	1214	1226	1226	1252	1252	mm
Operating maximum weight	1611	1629	1642	2209	2243	2289	2593	3065	4294	4307	4529	4595	kg

Remote condenser

This series of Remote Axial Condensers uses copper pipes with special internal riffling and a high efficiency fin.
The fin has been specially designed to guarantee a high thermal exchange coefficient with low air pressure drops. By combining both special tubes and fins the following features can be achieved:
- Maximum capacity related to the heat exchanger's dimensions.
- Minimum refrigerant charge.
- The most strict environment standards for sound pollution can be met.

This new series of axial condensers is equipped with fans with scythe-shaped blades to reduce the sound emission. From the noise level point of view, all models can be supplied as basic version (AB), low noise version (AS) or extra low noise version (AX).
To guarantee solidity, strength and the maximum resistance to atmospheric agents the bearing and the casing are manufactured with galvanized steel and oven painted with a polyurethane resin (the standard colour is RAL 7035).

Options

- Special fins (Copper, Painted Aluminium, ecc.).
- Special motors
- Vertical / Horizontal air flow
- EC fans

Accessories

All models can be equipped with several accessories as:
- Rubber Vibrations Dampers
- Modulating control of the fans with cut of phase regulator
- Modulating control of the fans with inverter regulator
- Electrical Wiring Box, allows a fast and safe electrical installation of the unit since all wires and thermal protections of the fans are connected inside a waterproof box (IP54) to a terminal block where the installer connect the electrical supply and the fans thermal switches signal.
- Electrical Panel CE this accessory (like the electrical wiring box) allows a fast and safe electrical installation and moreover simplify the standard and non standard maintenance of the unit. The accessory is in fact composed by main electrical switch, fuses and contactors of the fans, transformer to supply an alarm auxiliary relè, terminal block for remote ON-OFF (i.e. sent by the condenserless unit).

TECHNICAL DATA	70.2	80.2	90.2	105.2	120.2	135.2	150.2	170.2	190.2	215.2	240.2	
Power supply	400 - 3 - 50											V-ph-Hz
Fan type	axial											-
Max working pressure (PS)	30											bar
Exchanger type	Aluminum fins and copper tubes											-

Acoustic performances

Base setting up (AB)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Sound power level	86	88	88	88	89	89	90	90	91	91	93	99	dB(A)
Sound pressure level at 1 meter	70	72	72	72	73	73	74	74	74	74	76	82	dB(A)
Sound pressure level at 5 meters	59	61	61	61	62	62	63	63	63	63	65	71	dB(A)
Sound pressure level at 10 meters	54	56	56	56	57	57	58	58	58	58	60	66	dB(A)
Low noise setting up (AS)	**280.1**	**320.1**	**360.1**	**420.1**	**480.1**	**540.1**	**600.1**	**710.2**	**820.2**	**950.2**	**1100.2**	**1200.2**	
Sound power level	81	81	81	82	82	83	83	84	84	86	90	90	dB(A)
Sound pressure level at 1 meter	65	65	65	66	66	67	67	67	67	69	73	73	dB(A)
Sound pressure level at 5 meters	54	54	54	55	55	56	56	56	56	58	62	62	dB(A)
Sound pressure level at 10 meters	49	49	49	50	50	51	51	51	51	53	57	57	dB(A)
eXtra low noise setting up (AX)	**280.1**	**320.1**	**360.1**	**420.1**	**480.1**	**540.1**	**600.1**	**710.2**	**820.2**	**950.2**	**1100.2**	**1200.2**	
Sound power level	74	74	74	75	75	76	76	77	76	76	83	83	dB(A)
Sound pressure level at 1 meter	58	58	58	59	59	59	59	60	59	59	66	66	dB(A)
Sound pressure level at 5 meters	47	47	47	48	48	48	48	49	48	48	55	55	dB(A)
Sound pressure level at 10 meters	42	42	42	43	43	43	43	44	43	43	50	50	dB(A)

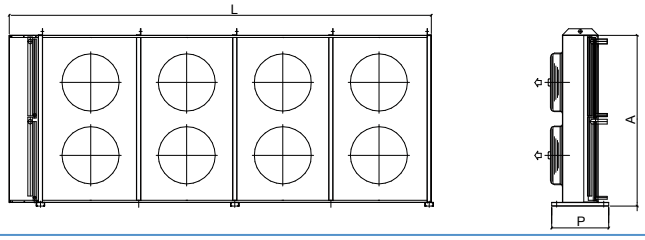
Remote condensers technical data

Base setting up (AB)		280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Refrigerant connections	Gas	2x42	2x54	2x54	2x54	2x54	2x54	2x64	2x64	2x76	2x76	2x76	2x76	n° x Ø
	Liquid	2x35	2x42	2x42	2x42	2x35	2x42	2x42	2x42	2x42	2x54	2x54	2x54	n° x Ø
Fan specification	Fan	4	6	6	6	8	8	10	10	12	14	16	12	n°
	Diameter	800	800	800	800	800	800	800	800	800	800	800	900	mm
	Air flow rate	19667	31667	31667	29500	42222	39333	52778	49167	59000	68833	78667	100667	l/s
	Power input	8	12	12	12	16	16	20	20	24	28	32	43.2	kW
Standard configuration	Type						1						2	-
	Length [L]	3230	4580	4580	4580	5930	5930	7280	7280	8630	9980	11330	7990	mm
	Height [A]	2390	2390	2390	2390	2390	2390	2390	2390	2390	2390	2390	2262	mm
	Depth [P]	800	800	800	800	800	800	800	800	800	800	800	2400	mm
	Weight	543	742	742	804	982	1065	1222	1325	1585	1845	2106	2879	kg
Configuration with support brackets	Type						3						-	-
	Length [L]	3230	4580	4580	4580	5930	5930	7280	7280	8630	9980	11330	-	mm
	Height [A]	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	-	mm
	Depth [P]	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	-	mm
	Weight	569	768	768	830	1021	1104	1261	1364	1637	1897	2158	-	kg

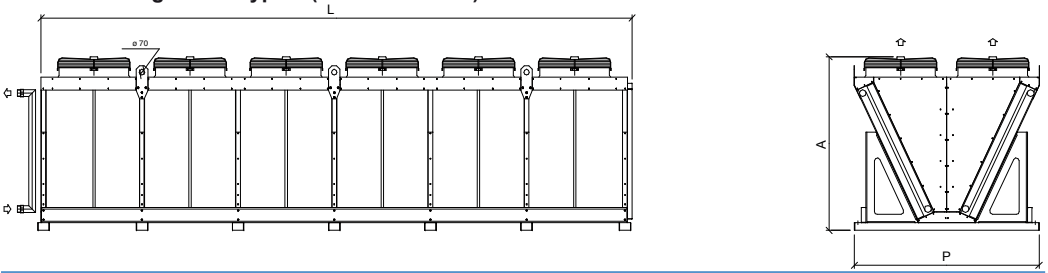
Low noise setting up (AS)		280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Refrigerant connections	Gas	2x54	2x54	2x54	2x54	2x54	2x64	2x64	2x76	2x76	2x76	2x76	2x76	n° x Ø
	Liquid	2x42	2x42	2x42	2x35	2x42	2x42	2x42	2x42	2x54	2x54	2x54	2x54	n° x Ø
Fan specification	Fan	6	6	6	8	8	10	10	12	14	16	12	12	n°
	Diameter	800	800	800	800	800	800	800	800	800	800	900	900	mm
	Air flow rate	24667	24667	22500	32889	30000	41111	37500	45000	52500	60000	87000	82333	l/s
	Power input	12	12	7.62	10.16	10.16	12.7	12.7	15.24	17.78	20.32	29.4	29.4	kW
Standard configuration	Type						1					2		-
	Length [L]	4580	4580	4580	5930	5930	7280	7280	8630	9980	11330	7990	7990	mm
	Height [A]	2390	2390	2390	2390	2390	2390	2390	2390	2390	2390	2262	2262	mm
	Depth [P]	800	800	800	800	800	800	800	800	800	800	2400	2400	mm
	Weight	742	742	804	982	1065	1222	1325	1585	1845	2106	2879	3056	kg
Configuration with support brackets	Type						3					-	-	-
	Length [L]	3230	4580	4580	4580	5930	5930	7280	7280	8630	9980	-	-	mm
	Height [A]	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	-	-	mm
	Depth [P]	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	-	-	mm
	Weight	768	768	830	1021	1104	1261	1364	1637	1897	2158	-	-	kg

eXtra low noise setting up (AX)		280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Refrigerant connections	Gas	2x42	2x54	2x54	2x64	2x64	2x76	2x76	2x76	2x76	2x76	2x76	2x76	n° x Ø
	Liquid	2x35	2x35	2x42	2x42	2x42	2x42	2x54	2x54	2x64	2x64	2x64	2x64	n° x Ø
Fan specification	Fan	8	8	8	10	10	12	14	16	14	14	14	14	n°
	Diameter	800	800	800	800	800	800	800	800	800	900	900	900	mm
	Air flow rate	25778	23111	21333	28889	26667	32000	40444	46222	56389	52500	70000	70000	l/s
	Power input	4.7	4.7	4.7	5.9	5.9	7.1	8.3	9.4	9.5	9.5	15.5	15.5	kW
Standard configuration	Type						1					2		-
	Length [L]	5930	5930	5930	7280	7280	8630	9980	11380	9240	9240	9240	9240	mm
	Height [A]	2390	2390	2390	2390	2390	2390	2390	2390	2262	2262	2262	2262	mm
	Depth [P]	800	800	800	800	800	800	800	800	800	2400	2400	2400	mm
	Weight	900	982	1065	1222	1325	1585	1702	1942	3309	3515	3515	3515	kg
Configuration with support brackets	Type						3					-	-	-
	Length [L]	5930	5930	5930	7280	7280	8630	9980	11380	9240	9240	-	-	mm
	Height [A]	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	-	-	mm
	Depth [P]	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	-	-	mm
	Weight	939	1021	1104	1261	1364	1637	1754	1994	-	-	-	-	kg

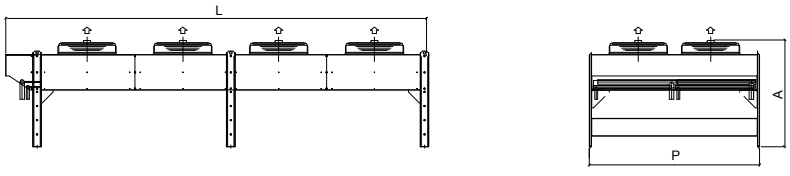
Standard configuration type 1 (horizontal air flow)



Standard configuration type 2 (vertical air flow)



Configuration with Support Brackets Type 3 (vertical air flow)



> CR
REMOTE CONDENSERS

Units Series

Configurations

Tipo 1 horizontal flow
Tipo 2 vertical flow
Tipo 3 vertical flow

Available suond configurations

AB Basic
AS Low Noise
AX eXtra Low Noise

VB unit specifications

This series of remote condensers are designed for combination with Condenserless unit EVW. The units in question are suitable for outdoor installation. When developing the unit, particular attention was paid to problems of noise in order to meet increasingly more stringent in terms of noise pollution.

Are available three levels of sound attenuation (Base, Low noise, eXtra Low noise.) All units are carefully constructed in compliance with current regulations and are individually tested.

Basic Configuration (AB)

- STRUCTURE: made of sturdy galvanized steel sheet.
- SOURCE SIDE HEAT EXCHANGER: finned coils with large heat exchange surface, made with copper pipes and notched aluminium fins,
- FANS: helical fans with crescent-shaped blades to limit noise

Low noise Configuration (AS)

- FANS: reduced speed

EXtra Low noise Configuration (AX)

- FANS: further fan speed reduction
- SOURCE SIDE HEAT EXCHANGER: larger than the basic version, to further increase the heat exchange coefficient.

Main accessories/Options

Condensation Control

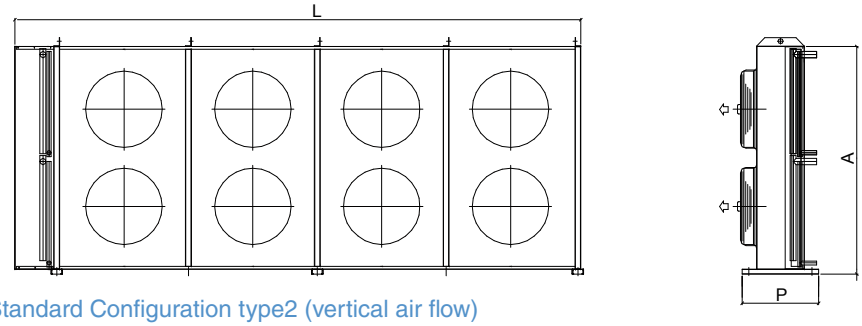
Junction box, consists of control and power wiring in a waterproof box (IP54) with terminal block,

Electric panel EC, similar to the junction box but complete with a main disconnecting switch General section, fuses and contactor, fans, transformer auxiliary, alarm relays, terminals for ON-OFF from Condenserless

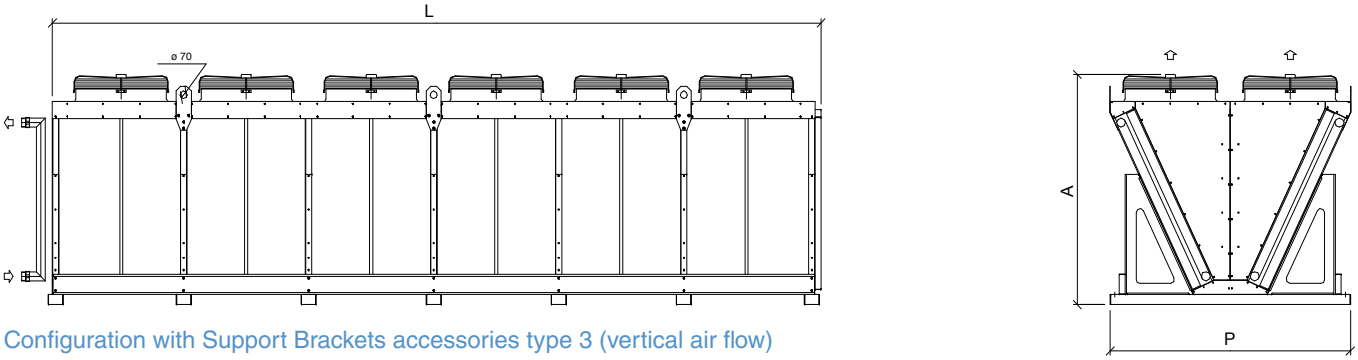
Rubber dampers

Brackets

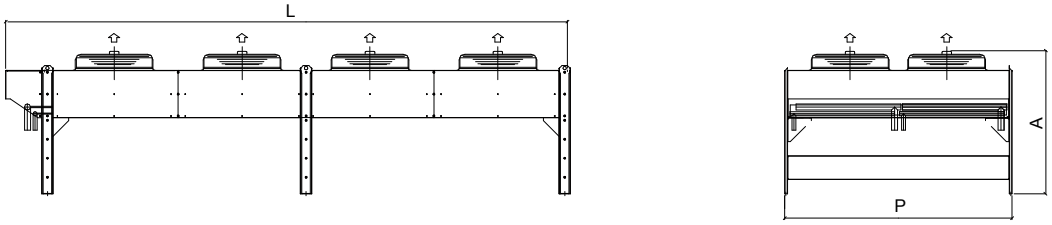
Standard Configuration type 1 (horizontal air flow)



Standard Configuration type2 (vertical air flow)



Configuration with Support Brackets accessories type 3 (vertical air flow)



Basic Configuration (AB)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Gas connection	2x42	2x54	2x54	2x54	2x54	2x54	2x64	2x64	2x76	2x76	2x76	2x76	n° x Ø
Fluid connection	2x35	2x42	2x42	2x42	2x35	2x42	2x42	2x42	2x42	2x54	2x54	2x54	n° x Ø
n° fan	4	6	6	6	8	8	10	10	12	14	16	12	n°
Diameter	800	800	800	800	800	800	800	800	800	800	800	900	mm
Total power	8	12	12	12	16	16	20	20	24	28	32	43,2	kw
Standard Configuration						Type 1						Type 2	
Lenght [L]	3230	4580	4580	4580	5930	5930	7280	7280	8630	9980	11330	7990	mm
Height [A]	2390	2390	2390	2390	2390	2390	2390	2390	2390	2390	2390	2262	mm
Width [P]	800	800	800	800	800	800	800	800	800	800	800	2400	mm
Configuration						Type 3						-	-
Lenght [L]	3230	4580	4580	4580	5930	5930	7280	7280	8630	9980	11330	-	mm
Height [A]	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	-	mm
Width [P]	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	-	mm
Weight	543	742	742	804	982	1065	1222	1325	1585	1845	2106	2879	kg
SPL	86	88	88	88	89	89	90	90	91	91	93	99	dB(A)
SWL 1mt	70	72	72	72	73	73	74	74	74	74	76	82	dB(A)
SWL 5mt	59	61	61	61	62	62	63	63	63	63	65	71	dB(A)
SWL 10mt	54	56	56	56	57	57	58	58	58	58	60	66	dB(A)

Low noise Configuration (AS)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Gas connection	2x54	2x54	2x54	2x54	2x54	2x64	2x64	2x76	2x76	2x76	2x76	2x76	n° x Ø
Fluid connection	2x42	2x42	2x42	2x35	2x42	2x42	2x42	2x42	2x54	2x54	2x54	2x54	n° x Ø
n° fan	6	6	6	8	8	10	10	12	14	16	12	12	n°
Diameter	800	800	800	800	800	800	800	800	800	800	900	900	mm
Total power	12	12	7,62	10,16	10,16	12,7	12,7	15,24	17,78	20,32	29,4	29,4	kw
Total input current	25,8	25,8	15	20	20	25	25	30	35	40	62,4	62,4	A
Standard Configuration						Type 1						Type 2	-
Lenght [L]	4580	4580	4580	5930	5930	7280	7280	8630	9980	11330	7990	7990	mm
Height [A]	2390	2390	2390	2390	2390	2390	2390	2390	2390	2390	2262	2262	mm
Width [P]	800	800	800	800	800	800	800	800	800	800	2400	2400	mm
Configuration						Type 3					-	-	-
Lenght [L]	4580	4580	4580	5930	5930	7280	7280	8630	9980	11330	-	-	mm
Height [A]	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	-	-	mm
Width [P]	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	-	-	mm
Weight	742	742	804	982	1065	1222	1325	1585	1845	2106	2879	3056	kg
SPL	81	81	81	82	82	83	83	84	84	86	90	90	dB(A)
SWL 1mt	65	65	65	66	66	67	67	67	67	69	73	73	dB(A)
SWL 5mt	54	54	54	55	55	56	56	56	56	58	62	62	dB(A)
SWL 10mt	49	49	49	50	50	51	51	51	51	53	57	57	dB(A)

eXtra low noise Configuration (AX)	280.1	320.1	360.1	420.1	480.1	540.1	600.1	710.2	820.2	950.2	1100.2	1200.2	
Gas connection	2x42	2x54	2x54	2x64	2x64	2x76	2x76	2x76	2x76	2x76	2x76	2x76	n° x Ø
Fluid connection	2x35	2x35	2x42	2x42	2x42	2x42	2x54	2x54	2x64	2x64	2x64	2x64	n° x Ø
n° fan	8	8	8	10	10	12	14	16	14	14	14	14	n°
Diameter	800	800	800	800	800	800	800	800	800	900	900	900	mm
Total power	4,7	4,7	4,7	5,9	5,9	7,1	8,3	9,4	9,5	9,5	15,5	15,5	kW
Total input current	10	10	10	12,5	12,5	15	17,5	20	19	19	37,8	37,8	A
Standard Configuration						Type 1						Type 2	
Lenght [L]	5930	5930	5930	7280	7280	8630	9980	11380	9240	9240	9240	9240	mm
Height [A]	2390	2390	2390	2390	2390	2390	2390	2390	2262	2262	2262	2262	mm
Width [P]	800	800	800	800	800	800	800	800	800	2400	2400	2400	mm
Configuration						Type 3					-	-	-
Lenght [L]	5930	5930	5930	7280	7280	8630	9980	11380	9240	9240	-	-	mm
Height [A]	1565	1565	1565	1565	1565	1565	1565	1565	1565	1565	-	-	mm
Width [P]	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	-	-	mm
Weight	900	982	1065	1222	1325	1585	1702	1942	3309	3515	3515	3515	kg
SPL	74	74	74	75	75	76	76	77	76	76	83	83	dB(A)
SWL 1mt	58	58	58	59	59	59	59	60	59	59	66	66	dB(A)
SWL 5mt	47	47	47	48	48	48	48	49	48	48	55	55	dB(A)
SWL 10mt	42	42	42	43	43	43	43	44	43	43	50	50	dB(A)

NOTE:
SWL Sound power levels, with reference to $1x10^{-12}$ W in dB(A) measured in compliance with ISO 9614 standards, is certified according to the Eurovent certification program. Eurovent certification (E) exclusively refers to the Total Sound Power in db(A), which is therefore the only binding acoustic specification.
SPL Sound pressure levels, with reference to $2x10^{-5}$ Pa calculated by applying the ISO-3744 relation (Eurovent 8/1) and refer to a distance of 1/5/10 meter away from the external surface of units operating in standard condition (ambient air T=35°C, water 12/7°C) in cooling mode, in open field with directivity factor 2.

> Main characteristics terminal units

FAN COIL
CEILING CONCEALED
DUCTED FAN COIL
AQUASEL

> FAN COIL

FAN COIL WITH CENTRIFUGAL FANS

Series **TOP FAN** PLUS features 2 versions:
- with cabinet and bottom air intake VM-B
- with cabinet and frontal air intake VM-F
- with 3-rows and 4-rows coil

Range include 9 sizes with air flow-rates up to 1,350 m³/h.

