<table>
<thead>
<tr>
<th>NOTE!</th>
</tr>
</thead>
<tbody>
<tr>
<td>The product may have been modified after this document went to press. We expressly reserve the right to make changes to the technical data, the design or the scope of delivery. In general, the information provided and the arrangements agreed during processing of the relevant offers and orders are binding.</td>
</tr>
</tbody>
</table>
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## General

### 1.1 Summary of technical data

<table>
<thead>
<tr>
<th>On-load tap-changer</th>
<th>VVIII 250 Y</th>
<th>VV III 250 D</th>
<th>VV III 400 Y</th>
<th>VV III 400D</th>
<th>VVIII 600 Y</th>
<th>VVIII 600 D</th>
<th>VV I 401(1)</th>
<th>VV I 401(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of poles and application</td>
<td>3 neutral point</td>
<td>3 at any position on the winding</td>
<td>3 neutral point</td>
<td>3 at any position on the winding</td>
<td>3 neutral point</td>
<td>3 at any position on the winding</td>
<td>1 at any position on the winding</td>
<td></td>
</tr>
<tr>
<td>Max. rated through-current $I_{um}$ (in A)</td>
<td>250</td>
<td>400</td>
<td>600</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated short-time withstand current (in kA)</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated short-circuit duration (in s)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated peak withstand current (in kA)</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. rated step voltage $U_i$ (in V)</td>
<td>2000</td>
<td>2000...1700(1)</td>
<td>2000...1000(1)</td>
<td>2000...1700(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step capacity (in kVA)</td>
<td>see diagram $P_{st}/U_i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency (in Hz)</td>
<td>50...60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating positions</td>
<td>without change-over selector: max. 12, with change-over selector max. 23</td>
<td>with change-over selector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated insulation level</td>
<td>40</td>
<td>76</td>
<td>40 76 145(4)</td>
<td>40</td>
<td>76</td>
<td>40 76 145(4)</td>
<td>40</td>
<td>76</td>
</tr>
<tr>
<td>Highest voltage for equipment $U_{eq}$ (in kV)²</td>
<td>200</td>
<td>350</td>
<td>200 350 650</td>
<td>200</td>
<td>350</td>
<td>200 350 650</td>
<td>200</td>
<td>350</td>
</tr>
<tr>
<td>Rated lightning impulse withstand voltage (in kV, 1.2 I 50)</td>
<td>70</td>
<td>140</td>
<td>70 140 275</td>
<td>70</td>
<td>140</td>
<td>70 140 275</td>
<td>70</td>
<td>140</td>
</tr>
<tr>
<td>AC withstand voltage (in kV, 50 Hz, 1 min.)</td>
<td>see table 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated withstand voltages of internal insulation</td>
<td>Pressure-proof up to 0.3 bar, continuous difference pressure (test pressure 0.6 bar), head and cover of the on-load tap-changer are vacuum-proof.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil compartment</td>
<td>The on-load tap-changer VACUTAP® VV can be operated in the rated load range with oil temperatures of -25 °C to +105 °C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Optional for all types</td>
<td>see 733452</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tap-change supervisory control</td>
<td>Optional for all types</td>
<td>see 737780</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 1a
1.2 Specified minimum oil conservator height

The oil conservator height is determined by calculating the distance between the upper edge of the OLTC cover and the oil level in the oil conservator (see also appendix drawing 899759).

![Graph showing specified minimum oil conservator height](image)

**Table 1b**

<table>
<thead>
<tr>
<th>On-load tap-changer</th>
<th>VV III 40 kV</th>
<th>VV III 76 kV</th>
<th>VV III 145 kV</th>
<th>VV I 76 kV</th>
<th>VV I 145 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight without oil (approx. in kg)</td>
<td>240</td>
<td>255</td>
<td>280</td>
<td>200</td>
<td>215</td>
</tr>
<tr>
<td>Displacement volume (in dm³)</td>
<td>295</td>
<td>328</td>
<td>405</td>
<td>148</td>
<td>178</td>
</tr>
<tr>
<td>Oil filling quantity Vₛ and min. volume ΔV⁽²⁾ of the diverter switch oil compartment (in dm³)</td>
<td>Vₛ</td>
<td>ΔV</td>
<td>Vₛ</td>
<td>ΔV</td>
<td>Vₛ</td>
</tr>
<tr>
<td>Oil suction pipe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes for table 1a and table 1b:

