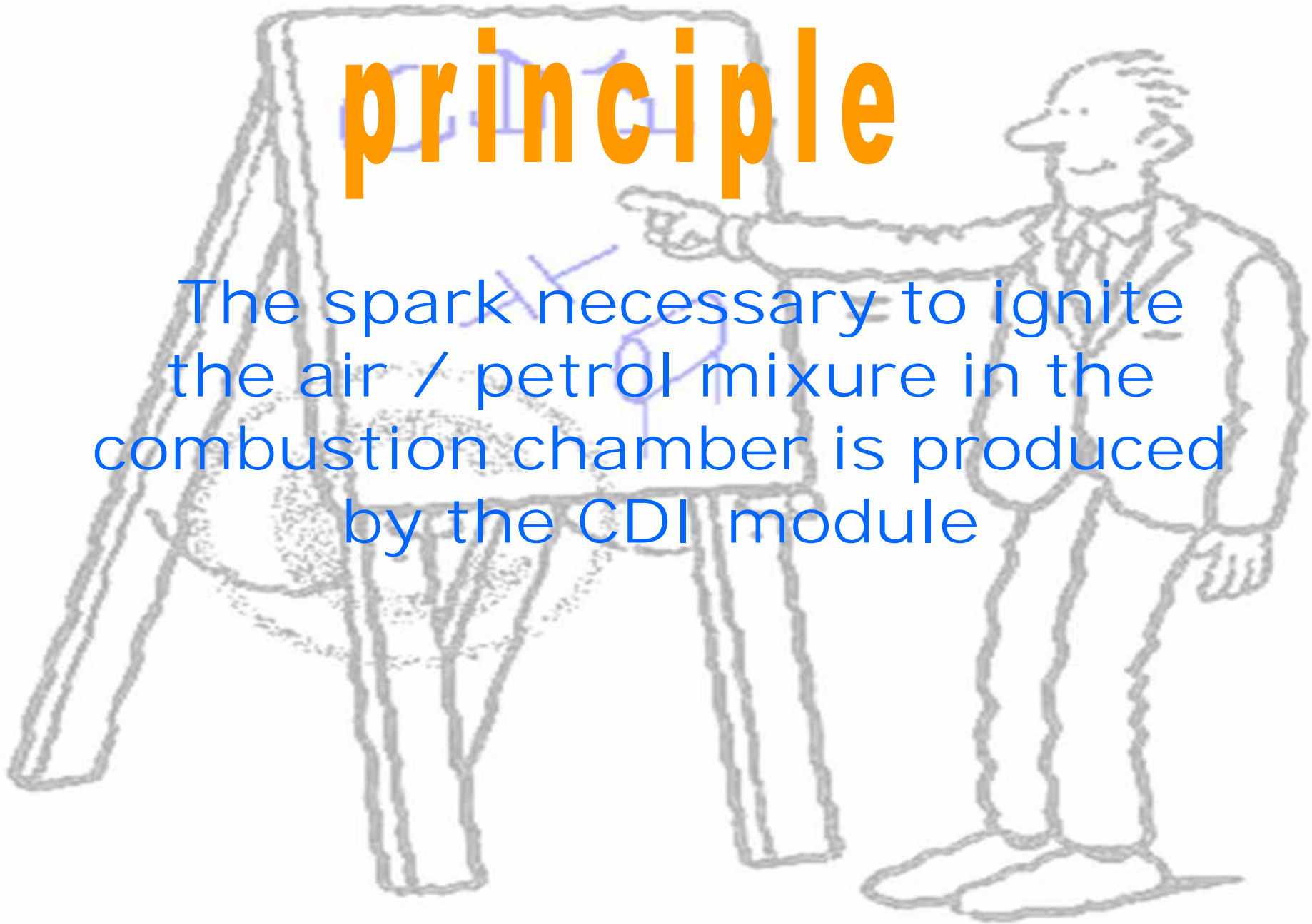


principle

The spark necessary to ignite the air / petrol mixture in the combustion chamber is produced by the CDI module





