

# Laboratory Refrigerator/Deep Freezer

## Internally spark resistant

# TC 802-ex



**External Dimension:**  
 W = 601 mm  
 D = 618 mm  
 H = 2003 mm

<b>Inside Dimension:</b>	<b>Useful space on top</b>	<b>Useful space at the bottom</b>
	W = 440 mm	W = 433 mm
	D = 441 mm	D = 435 mm
	H = 1105 mm	H = 597 mm

<b>Capacity:</b>	<b>254 l</b>	<b>107 l</b>
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<b>Temperature range:</b>	<b>3°C to 16°C</b>	<b>-9°C to -30°C</b>
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### Housing

galvanized sheet steel with white epoxy coating. 2 isolated doors supplied as standard with right hand hinge (reversible), Including 2 pcs. door locks. Grease resistant magnetic seal.

### Interior space

of high-quality plastic. Cleaning friendly by rounded corners, slippery surface in the interior, meets highest hygiene requirements

### Isolation

Polyurethane, free of CFCS

### Circulating air cooling in the refrigeration unit

for rapid and uniform temperature control, reducing temperature gradients to a minimum. When the door is "open" the circulating fan is switched off automatically by a micro switch in order to prevent warmer ambient air being drawn in.

### Interior fittings

Top: 4 shelves, plastic-coated, height-adjustable, dim. 440 x 409 mm (max. load 40 kg each)

Bottom: 3 glass shelves with drawers, white plastic, closed transparent front (max. load 20 kg)

2 pcs. (425x395x180 mm)

1 pcs. (425x225x190 mm)

1 cable port each for operator's own measuring lines, diameter approx. 10 mm

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Control system located above door.



**2 pcs. high quality electronic temperature controller.**

Actual and set value display digital.

Actual value permanently readable

Set value digital adjustable by switch

**Working range from 3°C to 16° (+/- 2°C) and -9°C to -30°C (+/-3,5°C)**

- **Temperature differences are displayed visually and acoustically,**
- **Door open Alarm**
- **Potential free alarm output for remote transmission**
- **Power failure alarm when mains power returns (optical)**
- **RS 485 interface**
- **Min/max temperature**
- **Temperature sensor alarm**

**Product protection against low temperatures.**

By dropping below 2°C, the cooling machine will automatically switch off

**Refrigerating unit**

2 separate Refrigerating unit fully hermetically sealed, forced ventilation, fitted on vibration - absorbing mounts (ambient temperature max. 32°C), low noise (52 dBa/1m), energy saving compressor with high quality vaporisation system.

Refrigerant: R600a

**Defrost**

Automatic defrost in the refrigeration unit, manual defrost in the freezer unit

**Electrical dates**

Power supply	230 V/50 Hz / single-phase
Absorption	1,5 A
Energy consumption	1,8 KW (24 Std.)
Power cable	2,0 m with Schuko plug

**Packing details (palletized)**

Dimensions:	approx. 70x70x210 cm
Net weight:	approx. 85 kg
Gross weight:	approx. 100 kg
<b>Country of Origin:</b>	<b>European Union</b>
Customs clearance code:	8418 1080

**Technical indication:**

This refrigerator is classified as “internally spark resistant” and have no electrical components in the interior, reducing the risk of fire or explosion. (The class of explosion protection provided by this equipment meets Federal German safety regulations for laboratory equipment DGUV Information 213-850. The appropriate regulations must be observed in other countries).

**Special Equipment and Accessories:**



**GSM Modul**

Connecting to the potential-free output. In case of an alarm either a message or a call will be sent automatically. Archiving of 1000 phone numbers is possible. The GSM module is equipped with a rechargeable battery. Automatic alert via SMS when the credit has been used on the SIM card. 6 units can be connected per module. The SIM card is not included

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## Qualifications

### DQ (Design Qualification)

*Definition:* Documented proof that the quality-related, GMP-related requirements has been adequately addressed in the design of equipment, including buildings, premises and auxiliary equipment

The user-requirement profiles (specifications) are documented and confirmed by us. On request, a specification can be created by us.

### IQ (Installation Qualification)

*Definition:* Documented proof that critical equipment and systems have been delivered and installed in accordance with the set requirements and government regulations.

The IQ documentation is worked out by us especially for the delivered machine and is made available to you. The IQ documentation must be carried out by the customer itself.

### OQ (Operational Qualification)

*Definition:* Documented proof that critical equipment and systems in accordance with the set requirements in the whole operating range are working as intended in accordance with predetermined limits.

The OQ documentation is worked out by us especially for the delivered machine and is made available to you. The OQ documentation must be carried out by the customer itself.

### CQ (Calibration Qualification) according to DIN 13277:2022-05

*Definition:* Documented proof that critical measuring equipment in the intended range in accordance with predetermined tolerances operate reliably under current operating conditions

**Verifying the temperature in the unloaded cooling unit** (after reaching the steady state)

**In the refrigeration area: 1 temperature on 3 measuring levels with 5 measuring points each.**

**In the deep-freeze area: 1 temperature on 2 measuring levels with 4 measuring points each and one measuring point in the middle** (Measurement with calibrated PT 1000 sensors). Test time 4 hours, then open door for 60 seconds. During this time, the limit values specified in DIN 13277:2022-05 must not be exceeded. Repeat the door opening after one hour.

The temperature measurements are carried out on our premises. The evaluation of the measurements, including graphical representation, is made in written form. The values must not exceed the limit values specified in DIN 13277:2022-05. **(Other measuring methods possible on request)**

### PQ (Performance-Qualification) according to DIN 13277:2022-05

*Definition:* Documented proof that critical equipment and systems in accordance with the set requirements in the whole workspace under current working conditions (with product) provide the requested services

The calibration described above is carried out under real conditions on site. Optionally, the measurement can be carried out in a loaded or unloaded state. The measurement evaluation, including graphical representation, is made in written form. The values must not exceed the limits specified in DIN 13277:2022-05. **(Other measuring methods possible on request)**

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