ECSO
environmental complex solution

Fresh solutions in the world of climate

PRECISION A/C

ECSO GMBH
Wettersteimstr. 53 D- 90471,
Nürnberg, Deutschland
e-mail: info@ecso-klimatechnik.de
Tel/Fax: +49 (0) 911/818 9917

TABLE OF SYMBOLS

OPERATING MODE

Only cooling

Cooling – heating

Only Heating

CONDENSER

Air cooled

Water cooled

Condenserless

COMPRESSOR

Scroll

Reciprocating

Twin screw or screw

MOUNTING METHOD

External (Outside)

Internal (Inside)

Roof-top

OPTIONS

Reversal on water

FC Free-Cooling

Anti-freeze

HYDRO PACK Hydro pack

Soft fan ECSO Soft Fan

EEV Electronic thermotatic valve

Direct connect fan

Variable expense

Thermo dynamic heat recycling

VENTILATION (ROOF TOPS)

Filtration

Fan

Mixing

Recovery

Heating

Cooling

Heat pump

Noise reduction

Moisture

We have devised this table of symbols, indicating all the basic functions and characteristics of the unit, to make the use of this guide easy.

Server rooms are facilities for voluminous telecommunication or server equipment. This kind of facilities demands complicated specific conditions, including air characteristics.

Creating and controlling temperature and humidity in these rooms with high precision is made by precision air conditioning. Precision air conditioning is also used in dispatching facilities, data centers, medical institutions or in fields of high precision production, where it is constantly necessary to remove the warmth coming from the functioning of the high technological equipment around the clock.

Precision air conditioners have remarkable capabilities in comparison with household air conditioners. They are conceived to survey and control the air temperature with an accuracy of ± 1°C, or ± 2% of air humidity, respectively. Their distinctive characteristics are: High level of reliability at 7/24 continuous service, functioning ability in a wide outside air temperature range (– 40°C...+ 45°C/-40...113°F), full compatibility with dispatching control systems and indoor microclimate control systems of buildings. Generally, with regard to the outside working temperature, there are no inferior limits for the operation of precision conditioning systems.

By the way, for operation exclusively during the cold season of the year, there has been worked out a free cooling system. When the outer temperature falls beyond – 15°C (5°F), the system automatically switches over to an operation mode using the cold outside air as chilling source, partially or completely substituting the compressor. This kind of operation mode considerably lowers the exploitation costs and increases the operating life of the compressor, by what these systems are able to operate practically at any outside temperature.

Precision A/C

PRODUCT MARKING

1	2	3	4	5	6	7	8
R	S	T	FC	0	157	M	C

1 Condenser cooling

R: air cooled direct expansion air conditioners
H: water cooled direct expansion air conditioners
W: chilled water coil air conditioners

5 Number of compressors

0: from chiller
1: one compressor
2: two compressors

2 Unit size

S: small
M: medium
L: large

6 Cooling capacity /10

3 Air discharge

T: top air discharge
D: downside air discharge

7 Microprocessor

P: pCO1 Microprocessor
M: mAC Microprocessor
N: without Microprocessor
I: micom Microprocessor

4 Free Cooling

– : standart
FC: free cooling

8 Configuration

C: Cooling only
E: Cooling + heating
H: Cooling + humidification
X: Cooling + humidification + heating + drying

OPTIMA

**Precision air conditioners
from 5 to 100 kW**

General features

The new high-efficiency air conditioner OPTIMA adds the finishing touch to the already prominent presence on the world industrial air-conditioning scenario. It has been designed to satisfy the conditioning requirements of technological rooms, offering features that make it suitable for all the various applications in daily use and from which we demand utmost reliability.

CENTRALLY CONTROLLED SYSTEMS
• Banks
• Hotel
• Airports
• Retail and distribution industry
• Museums and Libraries
• Medium/large companies

KEY CUSTOMERS
• Railways and motorways
• Internet providers
• Armed Forces
• Public sector
• Radio and TV companies
• TELECOM operators

FINAL APPLICATIONS
• Data dispatching nodes
• Call Centers
• Data collecting centers
• Internet centers

EFFICIENCY MOST OF ALL

Nowadays efficiency is no longer considered as just energy saving in respect of the single unit, but takes into account both the performance of the whole system and its complete reliability and modularity over the years.

In offering OPTIMA as a solution to technological cooling problems, we have been concentrated on the use of known quality parts and integration with BMS (building management systems).

EC FANS

This new technology with electronically commutated motor increases the efficiency of the OPTIMA system, optimizing running costs through state-of-the-art electronics, which are used to change parameters such as:
• flow rate
• cooling capacity
• external pressure
• noise level

Thereby guaranteeing best operation of the system at any moment, and in particular:
1) Continuous adjustment of the quantity of air
2) Intelligent and low-noise system of air conveyance throughout the whole appliance
3) Up to 45% saving in the chilled water units

THE SPACE IS ALL FOR YOU

It is a known fact that the set loads (W/m^2) in technological applications are continuously increasing. This is mainly due to the increase in data traffic, giving rise to new equipment with an increasingly greater capacity of transmission, which in turn develops a higher heat load to be dispersed.

This requires ever better performance from the air conditioning system that should, however, take up as little space as possible, leaving it for the transmission equipment.

OPTIMA is the air-conditioner with the best supplied power / foot print ratio in the market. Because space means value.

TOP

The versions called TOP with air up flow discharge generally have the air intake at the front, rear or bottom of the unit, according to customer choice, and the outflow from the top is along ducts behind suspended ceilings or front delivery plenums.

DOWN

The versions called DOWN with air down flow discharge under the floor have the air intake on the top of the unit taking air directly from the environment or through intake ducts or plenums.

Constructional features

INTELLIGENT CONTROL

OPTIMA has an intelligent electronic heart that allows it to keep a constant control over all the operating and environmental parameters of the site.

The OPTIMA electronic unit is open and configurable to specific user requirements both in site and particularly in the factory with dedicated customization.

ELECTRONICS STANDARD FUNCTIONS

• Graphic Display
• Programmable software
• General alarm
• Automatic reset after blackout
• Semi-graphic display 132 x 64 pixel
• Record storage of 100 alarms
• Standby management
• Automatic rotation
• Serious alarms

OPTIMA IS TOTAL COMMUNICATION

In a policy of "total communication" OPTIMA offers various solutions for interconnection to the most modern BMS, aimed at satisfying varying needs.

Firmware protocol for total management of all the air conditioning parameters, including:
• Detection and transmission of alarms from remote
• Change of data from remote
• Recording of data and alarms
• Sending of SMS via GSM modem

all through dedicated serial cards and supervision systems both in LOCAL and REMOTE mode.

ADVANCED SUPERVISION

Solutions of compatibility for all the most common BMS available on the market today, such as:
• MODBUS
• METASYS
• LON
• TREND
• LONWORKS
• SNMP/TCPIP

RESPECT FOR THE ENVIRONMENT

OPTIMA is totally in line with the known policy of full respect for the environment in which we live and for human health and safety. The use of recyclable materials and eco-compatible refrigerants (R407C, R410A, R134a) to current standards and legislation, make OPTIMA a state-of-the-art product in this sense.

NOISELESS COLD

Modern telephone applications in residential areas must satisfy increasingly severer requirements in terms of noise pollution. OPTIMA then propose a large range to satisfy such requests, often customized base on customer requests and site conditions.