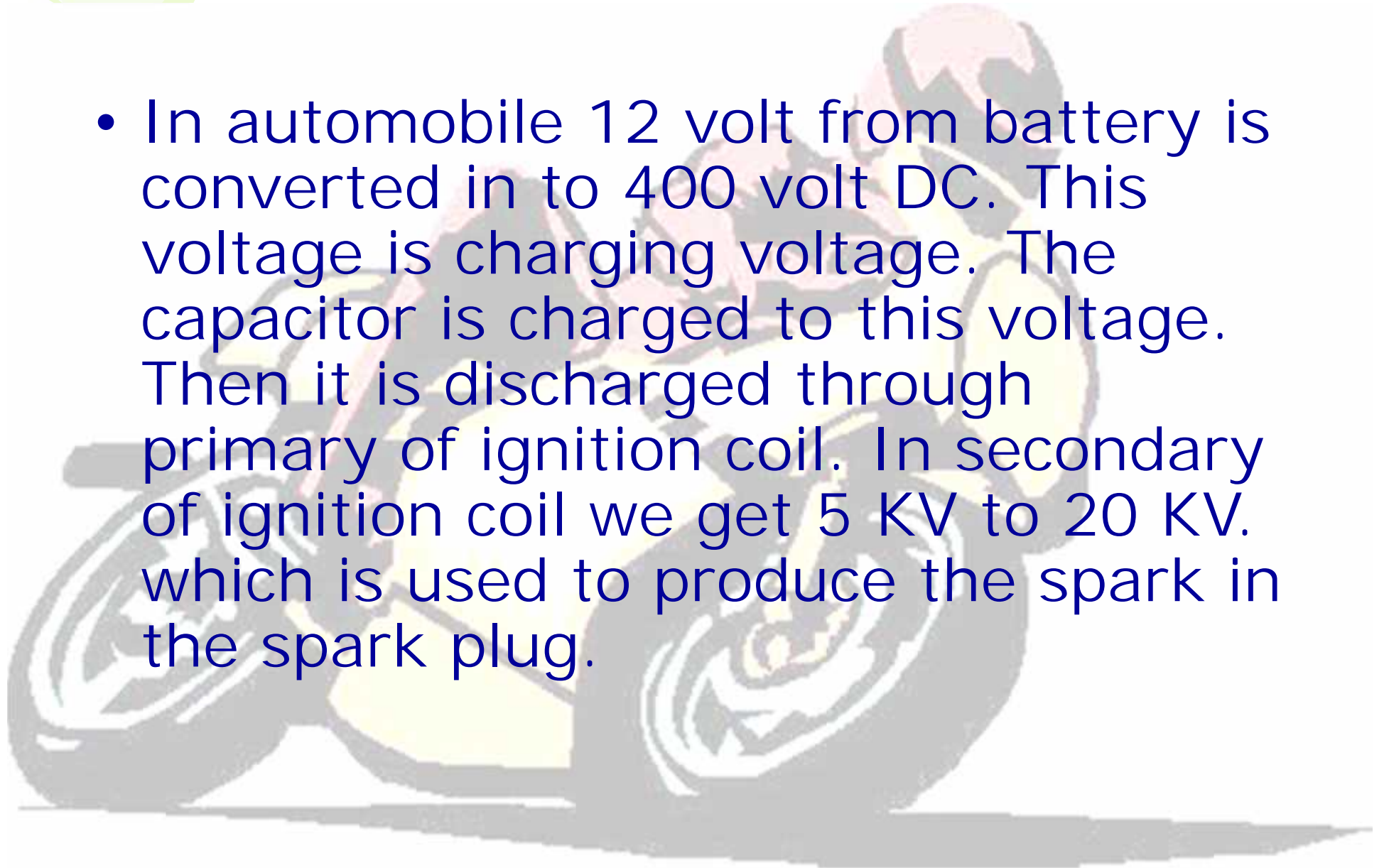
- What is CDI capacitor ?

CDI is capacitive Discharge Ignition and the capacitor which is used in CDI application is called CDI capacitor. it is used in automobile application.