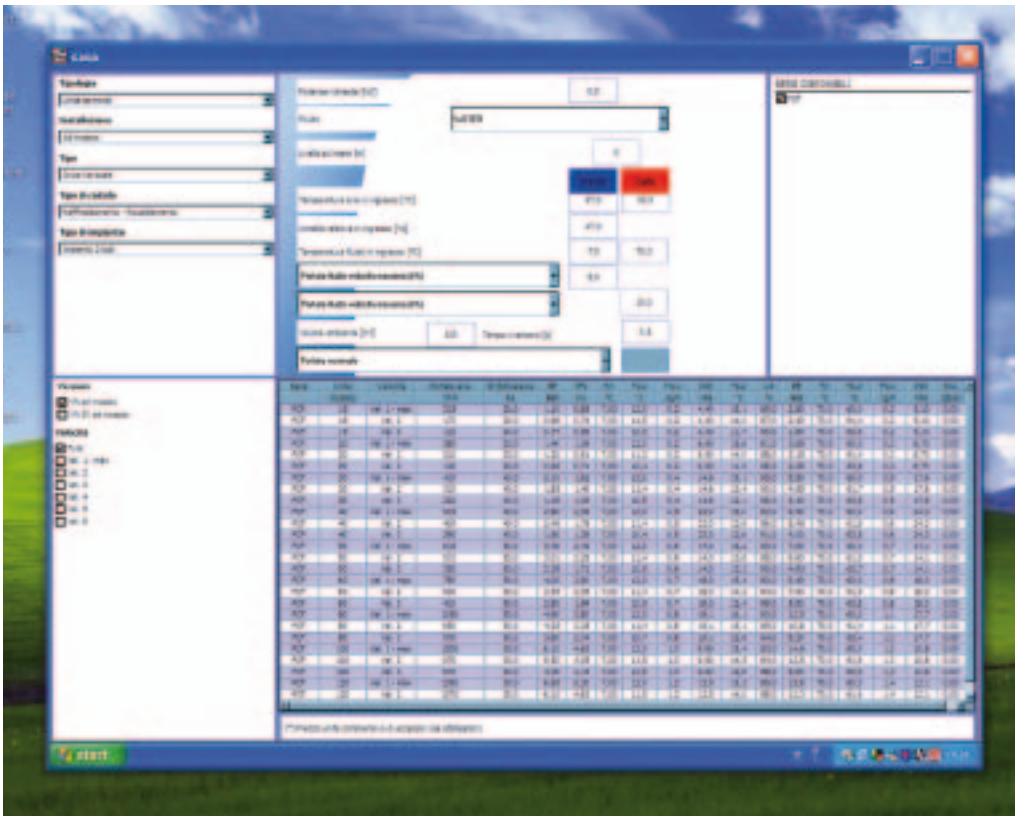
CASSETTE-TYPE FAN COIL

Series **FCS** features 2 versions:
- standard systems with 2 pipes FCS-2T
- systems with 4 pipes FCS-4T

Range include 6 sizes with two pipes and 3 with four pipes and air flow-rates up to 1,750 m³/h.

WALL-MOUNTED FAN COIL

Series **FCP** supplied with remote control and three-way valve. The range comprises 3 sizes with air flow-rates up to 730 m³/h.



> CEILING CONCEALED

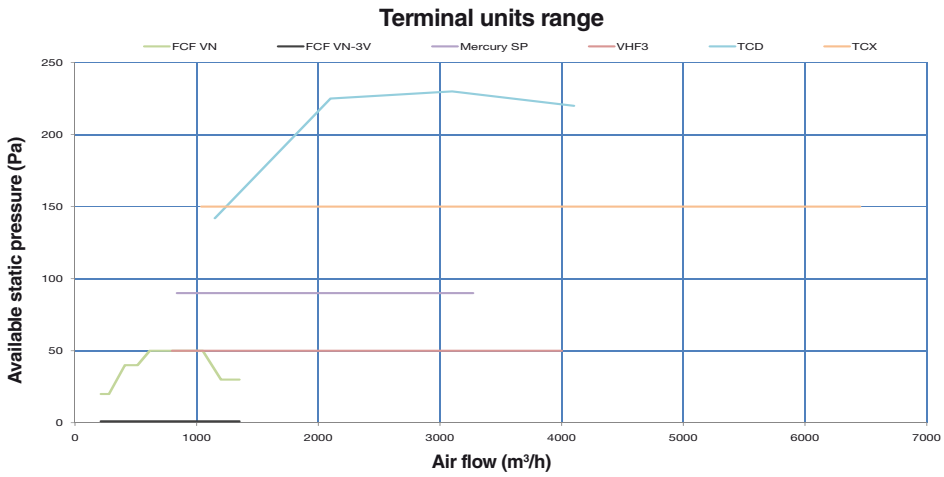
FAN COIL TYPE

Fan coil series **TOP FAN** PLUS features 2 versions:
- without cabinet, ceiling concealed, with six-speed motor
- without cabinet, ceiling concealed, with three-speed motor
- with 3-rows and 4-rows coil

Range include 9 sizes with air flow-rates up to 1,350 m³/h.

FAN COIL TYPE

VHF3 series units have centrifugal fans, low head, structure complete with soundproofing, condensate tray and air filter.
Range include 8 sizes with air flow rate up to 4,000 m³/h and head 50 Pa.



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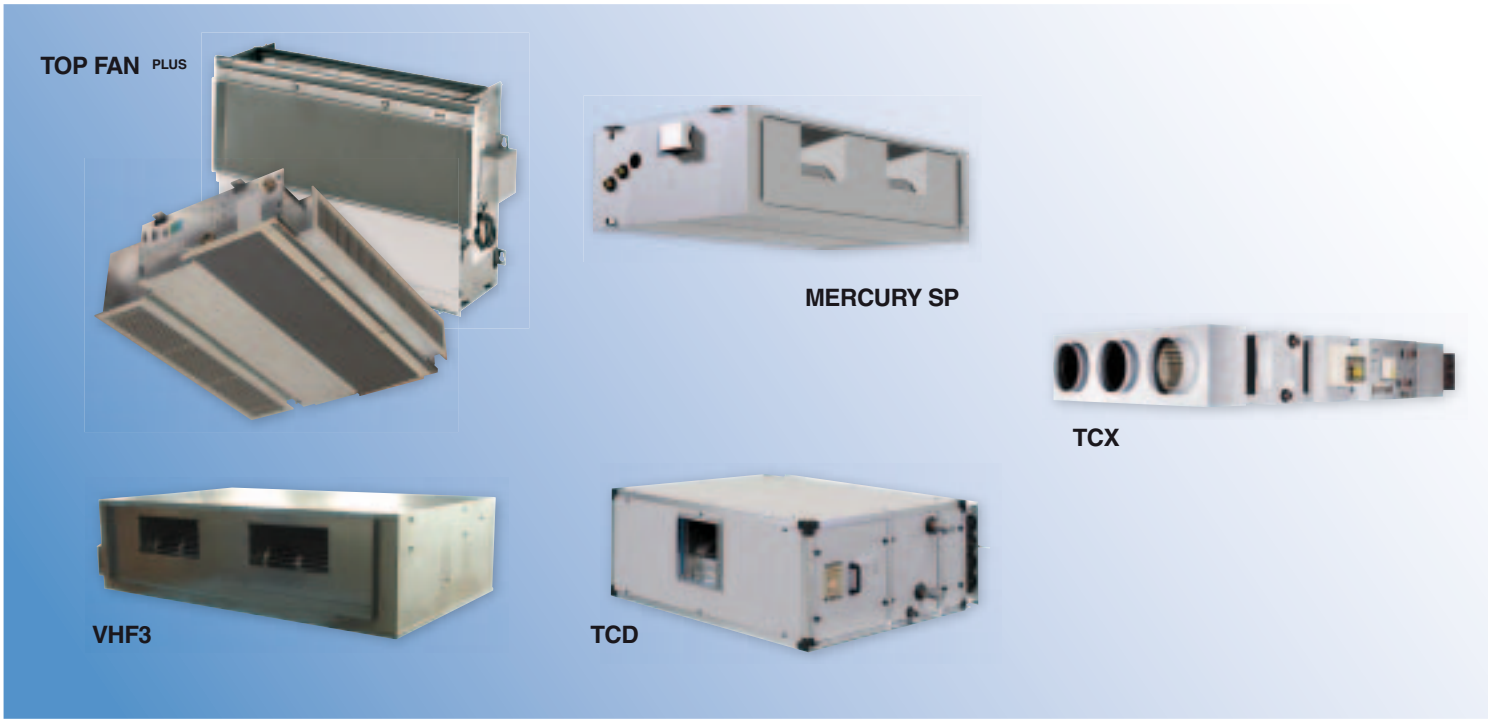


> DUCTED FAN COIL

FAN COIL IN SINGLE PANEL

MERCURY SP series with centrifugal fans, medium head.
Range include 8 sizes with air flow-rates up to 3,270 m³/h and head 90 Pa

FAN COILS IN DOUBLE PANEL

TCD series units with centrifugal fans, high pressure, structure in double panel, featuring versions:
- Vertical with 2, 4 and 6-row exchanger
- Horizontal with 2, 4 and 6-row exchanger

Range include 5 sizes with air flow-rates up to 5,400 m³/h, medium head 200 Pa.

FAN COILS IN DOUBLE PANEL

TCX series with centrifugal fans, high head, structure in double panel, featuring the following versions:
- systems with 2 pipes, heating only, 2 rows
- systems with 2 pipes, heating and cooling, 4 or 6 rows
- systems with 4 pipes, 2, 4 or 6 rows
- systems with 2 pipes, 4 or 6 rows+electric post-heating section or + drip separator section

Range include 7 sizes with air flow-rates up to 6,450 m³/h and head 150 Pa.

> AQUASEL

The Ferroli design staff has developed software for choosing the right FERROLI terminal unit for your system needs. FERROLI software calculates the performance values according to the inlet air temperature/humidity, the water Dt/temperature and, in the case of celiling concealed or ducted units, it is possible to set a fan head value and recalculate the efficiency and air flow-rate of the units. There is also the selected choice of accessories the printing of the description of the unit specifications and a complete technical data sheet.
A sales tool much appreciated by professionals for its easy use and prompt answers.
For further information, contact your local Ferroli Industrial Climate Control Branch.

> Main characteristics terminal units

4XUT TERMINAL UNIT MANAGEMENT

The Ferroli team has developed a relay card enabling the management of up to 4 terminal units with a single control.

This is a relay card complete with single multiple contacts to feed the three speeds of the load with the option of controlling the valves for systems with 2 or 4 pipes through another two relays.

Technical characteristics

- ENCLOSURE BOX : made in plastic suitable for indoor installation.
- ELECTRONIC BOARD : positioned on a base, the relay card consists of 2 +3 relays, 6 terminal blocks and cable glands.
- RELAYS :
  - 2 single-contact relays for controlling valves (systems with 2 pipes and systems with 4 pipes),
  - 3 multiple-contact type relays for controlling the three fan speeds.
- TERMINAL BLOCKS : made in plastic and are complete with a spring device for clamping the electrical wires.
  To prevent installation errors, the names of the single contacts are given on the board (fig. b).
- FIXING BRACKET : The box comes complete with a bracket suitable for fixing to the structure of the Fan Coil TOP FAN (fig. a). Not suitable for other loads or uses.

4XUT System Operation

A 4XUT System card can control
- 2, 3, 4 exposed fan coil units VM-B,VM-F with 2 or 4 pipes,
- 2, 3, 4 recessed-mounted units VN-3V, VN or VHF3 with 2 or 4 pipes,
- 2, 3, 4 cassette-type fan coil units FCS with 2 or 4 pipes
- 2, 3, 4 Ducted-type fan coils MERCURY SP, or TCX type.

Each output terminal block must be used for a single load.
The control voltage signal from the control, is repeated for a max. of 4 and sent to the loads connected.
The electrical connections between control-card and card-terminal units (indicated with dashes in the diagram opposite) are the installer's responsibility.

Fig.a

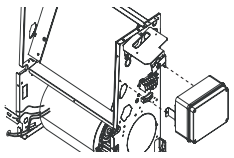
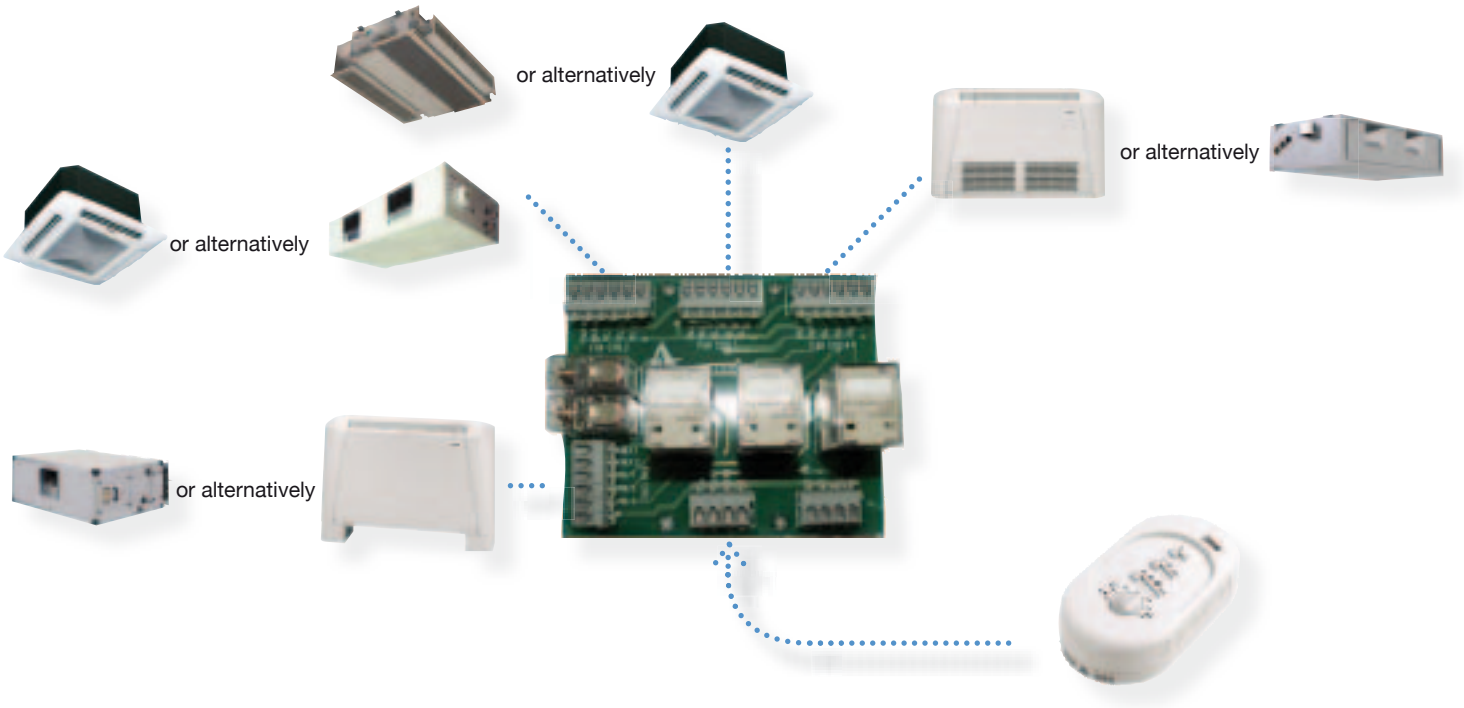


Fig.b



NB: To connect more than 4 units, several 4XUT SYSTEM cards must be used. In this case the cards will be connected in parallel, and not the units. For more than 2 cards, the valve control must be taken from the relay of the first card.

> Main characteristics terminal units

8SF MASTER - SLAVE UNIT MANAGEMENT

The electronic thermostat 8SF is widely used in residential and commercial type applications due to the clear adjustment logic and the quick connection between various modules (only 2 wires in dedicated channel).
The 8SF system consists of a room MASTER terminal, a power module to be installed in each unit, an expansion for systems with 4 pipes or with electrical resistance and a further expansion for including a group of 8 units in a central system through KNX language.

Technical characteristics of components

ROOM MASTER

The thermostat 8SF is the UNIT CONTROL and performs the function of MASTER (fig. a).
Wall-mounting is provided for and it is suitable for combining with wall electrical boxes normally available on the market.
Its careful design features a display, showing the manually programmable functions. Using the side buttons the following operations are possible:

- Room set point adjustment,
- Operation mode (heat-cool-Auto) management,
- Fan speed selection (max-med-min-Auto),
- Display of date and time and weekly timer setting.

The connection to the MAIN board is via two screened wires.
Attention must be paid to the installation of these wires and the polarity of the connection terminals.

MAIN POWER MODULE

This is the main control of the system and must be installed on every unit (fig. b).
The setting of the parameters done from the wall control is analysed by each power board for a maximum of 8 units.

Using Dip-switches the fan coil units can be configured for:

- System with 2 pipes (and thermostatting on valve),
- System with 2 pipes (and thermostatting on fan),
- System with 2 pipes + electrical resistance,
- System with 4 pipes.

The functions managed by the power module are:

- Control of 3-speed fan,
- Control of electrothermal-type valves in on/off mode,
- Control of electrical resistance in PWM to optimise energy consumption,
- Monitoring water temperature to define summer/winter change over,
- On/st-by switching via the door/window digital input.

Automatic adjustment Set points

- systems with 2 pipes and seasonal S/W change- over; set point 20°C in heating and 25°C in cooling,
- systems with 4 or 2 pipes + resistance and seasonal S/W change over; set point 21°C in heating and 23°C in cooling,
- antifreeze protection (set point 8°C).

An expansion (Fig. c) can be included in the MAIN power module, for configuration in systems with 4 or 2 pipes+Electrical resistance. The system can be integrated with a further expansion (fig. d), enabling the exchange of information with a centralised plant management system through KNX or MODBUS protocol language. The electrical connections between modules are made with quick connectors, whereas screw-type connections are minimised.

LOCAL UNIT

This thermostat, for installation on the unit or wall mounting (to be connected at a max. distance of 3 m) is the SLAVE terminal (fig. e). It enables modification of the parameters set from the MASTER only on the unit to which it is connected, making it partly independent for the choice of Set Point or fan speed with respect to the others. The functions managed are:

- Fan On/off/ speed selection Auto-Low-Medium-High; Auto speed is equivalent to the speed selected by the MASTER,
- Set Point variation cursor (+ or -6°C with respect to the value set in the Master),
- Standby/ON indicator LED
- Availability LEDs for heating (red) and cooling (blue).

Fig.a

Fig.d

Fig.c

Fig.b

Fig.e

Technical characteristics of components

AIR PROBE and WATER PROBE

The PROBES (NTC type) read the air or water temperature, depending on where they are placed.
They are connected to the MAIN power module by a quick connector.

In detail:

Air PROBE:

- Enables the room temperature of the fan coil on which it is placed to be controlled locally, whereas the others refer to the value read by the MASTER. It is supplied with the SLAVE control.

Water PROBE:

- It performs the automatic change-over and HOT START function. It is supplied with the MASTER control (one probe is sufficient for the entire group).

Operation

SINGLE UNIT

In OPTION A indicated below, the system is complete with:

- no.1 MASTER control that defines the Set Point values and fan speeds,
- no.1 MAIN power module, installed on the fan coil, which manages the information coming from the control by means of a PI type adjustment algorithm.
- no.1 Water probe, supplied with the MASTER control for the Hot Start function.

SETTING MAIN BOARD ON EACH SINGLE UNIT

In OPTION B indicated below, the system is complete with

no.1 - MASTER control that defines the Set Point values and fan speeds,

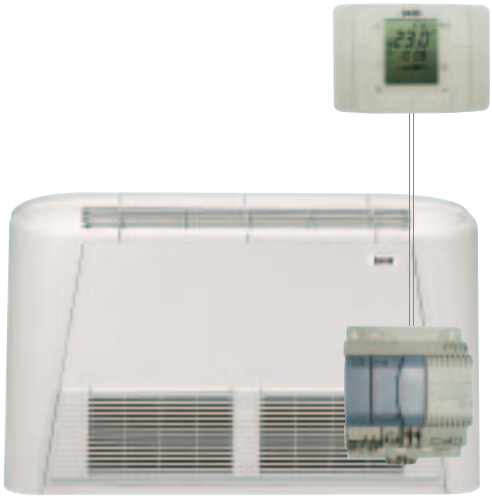
no.8 - MAIN power module, installed on the fan coil, which manages the information coming from the control by means of a PI type adjustment algorithm.

Using the Dip-Switches on the MAIN power board it is possible to configure each fan coil in a univocal way:

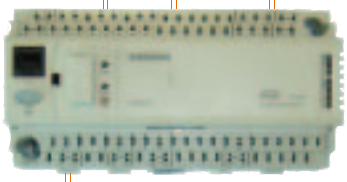
- FCF 01 configured for system with 2 pipes and thermostatting on fan;
- FCF 02 configured for system with 2 pipes and thermostatting on valve;
- FCF 03 configured for system with 2 pipes and electrical resistance;
- FCF 04 configured for system with 4 pipes and thermostatting on valve;
- FCF 05 configured for system with 2 pipes and thermostatting on valve;
- FCF 06 configured for system with 2 pipes and thermostatting on valve;
- FCF07 configured for working independently thanks to the connection with the SLAVE control (air probe supplied standard);
- FCF 08 configured for working independently thanks to the connection with the SLAVE control (supplied standard with air probe).

NB: The electrical connection between modules (indicated in dashes and the installer's responsibility) is made with a two-core cable. Pay attention to the installation of this line and the polarity of the connection terminals.

Option A



Option B



System management

8SF can be integrated with a further expansion. A group of 8 fan coils can be managed as a single node in a system under a SYSTEM MASTER for receiving signals up to a max. of 63 nodes.

Through a SYSTEM MASTER TERMINAL the 63 nodes can be managed and a heating and air conditioning source can be activated.

The SYSTEM MASTER receiver and the SYSTEM MASTER TERMINAL are the installer's responsibility.
The communication language between the group of 8 fan coils and the components must be the KNX or MODBUS protocol.

