

IC17D - Multi-Stage Concentration Plant



IC17D/3 –Triple Effect Concentrator (Code 991000)
with optional SAD/IC17D3 Automatic Data Acquisition System

1. General

The IC17D allows to carry out a complete study on the concentration and to produce small quantities of concentrate for laboratory use. The plant, entirely made of stainless material in order to guarantee a long duration, can be utilized for concentration both at atmospheric pressure and under vacuum.

The plant is available in three different versions:

- **IC17D/1 (Code 991002) – Single-stage concentration plant.**
- **IC17D/2 (Code 991001) – Two-stage concentration plant.**
- **IC17D/3 (Code 991000) – Three-stage concentration plant.**

The unit is supplied with manuals which describe all parts of the plant, the installation and utilisation procedures, as well as many exercises with the relative results.

2. Composition

	IC17D/1 Code 991002	IC17D/2 Code 991001	IC17D/3 Code 991000
Evaporator made of stainless steel AISI 304, 20 l capacity, with drop separator and tube bundle steam heater	1	2	3
Feeding tank made of stainless steel AISI 304, capacity 100 l	1	1	1
Concentrate collection tank made of stainless steel AISI 304, capacity 100 l	1	1	1
Vacuum separation tank	1	1	1
Water-cooled condenser	1	2	3
Steam pre-heater	1	1	1
Feeding pump, 0.45 kW	1	1	1

2. Composition	IC17D/1 Code 991002	IC17D/2 Code 991001	IC17D/3 Code 991000
Condensate extraction pump, 0.45 kW	1	1	1
Liquid ring vacuum pump for extraction of incondensables from the evaporator, 1.5 kW, 2900 RPM, 650 mm Hg	1	1	1
Liquid ring vacuum pump for extraction of incondensables from the evaporator tube bundle, 1.5 kW, 2900 RPM, 650 mm Hg	1	1	1
Temperature regulation and control thermostats	2	3	4
Pt100 thermoresistances	6	9	12
Level indicators	2	3	4
Pressure gauges	2	3	4
Valves and solenoid valves	yes	yes	yes
Safety valve	yes	yes	yes
Electric control board	yes	yes	yes

3. Required Services	IC17D/1 Code 991002	IC17D/2 Code 991001	IC17D/3 Code 991000
Electric supply	220/380V three-phase, 50/60 Hz; 8 kW	220/380V three-phase, 50/60 Hz; 8 kW	220/380V three-phase, 50/60 Hz; 8 kW
Water supply	500 l/h	500 l/h	500 l/h
Steam supply	10 kg/h at 3 bar	20 kg/h at 3 bar	30 kg/h at 3 bar

4. Weight and dimensions	IC17D/1 Code 991002	IC17D/2 Code 991001	IC17D/3 Code 991000
Dimensions (mm)	2100x1700x2100h	2600x1700x 2100h	3200x1700x2100 h
Weight (kg)	300	400	500

5. Optional	IC17D/1 Code 991002	IC17D/2 Code 991001	IC17D/3 Code 991000
Electric compressor with 24 l tank	Code 971227	Code 971227	Code 971227
Electric boiler for steam production	T71D/20.1	T71D/20.1	T71D/40
Automatic data acquisition system for IC17D	Code 914800	Code 914801	Code 914802

Automatic Data Acquisition System for IC17D

1. General

This set allows to perform the tests specified for the non computerized version by means of a PC (minimum Pentium), and to take full advantage of this learning experience.

The quantities necessary for the tests can be automatically acquired and processed so as to obtain on screen the data and diagrams illustrating the concentration process.

The data acquisition and analysis software runs in the Windows environment and it is used to acquire the data in real time, to process and store them. It makes it possible to obtain on screen the parameters and diagrams used in the different tests and to print them out.

The set is supplied as standard with an extensive manual that describes the characteristics of the hardware and software systems, explains how to fine-tune the data acquisition system, suggests numerous exercises, and supplies test data and diagrams by way of examples.

