

→ CIAT International Training Centre
Training guide 2011

Heat Pumps

Refrigeration

Air Handling

Heat Exchange





Training centre presentation

The successful development of CIAT HVAC products on an international level has resulted in many installations throughout the world.

For the benefit of our international customers, our training centre proposes several types of training dedicated to the different disciplines in our profession by providing training for:

- > End users
- > Installers
- > Servicing and maintenance companies
- > Industry training tailor-made to suit individual groups

The benefits provided by group training sessions mean that over 800 technicians and engineers come to our training centre in France every year.

Our training centre will be greatly improved by the development of our training programmes in English.

You will find the list of training sessions in the programme; we invite you to take the opportunity of learning how to improve the reliability, energy efficiency and easy use of your CIAT HVAC equipment by participating in these sessions.

New thermal regulations, the development of renewable energies, the use of new ozone-friendly refrigerants, air quality control, the safety of installations,... these are just a few of the subjects which must be taken into account in terms of the evolution of markets and regulations.

To achieve these goals, our international training centre has been renovated and expanded. We are equipped with classrooms which use the latest multimedia systems. In our technical workshops you will be able to work on a number of different types of HVAC units.

We offer a large choice of training sessions for the HVAC sector, from basic training to a complete specialisation cycle. These training sessions are given in French or in English.

Please contact us, for further information.

email: FormationTechInt@ciat.fr

phone : (+33) (0)4 79 42 43 97.



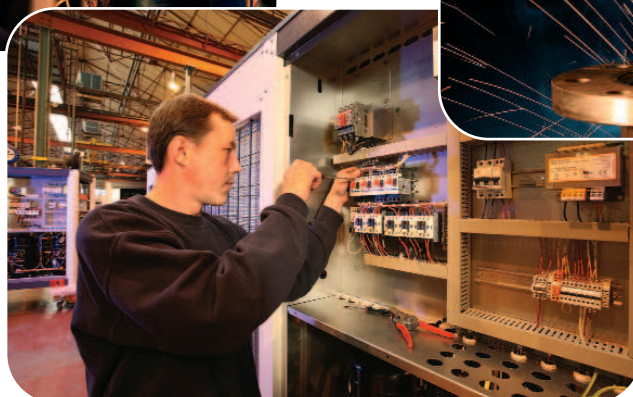
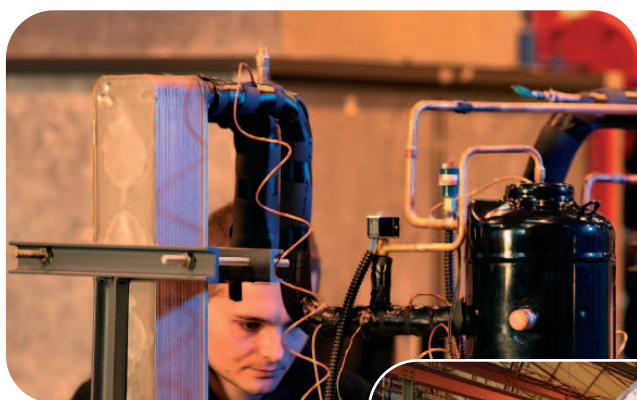


Programme for 2011

The sessions are divided into groups



Group 1	Product trainings
Group 2	Refrigeration and Air Conditioning trainings
Group 3	Specific trainings
Group 4	Electronic controls for chillers



Please see page "How to select your training session"

GROUP 1

PRODUCT TRAINING

LIST OF AVAILABLE COURSES

- › P1 : Residential heat pumps (Aqualis 2, Ageo, Caleo)
- › P2 : Mid capacity chillers using SCROLL compressor technology and CONNECT control system (LD/ILD/LG/LJA)
- › P3 : High capacity chillers equipped with SCREW type compressors and XTRA CONNECT control system (LW/LX)
- › P4 : AHU: the function of each component and maintenance
- › P5 : ROOF TOP

Note: each training session lasts 2 days



PROGRAMME

- › Installation recommendations; flow, filtration, vibration...
- › Initiation of refrigeration cycle and main components technology
- › Study of the electrical wiring diagram
- › Presentation of electronic controls and basic parameter settings
- › Primary maintenance procedures
- › Study of possible alarms and remedies
- › Energy optimisation

DATE

Consult us.

CONDITIONS

Suitable for end users, service technicians, ...

- › Duration: 2 days (16 hours) from Monday 2pm to Wednesday lunchtime or Wednesday 2pm to Friday lunch
- › Costs: Travel expenses to and from the training centre, hotel and car rental are not included
- › Per person: Training: 645 € excl. taxes (including 1 lunch)

Training will be confirmed only if a sufficient number of participants is booked.

Special training rates are available for groups of trainees of 4 people and more from the same company. Please consult us.

