



# DIRECTIONAL UNITS

## SITEX & SITEXS

### PORTABLE X-RAY GENERATOR



**Increase the reliability of on-site X-ray techniques while decreasing their costs**

#### OUR CHALLENGE...

« To increase the reliability of on-site X-ray techniques while decreasing their costs »

To successfully meet this challenge, ICM's engineers have worked at improving upon what we consider to be largely tried and tested techniques.

The technological options were determined at each development stage on the basis of quality, general reliability and the need to substantially increase the life of the X-ray tube.

If you are already impressed with the reliability of the SITEX and SITEXS generators, we are confident that you will be even more impressed with their outstanding performance levels. These performance levels will enable you to take advantage of the most favorable overall operating costs available to the market.



#### A SIMPLE & EFFECTIVE PRINCIPLE

All SITEX and SITEXS units contain a rod anode. This is the focal spot that is outside the SF<sub>6</sub>-insulated high-voltage generator. As maximum advantages are derived from this ideal configuration, for one and the same thickness, the volume of lead required for standard radiation protection is considerably reduced.

Consequently, the reduced weight that is achieved makes it possible for further investments to be made in the quality and general improvement of the level of performance (robustness, cooling, accessories etc).

We can confirm that SITEX and SITEXS are among the lightest portable X-ray generators available to the market.

#### MEASUREMENT & CONTROL

Representing another first in a portable, the SITEX and SITEXS have a facility to ensure the direct and true measurement of the high voltage. This essential information enables the control system to guarantee the stability and reproducibility of the radiological parameters based on true high-voltage values rather than merely estimating an HV value based on dose output.

#### PERFORMANCE

A high-efficiency heat exchanger has been developed in collaboration with the Institute of Thermo-mechanics at the University of Liege. This results in the possibility of a 100% working cycle under completely safe conditions, whilst simultaneously reducing the anode temperature by 50%.

#### DETAILS THAT SIMPLY IMPROVE EVERYTHING

The SITEX directional generators are equipped with an internal 'carousel'. This contains a lead cap and 4 diaphragms that are calibrated for the films that are used the most. Ensuring protection from accidental on-site losses and weighing in total a mere 1.0 kg, this very practical device replaces approximately 20 kg of fragile and space-consuming accessories. The carousel fitted on the SITEXS provides the same features and is equipped with a laser pointer. To ensure ease of handling, direct access has been arranged on the moving part.

#### SITEXS, THE 'EXTRA-SMALL'...

These 'XS' X-ray generators are in fact reduced versions of the corresponding SITEX units available in 200, 225 and 250 kV versions and provide considerably more compactness.