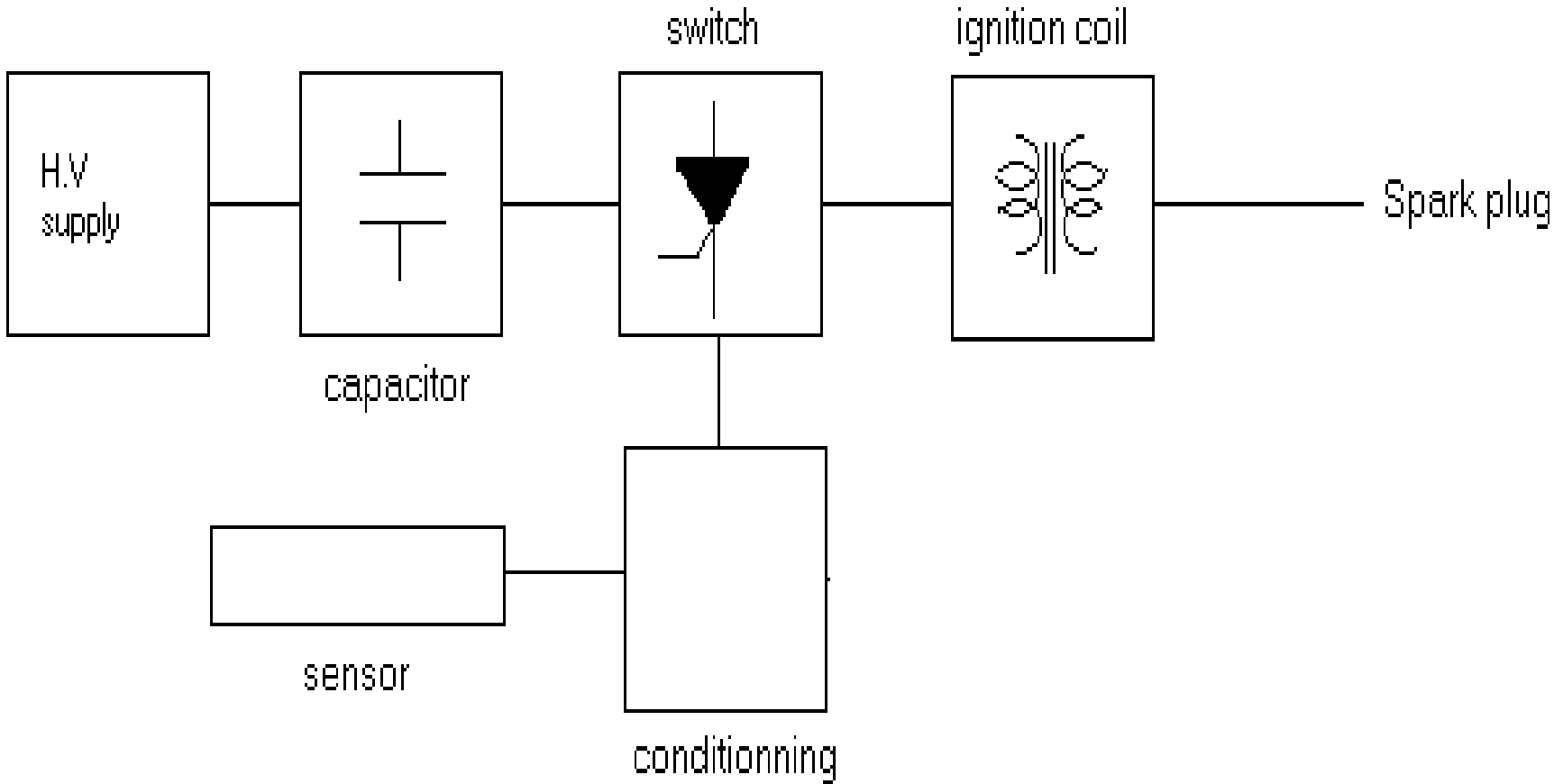


How is it work?

- In automobile 12 volt from battery is converted in to 400 volt DC. This voltage is charging voltage. The capacitor is charged to this voltage. Then it is discharged through primary of ignition coil. In secondary of ignition coil we get 5 KV to 20 KV. which is used to produce the spark in the spark plug.