Main systems are:
• Centrifugal fans (std)
• EC FANS (opt) with air flow modulation capability
• Soundproofed compressors (opt)
• Paneling clad in soundproofing material (std)

MAINTENANCE

The design of the new OPTIMA models was based on the need to simplify routine and extraordinary maintenance work carried out during the lifetime of the product. The refrigerant circuit area is completely separate from the fan area, thereby allowing routine maintenance to be carried out also with the unit in operation. All servicing operations, even the most critical ones, can be accomplished by a full front access. That is why all the front panels are open able and can even be removed thanks to simple hinges.

Precision A/C

Standard components

• Multi-speed centrifugal fans
• High efficiency Copeland Scroll compressors
• High and low side pressure switches
• Filters EU2 - EU4
• R-407C Refrigerant
• 3-way valves
• Semi-graphic display 132 x 64pixel
• Buffer battery
• Record 100 alarms

Options

• EC RADIAL-BLADE fans
• Immersed electrode humidifiers
• Electric reheat and hot water
• Intelligent dehumidifying with constant air flow
• Filter EU5
• R-410A, R-134a Refrigerant
• Air distribution plenum with grilles
• Soundproofed plenum
• CLASS 0 insulating panels
• Electronic thermostat
• Condensing control
• Serial cards for BMS interfacing
• LAN, integral Local Area Network
• DC FAN control software
• Driver for electronic thermostat control

Optima series

AIR COOLED WITH INTERNAL COMPRESSOR AND EXTERNAL CONDENSER (R)

This model is a close control system featuring direct-expansion with an air-cooled condenser. The close control unit is available with either 1 or 2 cooling circuits, and with 1 or 2 compressors per cooling circuit. The air cooled condensers of ERCS are offered in 3 different sound power level classes, and optionally with a winter start kit (with additional liquid receiver and liquid backup control) for extremely low outdoor temperatures (down to - 40°C).

R version is characterized by comparatively low investment and installation costs and by good cost effectiveness. As a result, it is particularly interesting for machine rooms and server rooms, small to medium-sized data centers, and installations with short and medium-length pipe lengths.

WATER COOLED (H)

This version is configured with internal compressors and heat rejection to external dry coolers via inbuilt stainless steel plate heat exchangers. The close control unit is available with either 1 or 2 cooling circuits, and with 1 or 2 compressors per cooling circuit. The dry coolers of the ERDS are offered in 3 different sound power level classes.

WATER COOLED WITH FREE-COOLING OPTION (H-FC)

This is a close control system configured as a version with direct expansion cooling, a water-cooled condenser as a stainless steel plate heat exchanger, a 3-way servo-valve, a free-cooling coil, and an external dry cooler. The close control unit is available with 1 free-cooling circuit and with either 1 or 2 cooling circuits, and with 1 or 2 compressors per cooling circuit. When glycol water supply temperatures are at least 2 K below the return air temperature set point, mixed operation takes place: i.e., with compressors and free-cooling. When glycol water supply temperatures are low enough to maintaining the required return air temperature, the system operates under a pure free-cooling mode. The dry coolers of ERDS provide free-cooling and are available in 3 different sound power level classes.

The H-FC version is especially effective for applications in which the primary importance is operational costs.

In many cases, IT professionals prefer refrigerant-based climate control over solutions with water circuits – and they lose hard money by their decisions. Close control systems with a glycol-water circuit and free cooling enable more economical cooling of servers. Their power consumption is up to 35% less, since the free cooling principle enables the compressor to stay off on cool days, or to operate in partial-load mode.

Benefits of free cooling
Once the system capacities, air distribution, and installation site have been decided, the question often arises of the optimal functional principle. To prevent water damage, many users prefer a refrigerant-based system. This decision, however, brings a number of disadvantages. Any leaks in the cold-water circuit, for example, are easier to localize than leaks in a refrigerant circuit: because any leaking refrigerant will immediately evaporate. In addition, cold-water networks enable a piping system with long pipe lengths, to which additional equipment units can be easily connected. Finally, a glycol-water system offers the possibility of locating the free cooler at any point, and to use it for free cooling. To avoid any risk of leaking water, it is sufficient to install a drip tray in a normal raised floor. The dimensions of the floor are smaller than often assumed, and installation costs and loss of space are insignificant.
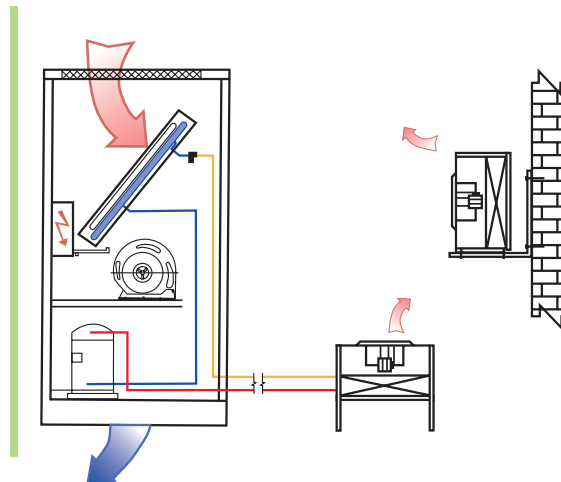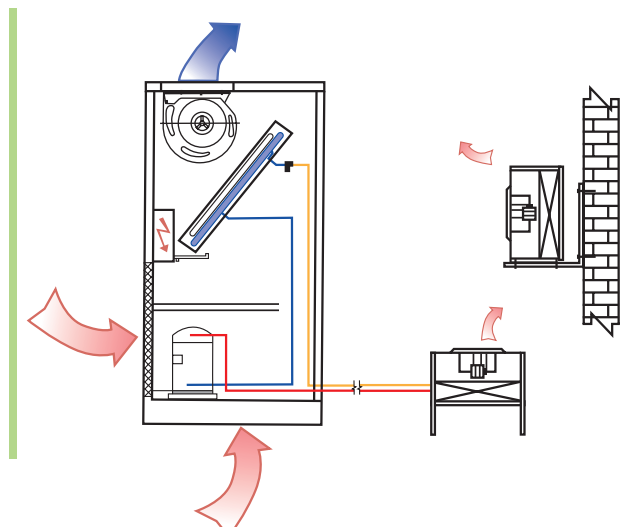
CHILLED-WATER MODEL (W)

This is a close control unit configured as a chilled-water system for connection to a separate chiller. The unit is equipped with a cooling coil and a modulating (0 – 10 V) 2- or 3-way servo-valve. All air- and water-cooled ECSO chillers can be used with the W version. The W version is primarily used for medium-sized computer centers, large data centers, and installations with long pipe lengths. In connection with the free-cooling range of ECSO chillers, the W version is especially relevant today because of its highly economic energy consumption. Together with the latest in EC fan technology, very low power consumption is achieved by the W version when referenced to the power input of the fans, particularly when configured as a standby-redundant system.