## SITEX & SITEXS directional technical specifications :

| SITEX & XS DIRECTIONAL   | UNITS              | D1802           | D2008               | D2258               | D2506               | D3006               | D3206               | D3605               | XS-D2004     | XS-D2254     | XS-D2504     |
|--|--------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------|--------------|--------------|
| Output voltage range   | kV                 | 60 to 180       | 70 to 200           | 70 to 225           | 70 to 250           | 90 to 300           | 90 to 320           | 120 to 360          | 70 to 200    | 70 to 225    | 70 to 250    |
| Output voltage selection step  | kV                 | 1               | 1                   | 1                   | 1                   | 1                   | 1                   | 1                   | 1            | 1            | 1            |
| Tube current range   | mA                 | 1 to 3          | 1 to 8              | 1 to 8              | 1 to 6              | 1 to 6              | 1 to 6              | 1 to 5              | 1 to 4       | 1 to 4       | 1 to 4       |
| Tube current range at full output  | mA                 | 2               | 8                   | 8                   | 6                   | 6                   | 6                   | 5                   | 4            | 4            | 4            |
| Tube current selection step  | mA                 | 0.1             | 0.1                 | 0.1                 | 0.1                 | 0.1                 | 0.1                 | 0.1                 | 0.1          | 0.1          | 0.1          |
| Radiation geometry   | -                  | Directional     | Directional         | Directional         | Directional         | Directional         | Directional         | Directional         | Directional  | Directional  | Directional  |
| Maximum useful angle of X-ray beam   | (°)                | 60 x 40         | 60 x 40             | 60 x 40             | 60 x 40             | 60 x 40             | 60 x 40             | 60 x 40             | 60 x 40      | 60 x 40      | 60 x 40      |
| Dimension of optical focal spot  | mm                 | 0.8 x 0.8       | 2.5 x 2.5           | 2.6 x 2.6           | 2.5 x 2.5    | 2.5 x 2.5    | 2.5 x 2.5    |
| Inherent filtration  | mm                 | Equiv. 3.5 (Al) | 2.5 (Al) + 0.4 (Ni) | 0.4 (Ni)     | 0.4 (Ni)     | 0.4 (Ni)     |
| Carrousel of internal diaphragms with lead cap                                     | -                  | no              | yes (4 + 1)         | yes          | yes          | yes          |
| Working cycle at 40°C ambient temp.  | %                  | 50*             | 100                 | 100                 | 100                 | 100                 | 100                 | 60                  | 100          | 100          | 100          |
| Operating temperature range  | °C                 | -25 to +70      | -25 to +70          | -25 to +70          | -25 to +70          | -25 to +70          | -25 to +70          | -25 to +70          | -25 to +70   | -25 to +70   | -25 to +70   |
| Storage temperature range  | °C                 | -40 to +80      | -40 to +80          | -40 to +80          | -40 to +80          | -40 to +80          | -40 to +80          | -40 to +80          | -40 to +80   | -40 to +80   | -40 to +80   |
| SF6 insulation pressure at 20°C  | kg/cm <sup>2</sup> | 5.0             | 5.0                 | 5.0                 | 5.0                 | 5.0                 | 5.0                 | 5.0                 | 5.0          | 5.0          | 5.0          |
| Cooling fan supply voltage   | VDC                | 24              | 24                  | 24                  | 24                  | 24                  | 24                  | 24                  | 24           | 24           | 24           |
| Weatherproof level   | -                  | IP65            | IP65                | IP65                | IP65                | IP65                | IP65                | IP65                | IP65         | IP65         | IP65         |
| Penetration into steel at max power<br><i>(FFD=700mm/Film D7pb/D=1.5/T=20 min)</i> | mm Fe              | 24              | 41                  | 49                  | 54                  | 70                  | 76                  | 82                  | 37           | 44           | 51           |
| Guard rings  | -                  | yes             | yes                 | yes                 | yes                 | yes                 | yes                 | yes                 | yes          | yes          | yes          |
| Position of interconnection socket   | choice             | Radial          | Axial/Radial        | Axial/Radial        | Axial/Radial        | Axial/Radial        | Axial/Radial        | Axial/Radial        | Axial/Radial | Axial/Radial | Axial/Radial |
| Number of telescopic centring device <i>(FFD=700mm)</i>                            | -                  | -               | 1                   | 1                   | 1                   | 1                   | 1                   | 1                   | 1 (laser)    | 1 (laser)    | 1 (laser)    |
| Max. leakage dose at 1m according to DIN at full output                            | mSv/h              | 2.5             | 2.5                 | 10                  | 10                  | 10                  | 10                  | 10                  | 2.5          | 10           | 10           |
| Microcontroller HT measurement circuit <i>(kV and mA)</i>                          | -                  | yes             | yes                 | yes                 | yes                 | yes                 | yes                 | yes                 | yes          | yes          | yes          |
| Overall dimensions   | mm                 | Ø250 x 573      | Ø346 x 771          | Ø346 x 771          | Ø346 x 771          | Ø346 x 831          | Ø346 x 831          | Ø400 x 930          | Ø305 x 718   | Ø305 x 718   | Ø305 x 718   |
| Total weight without guard rings   | kg                 | 9.5             | 28                  | 28                  | 28                  | 31                  | 31                  | 46                  | 19           | 19           | 19           |

\* : Maximum continuous exposure time: 5 min.

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