1) See also diagram Uᵢ / Iᵢ
2) In acc. with VDE0111, part 1: r.m.s. value of the phase-phase voltage for which a piece of equipment is rated for its insulation.
3) 600 A model on request
4) A max. operating voltage of 132 kV + 15 % = 151.8 kV is amissible if the test voltages for the 145 kV series are not exceeded.
5) Applies for oil temperature Θ = -30 °C ... +100 °C
6) Applies for column 145 kV: Oil suction pipe not to be used together with oil filter unit!
1.3 Survey

1.3.1 Survey of the designs (no. of poles, change-over selector, installation length, fig. 1, 899541)
1.3.2 Survey of the basic connection diagrams (890616)

Survey of the basic connection diagrams (fig. 2a, 2b, 2c) with designation of the tap selector terminals in accordance with MR standards. This contact designation corresponds to the specifications in the on-load tap-changer dimension drawings.
1.3.3 On-load tap-changer VV III Y, basic connection diagram 10 10 0 (fig. 3, ZS030040)
1.3.4 On-load tap-changer VV III Y, basic connection diagram 10 19 1 W (fig. 4, ZS030041)
1.3.5 On-load tap-changer VV III Y, basic connection diagram 10 19 1 G (fig. 5, ZS030042)
2 Technical Data

2.1 Rated through-current (Iu), rated step voltage (Ui) and step capacity (PSt)

<table>
<thead>
<tr>
<th>On-load tap-changer</th>
<th>VV III 250</th>
<th>VV III 400 / VV I 401</th>
<th>VV III 600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts</td>
<td>10/12</td>
<td>10/12</td>
<td>10/12</td>
</tr>
<tr>
<td>Iu (in A)</td>
<td>250</td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>Ui (in V)</td>
<td>2000</td>
<td>2000...1700¹</td>
<td>2000...1000¹</td>
</tr>
<tr>
<td>PSt (in kVA)</td>
<td>see diagram P_{St}/Iu</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Rated through-currents (Iu), related rated step voltage (Ui) and step capacities (PSt), at highest and lowest rated step voltage of the step capacity curve (see fig. 6).

Note: ¹ See also diagram U_{i}/Iu

Fig. 6 Step capacities (Iu, Ui)

2.2 Life of the vacuum interrupters

The vacuum interrupters should be replaced as a precautionary measure after 600,000 tap-change operations.
### 2.3 Rated withstand voltages of the internal insulation

<table>
<thead>
<tr>
<th>Insulation distances</th>
<th>Voltage shape and period</th>
<th>V V III xxx D</th>
<th>V V III xxx Y</th>
<th>V V I</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$U_m = 40 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>$U_m = 76 \text{ kV}$</td>
<td>kV 50Hz 1 min</td>
<td>50</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>$U_m = 145 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>250</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>65</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td><strong>a1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$U_m = 40 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>$U_m = 76 \text{ kV}$</td>
<td>kV 50Hz 1 min</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>$U_m = 145 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>130</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td><strong>b</strong></td>
<td></td>
<td>b₁</td>
<td>b₂</td>
<td>b₃</td>
</tr>
<tr>
<td>$U_m = 40 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>200</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>70</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>kV 1.2/50 $\mu$s</td>
<td>350</td>
<td>490</td>
<td>520</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>140</td>
<td>165</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>kV 1.2/50 $\mu$s</td>
<td>650</td>
<td>730</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>275</td>
<td>285</td>
<td>300</td>
</tr>
<tr>
<td><strong>c1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$U_m = 40 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>400</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>$U_m = 76 \text{ kV}$</td>
<td>kV 50Hz 1 min</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>$U_m = 145 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>500</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>130</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td><strong>c2</strong></td>
<td></td>
<td>c₁₁</td>
<td></td>
<td>c₂₂</td>
</tr>
<tr>
<td>$U_m = 40 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>250</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>80</td>
<td>90</td>
<td>140</td>
</tr>
<tr>
<td>$U_m = 76 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>490</td>
<td>520</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>165</td>
<td>180</td>
<td>140</td>
</tr>
<tr>
<td>$U_m = 145 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>730</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>285</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td><strong>f</strong></td>
<td></td>
<td>f₁</td>
<td></td>
<td>f₂</td>
</tr>
<tr>
<td>$U_m = 40 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>200</td>
<td>250</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>70</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>$U_m = 76 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>350</td>
<td>490</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>140</td>
<td>165</td>
<td>140</td>
</tr>
<tr>
<td>$U_m = 145 \text{ kV}$</td>
<td>kV 1.2/50 $\mu$s</td>
<td>650</td>
<td>730</td>
<td>650</td>
</tr>
<tr>
<td></td>
<td>kV 50Hz 1 min</td>
<td>275</td>
<td>285</td>
<td>275</td>
</tr>
</tbody>
</table>

