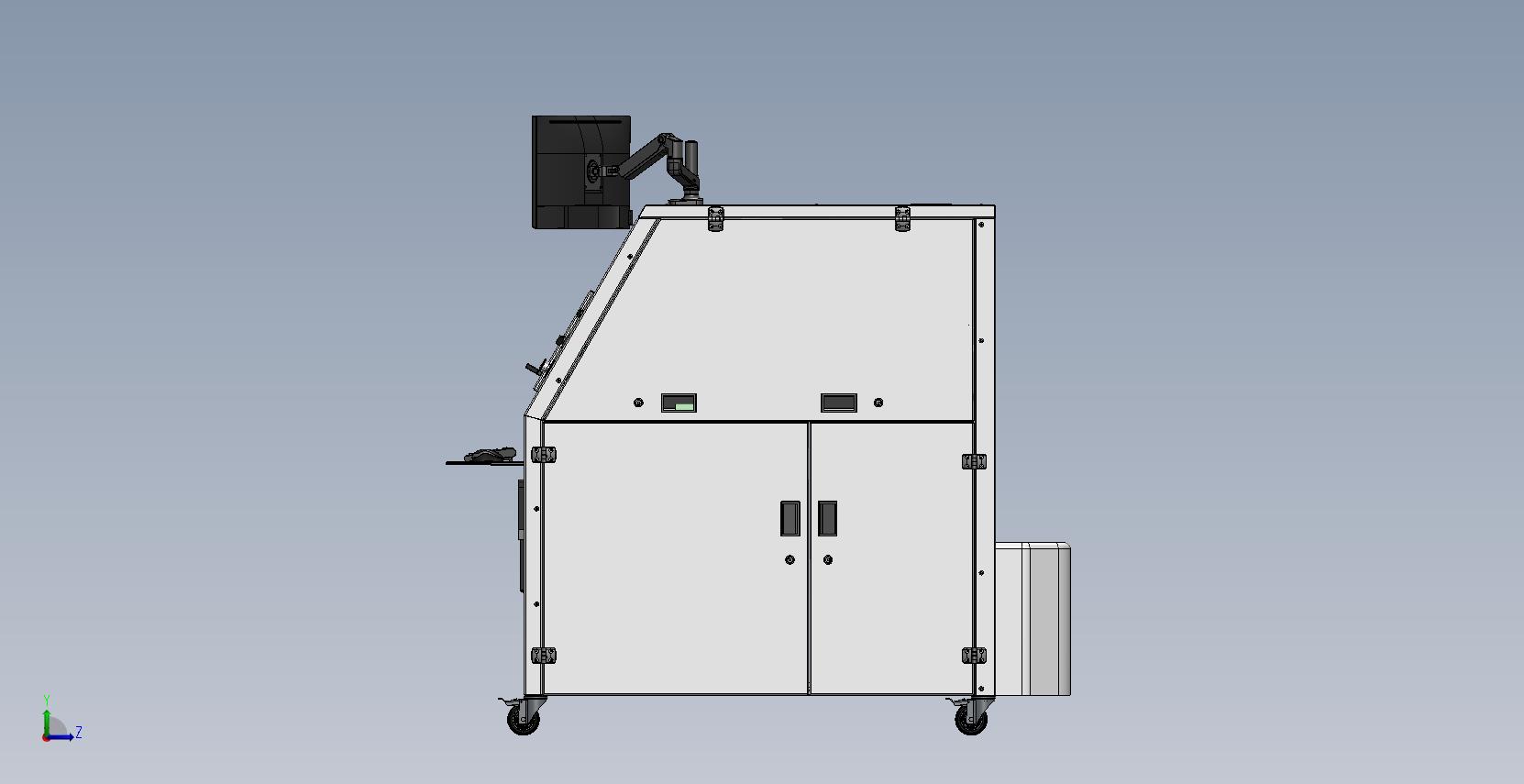
**4. System components**

The inspection unit consists of:

* metal frame with access doors to the components and subassemblies inside the equipment;
* 2D X-ray detector
* two laser beam scanning systems
* 1 conveyors to move the object through the laser and x-ray examination area;
* logic unit;
* Uninterruptible Power Supply (UPS);
* cooling system for the X-ray generator
* image display monitor, mouse and keyboard

