

Drum Heating Cabinet Presentation

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1. AMARC Drum Heating Cabinets



- » **AMARC** has many years of experience in designing and manufacturing **Drum Heating** systems.
- » **Drum Heating Cabinets** solve heating issues for drum contained materials used in manufacturing industries in a clean, safe, reliable and affordable way.
- » Whenever materials such as tar, resins, fats, oils and other viscous substances, need to be kept at a constant temperature or heated in order to change viscosity before processing, our **Drum Heating Cabinets** solve exactly these issues.

1. AMARC Drum Heating Cabinets

- » **Chemical:** such as BASF, Dow Group, Nalco , Clariant, Sun Chemical, Ecolab.
- » **Chemical/ inks, coatings and glues :** Akzo Nobel, Hammerite, ICI Paint, Henkel Loctite, Degussa Evonik
- » **Chemical / detergents and pastes:** Henkel, Unilever, P&G, Colgate Palmolive etc.
- » **Petrochemical/ refining:** Shell Oil, Petronas, Total, Exxon, Texaco.
- » **Food and Beverage:** Nestlè
- » **Cosmetics:** Estee Lauder
- » **Pharmaceutical:** Bayer, Teva, Sanofi-Aventis, Sandoz, Shering ,
Menarini, Angelini ACRAF

2. Drum Heating Cabinet Process



- » Good insulation and a high air turbulence are at the basis of an effective **heat transfer** process.
- » Heating takes place through a forced and continuous air **circulation process** that impinges on the heating system.
- » The air inside the cabinet is drawn upwards by the fans, conveyed inside the delivery channel and pushed through the heater.
- » The **temperature** is controlled by a digital regulator located on electrical control board with temperature sensor fitted inside the chamber.

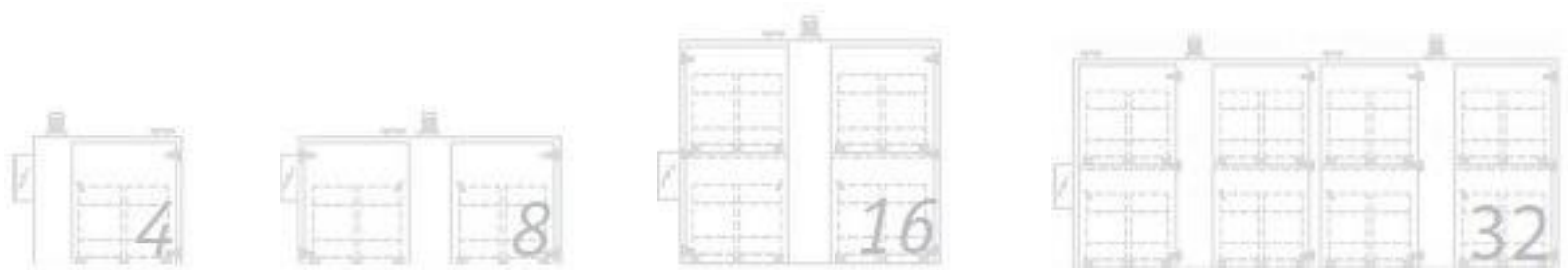
3. Drum Heating Cabinet Features



- » **AMARC** designs and produces a wide range of standard **Drum Heating Cabinets**.
- » To meet each customer's needs, drum ovens can vary according to:
 - Drum/IBC capacity
 - Temperature range
 - Heating source
 - Materials
 - Safety or Hazardous (ATEX) installation area
 - Indoor or Outdoor installation
- » A wide range of options are also available.

4. Drums / IBC Capacity

- » Standard Drum Heating Cabinet capacity: from 1 to 12 compartments. Below some example schemes. These are just part of our wider range:

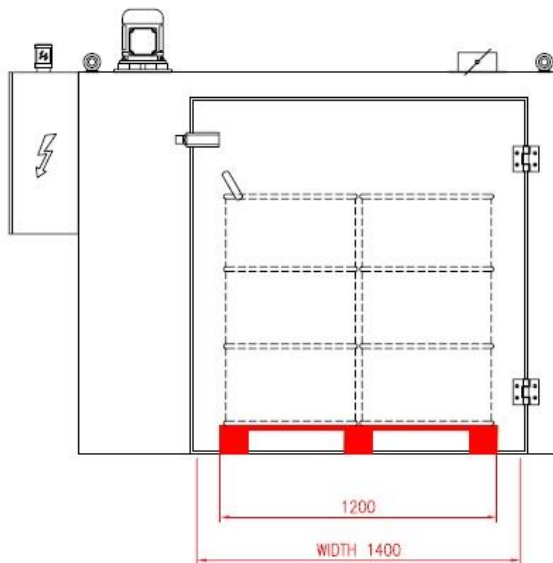


- » **Standard compartment** capacity: 1400mm (W) x 1400 (D) x 1350 (H), suitable for 4 drums on a chemical pallet (1200 mm x 1200 mm) or 1000L IBC container (1000 x 1200 x 1200).
- » **Eur compartment** capacity: 1900mm (W) x 1400 (D) x 1350 (H), suitable for 2x euro pallet (800mm x 1200 mm) or 1000L IBC container (1000 x 1200 x 1200). *Available on request.*