BLOCK DIAGRAM





CDI CAPACITORS

- Critical parameters for this application:
- Application is basically Charge / Discharge application. During the positive half cycle capacitor is charged and during the negative half cycle capacitor is discharged through coil with very low resistance.
- Requirement is Higher current carrying capability.



Critical parameter for capacitor Quality is End contact quality.

CDI CAPACITOR

- Common cutting techniques are cutting with a standard blade or a roller blade. Both techniques give a similar result, parallel edges of the film. And this means that the accessible geometry for the electrical contact of the capacitor is limited due to the thickness of the metal layer itself times the meters of film used for the capacitor.



CDI CAPACITOR

- A first improvement to enlarge the area of contact was the heavy edge metallization, sometimes also named reinforced edge.



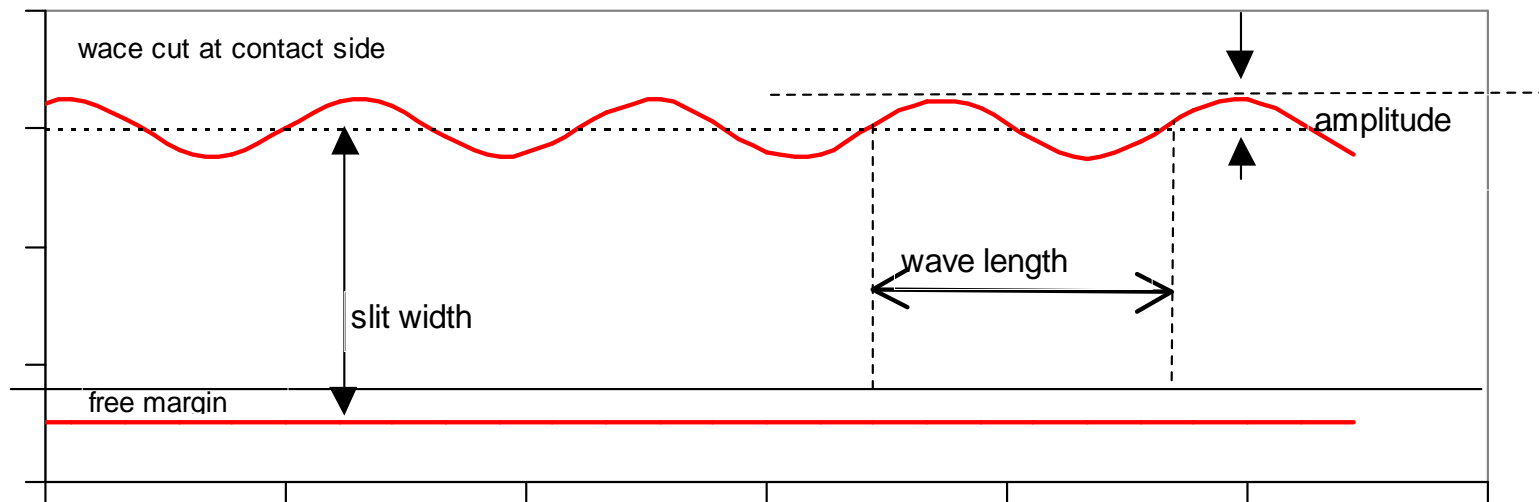


CDI CAPACITOR

- The idea to enlarge the contact zone any further led to a new technology, which is nowadays commonly known as wave cut. This is a special cutting technique, which allows to influence the contour of the cutted edge.

CDI CAPACITOR

Technical terms about wavecut



A decorative graphic on the left side of the slide features three balloons: a light green one at the top, a light blue one in the middle, and a light purple one at the bottom. Each balloon has a string and several small yellow triangular flags attached to it. The balloons are arranged vertically and partially overlap.

CDI CAPACITOR

- Advantages are
- Larger area of contact →
- minimize the $\tan \delta$ due to end spraying effects
- gain better contact, which allows better pulse behavior dU/dt
- and this means higher current carrying facilities.



CDI CAPACITOR

- Deki CDI capacitors are made with special film.
- Available in both Metalised Polyester / Metalised PolyPropylene versions.
- Metalised Polyester type is recommended for Lower discharge current rating say up to 40 A discharge current.
- Metalised Polypropylene type is recommended for Higher discharge current say up to 100 A discharge current.