The system components and the main elements of control, operation, and signaling are shown in the figures below:



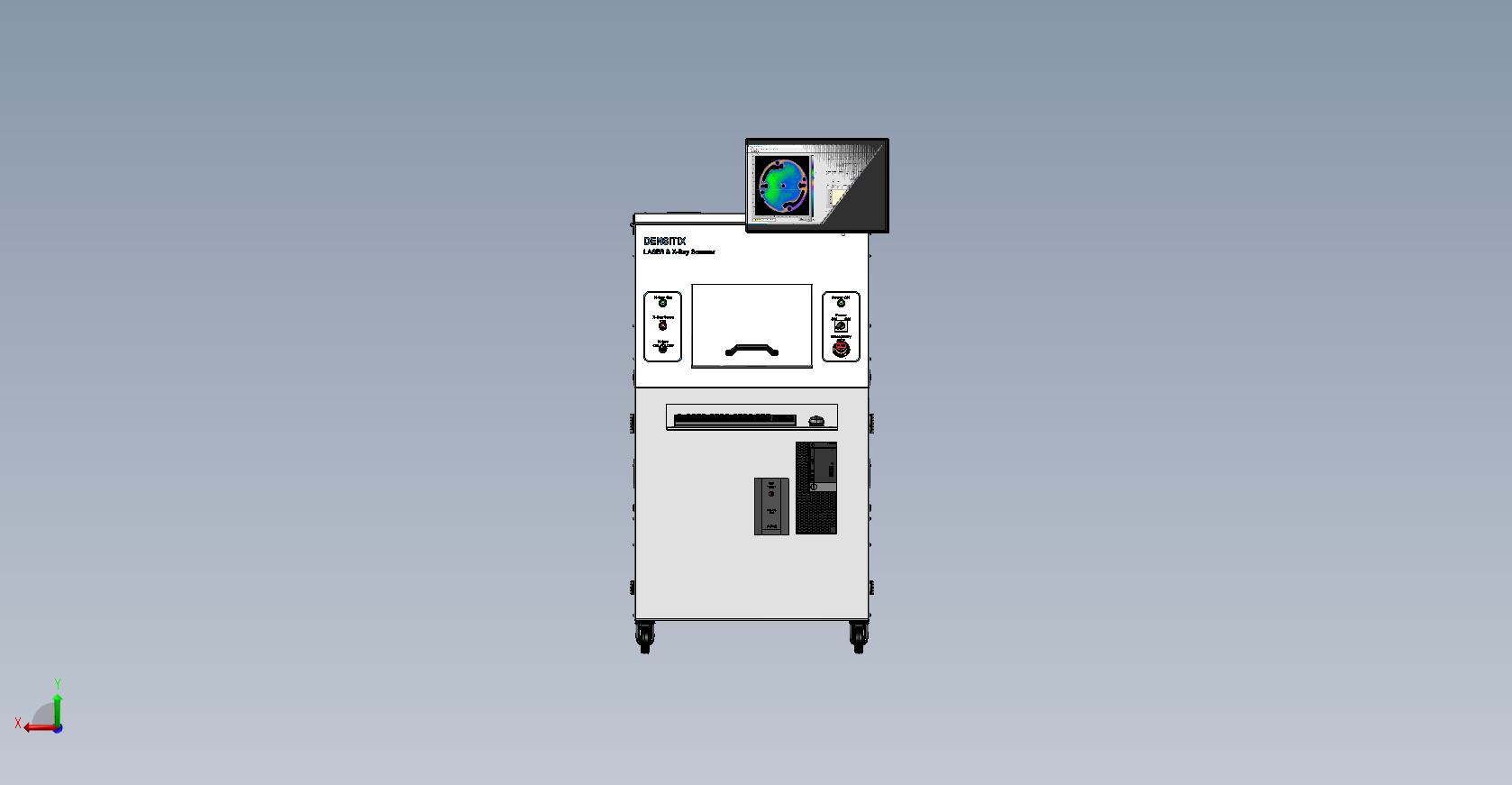
1. - the main body of the equipment
2. - display

3. - keyboard

4. - cooler

5. - mobile covers

*Fig.7 - Left side view of the* ***DensityX Laser & X-Ray Scanner*** *equipment*



*Fig. 8 - Front view of the* ***DensityX -*** ***Laser & X-Ray Scanner*** *equipment*