Table 3: Rated withstand voltage (in kV) of the insulation distances (rated lightning impulse withstand voltage, AC withstand voltage) on the on-load tap-changer.
Specific dielectric stress of the tap winding

Fig. 7
3.1 On-load tap-changer VACUTAP® VV – classification (737774)

11 = Change-over selector pipe
12 = Change-over selector terminal “+”
13 = Change-over selector terminal “0”
14 = Change-over selector terminal “-”
21 = Take-off terminal
22 = Fine tap selector terminal
23 = Oil compartment bottom with kerosene drain plug 23a
24 = Tap changer oil compartment
30 = Tap changer head complete with 31 und 32; refer to 898 863; and 737 060
31 = Tap changer head – bottom part
32 = Tap changer head – top part
38 = Tap changer head cover
3.2 On-load tap-changer VACUTAP® VV III 250/400/600-Y/D-40...76–10/12-0 (899120)

Technical Data TD 203/05 EN VACUTAP® VV

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3.3 On-load tap-changer VACUTAP® VV III 250/400/600-Y/D-40...76-10/12-W/G (899119)

![Diagram of on-load tap-changer VACUTAP® VV III]

12 = Change-over selector terminal “+”
13 = Change-over selector terminal “0”
14 = Change-over selector terminal “−”
21 = Take-off terminal
22 = Fine tap selector terminal
30 = Tap changer head, dimensions refer to 898 863 and 737 060
47 = V V - Y only: Neutral point connection lead, dimensions refer to 738 806

Dimensions refer to 737 775:

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>i</th>
<th>m</th>
<th>n</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td>404</td>
<td>632</td>
<td>637</td>
<td>1628</td>
<td>1810</td>
</tr>
<tr>
<td>656</td>
<td>697</td>
<td>689</td>
<td>1600</td>
<td>1810</td>
</tr>
</tbody>
</table>

Provide sufficient clearance on transformer tank

⚠️ The connecting diagram is binding for the designation of the terminals and phases.
3.4 On-load tap-changer VACUTAP® VV III 250/400/600-D-145–10/12-0 (899163)

Dimensions refer to 737 776:

<table>
<thead>
<tr>
<th>Uiₘ (kV)</th>
<th>145</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions [mm]</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>623</td>
</tr>
<tr>
<td>n</td>
<td>591</td>
</tr>
<tr>
<td>h</td>
<td>2224</td>
</tr>
</tbody>
</table>

⚠️ The connecting diagram is binding for the designation of the terminals and phases.
3.5 On-load tap-changer VACUTAP® VV III 250/400/600-D-145-10/12-W/G (899162)

### Technical Data TD 203/05 EN VACUTAP® VV

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<table>
<thead>
<tr>
<th>( U_{m} ) [kV]</th>
<th>( I_{S} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>558</td>
<td>623</td>
</tr>
<tr>
<td>591</td>
<td>2224</td>
</tr>
</tbody>
</table>
3.6 On-load tap-changer VACUTAP® VV I 401–76–10/12-W/G (899121)

![Diagram of on-load tap-changer VACUTAP® VV I 401–76–10/12-W/G (899121)]