Precision A/C

CONDITIONERS WITH AIR COOLED REMOTE CONDENSER (R)

Configuration with air cooled remote condenser,
air discharge on top RST… RMT… RLT

Configuration with air cooled remote condenser,
air discharge downside RSD… RMD… RLD

Model	Refrigerant circuits, n	Total cooling capacity (kW)	Sensible cooling capacity (kW)	Total power input (kW)	Air flow (m³/h)	Internal block		External block (remote condenser)		
						Length/Width/ Height (mm)	Weight (kg)	Model	Length/Width/ Height (mm)	Weight (kg)
RST/D 1053	1	5,3	5,1	1,4	1550	715/750/1950	220	ERCS-035/1 A4	740/292/565	20
RST/D 1064	1	6,4	6,3	1,8	2000	715/750/1950	225	ERCS-035/1 A4	740/292/565	20
RST/D 1087	1	8,7	7,2	3	2000	715/750/1950	230	ERCS-035/2 A4	1295/295/565	32
RST/D 1118	1	11,8	11,8	3,6	3800	715/750/1950	283	ERCS-035/2 A4	1295/295/565	32
RST/D 1161	1	16,1	13,5	5,6	3800	715/750/1950	298	ERCS-050/1 B4	1025/440/815	50
RMT/D 1214	1	21,4	18,3	6,5	5200	1130/850/1950	350	ERCS-035/3 B4	1845/295/565	50
RMT/D 1225	1	22,5	18,7	7,2	5250	1130/850/1950	400	ERCS-035/3 B4	1845/295/565	50
RMT/D 1293	1	29,3	25,3	10,3	7200	1380/850/1950	440	ERCS-050/2 A4	1874/440/815	82
RMT/D 1323	1	32,3	26,1	11,6	7200	1380/850/1950	445	ERCS-050/2 B4	1874/440/815	90
RMT/D 1413	1	41,3	35,5	15	10200	1825/850/1950	530	ERCS-050/3 A4	2750/440/815	119
RMT/D 1492	1	49,2	40,9	17,5	11250	2075/850/1950	570	ERCS-050/3 B4	2750/440/815	130
RMT/D 2211	2	21,1	18,2	6,5	5250	1130/850/1950	370	ERCS-035/2 A4 (*2)	1295/295/565	32*2
RMT/D 2310	2	31	25,1	11,2	7200	1380/850/1950	435	ERCS-050/1 B4 (*2)	1025/440/815	50*2
RMT/D 2426	2	42,6	36	13,6	10200	1825/850/1950	490	ERCS-035/3 B4 (*2)	1845/295/565	50*2
RMT/D 2462	2	42,6	39,5	15,1	11250	2075/850/1950	645	ERCS-035/3 B4 (*2)	1845/295/565	50*2
RMT/D 2587	2	58,7	50,4	20,1	14200	2474/850/1950	710	ERCS-050/2 A4 (*2)	1875/440/815	82*2
RMT/D 2645	2	64,5	51,8	23,1	14200	2474/850/1950	715	ERCS-050/2 B4 (*2)	1875/440/815	90*2
RLT/D 2769	2	79,6	65,6	29,5	18000	2724/850/1950	805	ERCS-050/3 A4 (*2)	2750/440/815	119*2
RLT/D 2983	2	98,3	83,2	34,8	24000	3417/850/1950	960	ERCS-050/3 B4 (*2)	2750/440/815	130*2

Remarks: All data apply at 400 V/3 ph/50 Hz
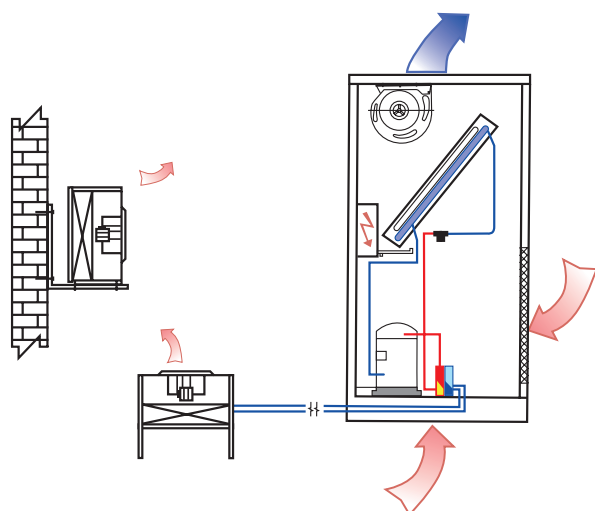• Cooling capacity; return air conditions: 24°C, 50 % r. h.; condensing temperature 45°C
• The electric power input of the fans must be added to the room load
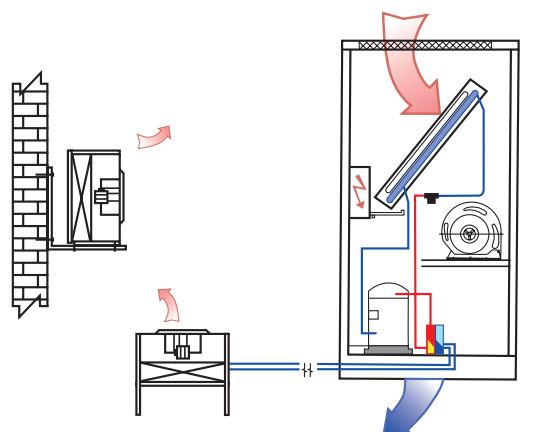Technical data subject to change without notice.

CONDITIONERS WITH WATER COOLED CONDENSER (H)