GROUP 2

AIR CONDITIONING TECHNOLOGY TRAINING

LIST OF AVAILABLE TRAINING SESSIONS

Courses start on Monday at 2pm and finish on Friday lunchtime

ON REFRIGERATION

- > **REF1:** Good practice in refrigeration on scroll and reciprocating compressors: (for beginners)
Refrigerant cycle, component technology, commissioning
- > **REF2:** Good practice in refrigeration on scroll and reciprocating compressors:
(advanced level) maintenance and trouble shooting
- > **REF3:** High capacity chillers using screw type compressors; commissioning and maintenance
- > **REF4:** Residential heat pumps; installation, commissioning and maintenance

ON AIR HANDLING

- > **AHU1:** Commissioning and maintenance, psychometric chart

ON ROOF TOPS

- > **Roof 1:** Controls, commissioning and maintenance



DATE

Consult us.

CONDITIONS

- > Duration: 4 days (32 hours) from Monday 2pm to Friday lunchtime
- > Cost: Travel expenses to and from the training centre, hotel and car rental are not included
- > Per person: Training 1 075 € excl. taxes (including 3 lunches)

Training will be confirmed only if a sufficient number of participants is booked.

Special training rates are available for groups of trainees of 4 people and more from the same company. Please consult us.

REF1: GOOD PRACTICE IN REFRIGERATION ON SCROLL AND RECIPROCATING COMPRESSORS: (FOR BEGINNERS) COMMISSIONING AND MAINTENANCE

Persons concerned: service engineers (beginners), end users or contractors who need to carry out primary maintenance operations

PROGRAMME

- > Thermodynamic notions; pressure, temperature, phase changes, refrigerant cycles
- > Refrigerant fluids; features, classification, study of the main refrigerants in HVAC and regulation
- > Technology of components; compressors, heat exchangers, refrigeration components
- > Controls and safety devices;
- > Study of different types of refrigeration and electrical diagrams; chillers, reverse cycle heat pumps, vapour injection
- > Practical exercises on operating units at the training centre; commissioning, check reports
 - With of lack or excess charge; incidence on check report
 - Setting of expansion valve
 - Commissioning procedure
- > Maintenance operations (monthly, yearly)



REF2: GOOD PRACTICE IN REFRIGERATION ON SCROLL AND RECIPROCATING COMPRESSORS: (FOR EXPERIENCED TECHNICIANS) COMMISSIONING, MAINTENANCE AND TROUBLE SHOOTING

Persons concerned: experienced service engineers, contractors with previous experience of chillers or heat pumps

PROGRAMME

- > Reminder: thermodynamic notions; pressure, temperature, phase changes, refrigerant cycles
- > Controls and safety devices;
- > Study of different types of refrigeration and electrical diagrams; chillers, reverse cycle heat pumps, vapour injection
- > Practical exercises on operating units at the training centre; commissioning
- > Maintenance operations (monthly, yearly), refrigerant transfer: procedures and practical exercises
- > Trouble shooting

REF3: GOOD PRACTICE IN REFRIGERATION ON SCREW COMPRESSORS (FOR EXPERIENCED TECHNICIANS) : COMMISSIONING, MAINTENANCE AND TROUBLE SHOOTING

Persons concerned: experienced service engineers, contractors having already an experience in chillers or heat pumps or having already followed training REF 1 or REF 2

PROGRAMME

- > Reminder: thermodynamic notions; pressure, temperature, phase changes, refrigerant cycles
- > Controls and safety devices;
- > Study of different types of refrigeration and electrical diagrams; chillers, reverse cycle heat pumps, vapour injection
- > Specificity of screw compressors
- > Practical exercises on operating units at the training centre; commissioning
- > Maintenance operations (monthly, yearly), refrigerant transfer
- > Trouble shooting



REF4: RESIDENTIAL HEAT PUMPS: installation, commissioning , maintenance

Persons concerned: end users, plumbers, electricians, service engineers...

PROGRAMME

- > Good practice of installation; flow, filtration, vibration...
- > Thermodynamic notions; pressure, temperature, phase changes, refrigerant cycles
- > Refrigerant fluids; features, classification and study of the main refrigerants in HVAC
- > Technology of components; compressors, heat exchangers, refrigeration components
- > Controls and safety devices;
- > Geothermal and air source energy selection
- > Study of different types of refrigeration and electrical diagrams; reverse cycle heat pumps, their options
- > Practical exercises on operating units at the training centre; commissioning
- > Maintenance operations (monthly, yearly)

AHU1: Knowledge of the functions of AHU: installation, commissioning and maintenance

Persons concerned: service engineers, end users or contractors who need to carry out maintenance operations

PROGRAMME

- > Description of an AHU: its components and functions
- > Installation of an AHU
- > Recommendations
- > Psychometric chart; cooling, heating, humidification, dehumidification, mixing...
- > Filtration; standards, efficiency
- > Pressure; evolution and matching fan network
- > Practical exercises on operating units at the training centre; commissioning, flow adjustment, air balance
- > Maintenance operations (monthly, yearly)
- > Initiation of the refrigerant cycle



ROOF TOP 1: Knowledge of the functions of a installation, commissioning and maintenance

Persons concerned: service engineers, end users or contractors who need to carry out primary maintenance operations

