Polydoros RF X-ray Generators

Siemens offers generators in the 30 to 100 kW output range, suitable for almost all medical X-ray applications. We can also supply generators for special applications like computed tomography, mammography and mobile C-arms. We are experienced in designing or manufacturing monoblocks to cover virtually all X-ray imaging requirements. Available features include Automatic Exposure Control (AEC), high speed starter, conventional or pulsed fluoroscopy for dose reduction and tube load computing.

**General**
The Polydoros RF X-ray generators are the standard for a wide range of radiography and fluoroscopy systems.

The modular design of the RF family incorporates high versatility and excellent adaptation to all requirements of radiography and fluoroscopy applications. The generators for standard X-ray tube assemblies are available with a nominal power from 30 kW to 80 kW.

The generator can be controlled via several interfaces (Ethernet, Can, RS 422, Parallel). The integrated processor system provides excellent accuracy and reproducibility of the radiographic data by performing all control and regulating functions.

Two control consoles are available: one with membrane keys and one with touch panel operation. For fluoroscopic applications only touch panel operation is provided. For DR application a Mini Console is available, which provides on/off and exposure release functionality. To optimize the service life of the tube, the required cooling interval is shown after each exposure.

**Option:** A tube load computer determines the exact thermal condition of the tube. Tube load in HU's and required cooling time are displayed (part of the plus package).

**Special features**
- High frequency technology
- Highly accurate radiographic parameters
- Precise reproducibility
- Fast regulation of high voltage and tube current
- Short exposure times
- Minimal space requirements
- 32-bit microprocessor
- Digital display of all selected data
- User friendly operation
- Integrated service functions for ease of service

**Customizing**
In order to fulfill your particular requirements, we also provide you with customized versions of this product.
Polydoros RF X-ray Generators

Configuration

<table>
<thead>
<tr>
<th>Component</th>
<th>Polydoros RF ESU</th>
<th>Polydoros RF 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinet (cubicle)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Standard Control Console incl. cable (only radiography application)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Touch Control Console incl. cable (fluoroscopy and radiography application)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>High-voltage transformer, 1 tube connection (inside cabinet)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Anode drive (3000 rpm)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Anode drive (up to 9000 rpm)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Energy storage unit (capacitor based – inside cabinet)</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Mini Console</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Options
- In combination with the Standard Control Console: Organ/anatomic programs incl. control console (4 x 24 programs)
- Line matching transformer for 3-Ph-440 V / 480 V (only for Polydoros RF available)
- External manual exposure switch
- Wall mount for control console
- Parallel interface
- Tube load computer

Accessories
- X-ray tube assembly
- Multi-leaf collimator
- High voltage cables

Control Consoles
The RF generators are prepared for the connection of different control consoles.

Organ/anatomic programming
All radiographic parameters, e.g. the kV and mAs value, can be stored in the organ programs and selected at the touch of a button. The preset organ programs are easily modified by the user. For special cases, any of the technique parameters can be changed when the organ program is selected.

For anatomic programming in combination with the Standard Control Console an add-on console is used. The program buttons can be labeled in the desired language by the user in a simple manner.
### Polydoros RF X-ray Generators

#### Cooling interval display on Standard Control Console

<table>
<thead>
<tr>
<th>Generator</th>
<th>Polydoros RF 80</th>
<th>Polydoros RF ESU</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 kW</td>
<td>1 mA to 500 mA</td>
<td>1 mA to 500 mA</td>
</tr>
<tr>
<td>55 kW</td>
<td>1 mA to 640 mA</td>
<td>1 mA to 500 mA</td>
</tr>
<tr>
<td>65 kW</td>
<td>1 mA to 1000 mA</td>
<td>1 mA to 600 mA</td>
</tr>
<tr>
<td>80 kW</td>
<td>1 mA to 1000 mA</td>
<td>1 mA to 600 mA</td>
</tr>
<tr>
<td>30 kW ESU</td>
<td>1 mA to 500 mA</td>
<td>1 mA to 640 mA</td>
</tr>
<tr>
<td>55 kW ESU</td>
<td>1 mA to 500 mA</td>
<td>1 mA to 640 mA</td>
</tr>
</tbody>
</table>