1. - the control panel of the equipment

2. - samples entry door

3. - UPS

4. - PC

5. - display

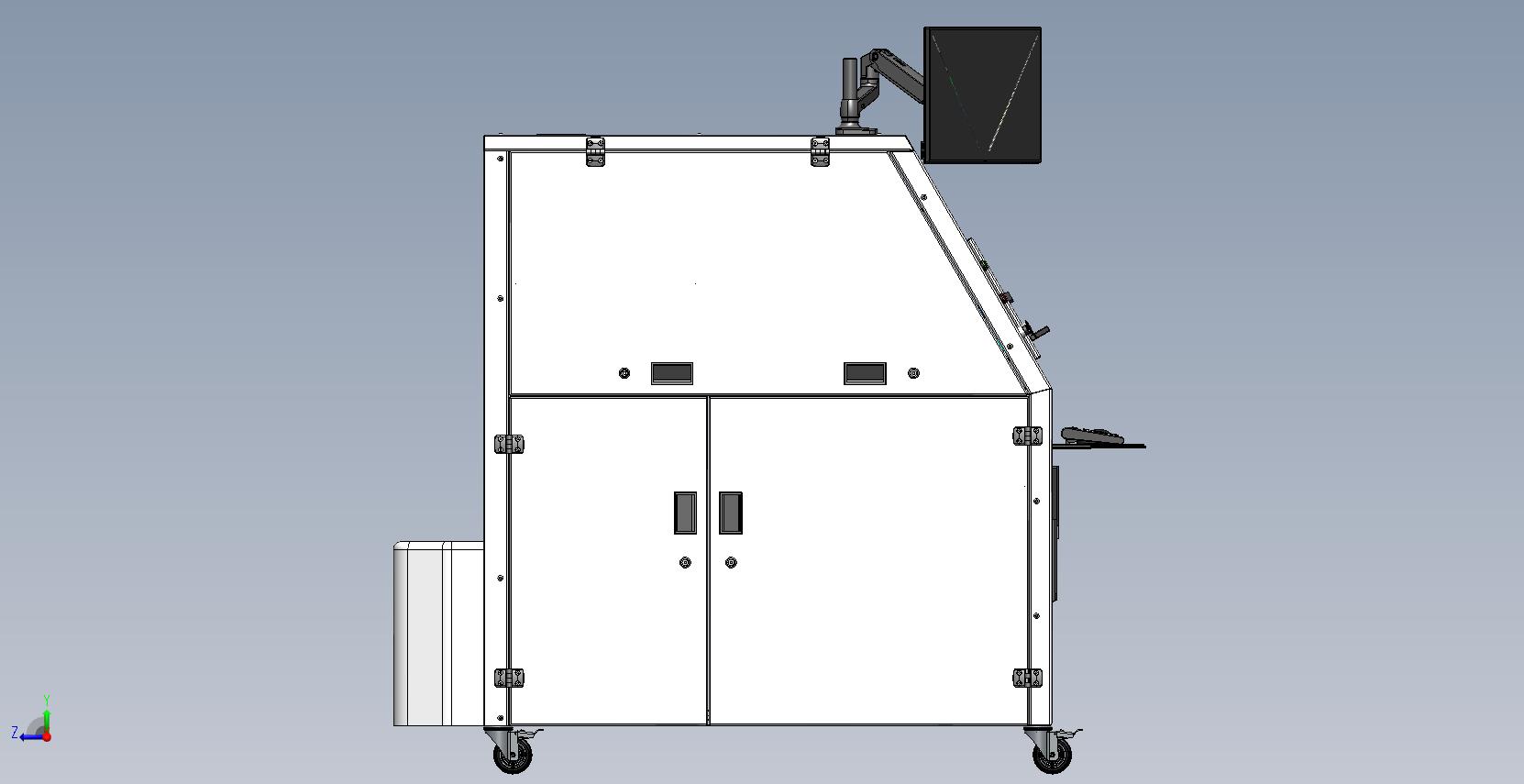


*Fig. 9 - Rear view of the* ***DensityX - Laser & X-Ray Scanner*** *equipment*

