CAST RESIN TRANSFORMERS
SGB-SMIT AT A GLANCE

YEARS OF EXPERIENCE
Combined, more than 450 years of experience
Basis for know-how and for know-why

EMPLOYEES
More than 3,500 employees take care of your project

COUNTRIES
In more than 80 countries satisfied customers

READY FOR YOUR MARKET
The SGB-SMIT Group manufactures transformers for applications worldwide. Sales and service centers on all continents ensure optimum processes.

Our products meet the requirements in accordance with the applicable national standards.

PRODUCTS
- large power transformers
- medium power transformers
- large liquid-cooled distribution transformers
- liquid-cooled distribution transformers
- cast resin transformers
- shunt reactors
- series reactors
- phase shifters
- Lahmeyer-Compactstationen

Transformers from 50 kVA up to incl. 1,200 MVA in the voltage range up to 765 kV.

QUALITY MANAGEMENT
The SGB-SMIT Group is certified in accordance with:
- DIN ISO 9001
- DIN ISO 14001
- DIN ISO 50001
- OHSAS 18001

TECHNOLOGIES
Technologies for conventional and renewable energy.
CAST RESIN TRANSFORMERS GRAVITY LINE

ECONOMICALLY EFFICIENT AND CUSTOMER-DRIVEN

Gravity Line by SGB-SMIT comprises various models and power categories of cast resin transformers which can be used for a wide variety of standard applications while completing our standard range for generic applications in the energy distribution sector in a cost-effective way.

THE PRINCIPLE

The Gravity Line benefits from a new, especially efficient winding system which allows us to pass on the cost advantages derived from manufacture to you directly. At the same time, thanks to features such as the completely vacuum-encapsulated high voltage winding, you can rely on the proven SGB quality and superior operation.

Gravity Line was designed according to the ECO-Design directives (acc. to EU 2009/125/CE) from regulation no. 548/2014 (level 1 and level 2). With Gravity Line, we offer you convincing standard solutions which excel thanks to their short lead times and immediate design availability.

THE ADVANTAGES

“From design directly to manufacture.” Short routes in development, efficient production methods and standardized specifications enable us to offer you Gravity Line as an especially cost effective transformer solution. Nevertheless, individual solutions are possible here as well:

The additional heating due to operation when encountering inharmonic overloading situations was taken into consideration when designing this transformer series in regards to the thermodynamic dimensioning of the “Standard Converter Operation DIN EN 61378-1 (4.2)”. Various enclosure combinations and accessories are available to optimize your transformer specifically for its application. Upon consultation, technical adaptations of electrical and mechanical parameters and special designs are also possible. Your contact person will be pleased to explain to you all the advantages of Gravity Line!

SPECIAL FEATURE

We constantly keep a complete range of transformers from Gravity Line in stock for you. Additional models can be produced and delivered at short notice.

SPECIAL FEATURE

Despite all standardization with Gravity Line, you will receive the specialist support you are accustomed to, from planning right through to interface clarification.
TECHNICAL PARAMETERS AT A GLANCE

TECHNICAL DATA

- Design acc. to DIN EN 60076-11 or 50588-1
- Transformer also designed for “converter-operation” under typical conditions acc. to DIN EN 61378-1 (4.2)
- HV-winding with smooth, dirt-repellent surface, vacuum-encapsulated to form a compact cylinder (100 K)
- LV-winding “baked” together to form a compact cylindrical body (100 K)
- Surge-proof and short-circuit proof, free from partial discharge (< 10 pC acc. to IEC 60076-11)
- Insulating level F
- Flame-resistant, self-extinguishing (fire classification F1)
- Climate class C2 (ready for operation in the range from -25°C to +40°C)
- Environmental class E2
- Winding material: Aluminum
- High-voltage taps:
  - +1-2 x 2.5 % (can be changed over in no-load condition)
  - Insulation level (LI) standard according to List 2
- Color: core in RAL 7045; windings in RAL 8017
- Suitable for operation at altitudes up to ≤ 1000 m above sea level
- Steel clamps and running gear galvanized
- Incl. the following technical equipment:
  - 1 set of castors (lockable in longitudinal and transverse direction)
  - Lifting lugs
  - Earth studs (M12)
  - HT tappings
  - Temperature sensor [PT100/3L in LV winding] routed to terminal strip
  - Second rating plate and vector group diagram
- Documentation:
  - 3D dimension drawing, vector group diagram, terminal arrangement diagram
  - Test report regarding routine tests acc. to IEC 60076-11
  - Documentation of accessories acc. to manufacturers’ specifications
### GRAVITY LINE ACC. TO ECO LEVEL 1

