

DISCONNECTOR STANDARDIZATION

The major challenge for HVDC disconnectors is the design of the phase to ground insulation, due the very long insulator sets necessary especially in the UHV range.

For disconnectors for **indoor use** SI dominates the design as shown in Figure 1 (evaluation considering the maximum overvoltage values foreseen in IEC_TS_62271-5 draft). Standardization may benefit from the rationalization of the SI requirements (now ranging from 1.6 to 2.3 p.u).

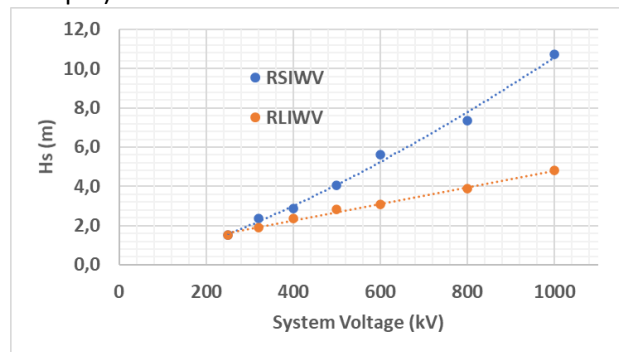


Figure 1 Comparison of SI and LI requirements

For disconnectors for **outdoor use** pollution design has to be considered (see Fig. 2).

Data for porcelain indicate that for pollution classes equal to medium or above pollution dominates the design. Furthermore, the insulator lengths required for heavy and very heavy pollution are very high, limiting the apparatus feasibility at least in the upper voltage range.

For polymeric solutions pollution dominates the design only for heavy and very heavy conditions. Again, for very heavy pollution conditions the required insulator lengths are very high limiting apparatus feasibility for the upper voltage range.

Thus, standardization requires reference to well defined and agreed pollution severity levels and corresponding g required USCD..

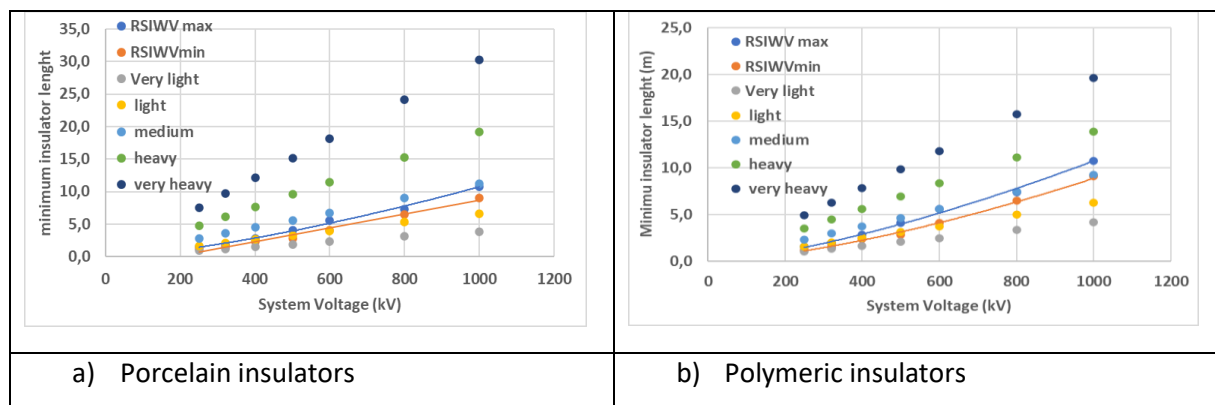


Figure 2 Minimum required Hs as a function of the system voltage. Comparison of SI and pollution requirements

[1] Eros STELLA , Marco NOSILATI, Francisco CHACON. Alberto PIGINI “ Sizing and testing of HVDC disconnectors from the dielectric point of view “ Cigre 2022 paper 13 10773