1. – fixed back cover
2. - display

3. - fans

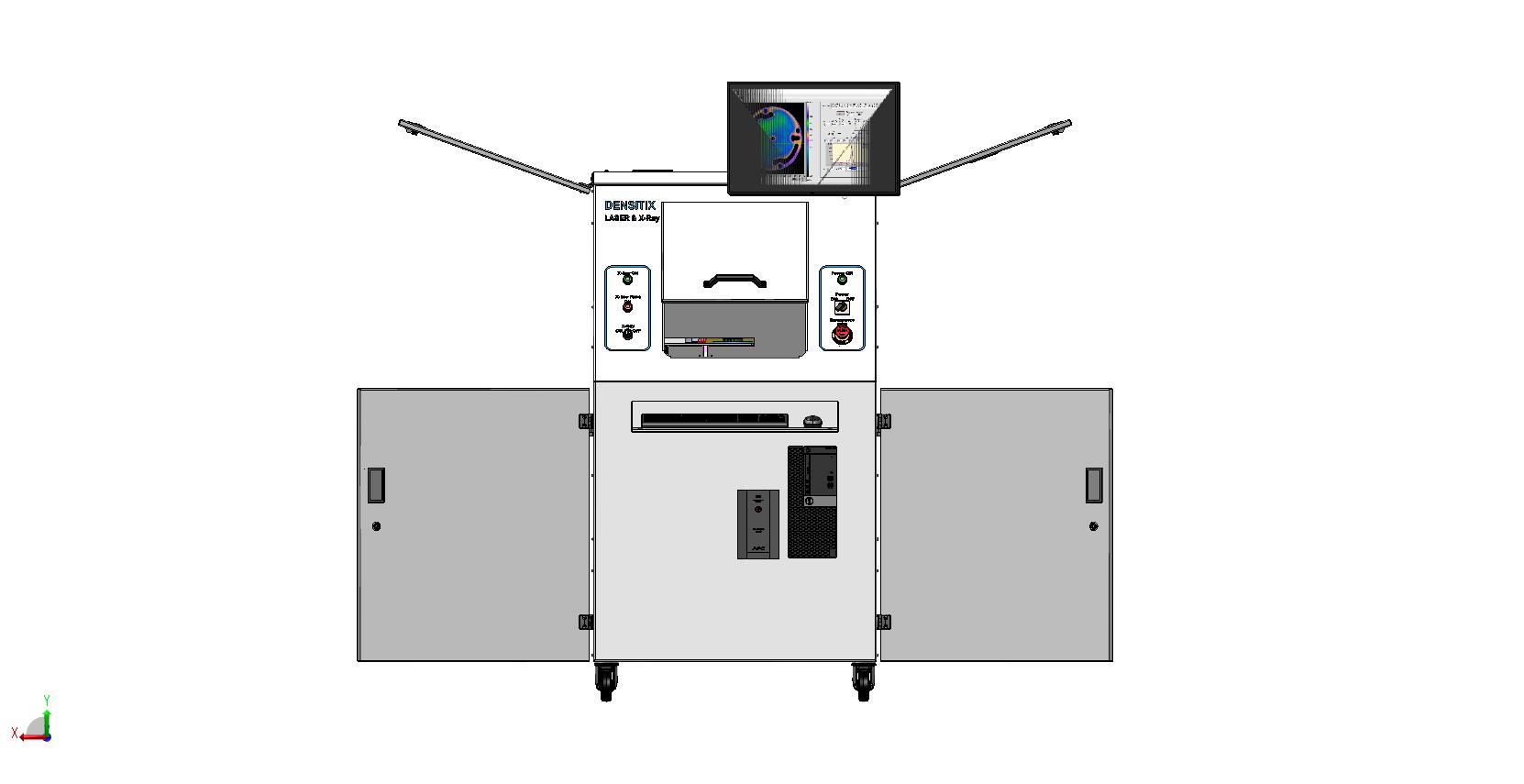
4. - cooler



*Fig. 10 - Right-side view of the* ***DensityX - Laser & X-Ray Scanner*** *equipment*