Group 1

Group 2

Group 63

> TOP FAN PLUS

FAN COIL

Units Series

Available versions

VM-B	bottom air intake
VM-F	frontal air intake
VN	ceiling concealed 6-speed
VN-3V	ceiling concealed 3-speed

Exchangers

3R	with 3 rows
4R	with 4 rows

VB unit specifications

Fan coil unit complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC. The fan coil unit is a terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water). These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers. The costomer or the designer can find version with cabinet and with air intake from bottom (VM-B version) or with frontal air intake and version without cabinet ceiling concealed type with 6 speed fan for a short duct (VN version) or with 3 speed fan. The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in the residential, commercial or industrial context. Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics

- SUPPORT STRUCTURE: in galvanised sheet metal of suitable thickness. There are slots at the back for fixing the unit.
- HEAT EXCHANGE COIL: copper pipe type arranged in staggered rows to increase heat exchange and aluminium finning in 3 or 4 rows, locked by mechanical expansion of the pipes. The manifolds have air vents, water drain holes and housing for the supply water temperature probe. The connections are located on the left side panel (facing the unit). The possibility of turning the coil is provided for.
- CONDENSATE TRAY: in thermoplastic material to prevent corrosion, it enables either vertical and horizontal unit installation. The drain hole is present on both sides.
- 3-speed FAN-MOTOR (versions VM-B VM-F and VN-3V): the electric motor, protected against overloads, has three speeds with running condenser always on, directly coupled to the fans and cushioned by elastic supports. The dual-intake centrifugal fans have long blades in order to obtain high air flow-rates with reduced revolutions.
- 6-speed FAN-MOTOR (versions VN): the electric motor has 6 speeds one or three of which selectable during installation to adjust flow-rate and head to the system's characteristics and enable a short ducting in line with the product's characteristics.
- AIR FILTER: regenerable simply by washing with water.
  For the VM-B version it is provided with a continuous guide in plastic material to facilitate extraction operations.
  For the VM-F version it is positioned in the front bottom air inlet grill.
  For the VN and VN-3V version it is complete with frame and wire screen.
- CABINET (only VM-B and VM-F): partly in epoxy powder coated steel sheet to ensure high protection against corrosion, and partly in anti-UV thermoplastic material. In the upper part there are air vents and the door for accessing the control panel, both in anti-UV thermoplastic material. The VM-F version also has a front grill in anti-UV thermoplastic material for the air inlet.

Main accessories/Options

ADJUSTMENT CONTROLS

INSTALLATION ONUNIT
Cabinet switch
Cabinet standard thermostat
Cabinet advanced thermostat

REMOTE INSTALLATION
Remote switch
Remote standard thermostat
Remote advanced thermostat

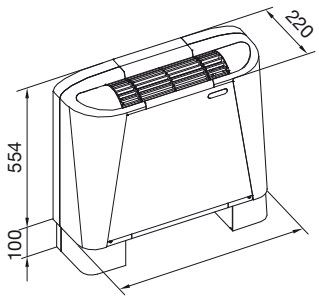
COMMON ACCESSORIES
Hot-start consent thermostat
4XUT system
8SF Zone Master control
8SF main power module
8SF Local unit
Expansion for systems with 4 pipes
Expansion electrical heater management
KNX expansion
Supplementary tray vertical installation
Supplementary tray horizontal installation
3-way valve main coil 3-4 R
2-way valve main coil 3-4 R
Supplementary coil heating only
3-way valve supplementary coil
2-way valve supplementary coil
Single-phase electrical heater
Condensate drain pump

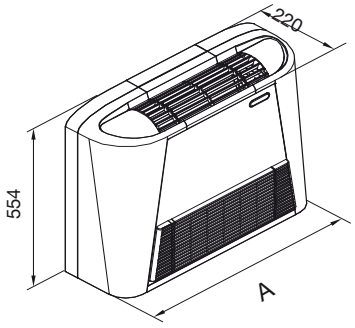
VM-B and VM-F ACCESSORIES
Support feet (VM-B only)
Adjustable fins
Outside air inlet damper with front grill (VM-B only)
Damper motor with single-phase power supply (VM-B only)
Rear closing panel

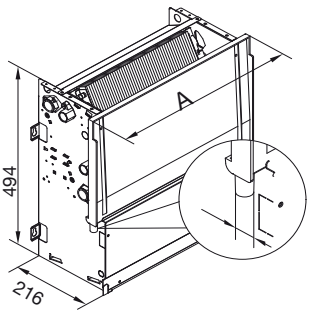
VN and VN-3V ACCESSORIES
Inlet grill
Straight inlet flange
Perpendicular inlet flange
Straight outlet flange
Perpendicular outlet flange
Inlet plenum
Outlet plenum
Outlet grill

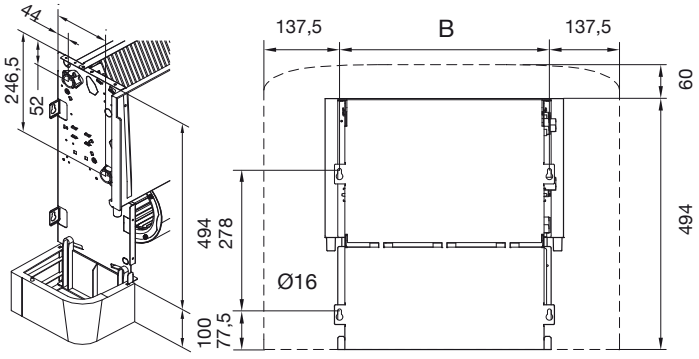
Common Data		15	20	30	40	50	60	80	100	120	
N° fan		1	1	1	1	2	2	2	2	2	N°
Air flow rate	max.	215	280	410	515	615	750	1050	1200	1350	m³/h
	med.	170	210	310	400	510	600	850	970	1070	m³/h
	min	110	140	220	290	350	410	570	670	720	m³/h
VN-3V external static pressure		0	0	0	0	0	0	0	0	0	Pa
VN external static pressure		20	20	40	40	40	50	50	30	30	Pa
Heating capacity electrical heater		800	800	1500	1500	2200	2200	2200	2600	2600	W
VM-B unit weight	3 rows	15	15	21	21	28	28	28	36	36	kg
VM-F unit weight	3 rows	14	14	20	20	27	27	27	34	34	kg
VN e VN-3V unit weight	3 rows	11	11	15	15	22	22	22	29	29	kg
VM-B unit weight	4 rows	15,8	15,8	22,5	22,5	30	30	30	39	39	kg
VM-F unit weight	4 rows	14,8	14,8	21,5	21,5	29	29	29	37	37	kg
VN unit weight	4 rows	11,8	11,8	16,5	16,5	24	24	25	32	32	kg
Condensation draining connections		16	16	16	16	16	16	16	16	16	Ø

Dimensions









Mod		15 - 20	30 - 40	50 - 60 - 80	100 - 120
A	mm	690	940	1190	1440
B	mm	415	665	915	1165

3 rows coil data

		15	20	30	40	50	60	80	100	120	
	max. (E)	1100	1400	2100	2800	3400	4000	4900	6100	6850	W
Total Cooling Capacity *	med.	980	1200	1850	2450	3010	3550	4350	5500	6100	W
	min	770	950	1450	1900	2390	2800	3600	4400	5000	W
	max. (E)	850	1060	1620	2060	2420	2900	3800	4630	5300	W
Sensible Cooling Capacity *	med.	735	910	1400	1780	2245	2550	3350	4045	4630	W
	min	560	705	1090	1390	1710	1985	2735	3155	3720	W
Dehumidifying max speed		350	490	670	1050	1150	1550	1600	2100	2200	g/h
Water flow rate * (E)		189	241	361	482	585	688	843	1049	1178	l/h
Water pressure drop (E)		4,4	6,9	14,6	23	14	18	19,1	9,9	12,5	Kpa
	max. (E)	2800	3650	5500	6500	7800	9400	12500	14900	15800	W
Heating Capacity **	med.	2400	3150	4550	5450	6600	7900	10800	12500	13270	W
	min	1800	2250	3400	4000	4930	5800	8300	9600	10000	W
Water flow rate **		241	314	473	559	671	808	1075	1281	1359	l/h
Water pressure drop **		5,1	8,6	17,6	24,2	14	18,1	17,7	10,8	12,1	Kpa
Heating Capacity *** (E)		1700	2050	3200	3850	4300	5100	7200	8080	9300	W
Water pressure drop ***(E)		3,6	5,3	9,6	15,2	13	14,6	15	8	10,1	Kpa
	max. (E)	1250	1650	2550	3150	3690	4100	5050	6200	6950	W
Heating capacity of supplementary coil	med.	1070	1420	2110	2640	3150	3440	4360	5200	6190	W
	min	860	1130	1750	2150	2320	2820	3480	4250	4800	W
Water flow rate		108	142	219	271	317	353	434	533	598	l/h
Water pressure drop		1,8	3	8,7	13,2	4	4,1	6,88	12,8	16,1	Kpa
N° fan		1	1	1	1	2	2	2	2	2	N°
Max power input motor (E)		30	38	33	60	40	70	120	120	160	W
	max.	43	47	50	54	51	55	62	61	64	dB(A)
Sound power level (E)	med.	39	42	43	48	44	49	57	57	59	dB(A)
	min	32	35	36	41	36	38	48	49	51	dB(A)
	max.	34	38	41	45	42	46	53	52	55	dB(A)
Sound pressure level	med.	30	33	34	39	35	40	48	48	50	dB(A)
	min	23	26	27	32	27	29	39	40	42	dB(A)
Water connection 3R	F	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	Ø
Water connection 1R	F	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	Ø
Water content 3R coil		0,82	0,82	1,26	1,26	1,88	1,88	1,88	2,42	2,42	l
Water content 1R coil		0,22	0,22	0,36	0,36	0,5	0,5	0,5	0,64	0,64	l

NOTES:
* Room Air T=27°C D.B. / 19°C W.B. , IN/OUT water 7°/12°C, nominal air flow-rate; For medium and minimum fan speed, water delivery as in maximum speed.
** Room Air T=20°C D.B. , IN/OUT water 70°/60°C, nominal air flow-rate; for medium and minimum fan speed, water delivery as in maximum speed.
*** Room Air T=20°C D.B. , inlet water 50°C, water delivery as in cooling; Values referred to nominal air flow-rate.
SWL : Sound power levels, referred to 1x10-12 W in dB(A), measured in accordance with Standard ISO 9614 and certified according to the Eurovent certification programme. Eurovent certification (E) only refers to the Total Sound Power in dB(A) which is therefore the only binding acoustic data.
SPL : sound pressure in a 100 m3 place with reverberation time of 0.5 seconds.
(E) Declared data according to the certification programme LCP EUROVENT

4 rows coil data

		15-4	20-4	30-4	40-4	50-4	60-4	80-4	100-4	120-4	
	max.	1400	1760	2790	3580	4050	4890	6450	7450	8200	W
Total Cooling Capacity *	med.	1220	1460	2290	2940	3510	4020	5680	6620	7160	W
	min	900	1090	1700	2200	2500	2980	4000	5020	5250	W
	max.	1050	1305	2060	2580	2950	3540	4950	5580	6210	W
Sensible Cooling Capacity *	med.	890	1050	1640	2070	2510	2900	4200	4850	5330	W
	min	620	770	1200	1560	1770	2130	2910	3600	3820	W
Dehumidifying max speed		500	650	1050	1450	1580	1930	2330	2650	2850	g/h
Water flow rate *		240,8	302,72	479,88	615,76	696,6	841,08	1109,4	1281,4	1410,4	l/h
Water pressure drop		6	9	9	14	14	21	36	19	23	Kpa
	max.	3050	3950	5880	6950	8350	10100	13200	15800	16900	W
Heating Capacity **	med.	2580	3300	4730	5750	7260	8270	11300	13400	14310	W
	min	1900	2400	3600	4430	5460	6080	8450	10250	10500	W
Water flow rate **		262,3	339,7	505,68	597,7	718,1	868,6	1135,2	1358,8	1453,4	l/h
Water pressure drop **		5	8	7	10	11	16	27	15	18	Kpa
Heating Capacity ***		1850	2380	3460	4250	5000	5800	8100	9300	10500	W
Water pressure drop ***		5	8	8	13	12	18	32	16	20	Kpa
N° fans		1	1	1	2	2	2	2	2	2	N°
Max power input motor		35	38	55	76	75	85	144	163	200	W
	max.	45	48	52	54	53	55	61	63	65	dB(A)
Sound power level	med.	39	42	45	47	46	50	58	59	60	dB(A)
	min	32	35	39	41	37	39	48	51	52	dB(A)
	max.	36	39	43	45	44	46	52	54	56	dB(A)
Sound pressure level	med.	30	33	36	38	37	41	49	50	51	dB(A)
	min	23	26	30	32	28	30	39	42	43	dB(A)
Water connecttion 4R	F	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Water content 4R coil		1,09	1,09	1,68	1,68	2,51	2,51	2,51	3,23	3,23	l

NOTES:

* Room Air T=27°C D.B. / 19°C W.B. , IN/OUT water 7°/12°C, nominal air flow-rate; For medium and minimum fan speed, water delivery as in maximum speed.

** Room Air T=20°C D.B. , IN/OUT water 70°/60°C, nominal air flow-rate; for medium and minimum fan speed, water delivery as in maximum speed.

*** Room Air T=20°C D.B. , inlet water 50°C, water delivery as in cooling; Values referred to nominal air flow-rate.

SWL : Sound power levels, referred to 1x10-12 W in dB(A), measured in accordance with Standard ISO 9614 and certified according to the Eurovent certification programme. Eurovent certification (E) only refers to the Total Sound Power in dB(A) which is therefore the only binding acoustic data.

SPL : sound pressure in a 100 m3 place with reverberation time of 0.5 seconds.

> FCS

FAN COIL CASSETTE TYPE

Units Series

Unit type
FCS 2T 2 pipes systems
FCS 4T 4 pipes systems

Unit specifications

Fan coil cassette type unit complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.
The cassette type fan coil unit is a terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).
These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers.
The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in the residential, commercial or industrial context.
Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics of versions

- SUPPORT STRUCTURE: in galvanised steel sheet, insulated externally and internally to prevent heat loss and condensation.
- HEAT EXCHANGE COIL: made with copper pipes arranged in staggered rows and with corrugated aluminium finning, locked by mechanical expansion of the pipes.
- FRONT GRILL: in thermoplastic material, consisting of an attractively designed inlet grill complete with filter and four air-flow diverting fins. Intake occurs in the middle part of the grill, whereas delivery occurs through the manually-adjustable perimeter slots.
- AIR FILTER: situated inside the inlet grill and easily removed, it is made from regenerable materials, cleanable simply by washing.
- CONDENSATE TRAY: in plastic material, of considerable capacity complete with condensate drain pipe sized for elimination of the water even in critical conditions. A device that raises the condensate from the collection tray to the drain level is fitted standard.
- FAN MOTOR: no.1 directly coupled type, the unit is equipped with a three-speed motor with internal thermal protection and a mixed flow fan (axial-centrifugal) in plastic material. Single-phase power supply T=230V.
- ELECTRIC BOARD: fitted inside the unit for easy access during installation, complete with connectors for quick electrical connections.

INSTALLATION OPTIONS

The units have pre-cut side openings allowing the unit to be connected by means of a intake duct to a grill for external air change, or conveying treated air to an adjoining room.

Main accessories/Options

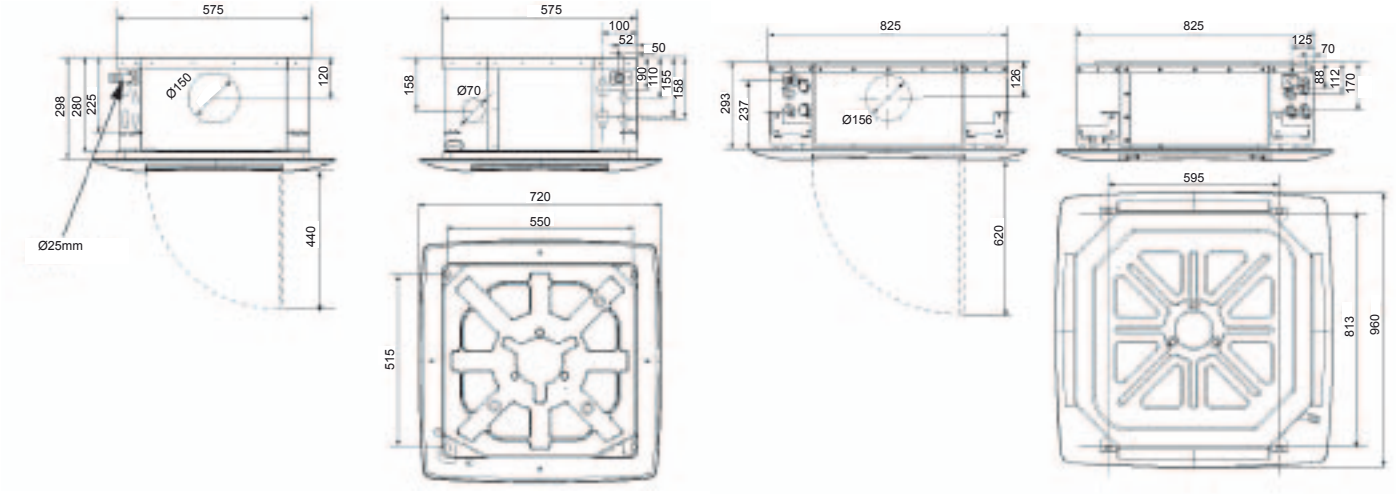
Remote switch
Remote standard thermostat
Remote advanced thermostat
Hot-start consent thermostat
4XUT system
Supplementary tray
Main coil 3-way valve
Heating only supplementary coil
Supplementary coil 3-way valve

NB: USE OF THE VALVE/TRAY IS COMPULSORY WHEN THE UNIT IS USED FOR COOLING.

		04	08	10	12	16	20	04-4T	10-4T	20-4T	
Version				2 Pipe					4 Pipe		
	max	2400	4000	4700	6300	7600	10000	1900	4000	9800	W
Cooling Capacity (*) (E)	med	1800	2850	3500	4500	5100	7100	1430	3050	7300	W
	min	1550	1900	2850	3400	3170	3900	1230	2500	4100	W
Water flow rate (*)		0,11	0,19	0,22	0:30	0:36	0:48	0,09	0,19	0,47	l\s
Water pressure drop(E) (*)		9	12	20	22	14	24	10,8	19,7	30	kPa
	max	3800	5000	6600	8700	10800	13900	-	-	-	W
Heating Capacity (**) (E)	med	3000	4090	4800	6300	7300	10000	-	-	-	W
	min	2600	2410	4050	4700	4300	5400	-	-	-	W
Water flow rate (**)		0,11	0,19	0,22	0:30	0:36	0:48	-	-	-	l\s
	max	7110	9770	11760	14600	18000	24500	1900	4610	9000	W
Heating Capacity (***)	med	5600	8000	8500	10800	13200	17500	1440	3500	7900	W
	min	4850	4700	7200	8200	8400	9850	1240	2730	5100	W
Water flow rate (***)		0,17	0,23	0,28	0,35	0,43	0,6	0:05	0:11	0:22	l/s
Supply						230-1-50					
	max	660	700	850	1100	1300	1750	660	850	1750	m3\h
Air flow rate	med	450	490	600	770	910	1220	450	600	1220	m3\h
	min	360	300	470	550	550	700	360	470	700	m3\h
	max	49	54	57	49	56	63	49	58	63	dB(A)
Sound power level (SWL) (E)	med	38	45	48	40	49	55	38	50	55	dB(A)
	min	33	32	42	34	40	42	33	42	42	dB(A)
	max	41	46	49	41	48	55	41	50	55	dB(A)
Sound pressure level (SPL)	med	30	37	40	32	41	47	30	42	47	dB(A)
	min	25	24	34	26	32	34	25	34	34	dB(A)
	max	70	85	95	85	120	200	70	110	200	W
Motor input power	med	45	55	75	51	75	140	45	75	140	W
	min	35	35	55	33	40	70	35	55	70	W
N° fan		1	n°								
Unit weight + kit grille		21,5	22,5	22,5	46	48	51	21,5	22,5	51	kg
Water connection		3/4	3/4	3/4	1	1	1	3/4	3/4	1	"
Condensation draining connections		25	25	25	25	25	25	25	25	25	mm

NOTES:
* Room Air T=27°C D.B. / 19°C W.B. , IN/OUT water 7°/12°C, nominal air flow-rate; For medium and minimum fan speed, water delivery as in maximum speed.
** Room Air T=20°C D.B. , IN/OUT water 70°/60°C, nominal air flow-rate; for medium and minimum fan speed, water delivery as in maximum speed.
*** Room Air T=20°C D.B. , inlet water 50°C, water delivery as in cooling; Values referred to nominal air flow-rate.
SWL : Sound power levels, referred to 1x10-12 W in dB(A), measured in accordance with Standard ISO 9614 and certified according to the Eurovent certification programme. Eurovent certification (E) only refers to the Total Sound Power in dB(A) which is therefore the only binding acoustic data.
SPL : sound pressure in a 100 m3 place with reverberation time of 0.5 seconds.
(E) Declared data according to the certification programme LCP EUROVENT

Dimensions



TOP FAN
remote control specifications

Remote control with LCD display complete with support bracket for wall fixing. enabling the following functions:
Unit ON/OFF
Operation mode selection
- Auto, Heat, Cool, Fan (only if the valve accessory is present)
Ventilation speed
- Max, Med, Min, Auto
Set Point
Timer

The remote control display shows:
Operation mode
Selected fan speed
Set point value
Timer activation
Time setting

Also available for VHF3

Exposed TOP FAN
fan coil receiver

Positioned on the front panel of the unit, it is complete with Timer LED (yellow), On LED (green) and emergency ON/OFF button and reception zone.
The system is completed with the board inside the unit. The system is supplied already factory-tested and installed.

Ceiling concealed TOP FAN
wall receiver

The receiver is supplied in case of ceiling concealed units and is positioned exposed on the false ceiling. It is complete with Timer LED (yellow), On LED (green) and emergency ON/OFF button and reception zone.
It comes with a multicore cable (max. length 0.8 m) for quick connection and electronic board for installing on the unit. The system is factory-tested, whereas positioning the receiver is up to the installer.