Configuration with water cooled condenser,
air discharge on top RST… RMT… RLT

Configuration with water cooled condenser,
air discharge downside RSD… RMD… RLD

Precision A/C

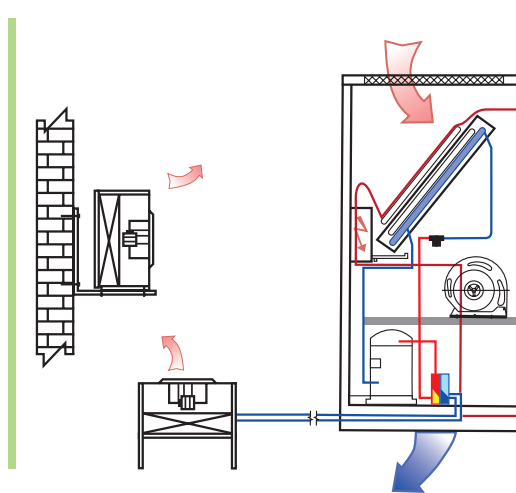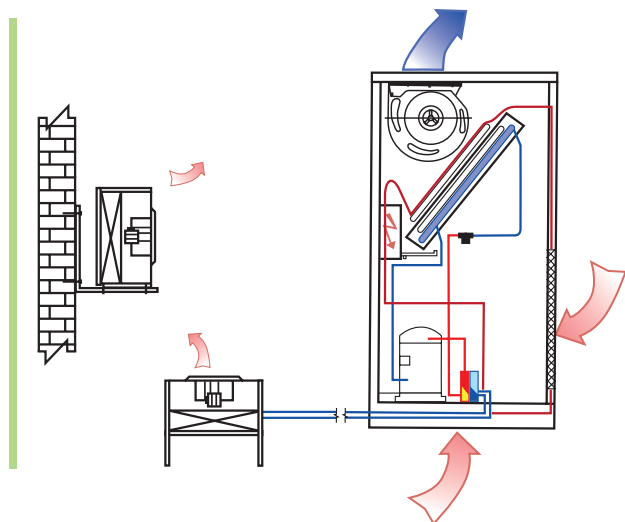| Model	Refrigerant circuits, n	Total cooling capacity (kW)	Sensible cooling capacity (kW)	Total power input (kW)	Air flow (m³/h)	Internal block		External block (dry cooler)		
						Length/Width/ Height (mm)	Weight (kg)	Model	Length/Width/ Height (mm)	Weight (kg)
HST/D 1056	1	5,6	5,2	1,7	1550	715/750/1950	230	ERDS-035/3 A4SH	1845/295/565	45
HST/D 1067	1	6,7	6,4	2,1	2000	715/750/1950	235	ERDS-035/3 B4SH	1845/295/565	50
HST/D 1091	1	9,4	7,5	4,1	2000	715/750/1950	240	ERDS-050/2 A4SH	1875/440/835	81
HST/D 1125	1	12,5	12,1	4,7	3800	715/750/1950	280	ERDL-050/2 B4SH	2375/440/835	105
HST/D 1168	1	16,8	13,8	6,8	3800	715/750/1950	295	ERDS-050/3 B4SH	2750/440/835	130
HMT/D 1227	1	22,7	18,9	8,8	5250	1130/850/1950	360	ERDS-050/4 B4SH	2750/440/835	171
HMT/D 1238	1	23,8	19,5	8,5	5250	1180/850/1950	460	ERDS-050/4 B4SH	4575/440/835	211
HMT/D 1308	1	30,8	25,7	12,8	7200	1380/850/1950	460	ERDS-050/3,2 B4SH	3575/440/835	255
HMT/D 1344	1	34,4	27,3	14,1	7200	1380/850/1950	465	ERDS-050/3,2 B4SH	2750/440/1650	255
HMT/D 1438	1	43,8	36,6	18,1	10200	1825/850/1950	550	ERDS-050/4,2 B4SH	2750/440/1650	334
HMT/D 1516	1	51,6	42	20,5	11250	2075/850/1950	600	ERDS-050/4,2 B4SH	4575/440/1650	415
HMT/D 2228	2	22,8	19	8,7	5250	1130/850/1950	395	ERDS-050/2 A4SH(*2)	1875/440/835	81*2
HMT/D 2331	2	33,1	26,7	13,7	7200	1380/850/1950	520	ERDS-050/3 A4SH (*2)	2750/440/835	117*2
HMT/D 2451	2	45,1	37,1	16,9	10200	1825/850/1950	520	ERDS-050/3 B4SH (*2)	2750/440/835	130*2
HMT/D 2487	2	48,7	40,7	18,4	11250	2075/850/1950	680	ERDL-050/3 B4SH (*2)	3475/440/835	162*2
HMT/D 2616	2	61,6	51,2	23,7	14200	2474/850/1950	755	ERDS-050/4 B4SH (*2)	3575/440/835	171*2
HMT/D 2690	2	69,0	54,3	28,2	14200	2474/850/1950	765	ERDS-050/3,2 A4SH (*2)	2750/440/1650	228*2
HLT/D 2838	2	83,8	66,8	33	18000	2724/850/1950	865	ERDS-050/3,2 B4SH (*2)	2750/440/1650	225*2
HLT/D 2999	2	103,2	84	38,4	24000	3417/850/1950	1045	ERDL-050/3,2 B4SH (*2)	3475/440/1650	318*2

Remarks: All data apply at 400 V/3 ph/50 Hz
   • Cooling capacity; return air conditions: 24°, 50 % r. h.; water temperature: 7°C/12°C; glycol: 0%
   • The electric power input of the fans must be added to the room load
   Technical data subject to change without notice.

Precision A/C

CONDITIONERS WITH WATER COOLED CONDENSER AND FREE COOLING (H-FC)

Configuration with water cooled condenser
and free cooling, air discharge on top
HST-FC... HMT-FC… HLT-FC

Configuration with water cooled condenser
and free cooling, air discharge downside
HSD-FC… HMD-FC... HLD-FC

Model	Refrigerant circuits, n	Total cooling capacity (kW)	Sensible cooling capacity (kW)	Total power input (kW)	Free-cooling		Air flow (m³/h)	Internal block			External block (dry cooler)		
					Cooling capacity (FC 100% kW)	Total power input (kW)		Length/Width/ Height (mm)	Weight (kg)	Model	Length/Width/ Height (mm)	Weight (kg)
HST/D-FC 1227	1	20,4	17,9	5,4	16	0,7	5250	1130/850/1950	230	ERDS-035/3A4SH	1845/295/565	45
HST/D-FC 1238	1	21,4	18,4	5,6	17	0,7	5250	1130/850/1950	235	ERDS-035/3A4SH	1845/295/565	45
HST/D-FC 1308	1	27,7	24,3	7,4	22	1,1	7200	1380/850/1950	240	ERDS-050/2A4SH	1875/440/815	81
HST/D-FC 1344	1	30,9	25,8	8,2	25	1,1	7200	1380/850/1950	280	ERDS-050/2A4SH	1875/440/815	81
HST/D-FC 1438	1	39,1	34,6	10,9	31	1,1	10200	1825/850/1950	295	ERDS-050/2B4SH	1875/440/815	90
HMT/D-FC 1516	1	45,6	39,2	13,1	36	1,1	11250	2075/850/1950	360	ERDS-050/2C4SH	1875/440/815	98
HMT/D-FC 2228	2	20,3	17,9	5,3	16	0,7	5250	1130/850/1950	460	ERDS-035/3A4SH (*2)	1845/295/565	45*2
HMT/D-FC 2331	2	29,2	25,1	7,7	23	1,1	7200	1380/850/1950	460	ERDS-050/2A4SH (*2)	1875/440/815	81*2
HMT/D-FC 2451	2	40,6	35,2	11,1	33	1,1	10200	1825/850/1950	465	ERDS-050/2B4SH (*2)	1875/440/815	90*2
HMT/D-FC 2487	2	43,8	38,5	12,6	35	1,1	11250	2075/850/1950	550	ERDS-050/2C4SH (*2)	1875/440/815	98*2
HMT/D-FC 2616	2	55,5	48,4	14,6	44	1,4	14200	2474/850/1950	600	ERDS- 050/3A4SH (*2)	2750/440/815	117*2
HMT/D-FC 2690	2	61,9	51,4	17,1	49	1,4	14200	2474/850/1950	395	ERDS-050/3B4SH (*2)	2750/440/815	130*2
HLT/D-FC 2838	2	75,1	62,7	21,2	60	2,2	18000	2724/850/1950	520	ERDS-050/3C4SH (*2)	2750/440/815	143*2
HLT/D-FC 2999	2	91,4	80	25,8	73	2,8	24000	3417/850/1950	520	ERDS-050/4B4SH (*2)	3575/440/815	171*2