<table>
<thead>
<tr>
<th>Type</th>
<th>Power kVA</th>
<th>HV kW</th>
<th>LV kV</th>
<th>u_L %</th>
<th>Vector group</th>
<th>P_0 W</th>
<th>P_120°C W</th>
<th>l_{max} dB (A)</th>
<th>Length approx. mm</th>
<th>Width approx. mm</th>
<th>Height approx. mm</th>
<th>Weight approx. kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTTHZ1N 250/10</td>
<td>250</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 520</td>
<td>3800</td>
<td>57</td>
<td>1170</td>
<td>670</td>
<td>1495</td>
<td>1010</td>
<td></td>
</tr>
<tr>
<td>DTTHZ1N 630/10</td>
<td>630</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1100</td>
<td>7600</td>
<td>62</td>
<td>1390</td>
<td>820</td>
<td>1860</td>
<td>2030</td>
<td></td>
</tr>
<tr>
<td>DTTHZ1N 800/10</td>
<td>800</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1300</td>
<td>8000</td>
<td>64</td>
<td>1470</td>
<td>820</td>
<td>1860</td>
<td>2255</td>
<td></td>
</tr>
<tr>
<td>DTTHZ1N 1000/10</td>
<td>1000</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1550</td>
<td>9000</td>
<td>65</td>
<td>1560</td>
<td>980</td>
<td>1985</td>
<td>2925</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 250/20</td>
<td>250</td>
<td>24</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 468</td>
<td>3800</td>
<td>57</td>
<td>1325</td>
<td>670</td>
<td>1825</td>
<td>1465</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 630/20</td>
<td>630</td>
<td>24</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1100</td>
<td>7600</td>
<td>62</td>
<td>1470</td>
<td>820</td>
<td>2275</td>
<td>2590</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 800/20</td>
<td>800</td>
<td>24</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1300</td>
<td>8000</td>
<td>64</td>
<td>1535</td>
<td>820</td>
<td>2210</td>
<td>3995</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 1000/20</td>
<td>1000</td>
<td>24</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1550</td>
<td>9000</td>
<td>65</td>
<td>1610</td>
<td>980</td>
<td>2170</td>
<td>3210</td>
<td></td>
</tr>
</tbody>
</table>

### GRAVITY LINE ACC. TO ECO LEVEL 2 (MANDATORY AS OF 1 JULY 2021, AVAILABLE AS OF NOW)

<table>
<thead>
<tr>
<th>Type</th>
<th>Power kVA</th>
<th>HV kW</th>
<th>LV kV</th>
<th>u_L %</th>
<th>Vector group</th>
<th>P_0 W</th>
<th>P_120°C W</th>
<th>l_{max} dB (A)</th>
<th>Length approx. mm</th>
<th>Width approx. mm</th>
<th>Height approx. mm</th>
<th>Weight approx. kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTTHZ2N 250/10</td>
<td>250</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 468</td>
<td>3400</td>
<td>56</td>
<td>1250</td>
<td>670</td>
<td>1560</td>
<td>1160</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 630/10</td>
<td>630</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 990</td>
<td>7100</td>
<td>61</td>
<td>1490</td>
<td>820</td>
<td>1930</td>
<td>2335</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 800/10</td>
<td>800</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1170</td>
<td>8000</td>
<td>63</td>
<td>1560</td>
<td>980</td>
<td>2060</td>
<td>3365</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 1000/10</td>
<td>1000</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1395</td>
<td>9000</td>
<td>64</td>
<td>1670</td>
<td>980</td>
<td>2110</td>
<td>3650</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 1250/10</td>
<td>1250</td>
<td>12</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1620</td>
<td>11000</td>
<td>66</td>
<td>1750</td>
<td>980</td>
<td>2110</td>
<td>3650</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 1600/20</td>
<td>1600</td>
<td>24</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 1980</td>
<td>13000</td>
<td>67</td>
<td>1950</td>
<td>980</td>
<td>2450</td>
<td>5395</td>
<td></td>
</tr>
<tr>
<td>DTTHZ2N 2000/20</td>
<td>2000</td>
<td>24</td>
<td>380 - 450</td>
<td>6</td>
<td>DynX 2340</td>
<td>16000</td>
<td>69</td>
<td>2050</td>
<td>1270</td>
<td>2510</td>
<td>6045</td>
<td></td>
</tr>
</tbody>
</table>
ENCLOSURES