**5. Characteristics**

|  |  |
| --- | --- |
| Power supply | single-phase 230 V +/- 10% - 50/ Hz , 820 VA, 800W |
| Conveyor speed | 32 mm/sec |
| Conveyor direction | double direction |
| RX generator | high-frequency - single block (75 kHz) |
| Voltage to RX tube | max.150 kV |
| Current to RX tube | 2.5mA |
| Display | 1 LCD touch-screen monitor |
| Escaping dosage at 10 cm | ≤ 1 µSv/h (0.1 mrem/h) |
| Operating temperature | 0° ÷ +40° C |
| Humidity | 95% without condensate |
| Storage conditions | -20° ÷ +60° C, in closed and dry place |
| Weight | 450 kg |
| Overall dimensions | View Fig.6 |



*Fig.12 - Front view of the equipment* ***DensityX - Laser & X-Ray Scanner*** *with all doors open*

600

–––

1940

–––

840

1. - mobile covers
2. - display

3. - keyboard

4. - cooler

–––

2200

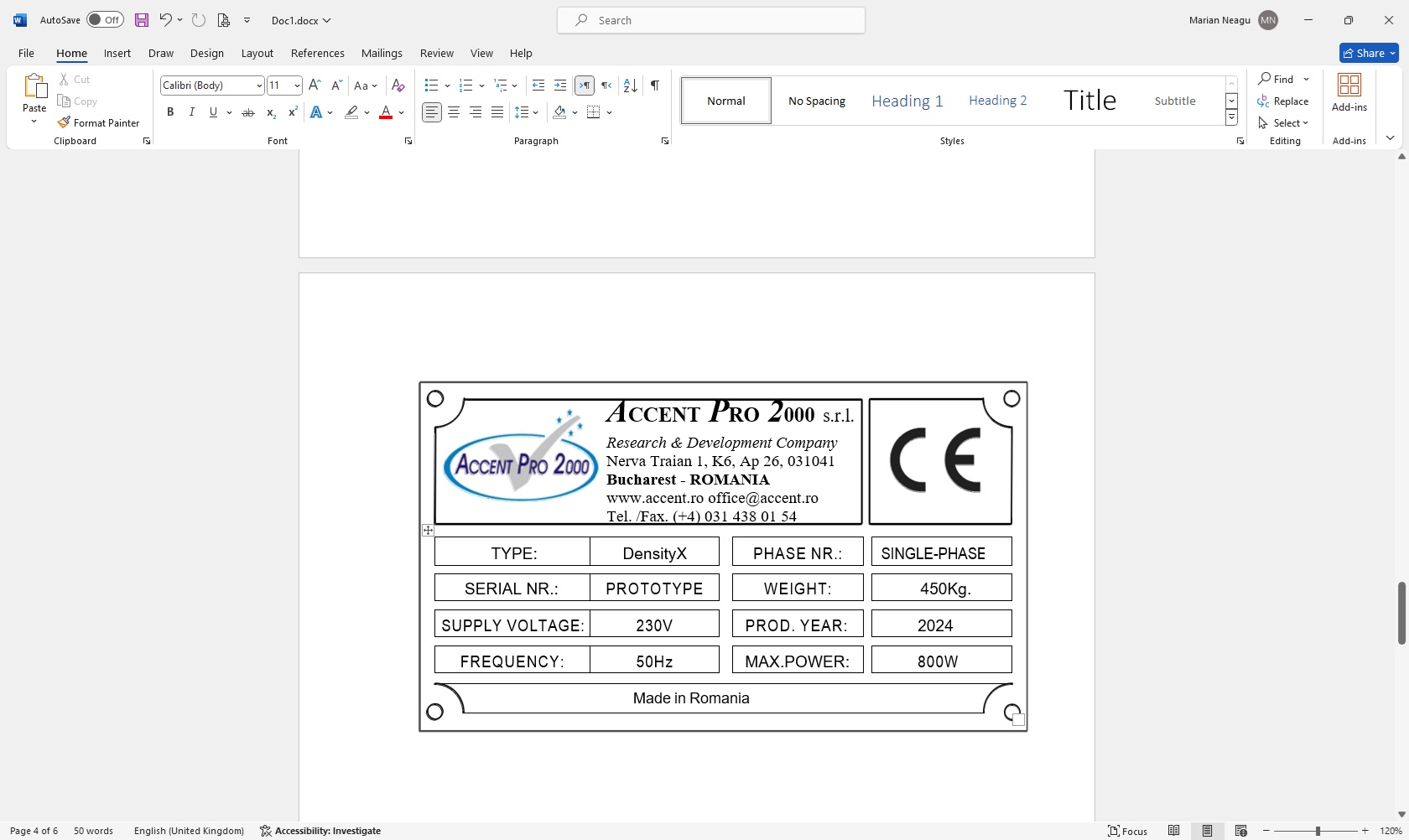
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840

