Standards, regulations, nomenclature

Switzerland

<table>
<thead>
<tr>
<th>Directive</th>
<th>Preferred voltages</th>
<th>Circuit</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Ordinance</td>
<td>230/400 V</td>
<td>∆/Y</td>
<td>50 Hz</td>
</tr>
<tr>
<td>AS2009</td>
<td>400/690 V</td>
<td></td>
<td>50/60 Hz</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Designation</th>
<th>IE2</th>
<th>IE3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory as of</td>
<td>01.07.2011</td>
<td>open</td>
</tr>
<tr>
<td>Power range</td>
<td>0,75-375 kW</td>
<td>open</td>
</tr>
<tr>
<td>Number of poles</td>
<td>2,4,6</td>
<td></td>
</tr>
</tbody>
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### Relevant exceptions
- IE2, IE3

1. **Intermittent operation / Short term operation**
   - The directive only applies to motors in continuous operation S1 or S3>80%.
   - Operating modes other than S1 as per IEC 60034-1 are exempted from the regulations. e.g.:
     - S3-70%
     - S6-80%
     - S9
   - Explanation of operating modes ⇒ A19
   - Motor data ⇒ C2 and above
2. **Switchable pole motors** ⇒ C7-11
3. **Frequency inverter operation**
   - Special motors for frequency inverter operation as per standard IEC 60034-25 of the International Electrical Engineering Commission.
4. **ATEX motors**
   - Motors for explosion protection (gas and dust) are exempted from the directive but may be classified according to IE.
5. **Ambient temperature**
   - The directive does not apply to motors which are rated for ambient temperatures >40°C or <0°C (up to 600W) or < -15°C, e.g.:
     - $T_{amb} = -20°C...+45°C$
6. **Installation altitude**
   - The directive does not apply to motors which are rated for an installation altitude above 1000m above sea level.
7. **Single phase motors** ⇒ C12-13

### Special features
- Motor data ⇒ C14 and above
- Motor data ⇒ C20 and above

### Type Plates
(Geared motor)

- **IE2**
- **IE3**