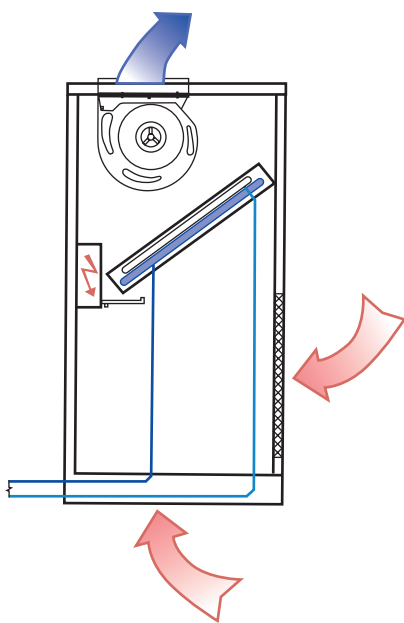**Remarks:** All data apply at 400 V/3 ph/50 Hz
• Cooling capacity; return air conditions: 24°, 50 % r. h.; water temperature: 7°C/12°C; glycol: 0%
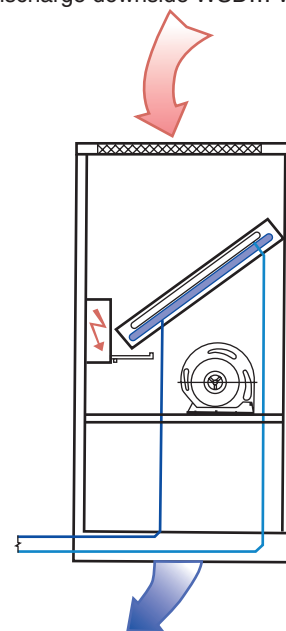• The electric power input of the fans must be added to the room load
Technical data subject to change without notice.

CONDITIONERS WITH COLD WATER COOLING (W)

Configuration with cold water cooled,
air discharge on top WST… WMT... WLT

Configuration with cold water cooled,
air discharge downside WSD… WMD... WLD

Precision A/C

Model	Refrigerant circuits (water), n	Total cooling capacity (kW)	Sensible cooling capacity (kW)	Total power input (kW)	Air flow (m³/h)	Internal block	
						Length/Width/Height (mm)	Weight (kg)
WST/D 0074	1	7,4	6,2	0,1	1550	735/750/1950	195
WST/D 0088	1	8,8	7,6	0,2	2000	735/750/1950	200
WST/D 0157	1	15,7	13,4	0,5	3500	715/750/1950	230
WMT/D 0217	1	21,7	19,3	0,4	5250	1130/850/1950	310
WMT/D 0303	1	30,3	26,3	1	7000	1380/850/1950	431
WMT/D 0402	1	40,2	36,1	1,5	9900	1825/850/1950	431
WMT/D 0465	1	46,5	40,6	1,5	10800	2075/850/1950	460
WMT/D 0603	1	60,3	51,8	2	13600	2474/850/1950	525
WLT/D 0759	1	75,9	70	2,4	17600	2724/850/1950	625
WLT/D 0999	1	102,2	91,6	3	22500	3417/850/1950	750

Remarks: All data apply at 400 V/3 ph/50 Hz
• Cooling capacity; return air conditions: 24°, 50 % r. h.; water temperature: 7°C/12°C; glycol: 0%
• The electric power input of the fans must be added to the room load
Technical data subject to change without notice.

Precision A/C

KANZLER
**Precision air conditioners
from 8 kW to 100 kW**

General features

Kanzler close control systems satisfy the most stringent specifications in computer centers and telecommunications facilities. They make a valuable contribution to the reliable operation and uninterrupted availability of IT systems. All precision air conditioning systems in the Kanzler portfolio satisfy temperature requirements, and in parallel maintain constant humidity levels in rooms, thereby preventing heat-related malfunctions and premature aging of hardware. But it's not only for IT that Kanzler provides valuable services. In laboratories and chip production as well – and in nanotechnology and in medical facilities – the exact maintenance of specified air parameters and particularly good air quality are of great importance.

Kanzler offer you a whole spectrum of solutions that allows selections such as the following:
• Flexibility and application diversity through modularity
• Various duties from 8 kW to more than 100 kW of sensible cooling duty.
• Indoor equipment or weatherproof outdoor versions
• Air or water cooled
• Cooling by refrigerants or chilled water
• Choice of refrigerant (R-407C, R-410A, R-134a)
• Indoor installation in a server room, or in an adjacent equipment room
• Intrinsic equipment redundancy
• Up flow or down flow air directions and air distribution through raised floors
• Equipment optimized for part load, with compressors in twin configurations, or free cooling for energy-saving operations
• Various filter classifications
• Various heating systems
• Systems containing parallel configurations of refrigerant and chilled-water systems

Constructional features
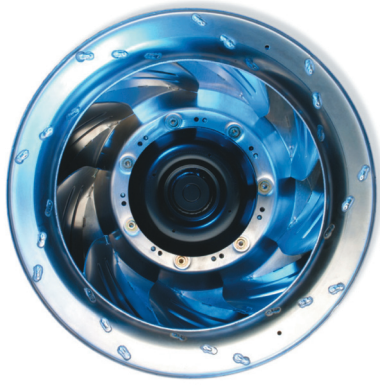
The EC motor

The infinitely variable speed control of the EC motor takes place electronically, by semiconductors. As a result, it is not subject to wear. All motor-protection functions are integrated and contribute to a reliable and especially long motor life cycle. The motor fulfils all regulations for electromagnetic compatibility.

The efficiency of the EC fan is over 90 % and enables energy-savings of up to 45 % with respect to equipment with conventional asynchronous motors (AC).

The MICOM microprocessor control system offers additional energy savings: this is because, for example, operation of several units (including a redundant unit) is possible with reduced airflow and speed under normal conditions. If, for example, one unit is shut down for maintenance, the airflow of the remaining units in operation will be automatically increased.

Additional possibilities of savings arise by reduction of the airflow under low heat loads. The airflow is infinitely variably controlled within the freely selected upper and lower limits of airflow.
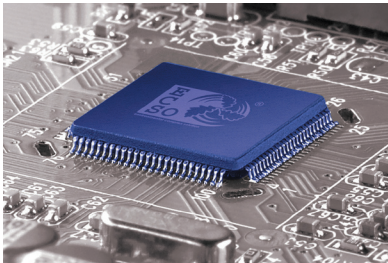
Intelligent close control

Precise climate control also requires precise close control. This task is performed by our electronic control modules. They ensure conformity to the specified temperature and relative humidity and additionally monitor essential components. Clearly organized displays offer a quick overview of equipment status and momentary operating conditions.

On its own, the internal climate control of our close control units assures efficient and demand-driven operation. The electronic close control systems monitor conformity to supply and exhaust air parameters as set, and enable fully automatic operation. If several close control units are installed, the control systems communicate with each other and assure optimal operations for the entire equipment plant.

Our close control systems are also communicative toward the outside. If you wish, you can receive e-mails with malfunction and error messages, and via a web interface you can even take a look at current operational data. And even more: you can use remote functions to assign new setpoints from off-premises: from your office or from home.

Interface-friendly:
• Sensitive control of temperatures and humidity
• Monitoring of the most important equipment components
• Possibility of networking several control systems
• Interface to commonly used building-services management systems
• Web interface for remote queries and setting of parameters
• Sending of malfunction messages via various channels

Precision A/C

Precision A/C

MICOM microprocessor, display details and functions

A user-programmable MICOM microprocessor, optimized for integration into advanced building-management systems. The control unit processes 128 inputs and outputs, and can be interfaced to a local PC or notebook via the RS232 interface. Operation is fully intuitive via the large sensor touch screen, with 64,000 colors in TFT-LCD standard and. Acoustic and visual feedback prevent errors in operation. A USB interface enables saving and output of all user configuration data, as well as records of alarms and of temperature and humidity plots. Software updating is also possible via the USB interface.