FCS remote control specifications

Remote control with LCD display complete with support bracket for wall fixing. enabling the following functions:
Unit ON/OFF
Operation mode selection
- Auto, Heat, Cool, Fan (only if valve accessory is present)
Ventilation speed
- Max, Med, Min, Auto
Set-Point
Air Sweep for air flow adjustment
Timer

The remote control display shows:
Operation mode
Selected fan speed
Set point value
Timer activation
Time setting
Signal sent symbol
Fin position

> VHF3

CEILING CONCEALED FAN COIL

Units Series

Type unit

VHF3 2T	2 pipes systems
VHF3 4T	4 pipes systems

Unit specifications

Ceiling concealed fan coil, complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

The ceiling concealed fan coil unit terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and are built to adapt to the various types of system design and meet the requirements of highly qualified designers.

The careful design of the main components, refined styling and the flexibility of the product make it suitable for any type of installation in residential, commercial or industrial applications.

Installation therefore only requires the electrical and hydraulic connections.

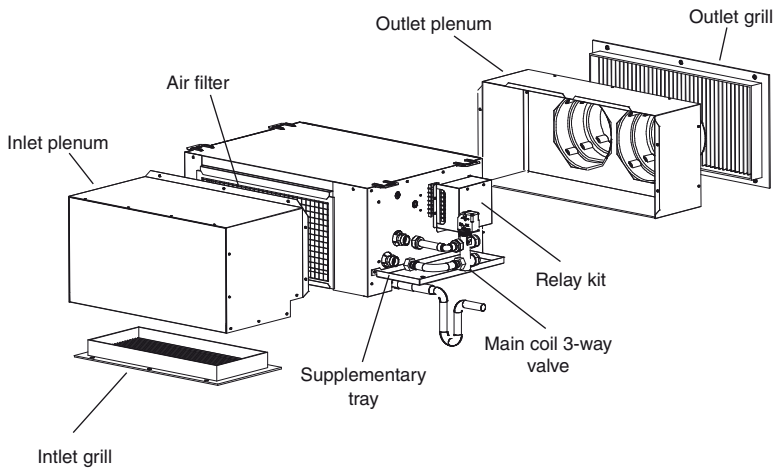
Construction characteristics of versions

- SUPPORT STRUCTURE: in aluzink sheet, lined with a suitable thickness of polyethylene and polyester to prevent heat loss, condensation and for soundproofing.
- AIR FILTER: easily removed from bottom or side, it can be cleaned simply by washing with water.
- HEAT EXCHANGE COIL: made with copper pipes arranged in staggered rows to increase heat exchange efficiency along with aluminium fins, locked by the expansion of the pipes during production. Complete with water inlet/outlet manifolds.
- CONDENSATE TRAY: made in galvanised sheet steel, complete with section for connection to the discharge line.
- FAN MOTOR: direct drive type, the unit is equipped with a three-speed fan motor assembly with internal thermal protection and a startup capacitor always on, with a blade that is statically and dynamically balanced to minimise noise and vibration.
- ELECTRICAL CONNECTIONS: The unit comes complete with a protected electrical terminal block for making the connection to the various available adjustment controls.

Main accessories/Options

Remote switch
Remote standard thermostat
Remote advanced thermostat
Hot-start consent thermostat
4XUT system
Relay Kit
8SF Zone Master control
8SF main power module
8SF local unit
Expansion for systems with 4 pipes
Expansion for electrical resistance management
KNX expansion
Supplementary tray
Main coil 3-way valve
Outlet plenum
Inlet grill
Inlet plenum
Outlet grill
Standard air filter
Air filter Class G2
REM

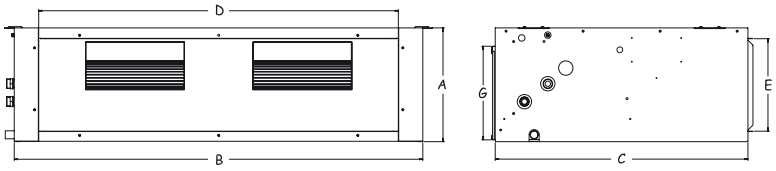
NB: In case of electrical connection of the unit to Ferroli thermostats, the unit must be fitted with the relay kit accessory (KR).

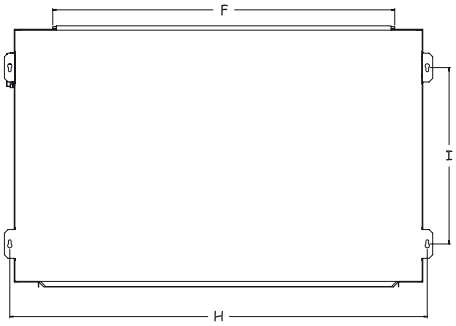


Common data			05	08	10	12	14	19	21	28	
			2T - 4T	2T - 4T	2T - 4T	2T - 4T	2T - 4T	2T - 4T	2T - 4T	2T - 4T	
		Max	800	1.100	1.300	1.750	1.800	2.700	3.400	4.000	m³/h
Air flow rate		Med	630	850	950	1.100	1.150	2.250	2.700	3.400	m³/h
		Min	430	630	730	750	800	1.700	2.100	2.900	m³/h
External static pressure****			50	50	50	50	50	50	50	50	Pa
Supply			230-1-50								V-Ph-Hz
N° fans			1	2	2	2	2	2	2	2	N°
N° motor			1	1	1	1	1	1	1	1	N°
n° speed			3	3	3	3	3	3	3	3	N°
Power input motor			100	109	115	220	225	345	450	730	W
2 - PIPES			**05-2T**	**08-2T**	**10-2T**	**12-2T**	**14-2T**	**19-2T**	**23-2T**	**28-2T**	
		Max	5.800	9.900	10.900	14.300	16.100	22.300	27.200	32.600	W
Heating Capacity *		Med	4.850	7.850	8.550	9.650	10.500	19.200	23.400	29.900	W
		Min	3.600	6.050	6.700	6.900	7.200	15.700	20.200	26.200	W
Water flow rate*		Max	826	1.393	1.703	2.116	2.356	3.285	3.922	4.799	l/h
Water pressure drop *			29	32	40	46	34	42	37	38	kPa
	Total	Max	4.800	8.100	9.900	12.300	13.700	19.100	22.800	27.900	W
	Sensible	Max	3.460	5.600	6.800	8.590	9.540	13.400	16.400	19.700	W
Cooling Capacity ***	Total	Med	4.200	7.150	7.800	9.100	9.800	16.800	20.100	25.600	W
	Sensible	Med	2.950	4.830	5.240	6.100	6.650	11.550	14.100	17.900	W
	Total	Min	3.250	5.700	6.150	6.500	6.950	14.200	17.800	23.700	W
	Sensible	Min	2.200	3.780	4.050	4.280	4.550	9.560	12.250	16.330	W
Wtare flow rate		Max	826	1.393	1.703	2.116	2.356	3.285	3.922	4.799	l/h
Water pressure drop			35	39	49	56	42	52	45	47	kPa
N° Rows coil			3	4	4	4	4	4	4	4	N°
Water content			1,11	2,63	3,11	3,34	4,45	4,67	6	7,51	l
Water connection		F	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Weight unit			20	32	35	48	52	61	68	81	kg
4 - PIPES			**05-4T**	**08-4T**	**10-4T**	**12-4T**	**14-4T**	**19-4T**	**23-4T**	**28-4T**	
		Max	4.050	6.100	7.450	9.450	11.550	14.000	17.900	21.300	W
Heating Capacity **		Med	3.400	4.950	5.800	6.700	8.200	12.300	15.400	18.800	W
		Min	2.600	3.900	4.600	4.800	5.900	10.100	12.600	16.800	W
Water flow rate **		Max	348	525	641	813	993	1.204	1.539	1.832	l/h
Water pressure drop **			34	11	20	10	24	11	30	24	kPa
	Total	Max	3.450	6.700	7.950	9.850	11.700	14.800	18.400	22.100	W
	Sensible	Max	2.850	5.180	6.050	7.700	9.050	11.750	14.520	17.250	W
Cooling Capacity ***	Total	Med	3.100	5.700	6.500	7.500	9.000	13.300	16.200	20.300	W
	Sensible	Med	2.450	4.300	4.840	5.540	6.700	10.350	12.480	15.520	W
	Total	Min	2.500	4.720	5.400	5.500	6.900	11.250	14.050	18.600	W
	Sensible	Min	1.940	3.450	3.940	4.100	4.980	8.450	10.450	14.050	W
Water flow rate***		Max	593	1.152	1.367	1.694	2.012	2.546	3.165	3.801	l/h
Water pressure drop **			36	38	28	48	34	34	36	34	kPa
N° Rows heating coil			1	1	1	1	1	1	1	1	N°
Water content heating coil			0,37	0,66	0,78	0,84	1,11	1,17	1,5	1,88	l
Water connection heating coil		F	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
N° Rows cooling coil			2	3	3	3	3	3	3	3	N°
Water content cooling coil			0,74	1,97	2,33	2,51	3,34	3,5	4,5	5,63	l
Water connection cooling coil		F	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Weight unit			21	33	36	49	53	63	70	83	kg

NOTES:
*** Room Air T=27°C D.B. / 19°C W.B. , IN/OUT water 7°/12°C, nominal air flow-rate; For medium and minimum fan speed, water delivery as in maximum speed.
** Room Air T=20°C D.B. , IN/OUT water 70°/60°C, nominal air flow-rate; for medium and minimum fan speed, water delivery as in maximum speed.
* Room Air T=20°C D.B. , inlet water 50°C, water delivery as in cooling; Values referred to nominal air flow-rate.
**** Units at various speeds without filter

Dimensions





Mod		A	B	C	D	E	F	G	H	I
05	mm	290	640	475	550	235	475	260	665	320
08 - 10	mm	290	1005	650	915	235	950	260	1030	430
12 - 14	mm	319	1135	700	1000	260	950	260	1160	480
19 - 23	mm	360	1330	765	1200	300	1300	320	1355	540
28	mm	360	1635	765	1200	300	1300	320	1660	540

> MERCURY SP
DUCTED FAN COIL

Units Series

Type unit
MERCURY SP horizontal unit

Unit specifications

Ducted fan coil complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

The ducted fan coil unit is a terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers.

The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in the residential, commercial or industrial context.

Installation therefore only requires the electrical and hydraulic connections.

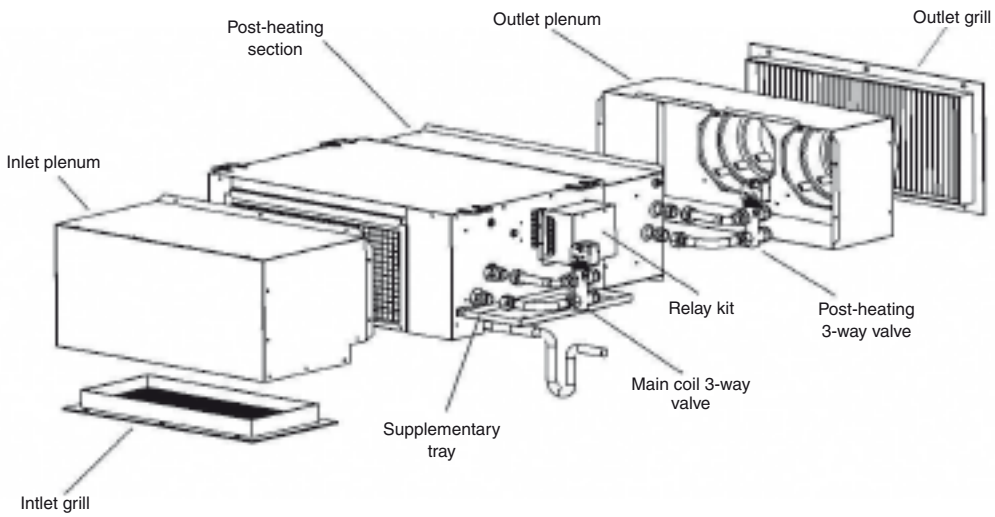
Construction characteristics

- SUPPORT STRUCTURE: in aluzink sheet, lined with a suitable thickness of polyethylene and polyester to prevent heat loss, condensation and for soundproofing.
- AIR FILTER: easily removed from bottom or side, it can be cleaned simply by washing with water.
- HEAT EXCHANGE COIL: made with copper pipes arranged in staggered rows to increase heat exchange efficiency along with aluminium fins, locked by the expansion of the pipes during production. Complete with water inlet/outlet manifolds.
- CONDENSATE TRAY: made in galvanised sheet steel, complete with section for connection to the discharge line.
- FAN MOTOR: direct drive type, the unit is equipped with a three-speed fan motor assembly with internal thermal protection and a startup capacitor always on, with a blade that is statically and dynamically balanced to minimise noise and vibration.
- ELECTRICAL CONNECTIONS: The unit comes complete with protected electrical terminal block for making the connection to the various available adjustment controls.

Main accessories/Options

Remote switch
Remote standard thermostat
Remote advanced thermostat
Hot-start consent thermostat
4XUT system
Relay Kit
8SF Zone Master control
8SF main power module
8SF local unit
Expansion for systems with 4 pipes
Expansion for electrical resistance management
KNX expansion
Supplementary tray
Main coil 3-way valve
Post heating section
Post-heating 3-way valve
Outlet plenum
Inlet grill
Inlet plenum
Outlet grill
Standard air filter
Air filter Class G2

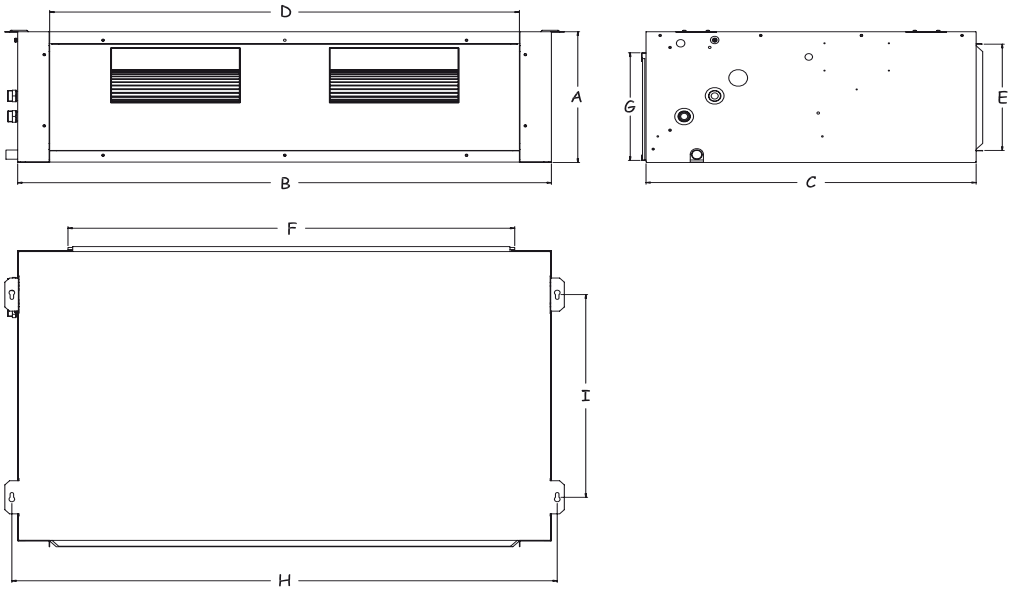
NB: In case of electrical connection of the unit to Ferroli thermostats, the unit must be fitted with the relay kit accessory (KR).



		05	07	11	13	17	19	21	23	
	Max.	5.042	7.909	9.111	10.326	13.327	16.375	20.943	23.118	W
Cooling Capacity *	Med.	4.882	7.423	8.667	9.393	11.847	12.839	20.472	22.502	W
	Min.	4.478	6.208	7.171	8.302	10.163	9.369	19.355	21.063	W
Water flow rate*		870	1.364	1.573	1.782	2.304	2.826	3.613	3.988	L/h
Water pressure drop *		39	38	34	40	40	39	38	34	Kpa
	Max.	5.598	8.158	9.379	10.598	13.571	17.222	22.037	23.950	W
Heating Capacity **	Med.	5.330	7.643	8.766	9.403	11.769	12.440	21.376	23.095	W
	Min.	4.981	6.330	6.855	7.984	9.634	8.508	19.784	21.178	W
Water flow rate **		963	1.404	1.614	1.823	2.335	2.963	3.791	4.120	L/h
Water pressure drop **		36	34	28	36	35	35	34	28	Kpa
	Max.	11.460	16.444	18.906	21.357	27.348	34.741	44.455	48.277	W
Heating Capacity ***	Med.	10.843	15.399	17.660	18.931	23.693	25.033	43.111	46.542	W
	Min.	10.201	12.736	13.785	16.057	19.367	17.082	39.876	42.652	W
Water flow rate ***		986	1.414	1.626	1.837	2.352	2.988	3.823	4.152	L/h
Water pressure drop ***		33	28	26	33	32	33	29	26	Kpa
Nº row coil		3	4	4	4	4	4	4	4	N
Supply					230/1/50					V-F-Hz
	Max.	840	1.200	1.260	1.430	1.700	2.400	3.050	3270	m³/h
Air flow rate	Med.	780	1.016	1.153	1.233	1.436	1.606	2.932	3115	m³/h
	Min.	724	807	868	1.015	1.130	1.039	2.667	2790	m³/h
External static pressure	Max.	90	90	90	90	90	90	90	90	Pa
Nº fans		1				2				n°
n° fan speed					3					n°
Power input motor		230	240	290	332	348	652	683	698	W
Max input current		1,8	1,8	1,8	2,1	2,1	3,7	4,8	4,8	A
	Max.	46	49	50	52	53	55	57	58	dB(A)
SPL - Sound pressure level	Med.	42	45	46	47	48	50	52	53	dB(A)
	Min.	36	38	39	41	41	43	45	45	dB(A)
Connexions de l'eau		3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	“
Water content		1,11	2,63	3,11	3,34	4,45	4,67	6	7,51	l
Weight		24	44	47	52	56	66	73	81	kg

NOTES:
* Room Air T=27°C D.B. / 19°C W.B. , IN/OUT water 7°/12°C, nominal air flow-rate; For medium and minimum fan speed, water delivery as in maximum speed.
** Room Air T=20°C D.B. , IN/OUT water 70°/60°C, nominal air flow-rate; for medium and minimum fan speed, water delivery as in maximum speed.
** lace with reverberation time of 0.5 seconds.

Dimensions



Mod		A	B	C	D	E	F	G	H	I
05	mm	290	640	475	550	235	475	260	665	320
07 - 11	mm	290	1005	650	915	235	950	260	1030	430
13 - 17	mm	315	1135	700	1000	260	950	260	1160	480
19 - 21	mm	360	1330	765	1200	300	1300	320	1355	540
23	mm	360	1635	765	1200	300	1300	320	1660	540

> TCD

HIGH HEAD, DOUBLE PANEL DUCTED FAN COIL

Units Series

Unit type

TCD-H horizontal unit

TCD-V vertical unit

Configuration

2R	with 2-row coil
4R	with 4-row coil
6R	with 6-row coil
4-2R	for 4 pipes system with 4+2-row coil
6-2R	for 4 pipes system with 6+2-row coil

Unit specifications

High head, double panel ducted fan coil units, complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

Unit terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers.

The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in the residential, commercial or industrial context.

Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics of versions

- SUPPORT STRUCTURE: the frame of the units is in UNI9006/1 Anticorodal 63 extruded aluminium alloy profiles, connected with three-way joints in preloaded nylon and sandwich closure panels, with exposed side in white-grey pre-painted steel and internal side in galvanised steel sheet; unit thermal insulation/soundproofing is obtained through the injection of polyurethane of density not less than 45 kg/m^3.
- AIR FILTER: easily removed from side, it can be cleaned simply by washing with water, and is G3 efficiency class.
- HEAT EXCHANGE COIL: made with copper pipes arranged in staggered rows to increase heat exchange and aluminium fins, locked by mechanical expansion of the pipes. Complete with water inlet/outlet manifolds.
- CONDENSATE TRAY: in stainless steel sheet, complete with section for connection to the discharge line.
- FAN MOTOR: a directly coupled type, the unit is equipped with dual-intake centrifugal fans and directly coupled three-speed motor with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration. All the electric fans are removable by removing the side panel.
- ELECTRICAL CONNECTIONS: The unit comes complete with protected electrical terminal block for making the connection to the various available adjustment controls.

Main accessories/Options

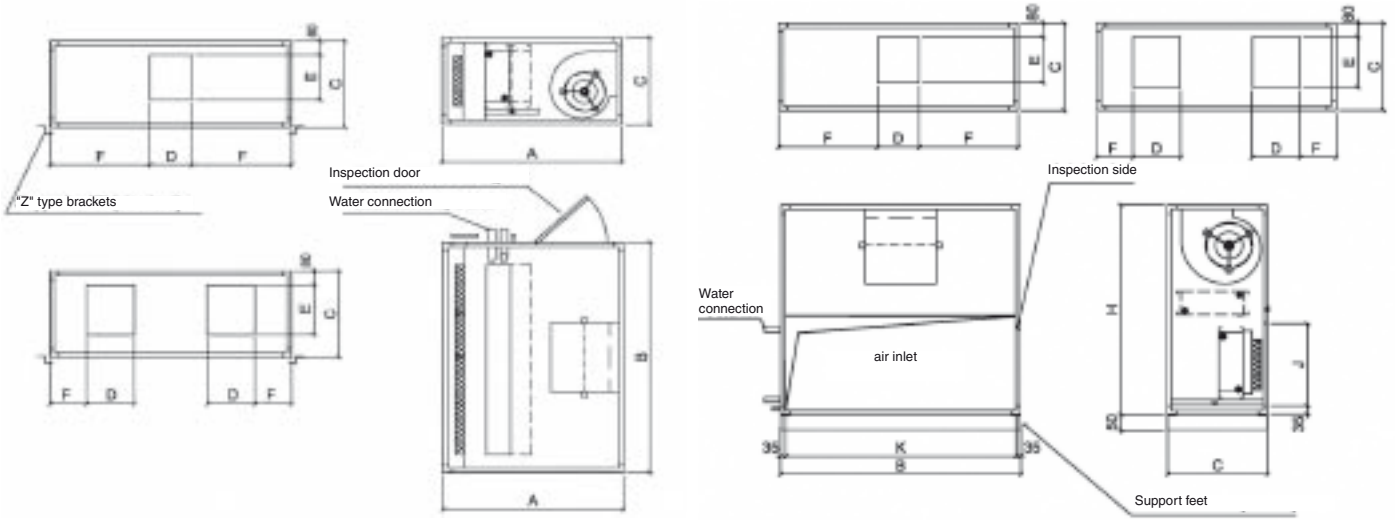
Remote switch
Remote standard thermostat
Remote advanced thermostat
Hot-start consent thermostat
4XUT system
Relay Kit
Air inlet damper
Inlet plenum for vertical execution
Inlet grill
Plenum with 1 damper
Plenum with 2 damper
Outlet plenum
Remote COM3 switch
Remote PCO thermostat

NB: In case of electrical connection of the unit to Ferroli thermostats, the unit must be fitted with the relay kit accessory (KR).