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900

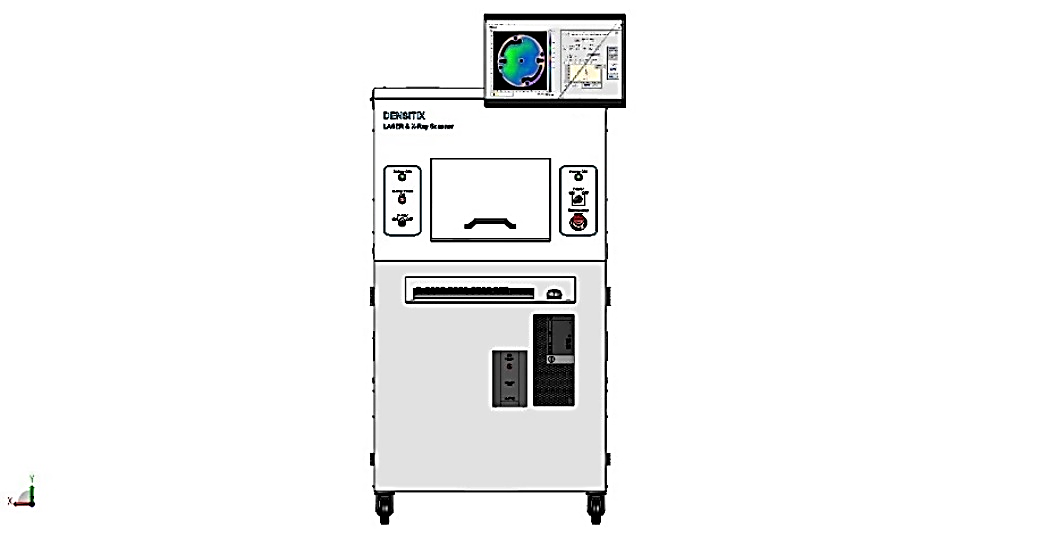
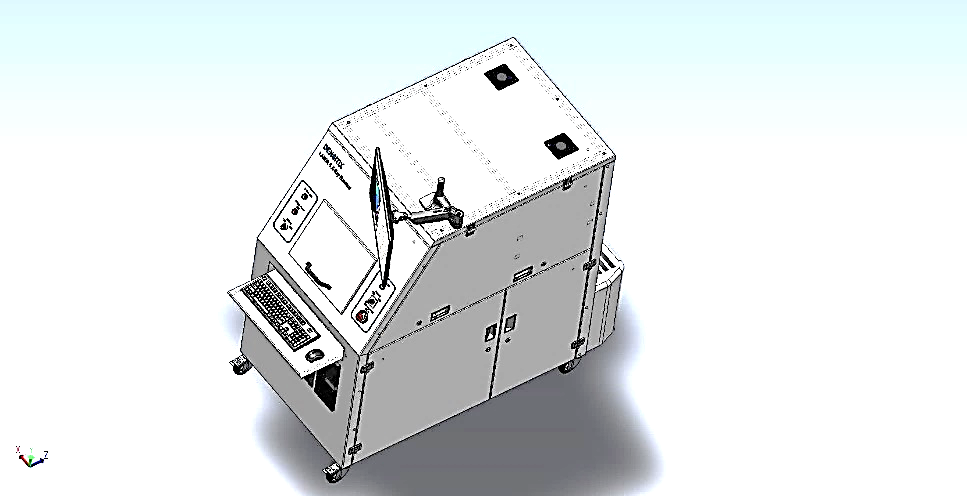
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**6. Appearance and dimensions of *DensityX - Laser & X-Ray Scanner***

An image representing projections in 3 coordinate axes of the ***DensityX - Laser & X-Ray Scanner***equipment is presented in ***Fig***.*13.*

*Fig.13 - Appearance and dimensions of* ***DensityX - Laser & X-Ray Scanner*** *equipment*