- **12** = Change-over selector terminal “+”
- **13** = Change-over selector terminal “0”
- **14** = Change-over selector terminal “-”
- **21** = Take-off terminal
- **22** = Fine tap selector terminal
- **30** = Tap changer head, dimensions refer to 898 863 and 737 060

Potent. In-T1

Provide sufficient clearance on transformer tank

⚠️ The connecting diagram is binding for the designation of the terminals and phases.
3.7 On-load tap-changer VACUTAP® VV I 401-145-10/12-W/G (727986)

- **12** = Change-over selector terminal “+”
- **13** = Change-over selector terminal “0”
- **14** = Change-over selector terminal “−”
- **21** = Take-off terminal
- **22** = Fine tap selector terminal
- **30** = Tap changer head, dimensions refer to 898 863 : and 737 060 :

⚠️ The connecting diagram is binding for the designation of the terminals and phases

---

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3.8 On-load tap-changer VACUTAP® VV, terminal dimensions – with change-over selector (737775)

21 Location of take-off terminals, Plan view

22 Location of fine tap selector terminals, Plan view

12 Change-over selector terminal

13 Take-off terminal

22 Fine tap selector terminal

M = Drive side

The connecting diagram is binding for the designation of the terminals and phases
3.9 On-load tap-changer VACUTAP® VV, terminal dimensions – without change-over selector (737776)

Location of take-off terminals, Plan view

Location of fine tap selector terminals, Plan view

Take-off terminal
Fine tap selector terminal

Drive side

The connecting diagram is binding for the designation of the terminals and phases

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3.10 On-load tap-changer VACUTAP® VV, position of the connecting terminals (899051)

21) Take-off terminal

If necessary compensate with washers

Take-off terminal (optional)
Take-off terminal not possible with potential connection

These take-off terminals (with or without take-off leads) are to be fitted with screening caps (included in MR’s delivery) by the transformer manufacturer.

22) Fine tap selector terminal

If necessary compensate with washers

These terminals are to be fitted with screening caps (included in MR’s delivery) by the transformer manufacturer.

M = Drive side

The connecting diagram is binding for the designation of the terminals and phases.
3.11 On-load tap-changer VACUTAP® VV, oil suction pipe (optional) (739172)

The upper part of the OLTC head \( \text{ cannot } \) be turned in the model with oil suction pipe, see drawing 737 060:
3.12 On-load tap-changer VACUTAP® VV, tap-changer head without oil suction pipe (898863)

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The upper part of the OLTC head cannot be turned in the model with oil suction pipe, see drawing 737 060.
3.13 On-load tap-changer VACUTAP® VV, OLTC head with oil suction pipe (737060)

All other dimensions of the OLTC head see drawing 898 863:

M = drive side

⚠️ The upper part of the OLTC head 32 cannot be turned in the model with oil suction pipe
3.14 On-load tap-changer VACUTAP® VV, head cover design – standard design (737777)

- 32 Tap-Changer head - tap part, can be turned towards the bottom part of the head in steps of 15°. The Tap-Changer head cover cannot be turned.
- 40 Inspection glass cover for tap position indicator
- 41 Burst pressure membrane
- 42 Temperature sensor I optional
- 46 Upper gear unit, dimensions and selection see 737 782
- M Drive side

⚠️ The upper part of the OLTC head CANNOT be turned in the model with oil suction pipe, see drawing 737 060.
3.15 On-load tap-changer VACUTAP® VV, head cover design, standard design with supervisory control (737778)

![Diagram of on-load tap-changer VACUTAP® VV head cover design](image)

32) Tap-Changer head - top part, can be turned towards the bottom part of the head in steps of 15°.
   The Tap-Changer head cover cannot be turned.
33) Inspection glass cover for tap position indicator
34) Burst pressure membrane
35) Temperature sensor I optional.
36) Supervisory control, dimensions and selection see 733 452.
37) Upper gear unit, dimensions and selection see 737 762.
38) Drive side

⚠️ The upper part of the OLTC head CANNOT be turned in the model with oil suction pipe, see drawing 737 060.
3.16 On-load tap-changer VACUTAP® VV, head cover design with flange for pressure relief device (737779)

Tap-Changer head – top part, can be turned towards the bottom part of the head in steps of 15°

The Tap-Changer head cover cannot be turned.