PROGRAMME

- > Description of a ROOF TOP: its components and functions, different configurations
- > Installation of a ROOF TOP
- > Recommendations
- > Psychometric chart; cooling, heating, humidification, dehumidification, mixing...
- > Filtration; standards, efficiency
- > Pressure; evolution and matching fan network
- > Controls and safety devices;
- > Study of different types of refrigeration and electrical diagrams; chillers, reverse cycle heat pumps, vapour injection
- > Practical exercises on operating units at the training centre; commissioning
- > Maintenance operations (monthly, yearly)

GROUP 3

SPECIFIC TRAINING

LIST OF AVAILABLE TRAINING SESSIONS

> SPEC : destined for companies who want to study a specific subject or type of unit.

For example:

- study of CIATRONIC unit,
- training done in your premises
- tour of several of your sites to see improvements and check parameters...

Minimum of 5 persons

Persons concerned: depends on the company and programme

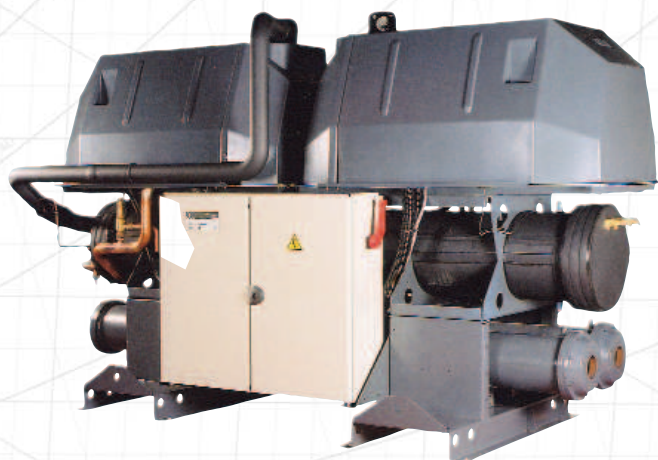
PROGRAMME

To be defined between you and the training centre

- > Duration: to be defined
- > Cost: To be defined depending on the type of subject, the units involved, the practical part of the training session and the location of the training session.

DATE

Consult us.



GROUP 4

ELECTRONIC CONTROLS FOR CHILLERS TRAINING SESSION

Courses start on Monday at 2pm and close Wednesday lunchtime or start on Wednesday at 2pm and close Friday lunchtime

LIST OF AVAILABLE COURSES

CHILLER CONTROLS: (2 days)

CONNECT' CONTROL: functions and optimisation

XtraConnect' & Multi-connect' CONTROLS



DATE

Consult us.

CONDITIONS

- > Duration: 2 days (16 hours)
- > Cost: Travel expenses to and from the training centre, hotel and car rental are not included
- > Per person: Training: 736 € excl. taxes (including 1 lunch)

Training will be confirmed only if a sufficient number of participants is booked.

Special training rates are available for groups of trainees of 4 people and more from the same company. Please consult us.

How to select your training session

YOU ARE EQUIPPED WITH ... or INTERESTED IN

You want to be able to: ↓	heat pumps, roof tops, chillers		high capacity heat pumps & chillers		controls for chillers, & heat pumps	air handling units	
	roof top	residential heat pump	high capacity heat pumps & chillers		electronic controls	AHU	Ciatronic / clean rooms
			scroll compressors	screw compressors			
know the product and its daily use	P5	P1	P2	P3		P4	
install and run the unit	P5	P1	P2	P3		P4	
commission, maintain and repair the unit		REF4	REF1 (beginners) or REF2 (experienced)	REF3	specific session depending on controller reference	AHU1	specific session
work in the supermarket, shopping centre sector	ROOF1		REF1 (beginners) or REF2 (experienced)			AHU1	
work in the Industrial/ Pharmaceutical sector			REF1 (beginners) or REF2 (experienced)	REF3	specific session depending on controller reference	AHU1	specific session

NB: For REF3 trainees must have previous experience of the refrigerant circuit or have followed the REF1 or REF2 training session.

REGISTRATION FORM FOR TRAININGS

→ Training session N°
 Dates requested
 Trainee's name Trainee's first name
 Profession

→ Training session N°
 Dates requested
 Trainee's name Trainee's first name
 Profession

→ Company Name
 Address
 Postal code City Country
 Phone Fax Mail
 Training manager Registration Manager
 Mr, Mrs, Miss

→ Name and address for invoice if different to above

→ Please return the form to :

CIAT SERVICE - CENTRE DE FORMATION INTERNATIONALE
 Avenue Jean Falconnier - BP 14
 01350 CULOZ - FRANCE
 Tel. (+33) (0)4 79 42 43 97 - Fax (+33) (0)4 79 42 68 56
 Email : FormationTechInt@ciat.fr

Please indicate if you need a hotel room to be booked :

YES NO





This document is non-contractual. As part of its policy of continual product improvement, CIAT reserves the right to make any technical modification it feels appropriate without prior notification.

Head office

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