4. Drums / 1 IBC Capacity

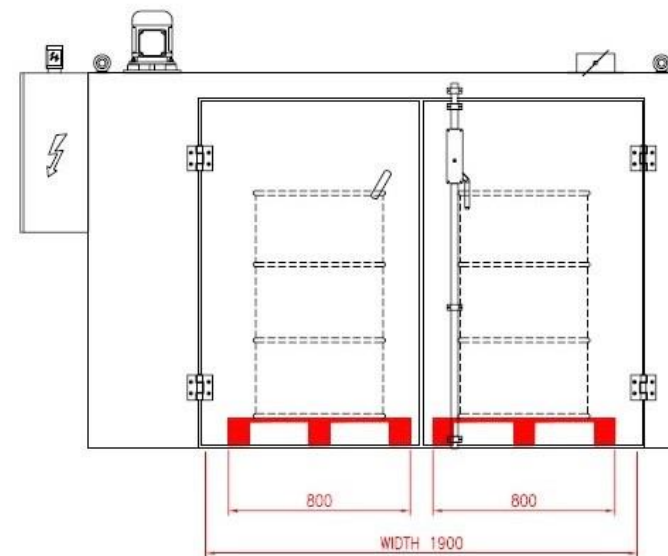
4x Drum Heating Cabinet

Standard compartment



4x Drum Heating Cabinet

Eur compartment



5. Temperature Range & Heating Source

» Temperature Range

Amarc produces two series of standard Drum Heating Cabinets

- **Operating Temperature:** up to 100°C
- **Operating Temperature:** up to 150°C

» Heating Source

Drum Heating Cabinets are characterized by different heating methods:

- **Electrical**
- **Steam**
- **Diathermic Oil**
- **Hot Water**
- **Gas**

6. Optional

6.A – Standard Base:

Standard base: 3,0 mm metal sheet. Enables loading by mean's of a pallet truck.



(1/2) 2x Drums Heating Cabinet, up to 150°C, electric operation, AISI304 stainless steel construction, with **standard base** during loading operations



(2/2) 2x Drums Heating Cabinet, up to 150°C, electric operation, AISI304 stainless steel construction, with **standard base** during loading operations

6. Optional

6.B – Baseframe with legs:

As an alternative: tubular base frame with leg's. Enables loading operation by mean's of a pedestrian stacker



4x Drums Heating Cabinet, up to 150°C, electric heating, with tubular base frame with leg's



Pedestrian stackers

6. Optional

6.C – Collection Sump with grid:

Collects possible leakage from drums/IBC breakage, for environmental safety concern.

Capacity: 1/3 of the entire heated volume. Larger capacity available on request.



(1/2) 4x Drums Heating Cabinet, up to 150°C, steam operation, ATEX rated, with **collection sump**, AISI304 stainless steel construction.



(2/2) 4x Drums Heating Cabinet, up to 150°C, steam operation, ATEX rated, with **collection sump**, AISI304 stainless steel construction.

6. Optional

6.D – Base frame with Legs + Collection sump:

Collection Sump with grid and base frame with legs can be provided together.



(1/2) 8x Drums Heating Cabinet, EUR compartments, up to 100°C, superheated water operation, ATEX rated, with **base frame with legs+ collection sump**, AISI304 stainless steel construction, exhaust system with interlocked doors.



(2/2) 8x Drums Heating Cabinet, EUR compartments, up to 100°C, superheated water operation, ATEX rated, with **base frame with legs+ collection sump**, AISI304 stainless steel construction, exhaust system with interlocked doors.

6. Optional

6.E - Hazardous Area Installation

AMARC heating cabinets can be designed and built according to the ATEX 2014/34/UE directive, group II, category 2G in compliance with European standards EN 1127-1 / UNI CEI EN ISO 80079-36, which can be used with substances in group IIB, therefore they can be marked

Atex CE Ex II 2G IIB T5-T1



16x Drums Heating Cabinet divided into 2 x 8 drums independent rooms, up to 150°C, hot oil operation, **Atex rated.**



48x Drums Heating Cabinet divided into 3 x 16 drums independent rooms, up to 150°C, steam operation, **Atex rated**

6. Optional

6.F - Outdoor Installation Kit

- » When the cabinet has to be installed outdoor's all internal and external steel sheet joints are completely sealed in order to prevent penetration of moisture into the heat insulation.
- » An additional galvanised corrugated sheet roof structure is also supplied for protection against bad weather.
- » Standard electric control board is provided with double door panel for outdoor installation; ATEX control board is IP 66 classified.