1700

–––

1040

–––

560

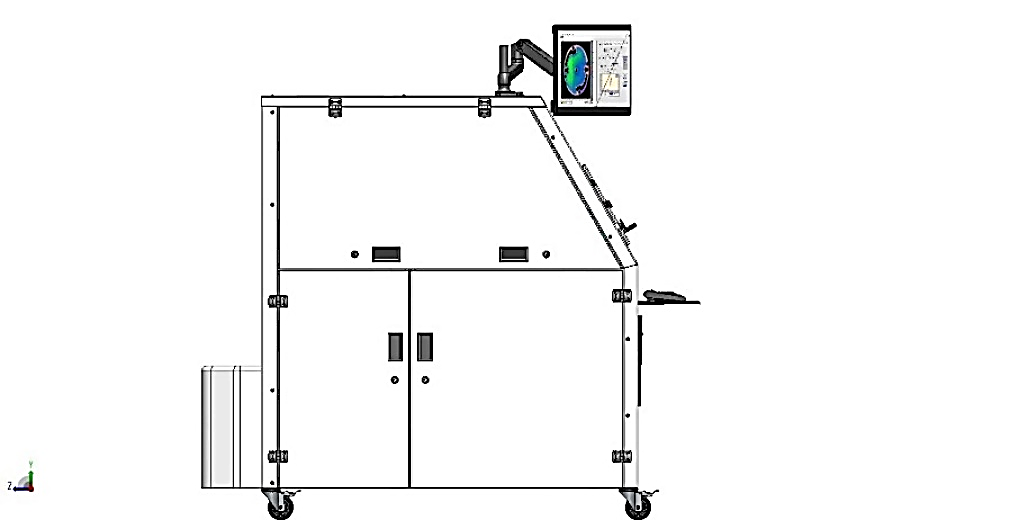
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230

–––

1500

*Fig. 11 - Identification plate of the* ***DensityX - Laser & X-Ray Scanner*** *equipment*



150

–––

280

–––



1100

–––

900

–––

**7. General Specifications**  *AION 160kV X-Ray* generator

*X--ray tube: Fixed anode glass tube*

*Tube voltage:* 30 - 160 kV

*Tube voltage accuracy: ±3% (standard)*

*Tube current:* 1 - 7 mA

*Tube current accuracy: ±3% (standard)*

*Duty cycle:* Continuous

*Tube max power*

*water cooling:* 500 W (@ TH2O < 22°C; flow = 10 lt/m)

*Focal spot:* 1,2 mm according to EN 12543

*Beam angle:*

*Total filtration:* 0,852 mm Al

*Half Value Layer (HVL) @70kV:* 1,434 mm Al

*Leakage radiations::*

*@70kV: <* 2,3 mR/h @1m

*@90kV: <* 7,85 mR/h @1m

*Rise time (kV e mA): <* 100 ms

**7.1. Supply Specifications**

*Mains supply voltage:* 230 Vac ±10%

*Mains supply frequency:* 50/60 Hz

*Mains supply power (max):* 1 kVA

**9. The front side of the equipment**

The image presented in ***Fig***.*13* show a picture of the front side of the equipment, the elements located here being the following:

|  |  |
| --- | --- |
| **1.** | **Control and command panel** |
| **2.** | **Lower part of the front side of the equipment** |
| **3.** | **LCD touch-screen display** |
| **4.** | **Ethernet connection socket** |



*Fig.14 - The front side of* ***DensityX - Laser & X-Ray Scanner*** *equipment*

:

|  |  |  |
| --- | --- | --- |
| **1.** | **Sliding door** | By lifting it, access to the sample loading part of the equipment is possible, allowing the start of the testing procedure |
| **2.** | **"X-Ray ON"** indicator | Light indicator indicating the presence of X-ray emission |
| **3.** | **"POWER"** switch | Used to power the equipment |
| **4.** | **"Main Power ON"** indicator | Shows that the equipment is powered |
| **5.** | **"X-Ray Power"** switch | Used to power the x-ray source |
| **6.** | **"X-Ray Power ON"** indicator | Shows that the X-ray source is powered |
| **7.** | **"Emergency STOP"** switch | Stops the power supply of the X-ray generator |

**10. Control and command panel of the *DensityX* equipment**

On the control panel located on the front of the equipment, there are placed control elements and indicators; their functional description is made below:



*Fig.15 - Control Panel of* ***DensityX - Laser & X-Ray Scanner*** *equipment*