Inspection glass cover for tap position indicator

Temperature sensor (optional)

Supervisory control, dimensions and selection see 733 452.

Flange for pressure relief device

Upper gear unit, dimensions and selection see 737 762.

Drive side

⚠️ The upper part of the OLTC head CANNOT be turned in the model with oil suction pipe, see drawing 737 060.
3.17 On-load tap-changer VACUTAP® VV, head cover design with pressure relief device MPREC (737780)

32 Tap-Changer head - top part, can be turned towards the bottom part of the head in steps of 15°
33 The Tap-Changer head cover cannot be turned.
46 Inspection glass cover for tap position indicator
42 Temperature sensor (optional)
43 Supervisory control, dimensions and selection see 733 452
44 Flange for pressure relief device
45 Pressure relief device, can be installed turned in 60° steps
46 Upper gear unit, dimensions and selection see 737 782
62 Drive side

⚠️ The upper part of the OLTCE head CANNOT be turned in the model with oil suction pipe, see drawing 737 060.
3.18 On-load tap-changer VACUTAP® VV, head cover design, dimensions of tap change supervisory control (733452)

Tap-Changer head - top part, can be turned towards the bottom part of the head in steps of 15°. The Tap-Changer head cover cannot be turned.

Drive side

⚠️ Take care when installing the electrical lines so that they do not obstruct the OLTC cover when it is opened for maintenance.

⚠️ The upper part of the OLTC head CANNOT be turned in the model with oil suction pipe, see drawing 737 060.
3.19 On-load tap-changer VACUTAP® VV, pipe connection (899496)

EXAMPLE FOR ORDERING A PIPE CONNECTION WITHOUT VENTING FACILITY WITH h=x40 AND h+45:

"PIPE CONNECTION TYPE NO 140 x 45"

<table>
<thead>
<tr>
<th>STANDARD DIMENSIONS</th>
<th>DESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;L&quot; &quot;h&quot;</td>
<td>TYPE NO</td>
</tr>
<tr>
<td>140 68</td>
<td>●</td>
</tr>
<tr>
<td>140 82</td>
<td>●</td>
</tr>
<tr>
<td>140 143</td>
<td>●</td>
</tr>
</tbody>
</table>

PREFERRED DESIGN

ALL FLANGES ARE TURNABLE BEFORE THE BOLTING

● = AVAILABLE
3.20 On-load tap-changer VACUTAP® VV, neutral point connection lead (738806)

Customer connection point for neutral point

Position of neutral point connection lead

Customer connection for neutral point only admissible here!
Exception:
Only if additional Take-off terminals are available.

⚠️ The position of the neutral point connection lead must not be changed!
3.21 On-load tap-changer VACUTAP® VV, tie-in resistors attached laterally (899407)

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3.22 On-load tap-changer VACUTAP® VV, installation drawing (738902)

The withdrawal height corresponds to the clearance between the cover flange and the lifting device of the OLTC insert, while the mounting rod is inserted. Additional fixing pads, which may be necessary for affixing the OLTC insert, have to be considered too.

<table>
<thead>
<tr>
<th>On-Load Tap-Changer</th>
<th>Withdrawal height</th>
</tr>
</thead>
<tbody>
<tr>
<td>V V I - 76 kV</td>
<td>920 mm</td>
</tr>
<tr>
<td>V V I - 145 kV</td>
<td>1070 mm</td>
</tr>
<tr>
<td>V V III - 40 kV</td>
<td>1910 mm</td>
</tr>
<tr>
<td>V V III - 76 kV</td>
<td></td>
</tr>
<tr>
<td>V V III - 145 kV</td>
<td>2310 mm</td>
</tr>
</tbody>
</table>

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3.23 On-load tap-changer VACUTAP® VV, assembly drawing bell-type mounting (899110)
3.24 On-load tap-changer VACUTAP® VV, position of OLTC for bell-type mounting (899409)
3.25 On-load tap-changer VACUTAP® VV, assembly drawing cover mounting (898866)

