

# Liquid immersed distribution transformer

Specification template to IEC 60076-1

Fill in what the design has fixed and leave the rest empty. Send the sheet with your request: every open point comes back in one numbered message before any manufacturer sees it.

## 01 Project

|                           |                                   |                                      |                                                             |
|---------------------------|-----------------------------------|--------------------------------------|-------------------------------------------------------------|
| Project or reference      |                                   |                                      |                                                             |
| Site country and postcode |                                   |                                      |                                                             |
| Quantity units            |                                   |                                      |                                                             |
| Required on site          |                                   |                                      | Date, or week and year                                      |
| Delivery terms            | <input type="checkbox"/> DAP site | <input type="checkbox"/> FCA works   | <input type="checkbox"/> Other Incoterms 2020               |
| New or replacement        | <input type="checkbox"/> New      | <input type="checkbox"/> Replacement | For a replacement, attach a photograph of the old nameplate |

## 02 Rating and voltages

|                                        |                                      |                                  |                                                                   |
|----------------------------------------|--------------------------------------|----------------------------------|-------------------------------------------------------------------|
| Rated power kVA                        |                                      |                                  |                                                                   |
| Rated voltage, high voltage side kV    |                                      |                                  | Network voltage, for example 10, 11, 20 or 33 kV                  |
| Rated voltage, low voltage side V      |                                      |                                  | At no load, for example 400, 415 or 433 V                         |
| Highest voltage for equipment Um kV    |                                      |                                  | For example 12, 24 or 36 kV                                       |
| Frequency                              | <input type="checkbox"/> 50 Hz       | <input type="checkbox"/> 60 Hz   |                                                                   |
| Vector group                           |                                      |                                  | For example Dyn11. Match the existing unit for parallel operation |
| Short circuit impedance uk %           |                                      |                                  | Parallel operation or a fault level limit fixes it                |
| Tapping range                          |                                      |                                  | For example $\pm 2 \times 2.5$ %                                  |
| Tap changer                            | <input type="checkbox"/> Off circuit | <input type="checkbox"/> On load |                                                                   |
| Insulation level, high voltage side kV |                                      |                                  | Impulse / applied voltage, for example 125 / 50 kV at Um 24 kV    |

## 03 Losses

|                                       |                                            |                                             |                                                       |
|---------------------------------------|--------------------------------------------|---------------------------------------------|-------------------------------------------------------|
| Loss requirement                      | <input type="checkbox"/> EU Tier 2 maximum | <input type="checkbox"/> Lower values below | Regulation (EU) 548/2014 as amended by (EU) 2019/1783 |
|                                       | <input type="checkbox"/> Capitalised       |                                             |                                                       |
| Maximum load loss Pk W                |                                            |                                             | At reference temperature                              |
| Maximum no load loss P0 W             |                                            |                                             |                                                       |
| Capitalisation factors A and B per kW |                                            |                                             | Only if losses are priced in the comparison           |
| Maximum sound power level dB(A)       |                                            |                                             |                                                       |

#### 04 Construction and installation

|                                |                                                                                                                      |                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Insulating liquid              | <input type="checkbox"/> Mineral oil <input type="checkbox"/> Natural ester <input type="checkbox"/> Synthetic ester | Indoors, state the fire and containment arrangements |
| Tank                           | <input type="checkbox"/> Hermetically sealed <input type="checkbox"/> Conservator                                    |                                                      |
| Cooling                        | <input type="checkbox"/> ONAN <input type="checkbox"/> KNAN <input type="checkbox"/> Other                           |                                                      |
| Installation                   | <input type="checkbox"/> Outdoor <input type="checkbox"/> Indoor <input type="checkbox"/> In a compact substation    |                                                      |
| Site altitude m                | <input type="text"/>                                                                                                 | Above sea level, if over 1000 m                      |
| Maximum ambient temperature °C | <input type="text"/>                                                                                                 | If over 40 °C                                        |
| Corrosivity of the site        | <input type="text"/>                                                                                                 | For the paint system, for example C3, C4 or C5       |
| Size and weight limits         | <input type="text"/>                                                                                                 | Door, room, crane or access road                     |

#### 05 Connections and fittings

|                         |                                                                                                                                    |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| High voltage connection | <input type="checkbox"/> Plug in bushings <input type="checkbox"/> Porcelain bushings<br><input type="checkbox"/> Cable box        |
| Low voltage connection  | <input type="checkbox"/> Bushings with flags <input type="checkbox"/> Busbar trunking flange<br><input type="checkbox"/> Cable box |
| Protection device       | <input type="checkbox"/> Gas, pressure, temperature and level relay<br><input type="checkbox"/> Thermometer with contacts          |
| Rollers                 | <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                           |
| Rating plate language   | <input type="text"/>                                                                                                               |

#### 06 Tests and documents

|                                                                                                  |                                                                                                                                                                                              |                                                  |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Type test reports required                                                                       | <input type="checkbox"/> Temperature rise <input type="checkbox"/> Lightning impulse<br><input type="checkbox"/> Sound level <input type="checkbox"/> Short circuit withstand                | Routine tests to IEC 60076-1 are always included |
| Witnessed factory acceptance test                                                                | <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                     |                                                  |
| Documents with the offer                                                                         | <input type="checkbox"/> Outline drawing <input type="checkbox"/> Guaranteed technical data<br><input type="checkbox"/> Type test reports <input type="checkbox"/> Declaration of conformity |                                                  |
| Notes and attachments<br>Single line diagram, site drawings, the old nameplate for a replacement | <input type="text"/>                                                                                                                                                                         |                                                  |

References: IEC 60076-1:2011. Regulation (EU) No 548/2014 as amended by Regulation (EU) 2019/1783. Examples show the form of an answer; the values for your project come from its design. Free to use and copy.

#### Send it with your request

- Requests stored in the EU
- Manufacturers get the specification, not your details
- No account, no obligation

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