• MICOM microprocessor
• USB interface (max. 2 GB)
• RS232 connection
• Power-failure protection via flash memory
• Ethernet 10-MB/s network with TCP/IP protocol
• Integrated Web server with access security
• BACnet/IP option
• Service button
• Fast overview by an individual start page
• Favorites / bookmark pages for the most important
  operation characteristics
• Automatic pressure-compensation sensor for raised floor
• Plots of temperature and humidity in real time

Standard components

• Multi-speed centrifugal fans
• High efficiency Copeland Scroll compressors
• High and low side pressure switches
• Filters EU2 - EU4
• R-407C Refrigerant
• 3-way valves
• INTOUCH display
• LAN, integral Local Area Network
• Buffer battery
• Record 100 alarms

Options

• Installation plinth
• Ceiling return ducts
• Horizontal discharges
• R-410A, R-134a
• Electric heaters
• Filters in EU5 end EU7 grade
• Compressor softstart
• BMS interfaces
  – LON
  – BACNET
  – MODBUS
  – ETHERNET
  – etc.

• Audible alarm
• Water detection
• Smoke detection
• Refrigerant detection
• Sump pump
• Electrode steam humidifiers
• Filter gauge
• Hot-gas bypass
• Winter start
And much more

Kanzler series

AIR COOLED WITH INTERNAL COMPRESSOR AND EXTERNAL CONDENSER (R)

This model is a precision air conditioning system featuring direct-expansion with an air-cooled condenser. The precision air conditioning system is available with either 1 or 2 cooling circuits, and with 1 or 2 compressors per cooling circuit. The air cooled condensers of ERCT are offered in 3 different sound power level classes, and optionally with a winter start kit (with additional liquid receiver and liquid backup control) for extremely low outdoor temperatures (down to - 40°C).

R version is characterized by comparatively low investment and installation costs and by good cost effectiveness. As a result, it is particularly interesting for machine rooms and server rooms, small to medium-sized data centers, and installations with short and medium-length pipe lengths.

WATER COOLED (H)

This version is configured with internal compressors and heat rejection to external dry coolers via inbuilt stainless steel plate heat exchangers. The precision air conditioning system is available with either 1 or 2 cooling circuits, and with 1 or 2 compressors per cooling circuit. The dry coolers of the ERDT are offered in 3 different sound power level classes (6, 8, or 12-pole motors).

WATER COOLED WITH FREE-COOLING OPTION (H-FC)

This is a precision air conditioning system configured as a version with direct expansion cooling, a water-cooled condenser as a stainless steel plate heat exchanger, a 3-way servo-valve, a free-cooling coil, and an external dry cooler. The precision air conditioning system is available with 1 free-cooling circuit and with either 1 or 2 cooling circuits, and with 1 or 2 compressors per cooling circuit. When glycol water supply temperatures are at least 2 K below the return air temperature set point, mixed operation takes place: i.e., with compressors and free-cooling. When glycol water supply temperatures are low enough to maintaining the required return air temperature, the system operates under a pure free-cooling mode. The dry coolers of ERDT provide free-cooling and are available in 3 different sound power level classes.

The H-FC version is especially effective for applications in which the primary importance is operational costs.

In many cases, IT professionals prefer refrigerant-based climate control over solutions with water circuits – and they lose hard money by their decisions. Close control systems with a glycol-water circuit and free cooling enable more economical cooling of servers. Their power consumption is up to 35% less, since the free cooling principle enables the compressor to stay off on cool days, or to operate in partial-load mode.

> *Benefits of free cooling*
>
> *Once the system capacities, air distribution, and installation site have been decided, the question often arises of the optimal functional principle. To prevent water damage, many users prefer a refrigerant-based system. This decision, however, brings a number of disadvantages. Any leaks in the cold-water circuit, for example, are easier to localize than leaks in a refrigerant circuit: because any leaking refrigerant will immediately evaporate. In addition, cold-water networks enable a piping system with long pipe lengths, to which additional equipment units can be easily connected. Finally, a glycol-water system offers the possibility of locating the free cooler at any point, and to use it for free cooling. To avoid any risk of leaking water, it is sufficient to install a drip tray in a normal raised floor. The dimensions of the floor are smaller than often assumed, and installation costs and loss of space are insignificant.*

CHILLED-WATER MODEL (W)

This is a precision air conditioning system configured as a chilled-water system for connection to a separate chiller. The unit is equipped with a cooling coil and a modulating (0 – 10 V) 2- or 3-way servo-valve. All air- and water-cooled ECSO chillers can be used with the W version. The W version is primarily used for medium-sized computer centers, large data centers, and installations with long pipe lengths. In connection with the free-cooling range of ECSO chillers, the W version is especially relevant today because of its highly economic energy consumption. Together with the latest in EC fan technology, very low power consumption is achieved by the W version when referenced to the power input of the fans, particularly when configured as a standby-redundant system.

CONDITIONERS WITH DIRECT AIR COOLING AND AIR COOLED CONDENSER (R)

Configuration with air cooled condenser,
air discharge on top RST... RMT... RLT

Configuration with air cooled condenser,
air discharge downside RSD... RMD... RLD

Precision A/C
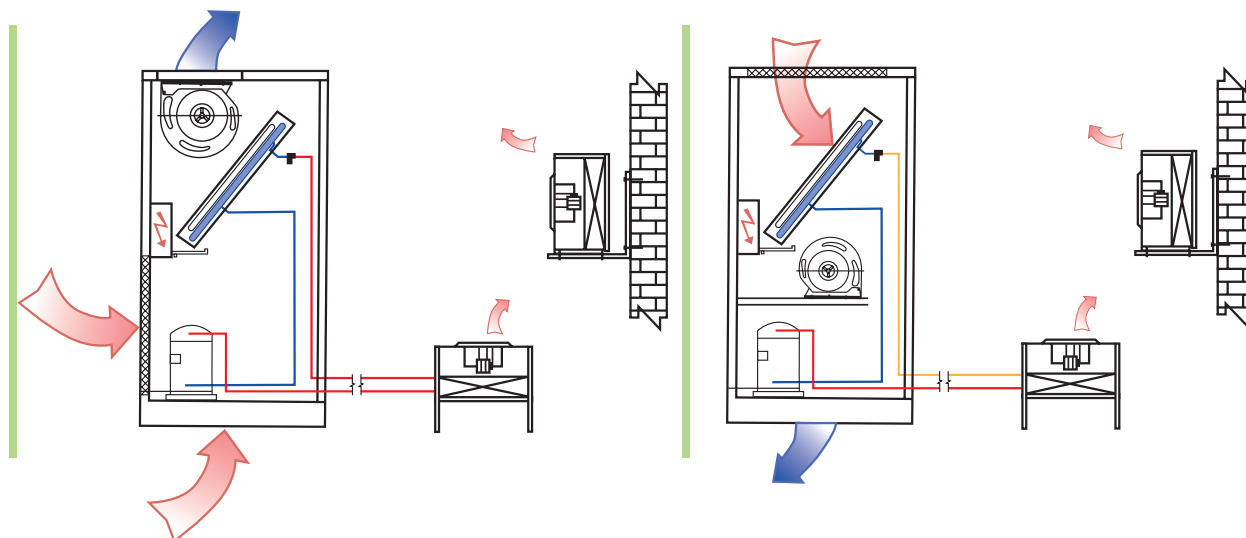
Model	Refrigerant circuits, n	Total cooling capacity (kW)	Sensible cooling capacity (kW)	Total power input* (kW)	Air flow (m³/h)	Internal block with downside distribution		External block (remote condenser)		
						Length/Width/ Height (mm)	Weight (kg)	Model	Length/Width/ Height (mm)	Weight (kg)
RSD(T) 1083 IX	1	8,32	7,49	2,45	1500	1850/765/670	260	ERCT-030	995/675/682	86
RSD(T) 1148 IX	1	14,8	13,32	4,54	2700	1850/900/750	310	ERCT-050	1085/832/782	120
RMD(T) 1232 IX	1	23,2	20,88	6,75	3600	1850/1000/830	330	ERCT-075	1135/1315/732	145
RMD(T) 1307 IX	1	30,7	27,63	8,62	5100	2095/1200/970	400	ERCT-100	1195/1415/822	185
RMD(T) 1469 IX	1	46,9	42,21	14,9	7500	2095/1500/970	680	ERCT-150	1300/1650/880	300
RSD(T) 2166 IX	2	16,64	14,98	4,97	3300	1850/1000/750	475	ERCT-030 (*2)	995/675/682	86*2
RMD(T) 2296 IX	2	29,6	26,64	9,08	5400	1915/1500/830	660	ERCT-050 (*2)	1085/832/782	120*2
RMD(T) 2464 IX	2	46,4	41,76	13,5	7200	1915/1800/830	715	ERCT-075 (*2)	1135/1315/732	145*2
RMD(T) 2614 IX	2	61,4	55,26	17,24	10200	2095/2100/970	905	ERCT-100 (*2)	1195/1415/822	185*2
RLD(T) 2760 IX	2	76	68,40	26,8	14400	2095/2100/1000	1075	ERCT-150 (*2)	1300/1650/880	300*2
RLD(T) 2938 IX	2	93,8	84,42	20,6	16200	2095/2000/1000	1100	ERCT-150 (*2)	1300/1650/880	300*2