Model	11	21	31	41	
Air flow rate (max speed)	1150	2100	3100	4100	m³/h
External static pressure (Δ)	185	320	330	280	Pa
Sound presssure level (***)	45	55	51	67	dB(A)
Horizontal unit weight TCD-H	97	102	129	168	kg
Vertical unit weight TCD-V	102	106	134	173	kg
Fan					
Power input	240	370	550	550	W
Max input current	2,3	3,5	4,7	4,7	A
n° speed / poles/ Poli	3 / 4	3 / 4	3 / 4	3 / 4	n°
Enclosure protection / Insulation class		20 - B			IP
Power supply		230 / 1 / 50			V / ph / Hz
Filter	G3	G3	G3	G3	classe
Filter medium pressure drop	25	35	40	30	Pa
TCD 2R	**11**	**21**	**31**	**41**	
Heating capacity (**)	8,64	13,8	20,9	27,7	kW
Water flow rate	0,76	1,21	1,84	2,44	m³/h
Water pressure drop	9,4	4,5	4,7	9,8	kPa
Air pressure drop	17	27	25	27	Pa
Water connections	1/2”	3/4”	3/4”	1”	Gas
TCD 4R	**11**	**21**	**31**	**41**	
Heating mode					
Heating capacity (**)	13,3	21,5	32,9	43,9	kW
Water flow rate	1,17	1,89	2,9	3,86	m³/h
Water pressure drop	5,9	3,2	3,6	6,5	kPa
Air pressure drop	35	56	51	55	Pa
Cooling mode					
Cooling capacity total/sensible	6,40 / 4,73	8,54 / 7,25	14,4 / 11,5	20,1 / 15,7	kW
Water flow rate	1,1	1,46	2,47	3,44	m³/h
Water pressure drop	7,3	3	3,2	7,3	kPa
Air pressure drop	42	60	60	62	Pa
Water connections	3/4”	1”	1”	1” 1/4	Gas
TCD 6R	**11**	**21**	**31**	**41**	
Cooling capacity total/sensible	8,18/ 5,72	13,2 / 9,63	19,2 / 14,2	26,5 / 19,0	kW
Water flow rate	1,4	2,26	3,29	4,54	m³/h
Water pressure drop	5,5	4,4	2,6	5,9	kPa
Air pressure drop	49	78	72	83	Pa
Water connections	1”	1”1/4”	1”1/4	1”1/2	Gas

NOTE:
(*) Cooling capacity Room air 27°C D.B. UR 48% - water IN/OUT 7/12°C - Nominal air flow rate
(**) Heating capacity Room air 20°C D.B. - water IN/OUT 70/60°C - Nominal air flow rate
(***) Sound pressure level referred to 1 metre from inlet in free field

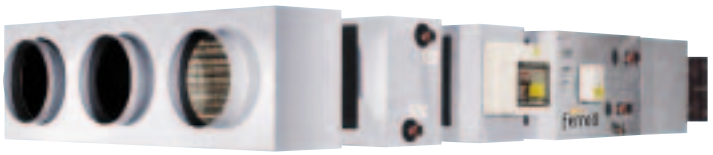
Dimensions



Modell		A	B	C	D	E	F	Model		B	C	D	E	F	H	K	J
TCD-H 11	mm	1000	850	500	232	261	309	**TCD-H 11**	mm	850	500	232	261	309	1100	780	430
TCD-H 21	mm	1000	1100	500	232	261	434	**TCD-H 21**	mm	1100	500	232	261	434	1100	1030	430
TCD-H 31	mm	1100	1350	560	265	289	542	**TCD-H 31**	mm	1350	560	265	289	542	1200	1280	490
TCD-H 41	mm	1100	1700	560	232	261	320	**TCD-H 41**	mm	1700	560	232	261	309	1200	1630	490
TCD-H 54	mm	1100	1700	560	265	289	292	**TCD-H 54**	mm	1700	560	265	289	292	1200	1630	490

> TCX

MODULAR HIGH HEAD DUCTED FAN COIL



Units Series

Unit type

TCX horizontal unit

Configuration

TCX 2R only heat with 2-row coil (fig. A)

TCX 4R heat and cool with 4-row coil (fig. A)

TCX 6R heat and cool with 6-row coil (fig. A)

TCX 4+2R 4 pipes systems with 4+2-row coil (fig. B)

TCX 6+2R 4 pipes systems with 6+2-row coil (fig. B)

TCX 6R+S* 4 pipes systems with 6+4-row coil (fig. B)

TCX 4R+S* with 4-row coil + drop separator (fig. C)

Unit specifications

Modular high head ducted fan coil, complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

Fan coil unit terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers. The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in the residential, commercial or industrial context.

Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics of versions

- STRUCTURE: in steel profiles and panels with double shell in prepainted steel sheet, insulated internally with 10 mm thick sound-absorbing material for versions 10 to 40 and 20 mm thick for versions 50 and 60. Inspection and servicing are guaranteed by the door located in the bottom part of the unit.
- FILTER: made with corrugated synthetic septum cells class G3 (ponderal efficiency 85% - EU3).
- HEAT EXCHANGER: copper/aluminium type and copper manifolds.
- CONDENSATE TRAY: in galvanised steel, equipped with a system enabling very easy removal directly from the inspectionable side, without having to disassemble the unit.
- FANS: dual-intake centrifugal and forward wheel blades, statically and dynamically balanced, directly coupled to three-speed single-phase motor and mounted on vibration-mounting hard rubber supports.
- ELECTRICAL CONNECTION PANEL: positioned on the unit, it comes fully wired and complete with relay card for power control of electric fans.

Main accessories/Options

Remote COM3 switch

Remote PE+PC thermostat

Inlet grill

Air inlet damper

Mixing chamber 2 dampers

Air inlet silencer

Soft pocket filter

Pack humidification thick. 100 mm, complete with water distributor and drip separator

Prearrangement for steam humidification

Water post-heating coil

Electric post-heating coil

Air outlet silencer

Air outlet plenum with circular connections

Air outlet plenum

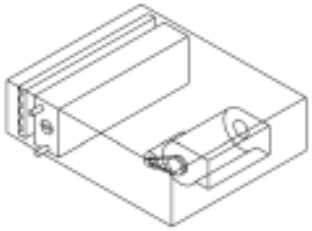


fig.A

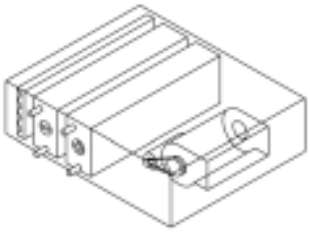


fig. B

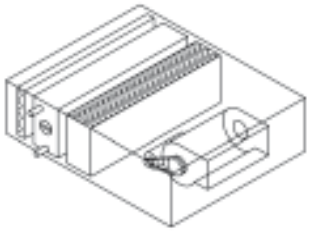


fig. C

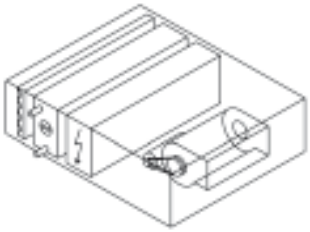
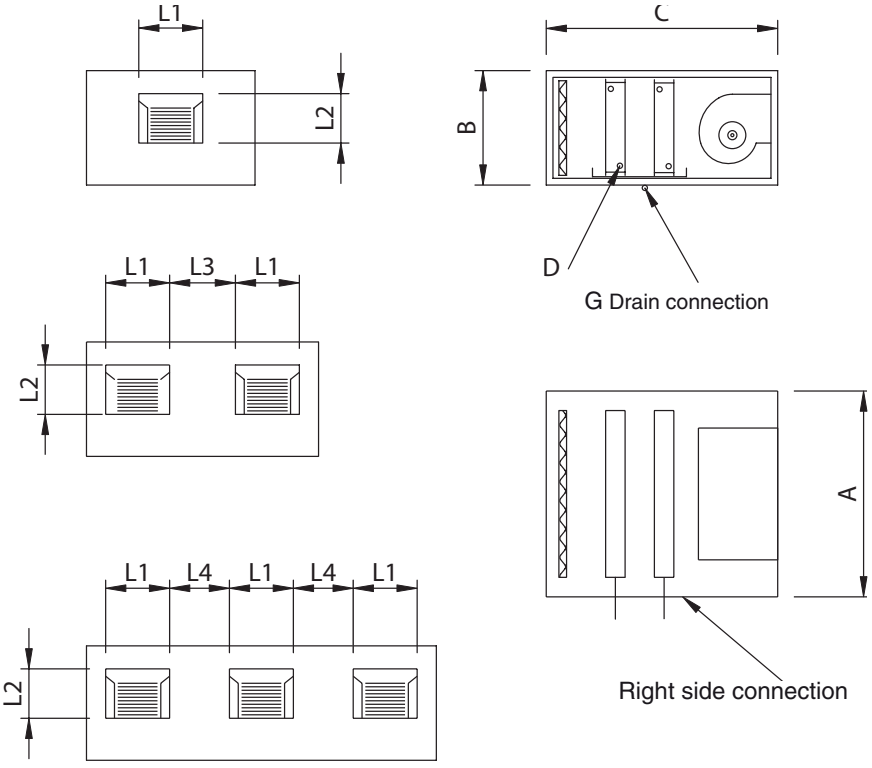


fig. D

	10	20	25	30	40	50	60	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
Sound pressure level(****)	51	55	55	57	58	57	59	dB(A)
Power input motor	147	350	700	700	700	840	1260	W
Power supply				230 / 1 / 50				V/ph/Hz
Fan speed / Poles	3/4	3/4	3/4	3/4	3/4	3/4	3/4	
Enclosure protection / Insulation class	20 / B	55 / F	55 / F	55 / F	55 / F	20 / B	20 / B	IP /
TCX 2R	**10**	**20**	**25**	**30**	**40**	**50**	**60**	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
External static pressure	174	183	179	191	188	175	181	Pa
Heating								
Heating Capacity (**)	9,5	18,5	24,2	27,7	33,3	34,9	41,2	kW
TCX 4R	**10**	**20**	**25**	**30**	**40**	**50**	**60**	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
External static pressure	150	150	150	150	150	150	150	Pa
Cooling								
Cooling capacity Total(*)	6,04	12,1	15,7	18,2	21,6	24,1	32,5	kW
Sensible cooling capacity (*)	4,45	8,9	11,6	13,6	16,1	19,7	25,6	kW
Heating								
Heating Capacity (**)	13,8	27,7	35,8	42,5	50,3	58,1	71,3	kW
Heating Capacity (***)	8,04	16,1	20,9	24,6	29,2	33,4	41,5	kW
TCX 6R	**10**	**20**	**25**	**30**	**40**	**50**	**60**	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
External static pressure	125	119	125	115	121	128	123	Pa
Cooling								
Cooling capacity Total(*)	7,08	14,3	18,5	21,9	26,2	34,3	42,1	kW
Sensible cooling capacity (*)	5,04	10,2	13,2	15,7	18,7	24,6	30,6	kW
Heating								
Heating Capacity (**)	14,9	30,5	39,1	47,1	55,7	67	83,3	kW
Heating Capacity (***)	8,85	18	23,2	27,8	33	39,7	49,4	kW

NOTE:
(*) Cooling capacity Room air 27°C D.B. RH 48% - water IN/OUT 7/12°C - Nominal air flow rate
(**) Heating capacity Room air 20°C D.B. - water IN/OUT 70/60°C - Nominal air flow rate
(***) Heating capacity Room air 20°C D.B. - water IN/OUT 50°C wtare flow rate like cooling mode - Nominal air flow rate
(***) Sound pressure level referred to 1 metre from inlet in free field

Dimensions



Model	10	20	25	30	40	50	60
A	710	1070	1400	1400	1680	1780	2000
B	390	390	390	390	390	480	480
C	850	850	850	850	850	960	960
D 2 R	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
D 4 R	3/4"	3/4"	1"	1"	1"	1"	1 1/4"
D 6 R	3/4"	1"	1"	1"	1 1/4"	11/4"	1 1/4"
G	20	20	20	20	20	20	20
L1	240	306	240	240	306	306	306
L2	216	270	216	270	270	270	270
L3	-	-	400	300	400	435	-
L4	-	-	-	-	-	-	285
N1	670	1030	1360	1360	1640	1720	1940
N2	350	350	350	350	350	420	420

> TCT
LARGE CAPACITY FAN COIL

Units Series

Unit type

TCT-H horizontal unit
TCT-V vertical unit

Configuration

2R	with 2-row coil
4R	with 4-row coil
6R	with 6-row coil
4-2R	4 pipes systems with 4+2-row coil
6-2R	4 pipes systems with 6+2-row coil

Unit specifications

Large capacity fan coil, complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

Fan coil unit terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers. The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in commercial or industrial context.

Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics of versions

- SUPPORT STRUCTURE: the frame of the units is in UNI9006/1 Anticorodal 63 extruded aluminium alloy profiles, connected with three-way joints in preloaded nylon and sandwich closure panels, with exposed side in white-grey pre-painted steel and internal side in galvanised steel sheet; unit thermal insulation/soundproofing is obtained through the injection of polyurethane of density not less than 45 kg/m^3.
- AIR FILTER: removable sideways, it can be regenerated simply by washing, and is G3 efficiency class.
- HEAT EXCHANGE COIL: made with copper pipes arranged in staggered rows and with corrugated aluminium finning, locked by mechanical expansion of the pipes. Complete with water inlet/outlet manifolds. The coil holding section provided for on the TCT units is arranged to house heating and/or cooling coils: the section is designed to hold two coils in horizontal and vertical models. The hot water coils are 2-row or 4-row whereas for cooling they can be 4-row or 6-row with chilled water. The standard executions provide for oblique fitting of the cooling coil in vertical models and horizontal fitting of the heating coil, and vertical fitting of both coils in horizontal models.
- CONDENSATE TRAY: in stainless steel sheet, complete with section for connection to the discharge line.
- FAN MOTOR: ventilating section designed to limit fan noise as much as possible. The motor-fan assembly is isolated from the structure by means of suitable shock-absorbers on the base and is complete with neoprene vibration-mounting joint. The centrifugal fans installed are dual-intake with forward blades, statically and dynamically balanced. Coupled-type fans are installed for sizes 100, 130 and 175. Motor-fan coupling is by means of variable-pitch pulleys and V belts for all sizes. Careful selection has enabled high efficiencies to be obtained. The electric motors are 4-pole, externally ventilated and class F isolated with IP55 protection rating, fixed on special guides enabling belt tension adjustment. The use of variable-pitch drive pulleys enables the number of revolutions and therefore the pressure to be adjusted to system requirements.

Main accessories/Options

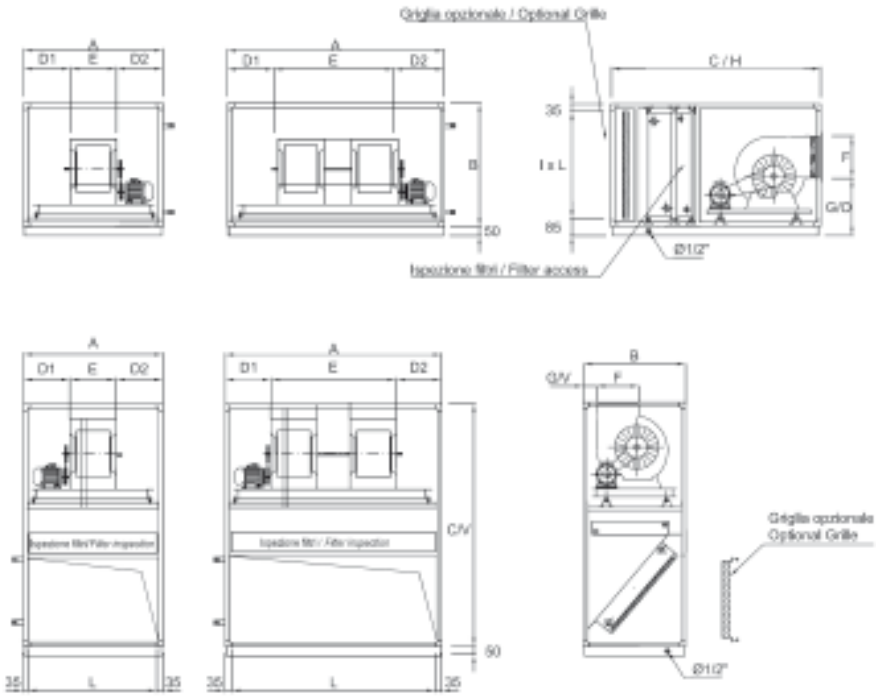
Inlet grill
Air inlet damper
Inlet plenum for vertical execution
Plenum with 1 damper
Plenum with 2 dampers
Outlet plenum

UNIT TCT/H - TCT/V	30	50	70	100	130	180	
Air flow (MIN – MAX)	2300-3800	3900-6700	6300-8100	8200-11000	11000-15000	15000-20000	m³/h
Air flow rate nominal	3000	5300	7200	9600	13000	17500	m³/h
Total static pressure (Δ)	150-370	180-350	250-340	250-375	260-350	250-400	Pa
Sound pressure level(*)	58	73	70	68	71	69	dB(A)
Horizontal unit weight TCT-H	197	240	260	360	380	580	kg
Vertical unit weight TCT-V	220	268	290	380	410	550	kg
Fan							
Power input	0,75	1,5	2,2	2,2	4	5,5	kW
N° Fans / Poles	1/4	1/4	1/4	1/4	1/4	1/4	n°
Power supply			400 / 3 / 50				V/ph/Hz
TCT 2R	**30**	**53**	**72**	**95**	**130**	**175**	
Heating Capacity (*)	35,2	53	69,9	95,8	130	178	kW
Water flow rate	3,09	4,66	6,13	8,42	11,3	15,6	m³/h
Water pressure drop	9	4	8	10	12	23	kPa
Air pressure drop	18	32	38	35	35	39	Pa
Water connection	1”1/2	1”1/2	1”1/2	1”1/2	1”1/2	1”1/2	Gas
TCT 4R	**30**	**50**	**70**	**100**	**130**	**180**	
Heating							
Heating Capacity (*)	52,7	84,8	112	153	206	283	kW
Water flow rate	4,63	7,44	9,91	13,4	18,1	24,8	m³/h
Water pressure drop	15	15	27	33	41	45	kPa
Air pressure drop	32	52	57	51	53	58	Pa
Cooling							
Cooling capacity total/sens (**)	31,2 / 17,8	46,5 / 27	62,7 / 36,4	86,9 / 50,5	117 / 68,1	161 / 91,8	kW
Water flow rate	5,2	7,8	10,5	14,5	19,6	26,9	m³/h
Water pressure drop	24	20	35	40	45	80	kPa
Air pressure drop	51	75	90	82	85	86	Pa
Water connection	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	Gas
TCT 6R	**30**	**50**	**70**	**100**	**130**	**180**	
Cooling capacity total/sens (**)	36,2 / 19,9	60,7 / 34	78,3 / 43,9	108 / 60,6	146 / 81,8	200 / 110	kW
Water flow rate	6	10,1	13,1	18,1	24,4	33,5	m³/h
Water pressure drop	15	42	27	35	44	71	kPa
Air pressure drop	60	90	95	95	96	90	Pa
Water connection	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	2”	Gas

(•) Inlet air 0 °C, water IN/OUT 70/60 °C. max speed air flow.
(••) Inlet air 32 °C, RH 50%. water IN/OUT 7/12 °C. max speed air flow.
(*) Referred to the fan: deduct the pressure drop of the selected components in order to get the external static pressure.

(**) Sound pressure level: data referred to 1,5 metres from inlet in free field. The actual operation noise level generally differs from the values shown in the table, depending on operating conditions, reflected noise and surrounding noise.

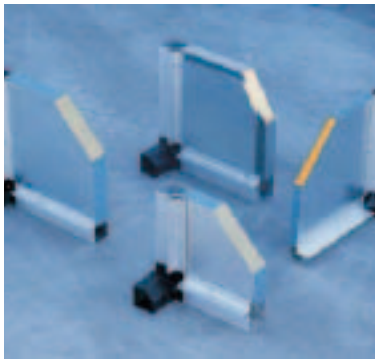
Dimensions



Model		30	50	70	100	130	180
A	mm	1180	1420	1660	1780	1940	2300
B	mm	770	770	770	920	1100	1100
C/H	mm	1290	1290	1290	1290	1290	1290
C/V	mm	1540	1540	1540	1830	2010	2090
D1	mm	418	505	625	222	383	392
D2	mm	418	505	625	428	427	568
E	mm	344	410	410	1130	1130	1340
F	mm	304	354	354	354	354	417
G/H	mm	360	390	390	390	390	410
G/V	mm	150	150	150	105	105	105
I	mm	700	700	700	850	1030	1030
L	mm	1110	1350	1590	1710	1870	2230

> FTP
AIR HANDLING UNITS

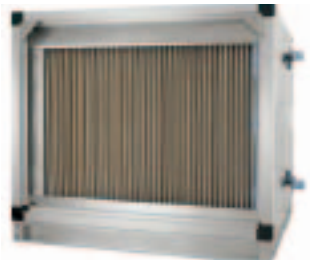
The FTP-type handling units represent an important contribution to improving our working environments.
The result of FERROLI's professionalism and many years' experience, they make an important reference point.
The Quality of construction and the components guarantees reliability, functionality and efficiency. Designed to work at low, medium and high pressure, FERROLI FTP units are built with a modular system providing for 18 sizes for a wide range of capacities.



