DC Voltage Test Systems up to 2000 kV, Series K, Type GP.../…K

Description
Application
for isolation tests on dry or wet HV insulations with output currents of some 10 mA

DC Voltage Generator
Circuitry
Multi-stage multiplier circuitry acc. to Greinacher
Stage No-Load Voltage 500 kV

Mechanical Construction
Four-column structure with a vertical rectifier column, example see Fig.1
Polarity Change-Over automatically within some sec., on request below 500 ms at reduced voltage
Discharging/Earthing automatically and with additional earthing bars

Feeding
Voltage 230/400 V
Power max. 50 kVA
Frequency 50/60 Hz

Regulation Unit
power module with thyristor controller in a cubicle

HV Transformer
single-phase, cylinder-type HV transformer, type PEOI, see Data Sheet 1.11

Voltage Measurement
Voltage Divider resistive divider, 0.5 mA
Peak Voltmeter MU 18, see Data Sheet 5.56, integrated in the BG 5 G

Remark: For systems with fast polarity reversal mixed resistive capacitive dividers can be quoted.

Control
Basic control BC 5 (Catalog Sheet 1.52) with operator device BG 5 G (Data Sheet 2.53). Operator device using SIMATIC components, separate buttons for the main switch, the operation switch and the emergency switch-off, contacts for warning lamps and safety loop.
Optionally, a Computer-aided Control and Measuring System CMS 22 or 23 (Data Sheet 1.52) with the related software GMS (Data Sheet 1.55) is available.

Technical Data
For the nominal data and main dimensions of the standard types of DC voltage test systems series K see the table below.

Type Designation GP x/y K
x - Nominal current in mA
y - Nominal voltage in kV
K - Series

<table>
<thead>
<tr>
<th>Type</th>
<th>Stage number</th>
<th>Nominal voltage</th>
<th>Continuous operation</th>
<th>Dimensions (without transformer)</th>
<th>Weight (without transformer)</th>
<th>Feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nominal current at a</td>
<td>Height m</td>
<td>Floor area m x m</td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>voltage with a ripple</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP 50/500 K</td>
<td>1</td>
<td>500</td>
<td>500</td>
<td>&lt; 3</td>
<td>5.6</td>
<td>2900</td>
</tr>
<tr>
<td>GP 30/1000 K</td>
<td>2</td>
<td>1000</td>
<td>1000</td>
<td>&lt; 3</td>
<td>8.8</td>
<td>5800</td>
</tr>
<tr>
<td>GP 20/1500 K</td>
<td>3</td>
<td>1500</td>
<td>1500</td>
<td>&lt; 3</td>
<td>12</td>
<td>8700</td>
</tr>
<tr>
<td>GP 10/2000 K</td>
<td>4</td>
<td>2000</td>
<td>2000</td>
<td>&lt; 3</td>
<td>15.2</td>
<td>11600</td>
</tr>
</tbody>
</table>
Fig 1: Three-stage DC test system GP 20/1500 K  ($I_{\text{DC}} = 20 \text{ mA}$, $U_{\text{DC}} = 1500 \text{ kV}$, Series K)