

## Subcomponents specification

*A2* Transformer

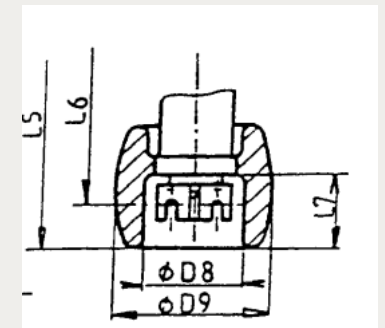
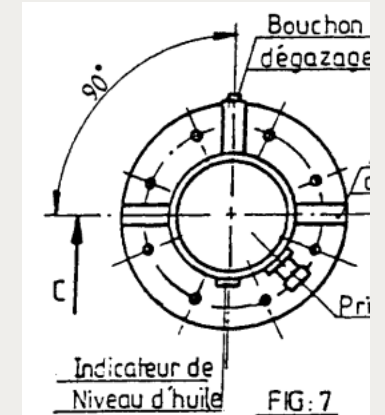
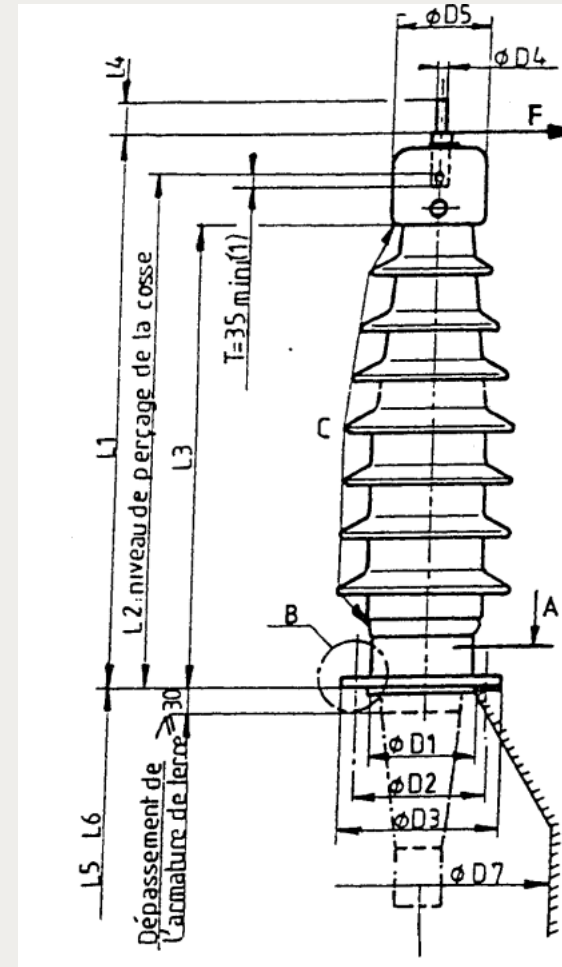
*PS3* Best Practices in procurement

*Q3.4* What are the advantages and drawbacks of standardization for both users and manufacturers?

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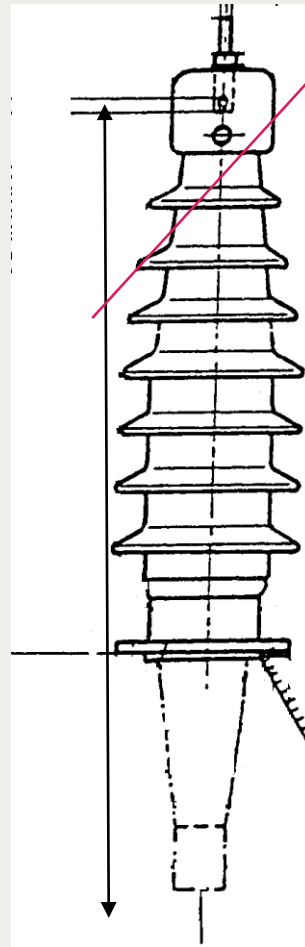
# The French experience in bushing standardisation

- *Since the late 60's*
  - France has developed a mechanical standard for bushing interchangeability:
    - It includes all mechanical dimensions
- *Nowadays we take the benefits of it*
  - *the replacement of aged bushing is easy*
  - *No questions on the inner parts*
  - *Little variation of the outer parts*



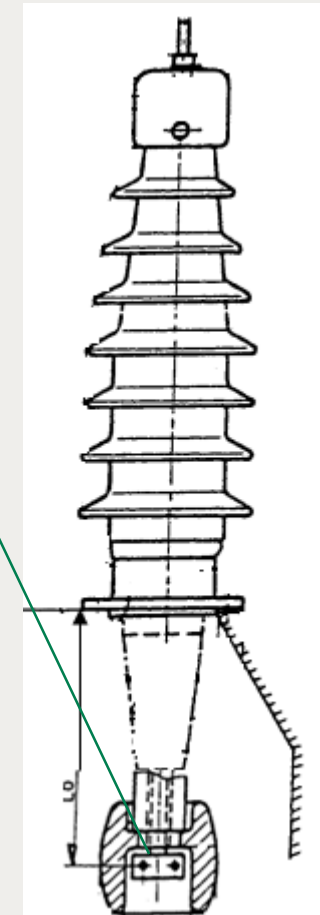
# The French experience in bushing standardisation

- *Enhanced benefit of good choice*
- With requirement of bottom bolted connection
  - Simplified adaptation with fixed position of the bottom contact compared to draw lead
  - Fixed design of the connecting parts



Draw lead needs to be cut and to terminal becomes special with extra length

No adaptation for bottom connection



# The French experience in bushing standardisation

## • *conclusion*

- good specification of subcomponent and mechanical standards are
  - Highly beneficial for maintenance (long term)
  - It needs
    - Precise definition of what is needed
    - Standard allowing for more than one supplier,
  - It is cost effective on long term basis
    - Slightly more expensive on a new transformer (maybe)
    - A lot less expensive for maintenance
  - it needs a careful design review
- Same applies to all parts that may need to be replaced (see IEC60676-22)

Group Discussion Meeting