**Power rating**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 kV</td>
<td>1 mA to 500 mA</td>
</tr>
<tr>
<td>100 kV</td>
<td>1 mA to 500 mA</td>
</tr>
<tr>
<td>125 kV</td>
<td>1 mA to 500 mA</td>
</tr>
<tr>
<td>150 kV</td>
<td>1 mA to 500 mA</td>
</tr>
</tbody>
</table>

**Exposure voltage**

- From 40 kV to 150 kV

**Fluoroscopy values**

- **Continuous**
  - 0.2 mA to 25 mA (40 kV), 0.2 mA to 9.09 mA (110 kV), 680 W continuously, 40 kV to 110 kV
  - 1 mA to 85 mA, 1000 W average, 40 kV to 110 kV, up to 30 frames/sec

- **Pulsed**
  - 1 mA to 85 mA, 450 W average, 40 kV to 110 kV, up to 30 frames/sec

**Automatic exposure control**

- 0-point technique with DR Mode
- 1-point technique with continuously falling load
- 2-point technique with constant load
- 3-point technique with constant load either mAs or mA (only with Touch Control Console)

**Tomography**

- 5 fixed time values

**Maximum mAs**

- From 0.5 to 800 mAs graduated either in 33 fixed values of one or in 65 values of 1/2 exposure point
- From 0.5 to 500 mAs graduated either in 33 fixed values of one or in 65 values of 1/2 exposure point

<table>
<thead>
<tr>
<th>Max. mAs</th>
<th>60 kV</th>
<th>100 kV</th>
<th>125 kV</th>
<th>150 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>800 mAs</td>
<td>560 mAs</td>
<td>444 mAs</td>
<td>373 mAs</td>
</tr>
</tbody>
</table>

**Exposure time**

- 1-point technique: 1 ms to 5 s with mAs-post-indication
- 2-point technique: 1 ms to 5 s depending on mAs and kV
- 3-point technique: 20 ms to 5 s depending on mAs and kV

**Tolerances**

- kV accuracy: ± 5%
- mAs accuracy: ± 10% + 0.2 mAs, according to IEC60601-2-7 / IEC60601-2-54

**Power line connection**

- 380 V +15% -10%, 50/60 Hz ± 3 Hz, 3-phase, PE,
- 400 V +10% -15%, 50/60 Hz ± 3 Hz, 3-phase, PE,
- 440 V/480 V ± 10%, 50/60 Hz ± 3 Hz, 3-phase, PE

- 220/230 V, (Tolerance 200 V – 253 V), 50/60 Hz ± 3 Hz, 1-phase, N, PE,
- 240 V, (Tolerance 216 V – 264 V), 50/60 Hz ± 3 Hz, 2-phase, PE

**Line impedance**

- According to IEC60601-2-7 / IEC60601-2-54
- ≤ 2 Ohm

**Dimensions**

- 1020 (l) x 570 (w) x 542 (h) mm

* Option
Polydoros RF X-ray Generators

Block Diagram – Generator Polydoros RF

- 380/400 V 3 ~
- 440/480 V 3 ~
- 220/230 V 1 ~
- 240 V 2 ~
- Standard Control Console
- Touch Control Console
- Mini Console
- Parallel CAN Ethernet DAP
- AEC Detector FLUORO (analogue, serial)
- AEC Detector RAD (dose rate, measuring field selection, power supply)
- Inverter
- High Voltage Tank
- X-ray Tube
- GEN Control
  - kV Control
  - RAC Control
  - Filament Control
- AEC Interface
- Filament Inverter
- RAC Rotating Anode Inverter 50-150 Hz
- ESU Option Energy Storage Unit
- Line Matching Transformer Option 440/480V

Polydoros RF X-ray Generators — Mini Console
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