6. Optional

6.G - Stainless Steel Construction

- » AMARC standard drum ovens feature internal panels in self colour galvanised steel, while the external ones are in painted galvanized steel.
- » AISI 304 (or AISI 316) Stainless Steel paneling (internal/external) is available on request.



(1/2) FRONT 16x Drums Heating Cabinet, horizontal, divided into 2 x 8 drums independent rooms, up to 150°C, steam operation, Atex rated, **AISI304 Stainless steel construction**



(2/2) BACK 16x Drums Heating Cabinet, horizontal, divided into 2 x 8 drums independent rooms, up to 150°C, steam operation, Atex rated, **AISI304 Stainless steel construction**

6. Optional

6.H – Controls

- » **PID CONTROL:** to get more accurate temperature control
- » **DAILY/WEEKLY TIMER:** to switch on/off the cabinet automatically.
- » **CYCLE TIMER:** to set heating cycle to default working time at some temperature setpoint
- » **GRAPHIC SOFTWARE:** LCD TFT colour touch screen (3.5” or 5.7”) temperature programmer , extremely simple to use with following features: **1)** 4-loop controller, **2)** graphic trend and bar graph display **3)** up to 300 steps in 100 programs **4)** data logging (all data recorded can be downloaded in CSV format by means of USB support) **5)** interconnection with other control systems, via Ethernet, RS485, and USB ports. Available protocols: Modbus RTU (Master), Modbus TCP, Profibus DP.

6. Optional

6.1 – Air Pollution control

- » **EXHAUST AIR SYSTEM:** by means of exhaust fan prevents the operator and the working area from unwanted fumes that might be produced during heating cycle
- » **GAS DETECTION:** to control the concentration of unwanted gas (explosive or toxic risky) inside the cabinet. Interlocked to alarm system.

7. Certifications

All **AMARC** heating cabinets are **CE marked**, therefore in compliance with:

- » **2006/42/CE** machinery directive
- » **2014/35/UE** low voltage directive
- » **2014/30/UE** electromagnetic compatibility directive
- » **2014/34/UE Atex** directive (when required)
- » **2014/68/UE** directive for pressure parts
- » **UNI EN ISO 3452-1** collection sumps are submitted to penetrant testing protocol

8. Gallery



4x Drums Heating Cabinet, up to 150°C, electric operation, Atex rated, with base frame with legs, exhaust system.



4x Drums Heating Cabinet, EUR compartment, up to 150°C, electric operation, with collection sump.

8. Gallery



8x Drums Heating Cabinet, horizontal, up to 100°C, electric operation, with collection sump.



8x Drums Heating Cabinet, EUR compartments, divided into 2 x 4 drums independent rooms, up to 100°C, electric operation, with collection sump and exhaust air system.

8. Gallery



8x Drums Heating Cabinet, vertical type, up to 100°C, electric operation.



12x Drums Heating Cabinet, horizontal type, up to 100°C, steam operation, with collection sump and exhaust air system.

8. Gallery



16x Drums Heating Cabinet, up to 150°C, electric operation, ATEX rated.



16x Drums Heating Cabinet, divided into 2 x 8 drums room, up to 150°C, electric operation, with base frame with legs and collection sump, internal AISI304 stainless steel panelling, exhaust system with interlocked doors.

8. Gallery



24x Drums Heating Cabinet, up to 80°C, electric operation, with roller shutter doors (and remote control) and collection sump



24x Drums Heating Cabinet, divided into 3 x 8 drums rooms, up to 100°C, steam operation, with collection sump.

8. Gallery



(1\2) FRONT 32x Drums Heating Cabinet, horizontal, divided into 2 x 16 drums independent rooms, up to 150°C, double energy electric +steam operation, Atex rated with collection sump.



(2\2) BACK 32x Drums Heating Cabinet, horizontal, divided into 2 x 16 drums independent rooms, up to 150°C, double energy electric +steam operation, Atex rated with collection sump

8. Gallery



40x Drums Heating Cabinet, up to 90°C, electric operation.



48x Drums Heating Cabinet, horizontal, divided into 3x16 drums independent rooms, up to 150°C, hot oil operation, Atex rated with outdoor installation kit.