STRUCTURE: Made with strong framework in extruded UNI 9006 anodised aluminium sections, joined with angle joints in die-cast aluminium or nylon panels with double shell and insulated with high density (80-100 kg/m^3) mineral wool or polyurethane foam with thickness 23 or 50 mm, with normal profiles or a heat barrier. The panels can be:
- galvanised steel sheet
- prepainted
- peraluman
- AISI 304 stainless steel sheet.

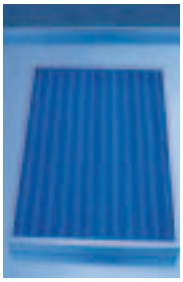
The panels are fixed to the frame with galvanised steel or stainless steel screws and are equipped with self-adhesive type seals. The inspection panels are fitted on hinges and provided with double closing handles (internal and external).

BASE: With a continuous beam in heavy galvanised steel sheet, press bent with sections with a high structural rigidity which ensure safe transport and handling on site.



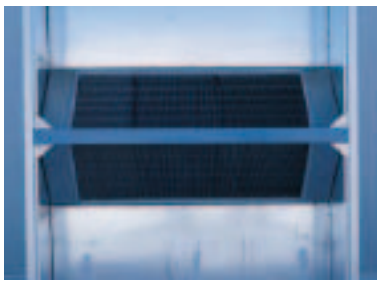
ELECTRIC COILS: The electric coils have immersion-type heaters with one or more stages, complete with connection panel and safety thermostat.

COLLECTION TRAYS: These can be in galvanised steel or AISI 304 stainless steel sheet, provided with one or more threaded load/discharge manifolds.



AIR FILTERS: This selection is all-important to ensure the high Quality of the treated air. The types available:
- roll filters
- pleated filter cells
- soft or rigid pocket filters
- absolute filters
- activated carbon filters

Efficiency certified in conformity with the main standards(EUROVENT, AFI, ASHRAE, NSB etc.).



RECUPERATOR: static-type cross flow with sealed aluminium (or stainless steel) plates in order to guarantee no contact between the expelled air and that introduced inside the plant, so as to enable easy servicing. Complete with equalising dampers for creating mixing chambers or bypass for operation with outside air introduction, recirculation or free-cooling. Rotary type, with rotating drum, are available on request complete with devices for controlling rotation speed.

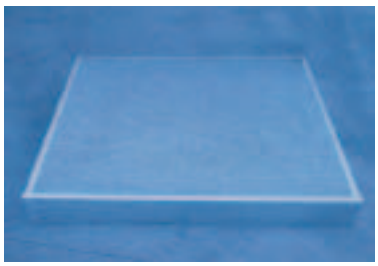
DAMPERS: As a standard version they have a galvanised sheet frame and extruded aluminium fins, complete with seal, moved by nylon wheels located inside the damper and provided with shaft for applying the servo control. Single dampers for outside air intake, mixing chambers with two dampers and mixing chambers with three dampers can be specified.

Service

AIR FTP

The FERROLI design engineers team have prepared the FTP 2010 AIR selection and design software to quickly and easily obtain an operational, construction layout and financial data of the air treatment system.
There is also the selected choice of accessories the printing of the description of the units pecifications and a complete technical data sheet.
A sales tool much appreciated by professionals for its easy use and prompt answers.

For further information, contact your local Ferroli Industrial Climate Control Branch.



- HEAT EXCHANGE COILS: Removable-type for operation with water, mixture with glycol, direct expansion or steam, made with frame in pressed steel sheet, tested at a pressure of 30 Ate. In the standard version they are made with copper pipes and aluminium finned pack, mechanically expanded. Available on request:
  - steel pipe
  - stainless steel pipe
  - copper finned pack
  - tinned copper finned pack.

- HUMIDIFICATION: Sections for humidification systems are provided for as follows:
  - WITH STEAM: created through the installation of an independent steam producer or the assembly of distributors for system steam.
  - WITH NOZZLES: commonly called "washer", humidification is created with a system of self-cleaning spray nozzles, fitted on one or two trains. The system provides for a double sealed chamber and can be supplied with expendable water or with a recirculating pump.
  - WITH PACK: created with a honeycomb pack in cellulose impregnated with phenolic resins of thickness 100 or 200 mm, complete with metal holding frame and distributor for water in the upper part. It can be with expendable water or with a recirculating pump with filler valve, overflow or bleed-off.

- FANS: Dual-intake centrifugal type with forward or backward blades, with the wheel statically and dynamically balanced manufactured to the values required by the specification. They normally use bearings lubricated for a service life of at least 50,000 hours.

- MOTORS: Three-phase induction with cage rotor, IP55 protection rating and class F windings. Conforming to Standards IEC 34-1 and IEC 72 (CEI 2 - 3 no. 355 - UNEL 131132-71-B3 UNEL 13118-71); they also meet the national prescriptions (VDE, NFC, NBNC, BS, SEV, NEN, etc.). Mounted on a slide enabling fixing of the drive belt tension. The motor-fan assembly is mounted on hard rubber supports to absorb rotation vibrations.

- DRIVES: By means of belts and V pulleys with taper lock bush. All the pulleys, with one or more races, balanced, are in cast iron with galvanic surface treatment. Variable diameter pulleys can be fitted on request.

- VIBRATION-MOUNTING JOINTS: They are normally fitted between the fan mouth and the delivery panel, but can also be arranged on all the channel connection flanges; the fabric used is “class 1” self-extinguishing.

- SILENCERS: They can be installed inside or outside the unit located in delivery or intake and are essential for suppressing the noise mainly produced by the fan. Supplied in different lengths of 750 to 2000 mm, they have sound-absorbing septums, made with multiple layers of mineral wool held by a perforated metal sheet; the outer surfaces of the septums (in direct contact with the air) are covered with a glass fibre film to prevent flaking.

> RFA

PACKAGED AIR CONDITIONERS AND HEAT PUMPS ROOF TOP FOR OUTDOOR INSTALLATION

Available range

Unit type

PC Heat pump
(reversible on the refrigerant side)

Constructive configurations

VB Base version
V1 1 damper version
V2 2 dampers version
V2 3 dampers version

Acoustic setting up

AB Base setting up
AS Low noise setting up

Unit description

This series of packaged air conditioners and heat pumps (roof top) satisfies the cooling and heating requirements of medium and large buildings (commercial centres, ipermarkets, cinemas, outlets, offices, canteens, restaurants ...)

All the units are suitable for outdoor installation and can be applied to plants realized with various type of air ducts.

Each model is available in various constructive configurations and can be equipped with a large range of accessories in order to fit the different installation requirements.

The region in contact with the treated air, easily accessible, is realized with perfectly washable metal surfaces, externally insulated in order to minimize the thermal losses and to avoid condensate generation both on the internal part and the external part of the structure.

The refrigerant circuit, contained in a compartment protected by the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports.

Each compressor is placed on an independent refrigerant circuit in order to keep a constant ratio between the sensible cooling power and total cooling power also at partial loads and to guarantee a better treatment of the air besides a greater reliability.

Each refrigerant circuit is equipped with thermostatic expansion valves, reverse cycle valve, axial fans with safety protection grilles, finned coils made of copper pipes and aluminium louvered fins and high and low pressure switches.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

All the units are supplied with an outdoor temperature sensor, already installed on the unit.

All the units are provided with a phase presence and correct sequence controller device. All the units are accurately built and individually tested in the factory.

Only electric, aeraulic and hydraulic connections are required for installation.

Options

Air flow position
- upwards / frontal
- downwards

Internal fan
- standard
- upsized
- reduced

Heating integration
- hot water coil
  (2 or 3 rows with pipes or 3 way valve)
- electrical heater coil
  (standard or upsized)
- condensing gas heating module
  (standard or upsized)

Air flow silencers

External fans control
- on-off control
- modulating control (condensation / evaporation control)

Enthalpic free cooling

Air quality control (CO_2)

Special filters
- rigid pockets filters (F6 - F7 - F8 - F9)
- rigid pocket filters with active carbons

Filters differential pressure switch

Droplets separator

Accessories

Spring vibration dampers

External coils protection grilles

High and low pressure gauges

Remote thermostat

Remote control

Modbus serial interface on RS485

Programmer clock

Phase sequence and voltage controller

Roof curb

NOMINAL performances

PC	Base setting up (AB) Low noise setting up (AS)	35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
A35A27	Total cooling capacity	35,5	46,3	57,7	71,0	92,3	113	142	184	226	kW
	RST *	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	-
	Power input	10,9	14,0	17,7	22,5	28,8	36,6	46,6	59,5	73,7	kW
	EER	**3,26**	**3,31**	**3,26**	**3,16**	**3,20**	**3,09**	**3,05**	**3,09**	**3,07**	**-**
	Air flow rate plant side	6200	8100	10000	11000	14500	17000	22500	29000	35000	m³/h
	Available static head plant side	200	200	200	200	200	200	200	200	200	Pa
A7A20	Heating capacity	36,7	47,8	59,5	73,9	95,9	118	148	192	236	kW
	Power input	11,2	14,4	18,2	23,0	29,5	37,5	47,7	60,9	75,5	kW
	COP	**3,28**	**3,32**	**3,27**	**3,21**	**3,25**	**3,15**	**3,10**	**3,15**	**3,13**	**-**
	Air flow rate plant side	6200	8100	10000	11000	14500	17000	22500	29000	35000	m³/h
	Available static head plant side	200	200	200	200	200	200	200	200	200	Pa

Data declared according to **EN 14511**. The values are referred to units without options and accessories operating with 100% return air.
* RST = ratio between sensible cooling capacity and total cooling capacity.

A35A27 = source : air in 35°C d.b. / plant : air in 27°C d.b. 19°C w.b.
A7A20 = source : air in 7°C d.b. 6°C w.b. / plant : air in 20°C d.b.

Acoustic performances

	Base setting up (AB)	35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
	Sound power level	84	85	85	87	87	88	90	92	93	dB(A)
	Sound pressure level at 1 metre	67	67	68	69	69	70	71	73	74	dB(A)
	Sound pressure level at 5 metres	58	58	59	60	61	61	63	65	66	dB(A)
	Sound pressure level at 10 metres	53	53	54	55	56	56	58	60	61	dB(A)
	Low noise setting up (AS)	**35.1**	**45.1**	**55.1**	**70.2**	**90.2**	**110.2**	**140.2**	**180.2**	**220.2**	
	Sound power level	81	82	82	84	84	85	87	89	90	dB(A)
	Sound pressure level at 1 metre	64	64	65	66	66	67	68	70	71	dB(A)
	Sound pressure level at 5 metres	55	55	56	58	58	59	60	62	63	dB(A)
	Sound pressure level at 10 metres	50	50	51	53	53	54	55	57	58	dB(A)

Performances referred to units with VB constructive configuration (base version) operating in cooling mode at NOMINAL conditions A35A27 with STANDARD air flow rate and available static head.
Unit placed in free field on reflecting surface (directional factor equal to 2) with air inlet and outlet connections ducted for 2 metres.
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	PC	10	50	-10	22	°C
Return air inlet temperature	PC	15	37	5	22	°C

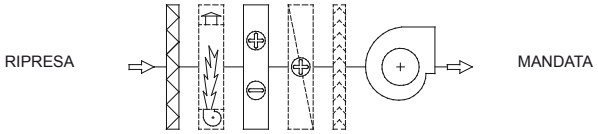
TECHNICAL DATA	35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	n°
Plant side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
External fans type	axial	axial	axial	axial	axial	axial	axial	axial	axial	-
N° external fans	2	2	2	4	4	4	4	4	4	n°
Internal fans type	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	-
N° internal fans	2	2	2	2	2	2	2	2	2	n°

HEATING INTEGRATION		35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
Electrical heater coil	standard	9,0	9,0	9,0	18,0	18,0	18,0	36,0	36,0	36,0	kW
	upsized	18,0	18,0	18,0	31,5	31,5	31,5	63,0	63,0	63,0	kW
Condensing gas heating module	standard	44,8	44,8	44,8	93,4	93,4	93,4	186,8	186,8	186,8	kW
	upsized	54,0	54,0	54,0	145,0	145,0	145,0	290,0	290,0	290,0	kW

CONSTRUCTIVE CONFIGURATIONS

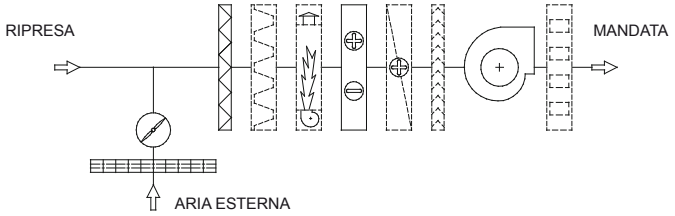
Each model can be supplied in different constructive configurations in order to satisfy the application requirements that can be necessary for the plants. The various versions, obtained adding to the base version some modules, are always supplied already assembled, wired and tested in the factory. All the versions can be arranged with standard air flow position (frontal for the models of frame 1 and 2 and upwards for the models of frame 3) or with downwards air flow position. The dotted components are accessories.

VB - Base version



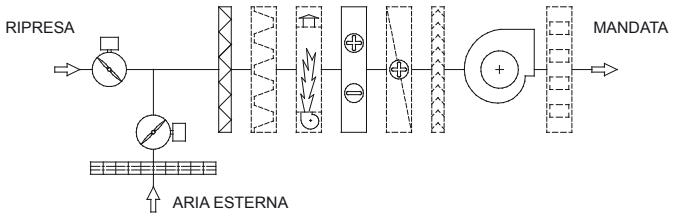
It only allows to operate with all return air. It contains the standard filtering section and the air-refrigerant exchange coil that allows the heating, cooling and dehumidification processes to be performed.
It is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil.

V1 - 1 damper version



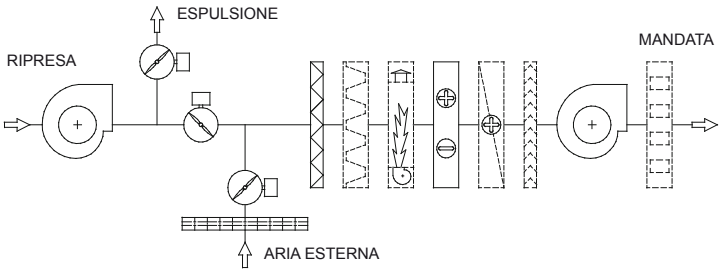
It allows to operate with a percentage of outdoor fresh air, adjustable manually setting the damper placed on the adding module. The outdoor air inlet is equipped with a rain protection cap and a metal safety grille. The expulsion from the conditioned ambient of an air flow rate equal to the outdoor fresh air flow rate must be realized independently from the unit by means of overpressure openings or other extraction devices.
In the adding module can be placed various type of special filters in order to complete the standard filtering section.
Also in this version it is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil.
Downstream the internal fans, air flow silencers can be installed to reduce the noise transmitted to the conditioned ambients through the air ducts (only for the models of frame 1 and 2).

V2 - 2 dampers version



The presence of two motorized dampers managed by the controller of the unit allows to operate with a minimum percentage of outdoor fresh air (adjustable through the user interface) and to perform thermal free cooling.
The outdoor air inlet, equipped with a rain protection cap and a metal safety grille, is designed for 100% of the total air flow rate and allows to operate in free cooling with all outdoor air.
The expulsion from the conditioned ambient of an air flow rate equal to the outdoor fresh air flow rate must be realized independently from the unit by means of overpressure openings or other extraction devices.
In the adding module can be placed various type of special filters in order to complete the standard filtering section.
It is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil.
It is also possible to perform enthalpic free cooling by means of the installation of the humidity sensors. Downstream the internal fans, air flow silencers can be installed to reduce the noise transmitted to the conditioned ambients through the air ducts (only for the models of frame 1 and 2).

V3 - 3 dampers version



The presence of three motorized dampers managed by the controller of the unit allows to operate with a minimum percentage of outdoor fresh air (adjustable through the user interface), to perform thermal free cooling and to manage the air expulsion.
The outdoor air inlet, equipped with a rain protection cap and a metal safety grille, is designed for 100% of the total air flow rate and allows to operate in free cooling with all outdoor air.
The expulsion from the conditioned ambient of an air flow rate equal to the outdoor fresh air flow rate is realized through the return air fan and the expulsion damper placed inside the unit.
In the adding module can be placed various type of special filters in order to complete the standard filtering section.
Also in this version it is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil. It is also possible to perform enthalpic free cooling by means of the installation of the humidity sensors.
Downstream the internal fans, air flow silencers can be installed to reduce the noise transmitted to the conditioned ambients through the air ducts (only for the models of frame 1 and 2).

SISTEMA DI CONTROLLO

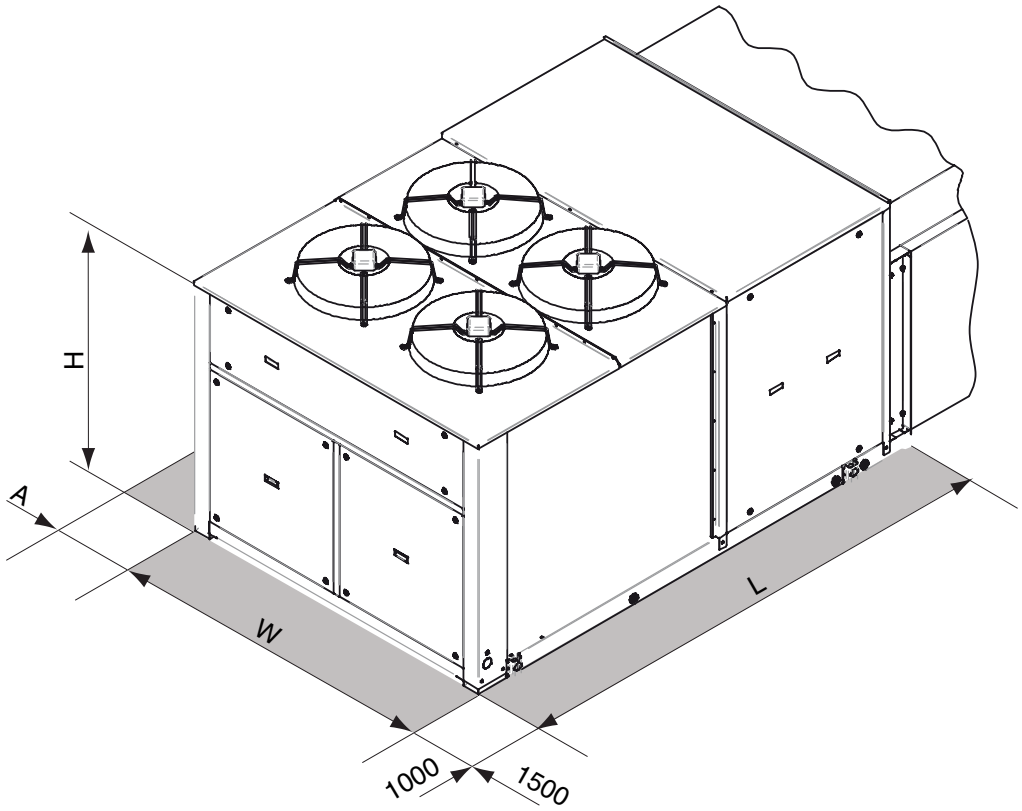
The unit is managed by a microprocessor controller to which, through a board placed inside the electrical panel, all the electrical loads and the control devices are connected. The user interface, accessible removing the protection panel of the electrical board, is realized by a display and two buttons that allow to view and, if necessary, modify all the operating parameters of the unit.

Are available, as accessories, a remote control, that reports all the functionalities of the user interface placed on the unit, or a remote thermostat.

The main functions available are:

- treated air temperature management (through set point adjustment)
- treated air humidity management (only with enthalpic free cooling option)
- treated air quality management (CO_2)
- thermal or enthalpic (option) free cooling
- external fan management by means of continuos rotational speed control (option)
- internal fan management
- return air fan management
- integrative heating sources management (electrical heater coil, hot water coil, gas heating module)
- defrost cycle management
- dampers management (outdoor air, return air and expulsion air)
- compressor and internal fan operating hours recording
- serial communication through Modbus protocol
- remote on-off
- remote cooling-heating
- active alarms visualization
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



		35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
L	VB	2900	2900	2900	3100	3100	3100	3900	3900	3900	mm
	VB with gas heating module	3830	3830	3830	4300	4300	4300	5100	5100	5100	mm
	V1 e V2	4000	4000	4000	4200	4200	4200	5000	5000	5000	mm
	V1 e V2 with gas heating module	4930	4930	4930	5400	5400	5400	6200	6200	6200	mm
	V3	4800	4800	4800	5000	5000	5000	6600	6600	6600	mm
	V3 with gas heating module	5730	5730	5730	6200	6200	6200	7800	7800	7800	mm
W		1400	1400	1400	2000	2000	2000	2200	2200	2200	mm
H		1600	1600	1600	1600	1600	1600	2350	2350	2350	mm
A		1000	1000	1000	1500	1500	1500	1500	1500	1500	mm

> Main specification of heat recovery terminal units

UT REC / UT REC C
UT REC R
UT REC DP / UT REC DP F
RECOVERY EFFICIENCY IN WINTER MODE
RECOVERY EFFICIENCY IN SUMMER MODE

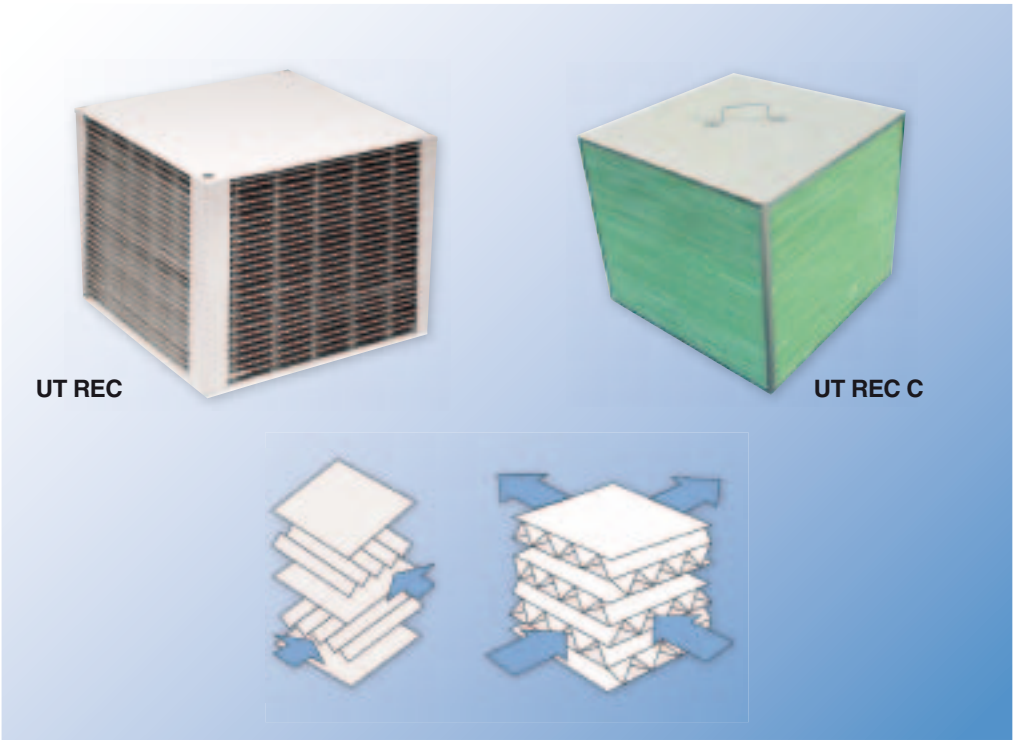
FERROLI offers a complete range of heat recovery terminal units, to meet all system requirements.