Remarks: * Energy consumption: compressor + fan

All data apply at 400 V/3 ph/50 Hz
• Cooling capacity; return air conditions: 24°C, 50 % r. h.; condensing temperature 45°C
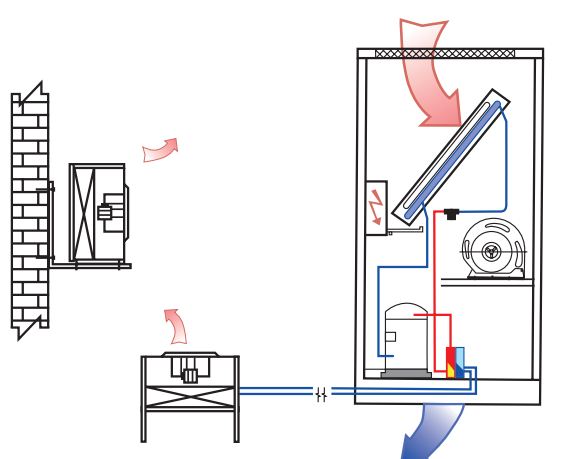• The electric power input of the fans must be added to the room load
Technical data subject to change without notice.

CONDITIONERS WITH DIRECT AIR COOLING AND WATER COOLED CONDENSER (H)

Configuration with water cooled condenser, air discharge on top HST... HMT... HLT
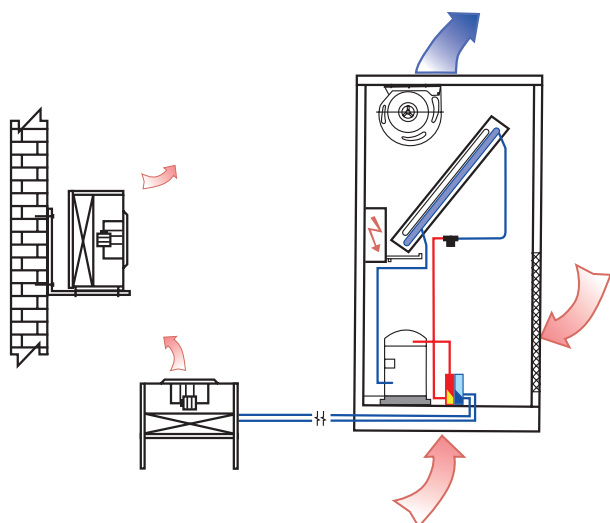
Configuration with water cooled condenser, air discharge downside HSD... HMD... HLD

Precision A/C

Model	Refrigerant circuits, n	Total cooling capacity (kW)	Sensible cooling capacity (kW)	Total power input* (kW)	Air flow (m³/h)	Internal block with on top distribution		External block (dry cooler)		
						Length/Width/ Height (mm)	Weight (kg)	Model	Length/Width/ Height (mm)	Weight (kg)
HSD(T) 1083 IX	1	8,32	7,49	2,45	1500	1850/765/670	260	ERDT-030	900/930/760	90
HSD(T) 1148 IX	1	14,8	13,32	4,54	2700	1850/900/750	310	ERDT-050	930/1120/995	130
HMD(T) 1232 IX	1	23,3	20,88	6,75	3600	1850/1000/830	330	ERDT-075	970/1600/985	270
HMD(T) 1307 IX	1	30,7	27,63	8,62	5100	2095/1200/970	400	ERDT-100	970/1750/1140	340
HMD(T) 1469 IX	1	46,9	42,21	14,9	7500	2095/1500/970	680	ERDT-150	970/2350/1100	425
HSD(T) 2166 IX	2	16,64	14,98	4,97	3300	1850/1000/800	475	ERDT-060 (*2)	900/1580/842	250*2
HMD(T) 2296 IX	2	29,6	26,64	9,08	5400	1915/1500/830	660	ERDT-100 (*2)	970/1750/1140	340*2
HMD(T) 2464 IX	2	46,4	41,76	13,5	7200	1915/1800/830	715	ERDT-150 (*2)	970/2350/1100	425*2
HMD(T) 2614 IX	2	61,4	55,26	17,24	10200	2095/2100/970	905	ERDT-200 (*2)	970/3300/1100	700*2
HLD(T) 2760 IX	2	76	68,40	26,8	14400	2095/2100/1000	1075	ERDT-250 (*2)	970/4800/1100	850*2
HLD(T) 2938 IX	2	93,8	84,42	20,6	16200	2095/2600/1000	1100	ERDT-300 (*2)	970/4800/1100	850*2