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3.26 On-load tap-changer VACUTAP® VV, drive shaft versions of the upper gear unit (737782)

- The Top-Changer head - top part, can be turned towards the bottom part of the head in steps of 15°.
- The Top-Changer head cover cannot be turned.
- Upper gear unit, steplessly turnable to 360°. Limitation of the swivelling range see 899 210° and 899 211°.
- Drive side

⚠️ The upper part of the OLTC head CANNOT be turned in the model with oil suction pipe, see drawing 737 060°.
3.27 On-load tap-changer VACUTAP® VV, swivelling range of upper gear unit, drive shaft on the left (899210)

Drive shaft on the left:

- Swivel range not possible because of:

1 = Flange for pressure relief device
2a = Temperature sensor or
2b = Thermometer case
3 = Supervisory control
4 = Bleeding facility
5 = Pipe connection “O”
6 = Pipe connection “S” und “R” (Standard)
7 = This swivel range, which hides the position indication, should be avoided

Swivelling ranges:
By turning around its own axis and by the steplessly turnable upper gear unit, the tap changer can be adapted to the transformer.

The NOT usable swivelling ranges of the upper gear unit are shown above on the right.

Only for the design without oil suction pipe:
As the top part and the bottom part of the head can be turned to each other lin steps of 15°, the swivelling ranges change accordingly.

⚠️ The upper part of the OLTC head CANNOT be turned in the model with oil suction pipe, see drawing 737 060.
3.28 On-load tap-changer VACUTAP® VV, swivelling range of upper gear unit, drive shaft on the right (899211)

Drive shaft on the right:

- Swivel range not possible because of:

1 = Flange for pressure relief device
2a = Temperature sensor or
2b = Thermometer case
3 = Supervisory control
4 = Bleeding facility
5 = Pipe connection "Q"
6 = Pipe connection "S" and "R" (Standard)
7 = This swivel range, which hides the position indication, should be avoided

Swivelling ranges:
By turning around its own axis and by the steplessly turnable upper gear unit, the tap changer can be adapted to the transformer.

The NOT usable swivelling ranges of the upper gear unit are shown above on the right.

Only for the design without oil suction pipe:
As the top part and the bottom part of the head can be turned to each other (in steps of 15°), the swivelling ranges change accordingly.

⚠️ The upper part of the OLTC head CANNOT be turned in the model with oil suction pipe, see drawing 737 060.

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3.29 On-load tap-changer VACUTAP® VV, horizontal drive shaft (899169)

Arrangement: G 4
(Standard design)

Arrangement: G 9, G 10
(Special design)

Arrangement: G 11, G 12
(Standard design)

Arrangement: G 13, G 14
(Special design)

Minimum dimensions

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>H1</th>
<th>H2</th>
<th>H3, H4</th>
</tr>
</thead>
<tbody>
<tr>
<td>G 4</td>
<td></td>
<td>&gt;400</td>
<td></td>
</tr>
<tr>
<td>G 9, G 10</td>
<td></td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>G 11, G 12</td>
<td></td>
<td></td>
<td>600</td>
</tr>
<tr>
<td>G 13, G 14</td>
<td></td>
<td>520</td>
<td>600</td>
</tr>
</tbody>
</table>

Intermediate bearing required for

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>H1</th>
<th>H2</th>
<th>H3, H4</th>
</tr>
</thead>
<tbody>
<tr>
<td>G 11, G 12</td>
<td></td>
<td>254</td>
<td>259</td>
</tr>
<tr>
<td>G 13, G 14</td>
<td></td>
<td>254</td>
<td>259</td>
</tr>
</tbody>
</table>

Attention: H1 and H2 can be mechanically realized as minimum dimensions, larger when the upper gear unit is turned into a certain position.

⚠️ The representations are only examples. It should be checked first if the position (swivel range) of the upper gear unit is possible. See also 899 210: und 899 211:
3.30 On-load tap-changer VACUTAP® VV, transformer with on-load tap-changer, schematic drawing (899759)

1) On-load tap-changer
2) Motor-drive unit
3) Protective relay
4) Oil conservator