> UT REC

available in two versions:

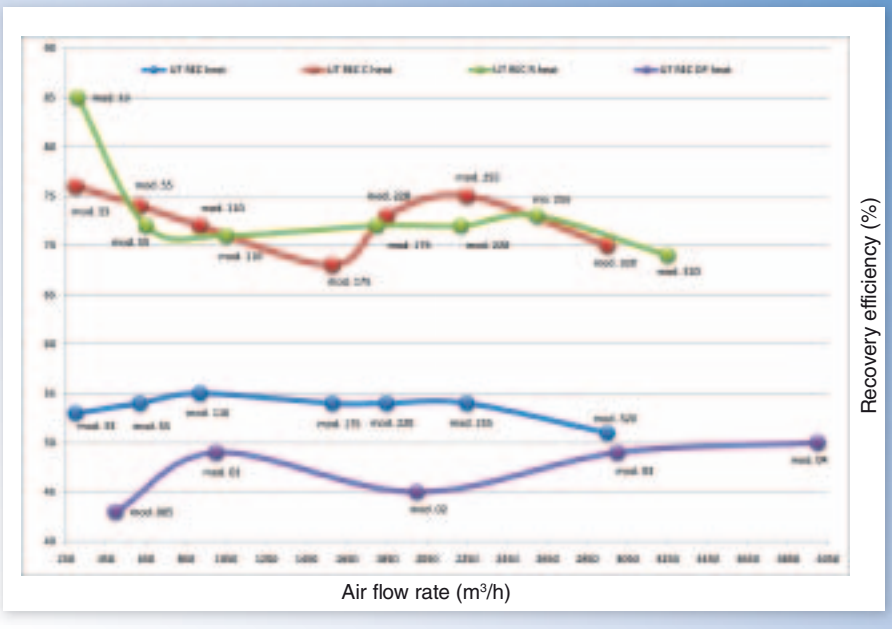
UT REC with static heat recuperator in ALUMINIUM; enables recovery of the sensible heat otherwise lost.

UT REC C with PAPER PACK static heat recuperator: in special treated self-extinguishing stiff paper. The structure consists of a pair of sheets with an interposed corrugated third sheet separating these and creating a triangular air channel (drawing opposite). The paper sheets are permeable to steam, enabling recovery of the sensible as well as latent heat. In this way limited air side pressure losses are obtained, as well as a high exchange area and therefore higher recovery are achivied to values higher than 55-60%.



> UT REC R

Available with a high efficiency rotary-type heat recuperator.
Made in aluminium with a hygroscopic surface.
Exchange efficiency is guaranteed by the quality of the seals that isolate the two air flows.
The rotor consists of alternate flat and corrugated aluminium sheets wrapped around each other.
This creates a "honeycomb" structure in whose channels the two air flows run in an opposed direction.
The surface, made porous by special treatments, allows the humidity to be absorbed, enabling recovery of the sensible and latent heat of the expelled air, resulting in recovery efficiency values above 85-90%.



>>> INDUSTRIAL AIR-CONDITIONING <<<

> UT REC DP and DP F

Available with static-type heat recuperator in ALUMINIUM enabling recovery of the sensible heat otherwise lost. These units have a structure that enables outdoor installation, after application of a covering and suitable positioning.

The **UT REC DP** range features compact sizes < and the available accessories include a 2-row exchanger for heating only (acc. fitted).

The **UT REC DP F** range comes complete with a 4-row exchanger for cooling the air coming out the recovery exchanger. It therefore has larger dimensions than the previous version to enable lower speeds through the coil.

NB: The unit is designed to integrate the room air and ensure its change in a system. Cooling only, and not conditioning, is guaranteed.

> RECOVERY EFFICIENCY IN WINTER MODE

The graphs clearly show how recovery efficiency varies according to the period of operation and even of the type of recuperator.

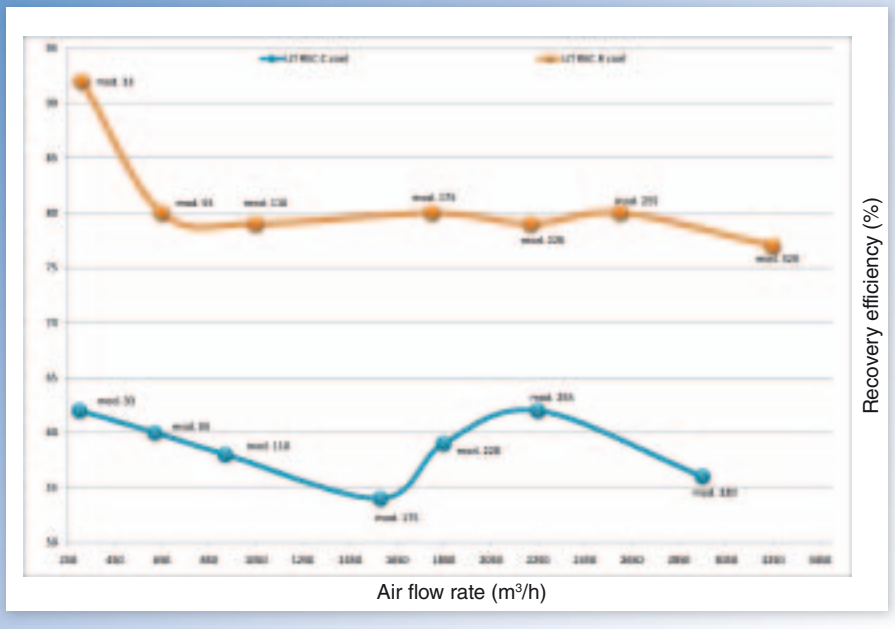
Graph A shows how recovery efficiency increases according to the type of exchanger.

Reference conditions:
Outside Air T=- 5°C 80% R.H.
Room air T= 20°C 50% R.H.
max. speed.

> RECOVERY EFFICIENCY IN SUMMER MODE

In particular, Graph B shows how rotary heat recovery exchangers and paper pack heat recovery exchangers make an important contribution to energy-saving even in summer mode and therefore all year.

Reference conditions:
Outside Air T= 32°C 50% R.H.
Room air T= 26°C 50% R.H.
max. speed.



> UT REC

SINGLE-PANEL HEAT RECOVERY UNITS

Units Series

Unit type

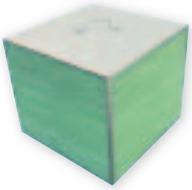
UT REC with recuperator in aluminium

UT REC C with paper pack recuperator

Unit specifications

- STRUCTURE: in strong aluzink sheet, lined with a suitable thickness of polyethylene and polyester to prevent heat loss, condensation and for increased soundproofing.
- CONDENSATE TRAY: in ABS, it is placed under the recuperator to collect condensate during summer and winter operation.
- AIR FILTER: situated inside the unit, it is easily removed from side and made from recycable materials, cleanable by washing.
- FAN MOTOR: a directly coupled type, the unit is equipped with a three-speed motor/fan assembly (single-speed for models 33 and 55) with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to reduce noise and vibration.
- ELECTRIC BOARD: situated on the unit, it consists of a relay power board to facilitate electrical connections and the control of fans with possible remote controls (not present for models 33 and 55).
- HEAT RECUPERATOR:

ALUMINIUM: static-type, it only enables recovery of the sensible heat otherwise lost (picture below).



WITH PAPER PACK: Static-type, it enables recovery of the sensible heat and latent heat. In this way a high efficiency is obtained.

Main accessories/Options

Servo motor for damper motorisation

Pressure switch for dirty filter signalling

Antifreeze thermostat

Hot water post-heating coil providing for the use of a 2-row coil.

External section with 3-row water coil for heating or cooling

Equalising damper with fins, arranged for servo control.

1-stage electric post-heating section.

Remote COM3 switch

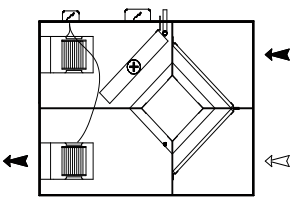
Remote PE+PC thermostat

Single-phase speed variator

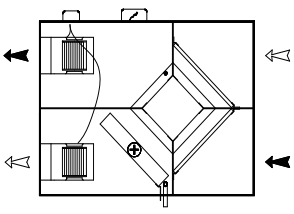
CONFIGURATION

Depending on the configuration of the plant duct are available four possible configuration of recovery.

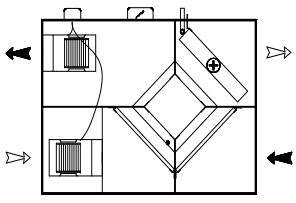
CONFIGURATION 01



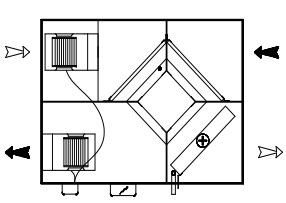
CONFIGURATION 02



CONFIGURATION 03



CONFIGURATION 04



ESP

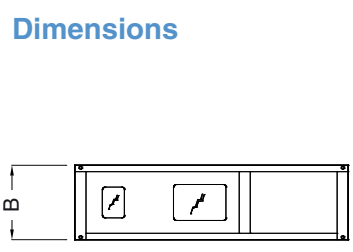
MAND

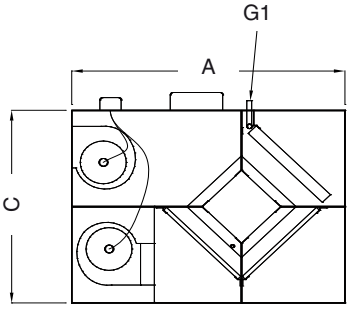
Supply fan	33	55	110	175	220	255	320	410	
Power supply				230 / 1 / 50				400 / 3 / 50	V/ph/Hz
Air flow rate	300	620	920	1580	1850	2250	2950	3920	m³/h
External static pressure	45	55	65	70	77	80	100	100	Pa
Sound pressure level 1,5m	40	48	47	46	50	48	50	54	dB(A)
max. input current	0,75	1,8	2,2	4,4	4,8	5,2	8,3	5	A
n° speed	3	3	3	3	3	3	3	1	n°
Performance UT-REC	33	55	110	175	220	255	320	410	
Recovery type/ Recuperator				cross flow and static / Aluminum plate exchanger					
Winter									
P.A.I. (Room air)	20	20	20	20	20	20	20	20	°C
P.A.E. (Ambient air)	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	°C/%
MAND (Fresh air)	8,3	8,5	8,8	8,15	8,5	8,5	7,8	9,3	°C
REC (Heating recovery capacity)	1,50	3,10	4,70	7,90	9,20	11,2	13,9	20,6	kW
Efficiency recovery (sensible/latent)	53	54	55	54	54	54	51	57	%
Performance UT-REC C	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	
Recovery type/ Recuperator				cross flow and static / hygroscopic paper pack					
Winter									
P.A.I. (Room air)	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	°C
P.A.E. (Ambient air)	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	°C
MAND (Fresh air)	14,0/39,5	13,5/39,7	13,0/36,7	12,0/42,0	13,3/49,4	13,8/48,8	12,5/50,2	11,0/47,6	°C/%
REC (Heating recovery capacity)	2,60	5,20	7,20	12,2	16,9	21,1	25,6	30,8	kW
Efficiency recovery (sensible/latent)	76/62	74/60	72/56	68/55	73/65	75/67	70/62	66/56	%
Summer									
P.A.I. (Room air)	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	°C/%
P.A.E. (Ambient air)	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	°C/%
MAND (Fresh air)	28,3/51,2	28,4/51,2	28,5/51,5	28,8/50,8	28,5/50,5	28,3/50,5	28,6/51,0	28,9/50,9	°C/%
REC (Heating recovery capacity)	1	2	2,9	4,7	6,1	7,9	9,1	11,3	kW
Efficiency recovery (sensible/latent)	62/60	60/58	58/55	54/53	59/59	62/62	56/55	52/51	%

Accessories

BW	33	55	110	175	220	255	320	410	
Coil type	N.A.				Cu/Al				
n° rows			2	2	2	2	2	2	n°
Coil connection			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Winter									
Inlet/outlet air temperature			8,0 / 33,4	8,0 / 30,8	8,0 / 30,2	8,0 / 33,2	8,0 / 31,3	8,0 / 29,7	°C
Water temperature IN/OUT			70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity			8,2	12,2	14,4	20,3	24,2	29,9	kW
Air pressure drop			25	32	35	24	36	36	Pa
BFW	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	
Coil type	N.A.				Cu/Al				
n° rows			3	3	3	3	3	3	n°
Coil connection			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Winter									
Inlet/outlet air temperature			8,0 / 45	8,0 / 43,4	8,0 / 45	8,0 / 46,5	8,0 / 43,7	8,0 / 41,5	°C
Water temperature IN/OUT			70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity			12	19,6	23,7	30,5	37	46,2	kW
Air pressure drop			28	41	39	27	40	53	Pa
Summer									
Inlet air / UR			30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	°C / %
Outlet air temperature			19,2	18,9	18,2	17,3	18,3	19,1	°C
Water temperature IN/OUT			7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	°C
Cooling capacity total/sensible			5/3,3	8,8/5,8	11,1/7,2	14,7/9,4	17,4/11,4	20,9/13,9	kW
Air pressure drop			38	50	53	45	48	60	Pa

Dimensions





Mod.	33	55	110	175	220	255	320	400	
A	990	990	1140	1300	1380	1650	1650	1750	mm
B	290	290	410	500	500	600	600	600	mm
C	750	750	860	860	960	1230	1230	1230	mm
G1 BW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Connection BFW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"

> UT REC R

SINGLE PANEL ROTARY HEAT RECOVERY UNITS

Units Series

Unit type

UT REC R Horizontal unit

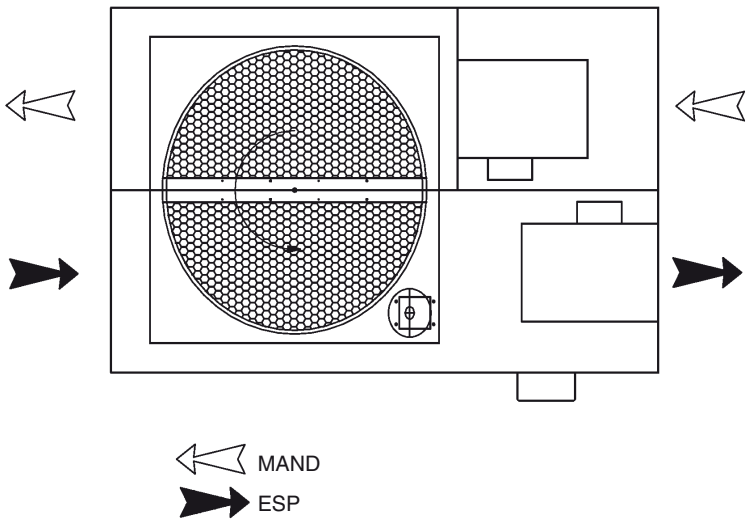
Unit specifications

- STRUCTURE: in strong aluzink sheet, lined with polyethylene and polyester sheets of 20 mm average thickness to prevent heat loss, condensation and for increased soundproofing.
- HEAT RECUPERATOR: high-efficiency rotary type, enabling recovery of the sensible and latent heat of the expelled air. Complete with condensate tray.
- AIR FILTER: situated inside the unit, it is easily removed from side and made from recyclable materials, cleanable by washing (efficiency EU3).
- FAN MOTOR: a directly coupled type, the unit is equipped with a three-speed fan/motor assembly with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration.
- ELECTRIC BOARD: situated on the unit, it consists of a relay power board to facilitate electrical connections and the control of fans and wheel motor with remote controls.

Main accessories/Options

Servo motor for damper motorisation
Pressure switch for dirty filter signalling
Antifreeze thermostat
Hot water post-heating coil providing for the use of a 2-row coil.
External section with 3-row water coil for heating or cooling
Equalising damper with fins, arranged for servo control.
1-stage electric post-heating section.
Remote COM3 switch
Remote PE+PC thermostat
Single-phase speed variator

CONFIGURATION



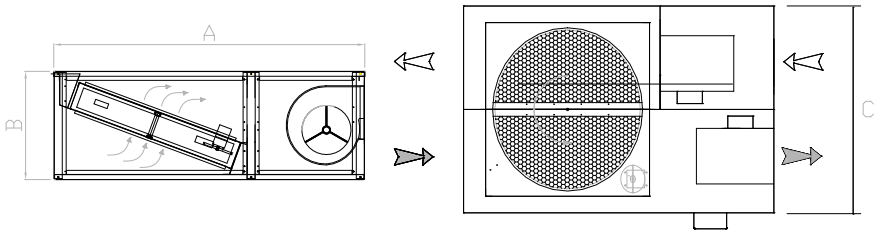
Supply fan	33	55	110	175	220	255	320	410	
Power supply				230 / 1 / 50				400 / 3 / 50	V/ph/Hz
Air flow rate	310	650	1050	1800	2220	2600	3250	4290	m³/h
External static pressure	50	65	80	130	100	110	125	130	Pa
Sound pressure level 1,5m	40	48	47	46	50	48	50	54	dB(A)
Motor input power	92	170	147	350	350	350	550	750	W
max. input current	1	2	2,5	4,8	5,2	5,6	8,7	5,4	A
n° speed / Poles	1/4	1/4	3/4	3/4	3/4	3/4	3/4	2/4	n°
Enclosure protection / Insulation class	44 / F	44 / F	44 / F	44 / F	44 / F	55 / F	44 / F	55 / F	IP
Performance UT-REC R	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	
Recovery type/ Recuperator				Hentalpic rotary / Aluminium hygroscopic					
Winter									
P.A.I. (Room air)	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	°C/%
P.A.E. (Ambient air)	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	°C/%
MAND (Fresh air)	16,3 / 52,5	13 / 57,6	12,7 / 58,5	13 / 57,6	13,0 / 58,3	13,1 / 57,2	12,3 / 60,5	10,8/67,4	°C/%
REC (Heating recovery capacity)	3,6	6,3	10	17,4	21,5	25,2	30,5	37,8	kW
Efficiency recovery (sensible/latent)	85/82	72/69	71/68	72/69	72/69	73/69	69/67	63/63	%
Summer									
P.A.I. (Room air)	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	°C/%
P.A.E. (Ambient air)	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	°C/%
MAND (Fresh air)	26,5 / 56,0	27,2 / 53,7	27,3 / 53,4	27,2 / 53,7	27,3 / 53,4	27,2 / 53,7	27,4 / 53,1	27,8/51,9	°C/%
REC (Heating recovery capacity)	1,3	2,5	4	6,9	8,6	10	12,4	15,7	kW
Efficiency recovery (sensible/latent)	92/73	80/69	79/69	80/69	79/69	80/69	77/68	70/66	%

Accessories

BFW	33	55	110	175	220	255	320	410	
Coil type	N.A.				Cu/Al				
n° rows			3	3	3	3	3	3	n°
Coil connection			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Winter									
Inlet/outlet air temperature			12 / 45,2	12 / 43,2	12 / 43,8	12 / 46,5	12 / 43,9	12 / 42,4	°C
Water temperature IN/OUT			70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity			10,8	19,2	22,9	30,8	38,1	45,4	kW
Air pressure drop			28	41	39	27	40	53	Pa
Summer									
Inlet air / UR			30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	°C / %
Outlet air temperature			19,2	19,3	18,9	17,9	18,8	18,8	°C
Water temperature IN/OUT			7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	°C
Cooling capacity total			4,7	9,8	12,2	15,7	20,5	22,1	kW
Cooling capacity sensible			3,3	6,5	8	10,2	13,3	14,7	kW
Air pressure drop			38	50	53	45	48	60	Pa

BE-R	33	55	110	175	220	255	320	410	
Power supply	230 - 1 - 50				400 - 3 - 50				V-ph-Hz
Power input	1,5	3	3	6	6	12	12	12	kW
n° steps	1	1	1	1	1	1	1	1	n°
Inlet air temperature	12	12	12	12	12	12	12	12	°C
Outlet air temperature	26,2	26,4	21,6	29,5	20,6	26,4	22,4	20,4	°C

Dimensions



Mod.	33	55	110	175	220	255	320	400	
A	1075	1075	1205	1400	1540	1720	1720	1720	mm
B	425	425	460	530	560	600	600	600	mm
C	750	750	860	860	960	1230	1230	1230	mm
G1 BW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Connection BFW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"

> UT REC DP

DOUBLE PANEL HEAT RECOVERY UNITS

Units Series

Unit type

UT-REC DP H	**Horizontal unit**
UT-REC DP V	**vertical unit**

Unit specifications

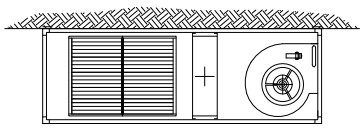
- SUPPORT STRUCTURE: in strong extruded aluminium profiles and double panel in galvanised steel sheet inside and prepainted galvanised sheet steel outside, with thermal insulation and soundproofing in hot-injected polyurethane foam, thick. 23 mm.
- HEAT RECUPERATOR: static-type in aluminium enabling recovery of the heat otherwise lost. Efficiency is guaranteed by the quality of the insulation.
- CONDENSATE TRAY: in sheet steel, it is placed under the recuperator for the condensate in summer mode.
- AIR FILTER: made with pleated filter cells, class G4 (ponderal eff. 90.1%), metal frame and electrowelded screen, easily removed from side.
- FAN MOTOR: a directly coupled type, three-speed with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration.