Remarks: * Energy consumption: compressor + fan

All data apply at 400 V/3 ph/50 Hz
• Cooling capacity; return air conditions: 24°, 50 % r. h.; water temperature: 7°C/12°C; glycol: 0%
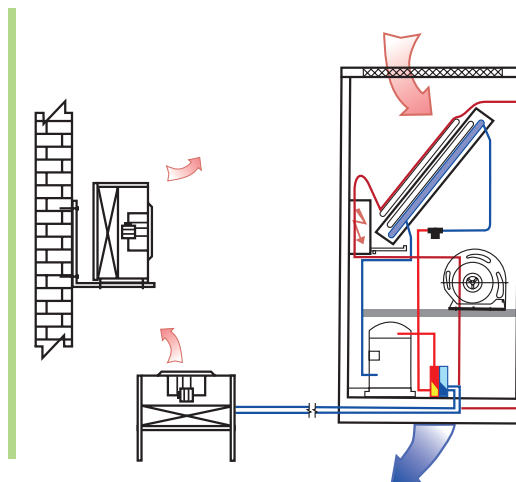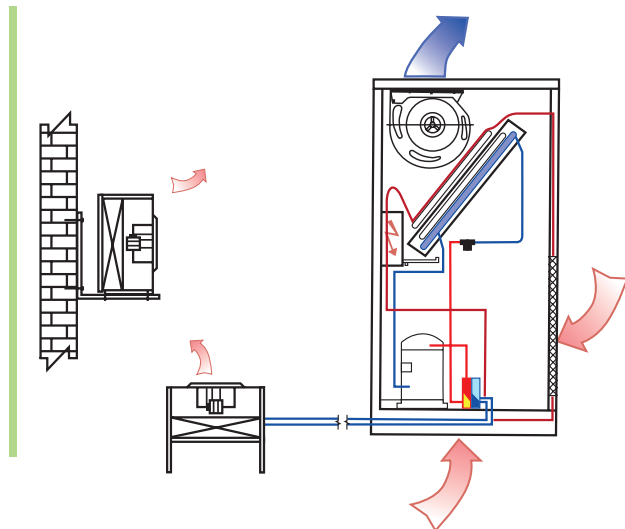• The electric power input of the fans must be added to the room load
Technical data subject to change without notice.

Precision A/C

CONDITIONERS WITH WATER COOLED CONDENSER AND FREE COOLING (H-FC)

Configuration with water cooled condenser
and free cooling, air discharge on top
HST-FC... HMT-FC… HLT-FC

Configuration with water cooled condenser
and free cooling, air discharge downside
HSD-FC… HMD-FC... HLD-FC

Model	Refrigerant circuits, n	Total cooling capacity (kW)	Sensible cooling capacity (kW)	Total power input* (kW)	Free-cooling Total power input (kW)	Air flow (m³/h)	Internal block with on top distribution		Internal block (dry cooler)		
							Length/Width/ Height (mm)	Weight (kg)	Model	Length/Width/ Height (mm)	Weight (kg)
HSD(T)-FC 1083 IX	1	8,32	7,49	2,45	0,34	1500	1850/765/670	340	ERDT-030	900/930/760	90
HSD(T)-FC 1148 IX	1	14,8	13,32	4,54	0,75	2700	1850/900/750	420	ERDT-050	930/1120/995	130
HMD(T)-FC 1232 IX	1	23,3	20,88	6,75	0,75	3600	1850/1000/830	440	ERDT-075	970/1600/985	270
HMD(T)-FC 1307 IX	1	30,7	27,63	8,62	1,12	5100	2095/1200/970	540	ERDT-100	970/1750/1140	340
HMD(T)-FC 1469 IX	1	46,9	42,21	14,9	3,7	7500	2095/1500/970	840	ERDT-150	970/2350/1100	425
HSD(T)-FC 2166 IX	2	16,64	14,98	4,97	0,75	3300	1850/1000/800	580	ERDT-060 (*2)	900/1580/842	250*2
HMD(T)-FC 2296 IX	2	29,6	26,64	9,08	1,5	5400	1915/1500/830	810	ERDT-100 (*2)	970/1750/1140	340*2
HMD(T)-FC 2464 IX	2	46,4	41,76	13,5	1,5	7200	1915/1800/830	860	ERDT-150 (*2)	970/2350/1100	425*2
HMD(T)-FC 2614 IX	2	61,4	55,26	17,24	2,24	10200	2095/2100/970	1060	ERDT-200 (*2)	970/3300/1100	700*2
HLD(T)-FC 2760 IX	2	76	68,40	26,8	7,4	14400	2095/2100/1000	1195	ERDT-250 (*2)	970/4800/1100	850*2
HLD(T)-FC 2938 IX	2	93,8	84,42	20,6	7,4	16200	2095/2600/1000	1250	ERDT-300 (*2)	970/4800/1100	850*2

Remarks: * Energy consumption: compressor + fan

All data apply at 400 V/3 ph/50 Hz
• Cooling capacity; return air conditions: 24°, 50 % r. h.; water temperature: 7°C/12°C; glycol: 0%
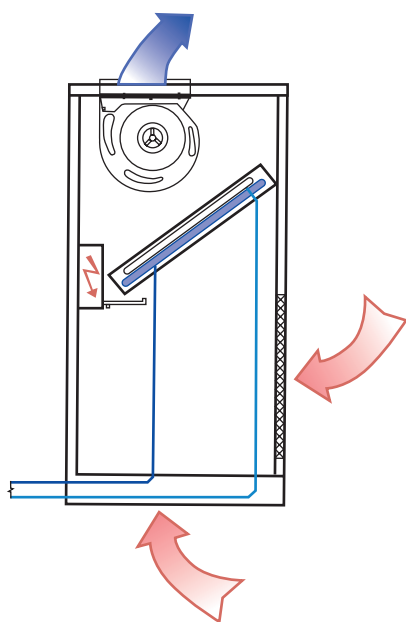• The electric power input of the fans must be added to the room load
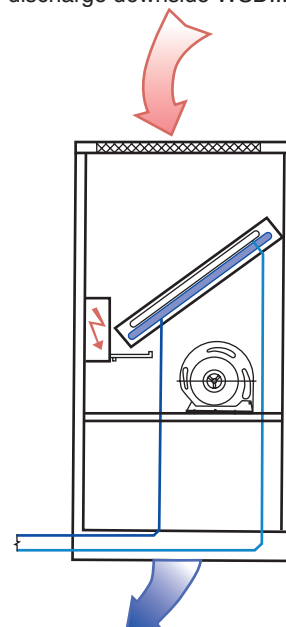Technical data subject to change without notice.

CONDITIONERS WITH COLD WATER COOLING (W)

Configuration of cold water
cooled conditioners (from chiller),
air discharge on top WST... WMT... WLT

Configuration of cold water
cooled conditioners (from chiller),
air discharge downside WSD... WMD... WLD

Precision A/C

Model	Refrigerant circuits (water), n	Total cooling capacity (kW)	Total power input (kW)	Water flow (l/min)	Air flow (m³/h)	Internal block	
						Length/Width/Height (mm)	Weight (kg)
WSD(T) 0501 IX	1	10,55	0,75	30	1980	765/650/2050	300
WSD(T) 0175 IX	1	17,58	0,75	50	3300	900/700/2050	380
WMD(T) 0201 IX	1	20,1	1,12	60	3960	1350/750/2050	545
WMD(T) 0263 IX	1	26,37	1,12	75	4800	1000/750/2050	400
WMD(T) 0351 IX	1	35,16	3,70	100	6600	1500/780/2130	780
WSD(T) 0527 IX	1	52,74	2,24	150	9600	1800/780/2200	825
WMD(T) 0703 IX	1	70,33	7,4	200	13200	2100/950/2200	1030
WMD(T) 01054 IX	1	105,49	7,4	300	19800	2600/950/220	1100

Remarks: All data apply at 400 V/3 ph/50 Hz
  • Cooling capacity; return air conditions: 24°, 50 % r. h.; water temperature: 7°C/12°C; glycol: 0%
  • The electric power input of the fans must be added to the room load
  Technical data subject to change without notice.