2. Composition	SAD/IC17D/1	SAD/IC17D/2	SAD/IC17D/3
Electronic Transducer Kit complete with Feeding Unit and Signal Conditioning Electronics and A/D Conversion Unit, consisting of:	Code 914800	Code 914801	Code 914802
• turbine type electronic flow transducer	2	2	2
• electronic pressure transducers	2	3	4
• signal conversion unit for thermoresistances	6	9	12
Data Acquisition and Analysis Software	Code 914803	Code 914803	Code 914803

3. PC configuration requirements

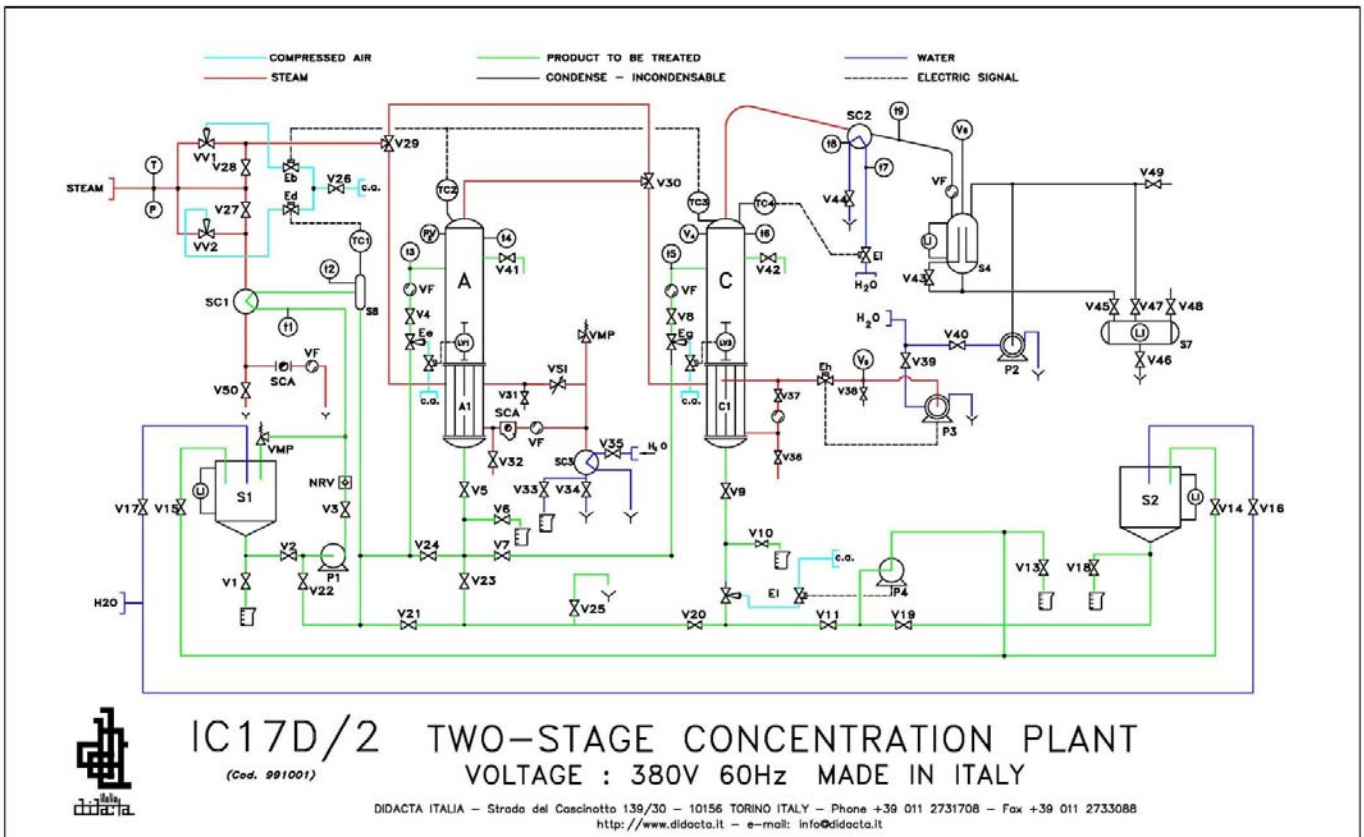
- PC minimum Pentium with HD >10Gb, CD drive, graphic card SVGA minimum, mouse, 32MB RAM, USB port
- Windows XP or later versions.
- Graphic printer.

4. Weight and dimensions

- Dimensions: 540 x 350 x 470 h mm
- Weight: 25 kg



IC17D/2 –Two-stage Concentration Plant (Code 991001)
 with optional: EC24D Electric compressor - T71D/20.1 Electric boiler



IC17D/2 - General Synoptic

A,B,C Evaporators
P_ Pumps
S_ Tanks
TC_ Thermostats
V_ Valves
E_ Solenoid valves
T_ Temperatures probes
V_ _ Pressure gauges