Gravity Line –
enclosure combination at $U_m$ 12 kV

<table>
<thead>
<tr>
<th>kVA at $U_m$ 12 kV</th>
<th>Type of enclosure</th>
<th>Housing size L X B X H mm</th>
<th>Weight kg</th>
<th>Recommended housing size</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>IP21 - IP33</td>
<td>1700 x 1100 x 1750</td>
<td>220</td>
<td>1</td>
</tr>
<tr>
<td>400</td>
<td>IP21 - IP33</td>
<td>1800 x 1200 x 2050</td>
<td>240</td>
<td>2</td>
</tr>
<tr>
<td>630</td>
<td>IP21 - IP33</td>
<td>1800 x 1200 x 2050</td>
<td>240</td>
<td>2</td>
</tr>
<tr>
<td>800</td>
<td>IP21 - IP33</td>
<td>2000 x 1300 x 2350</td>
<td>280</td>
<td>3</td>
</tr>
<tr>
<td>1000</td>
<td>IP21 - IP33</td>
<td>2400 x 1400 x 2450</td>
<td>330</td>
<td>4</td>
</tr>
</tbody>
</table>

Gravity Line –
enclosure combination at $U_m$ 24 kV

<table>
<thead>
<tr>
<th>kVA at $U_m$ 24 kV</th>
<th>Type of enclosure</th>
<th>Housing size L X B X H mm</th>
<th>Weight kg</th>
<th>Recommended housing size</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>IP21 - IP33</td>
<td>1800 x 1200 x 2050</td>
<td>240</td>
<td>2</td>
</tr>
<tr>
<td>400</td>
<td>IP21 - IP33</td>
<td>1800 x 1200 x 2050</td>
<td>240</td>
<td>2</td>
</tr>
<tr>
<td>630</td>
<td>IP21 - IP33</td>
<td>2000 x 1300 x 2350</td>
<td>280</td>
<td>3</td>
</tr>
<tr>
<td>800</td>
<td>IP21 - IP33</td>
<td>2000 x 1300 x 2350</td>
<td>280</td>
<td>3</td>
</tr>
<tr>
<td>1000</td>
<td>IP21 - IP33</td>
<td>2400 x 1400 x 2450</td>
<td>330</td>
<td>4</td>
</tr>
<tr>
<td>1250</td>
<td>IP21 - IP33</td>
<td>2400 x 1400 x 2450</td>
<td>330</td>
<td>4</td>
</tr>
<tr>
<td>1600</td>
<td>IP21 - IP33</td>
<td>2700 x 1600 x 2700</td>
<td>380</td>
<td>5</td>
</tr>
</tbody>
</table>

- Recommended transformer/housing combination between IP21 and IP33 without loss of efficiency
- Suitable for AF mode (capacity 140 %)
- Suitable for indoor / floor installation
- Professional service and expert consultation
- Enhanced degree of protection up to IPSX and poke protection on demand
- Outdoor installation and PEHLA protective housing on demand
OPTIONS

Fixed ball points

- Internal thread M12, straight model
- Fixed ball point diameter 20 mm or 25 mm
- On HV and LV side

Earthing switch

- Mounted to transformer chassis
- Actuation left-hand/right-hand at choice

Ventilation system

- Capacity increase up to 40%
- To cover brief power peaks

Surge arresters

- Customer information required re. choice of model

HV wired to post insulators

- To relieve the mechanical load on the terminals
CONTACT

STARKSTROM-GERÄTEBAU GMBH
Regensburg • Germany
Phone +49 941 7841-0

SÄCHSISCH-BAYERISCHE STARKSTROM-GERÄTEBAU GMBH
Neumark • Germany
Phone +49 37600 83-0

ROYAL SMIT TRANSFORMERS B.V.
Nijmegen • The Netherlands
Phone +31 24 3568-911

SMIT TRANSFORMER SERVICE
Nijmegen • The Netherlands
Phone +31 24 3568-626

RETRASIB S.A.
Sibiu • Romania
Phone +40 269 253-269

SGB CZECH TRAFO S.R.O.
Olomouc • Czech Republic
Phone +420 605 164860

BCV TECHNOLOGIES S.A.S.
Fontenay-le-Comte • France
Phone +33 251 532200

SMIT TRANSFORMER SALES INC.
Summerville, SC • USA
Phone +1 843 871-3434

SGB-USA INC.
Tallmadge, OH • USA
Phone +1 330 472-1187

OTC SERVICES INC.
Louisville, OH • USA
Phone +1 330 871-2444

SGB MY SDN. BHD.
Nilai • Malaysia
Phone +60 6 799 4014

SGB TRANSFORMERS INDIA PVT. LTD.
Chennai • India
Phone +91 44 45536147

SGB CHINA
Yancheng • P.R. China
Phone +86 515 88392600

SGB-SMIT POWER MATLA (PTY) LTD.
Pretoria West • South Africa
Phone +27 12 318 9911
Cape Town • South Africa
Phone +27 21 505 3000

SGB CZECH TRAFO S.R.O.
VGP Park Olomouc • hala C • Na Statkách
78301 Olomouc-Slavonín • Czech Republic
Phone +420 605 164 860
e-mail sgbcz@sgb-smit.group

www.sgb-smit.com