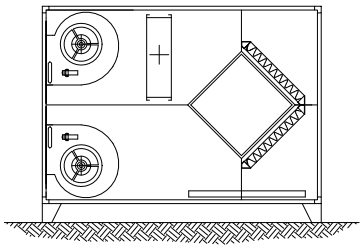
Main accessories/Options

Hot water post-heating coil providing for the use of a 2-row coil.
1-stage electric post-heating section.
Safety microswitch
Speed selector CV3
Protection roof

Layout

Unit are available in horizontal and vertica layout

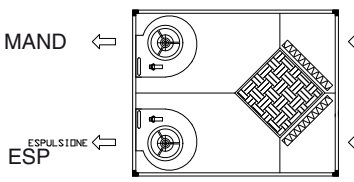




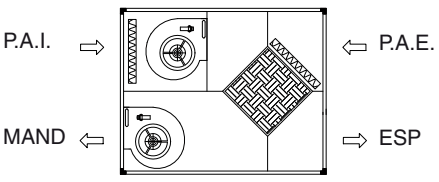
Configuration

Depending on the configuration of the plant duct are available six possible configuration of recovery.

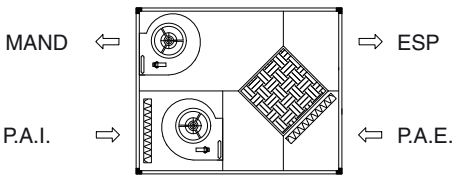
CONFIGURATION 01



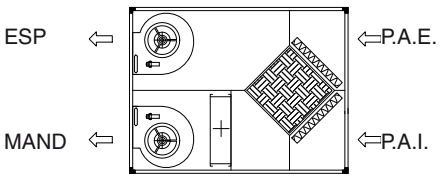
CONFIGURATION 02



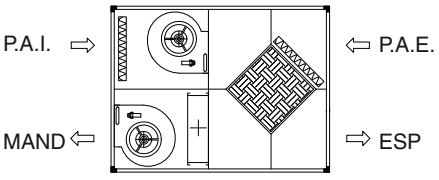
CONFIGURATION 03



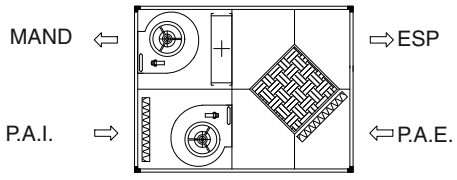
CONFIGURATION 04



CONFIGURATION 05



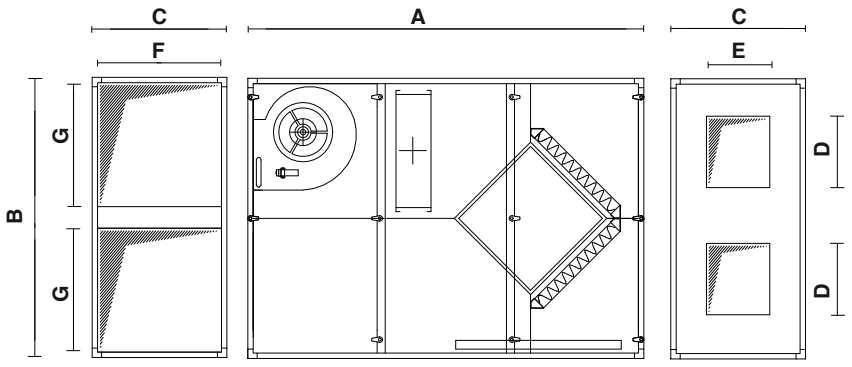
CONFIGURATION 06



Note: Always indicate layout and configuration when ordering

Supply fan	005	01	02	03	04	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	80	122	105	153	130	Pa
Power input	45	184	350	550	736	W
n° speed	3	3	3	3	3	n°
Return fan	**005**	**01**	**02**	**03**	**04**	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	77	119	93	140	120	Pa
Power input	45	184	350	550	736	W
n° speed	3	3	3	3	3	n°
Performance UT REC DP	**005**	**01**	**02**	**03**	**04**	
Recovery type	cross flow and static type					
Recuperator	High efficiency aluminium plate exchanger					
P.A.I. (Room air)	22 / 50	22 / 50	22 / 50	22 / 50	22 / 50	°C/%
ESP (Exhaust air)	11,0 / 89	9,8 / 93	10,5 / 91	9,7 / 93	11,0 / 87	°C/%
P.A.E. (Ambient air)	-5 / 80	-5 / 80	-5 / 80	-5 / 80	-5 / 80	°C/%
MAND (Fresh air)	8,3 / 28	10,2 / 25	9,1 / 27	10,4 / 25	8,7 / 28	°C/%
REC (Heating recovery capacity)	2,2	5,1	9,5	15,5	18,4	kW
Efficiency recovery (sensible/latent)	49	57	52	57	51	%
Accessories BW	**005**	**01**	**02**	**03**	**04**	
Coil type	Cu/Al					
n° rows	2	2	2	2	2	n°
Coil connection	1/2 “	3/4”	3/4”	3/4”	1”	ø
Inlet air / UR	8,4 / 28	10,0 / 25	9,1 / 27	10,0 / 25	8,7 / 28	°C/%
Outlet air / UR	27,5 / 8	31,9 / 11	25,4 / 13	25,6 / 13	24,9 / 15	°C/%
Water temperature IN/OUT	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity	3,2	7,4	11,4	15,8	21,8	kW
Air pressure drop	10	17	45	53	55	Pa
Accessories BE	**005**	**01**	**02**	**03**	**04**	
Power supply	400 - 3 - 50					
Power input	2,5	5	10	15	15	kW
n° steps	1	1	2	2	2	n°

Dimensions



Mod.	UM	005	01	02	03	04
A	mm	1290	1310	1310	1660	1840
B	mm	1040	1040	1040	1250	1400
C	mm	400	500	500	600	650
D	mm	135	205	265	295	395
E	mm	225	235	235	265	341
F	mm	320	460	460	560	570
G	mm	380	380	380	470	555

> UT REC DP F

DOUBLE PANEL HEAT RECOVERY UNIT WITH 4 ROWS EXCHANGER

Units Series

Unit type

UT-REC DP F Horizontal unit

Unit specifications

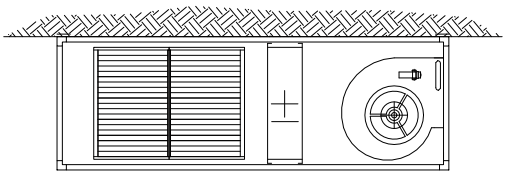
- SUPPORT STRUCTURE: in strong extruded aluminium profiles and double panel in galvanised steel sheet inside and prepainted galvanised steel sheet outside, with thermal insulation and soundproofing in hot-injected polyurethane foam, thick. 23 mm.
- HEAT RECUPERATOR: static-type in aluminium enabling recovery of the heat otherwise lost. Efficiency is guaranteed by the quality of the insulation.
- CONDENSATE TRAY: in steel sheet, it is placed under the recuperator for the condensate in summer mode.
- AIR FILTER: made with pleated filter cells, class G4 (ponderal eff. 90.1%), metal frame and electrowelded screen, easily removed from side.
- FAN MOTOR: a directly coupled type, three-speed with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration.
- HEAT EXCHANGER: made with copper pipes arranged in staggered rows to increase heat exchange and aluminium fins locked by mechanical expansion of the pipes, with 4 rows for air conditioning and heating.

Main accessories/Options

Single-phase speed variator
Safety microswitch
Speed selector CV3
Protection roof

Layout

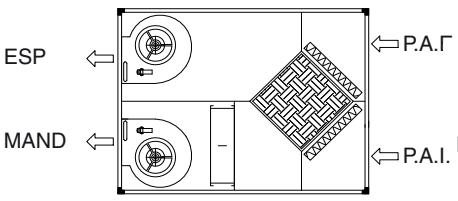
Unit are available in horizontal layout



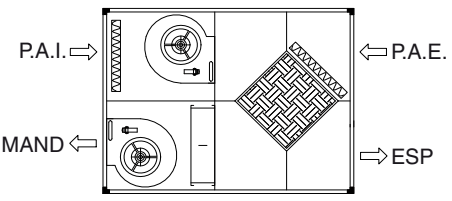
Configuration

Depending on the configuration of the plant duct are available three possible configuration of recovery.

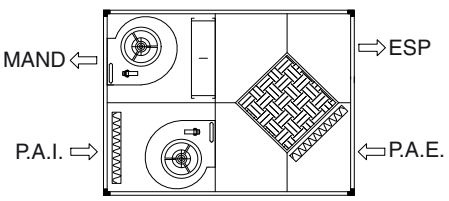
CONFIGURATION 01



CONFIGURATION 02

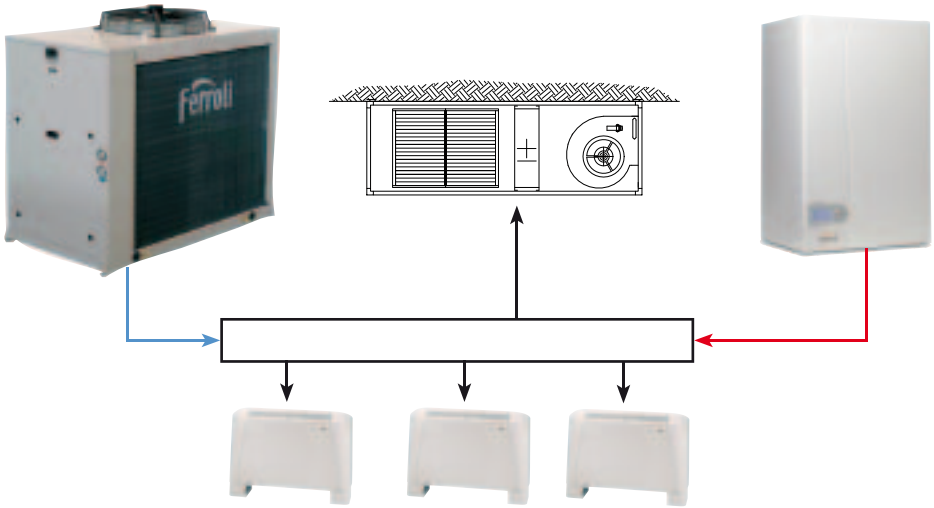


CONFIGURATION 03



Note: Always indicate configuration when ordering

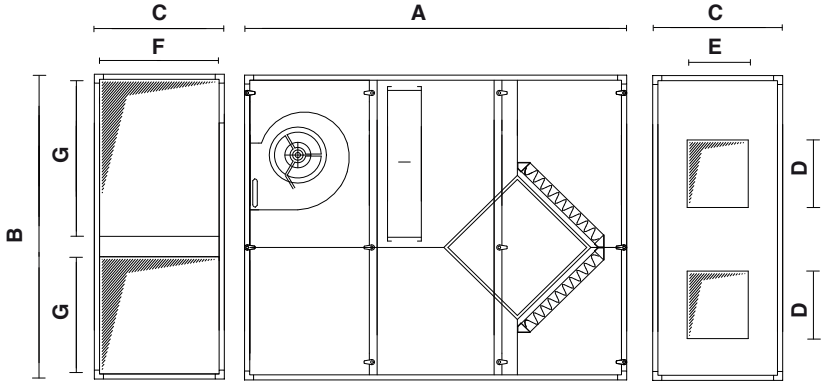
Supply fan	005	01	02	03	04	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	55	155	75	95	65	Pa
Power input	45	350	550	550	1.100	W
n° speed	3	3	3	3	1	n°
Return fan	**005**	**01**	**02**	**03**	**04**	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	90	116	125	142	104	Pa
Power input	45	184	550	550	1.100	W
n° speed	3	3	3	3	1	n°
Performance UT REC DP F	**005**	**01**	**02**	**03**	**04**	
Recovery type	cross flow and static type					
Recuperator	High efficiency aluminium plate exchanger					
P.A.I. (Room air)	27 / 48	28 / 50	28 / 50	28 /50	28 / 50	°C/%
ESP (Exhaust air)	29,4 / 45	29,9 / 44	29,8 / 44	29,9 / 44	30 / 44	°C/%
P.A.E. (Ambient air)	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	°C/%
MAND (Fresh air)	30 / 57	30 / 55	30 / 55	30 / 55	30 / 56	°C/%
REC (Heating recovery capacity)	0,3	0,7	1,2	2	2,7	kW
Efficiency recovery (sensible/latent)	43	49	45	49	50	%
Performance 4R coil	**005**	**01**	**02**	**03**	**04**	
Coil type	Cu/Al					
n° rows	4	4	4	4	4	n°
Coil connection	1/2 “	3/4”	3/4”	1”	1”	ø
Inlet air / UR	30 / 57	30 / 55	30 / 55	30 / 55	30 / 56	°C/%
Outlet air / UR	16,4 / 97	18,8 / 94	19,1 / 92	18,9 / 92	18,5 / 93	°C/%
Water temperature IN/OUT	07/12	07/12	07/12	07/12	07/12	°C
Cooling capacity	4	5,5	11,4	17,1	24,8	kW



NB: For correct operation of the unit in heating, maximum delivery water temperatures up to T=50°C are acceptable. Therefore connection to a condensing-type boiler, as indicated in the diagram opposite, is advisable. If the unit is connected to a conventional boiler, the use of a 3-way valve with adjustment on the temperature of delivery to the system is indispensable.

NB: The unit is designed to integrate the primary air and therefore guarantee the air change in an existing system. It only guarantees cooling, and not conditioning (see example above).

Dimensions



Mod.	UM	005	01	02	03	04
A	mm	1290	1540	1540	1790	2040
B	mm	1040	1040	1400	1790	2040
C	mm	400	500	500	600	650
D	mm	135	205	265	295	395
E	mm	225	235	235	265	341
F	mm	320	420	420	520	570
G	mm	380	380	380	640	640

> EOLO
EXHAUST AIR UNITS

Units Series

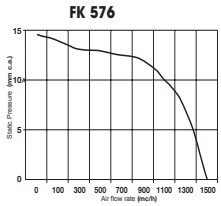
Unit type
EOLO FK direct drive

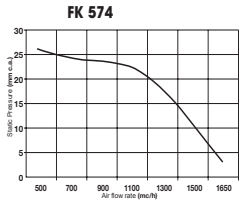
Unit specifications

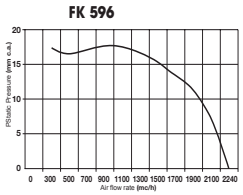
- CONSTRUCTION CHARACTERISTICS: in aluzink sheet, with soundproofing interposed in the unit, guaranteed by an adequate thickness of polyester.
- ELECTRIC FANS: the fans are dual-intake centrifugal type with statically and dynamically balanced wheels. EOLO FK Series 1 models have centrifugal electric fans with motor directly coupled. Vibration dampers are interposed between the structure and the fan to attenuate the transmission of any vibrations. The working temperature must be between -20°C and +40°C.

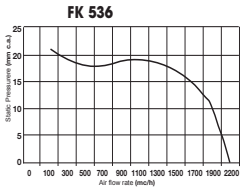
Main accessories/Options

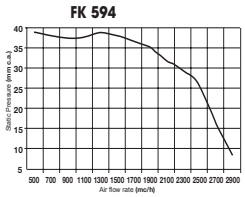
Single-phase speed variator
Three-phase speed variator
Protection roof
Bird net shroud
Overpressure damper
Support feet

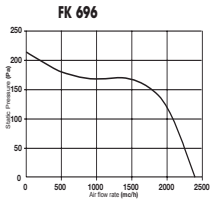


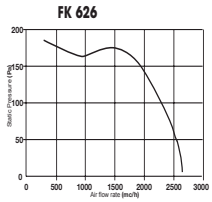


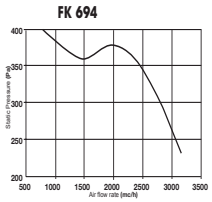


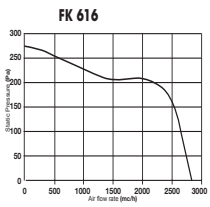


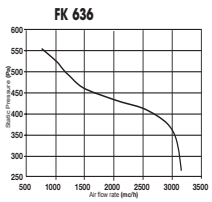


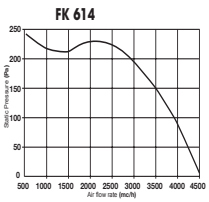


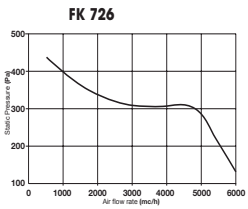


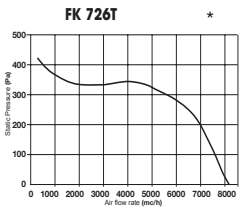




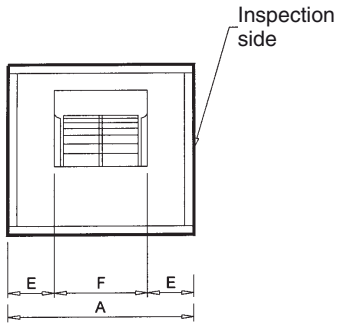






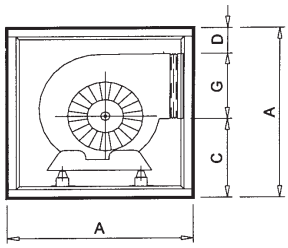


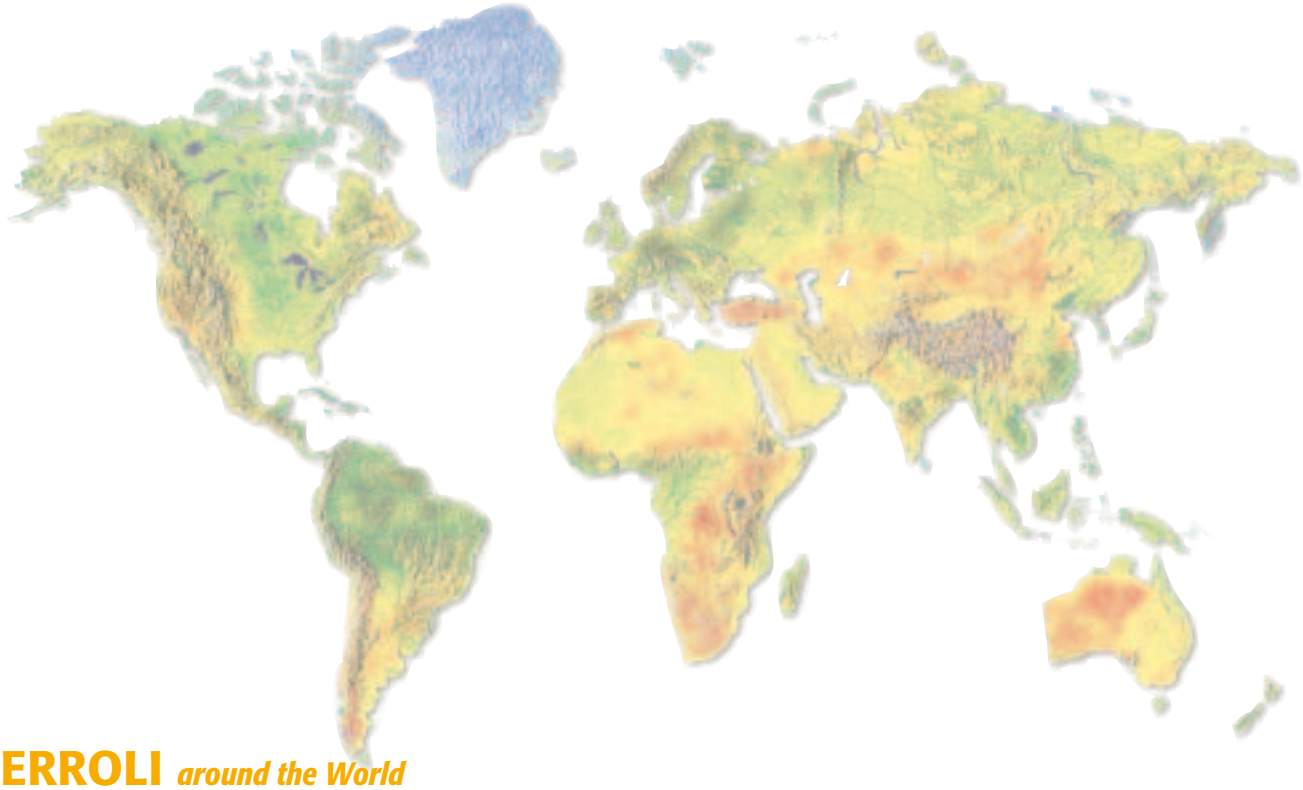
* three-phases unit



Dimensions

Mod.	UM	FK 576-574	FK 596-536-594	FK 596-626-694	FK 616-636-614	FK 726-726T*
A	mm	500	500	600	600	700
C	mm	171	179	179	208	234
D	mm	111	49	149	93	115
E	mm	129	129	146	129	147
F	mm	242	242	308	342	406
G	mm	218	272	272	299	351
Weight	kg	25-30	28-33	35-40	40-45	60





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