TYPES

CDI TYPES

- MPET

In MPET Operating temperature is between -55°C to 125°C .

Tan of MPET is higher.

- MPP

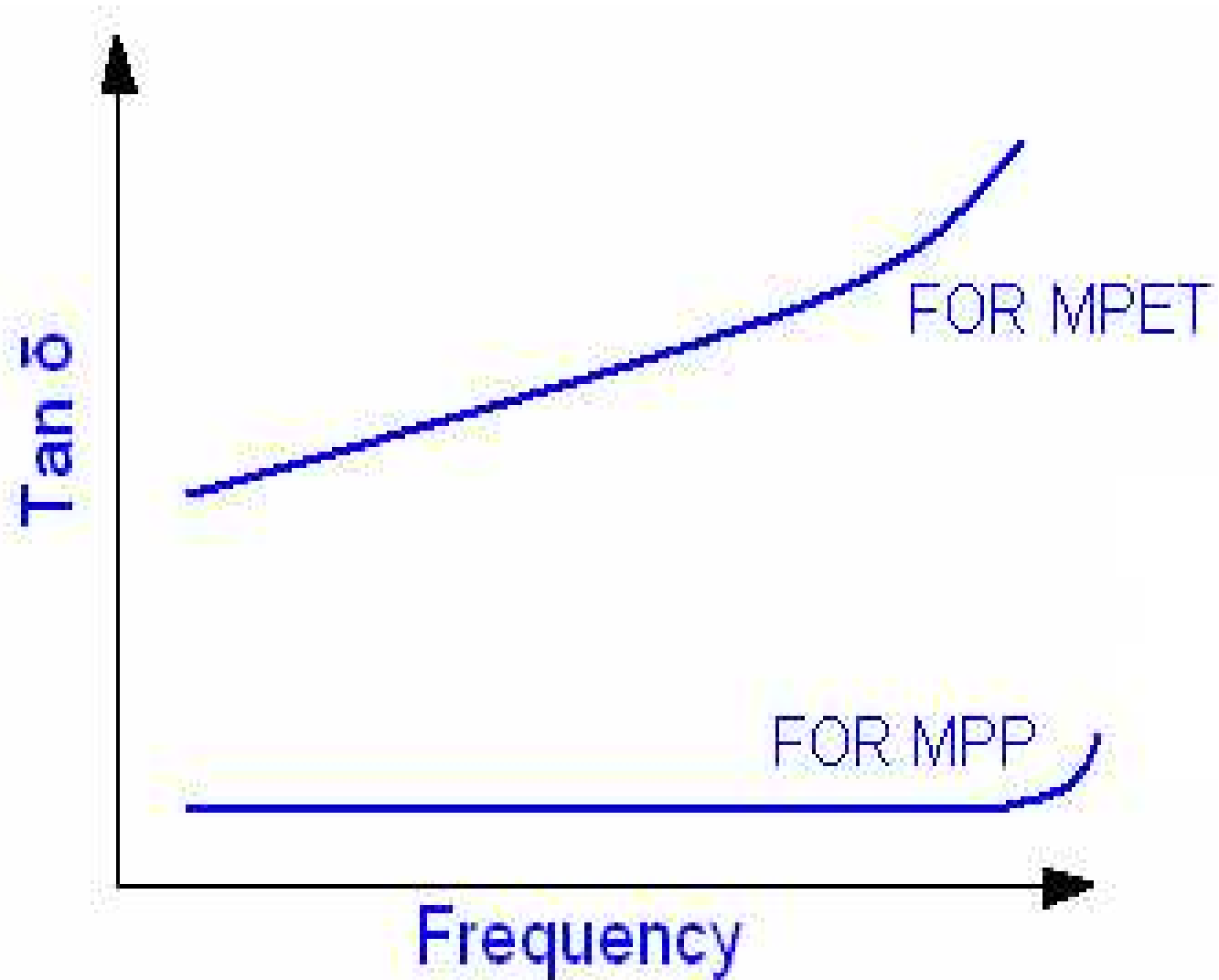
In MPP Operating temperature is between -55°C to 105°C

Tan Of MPP is lower.

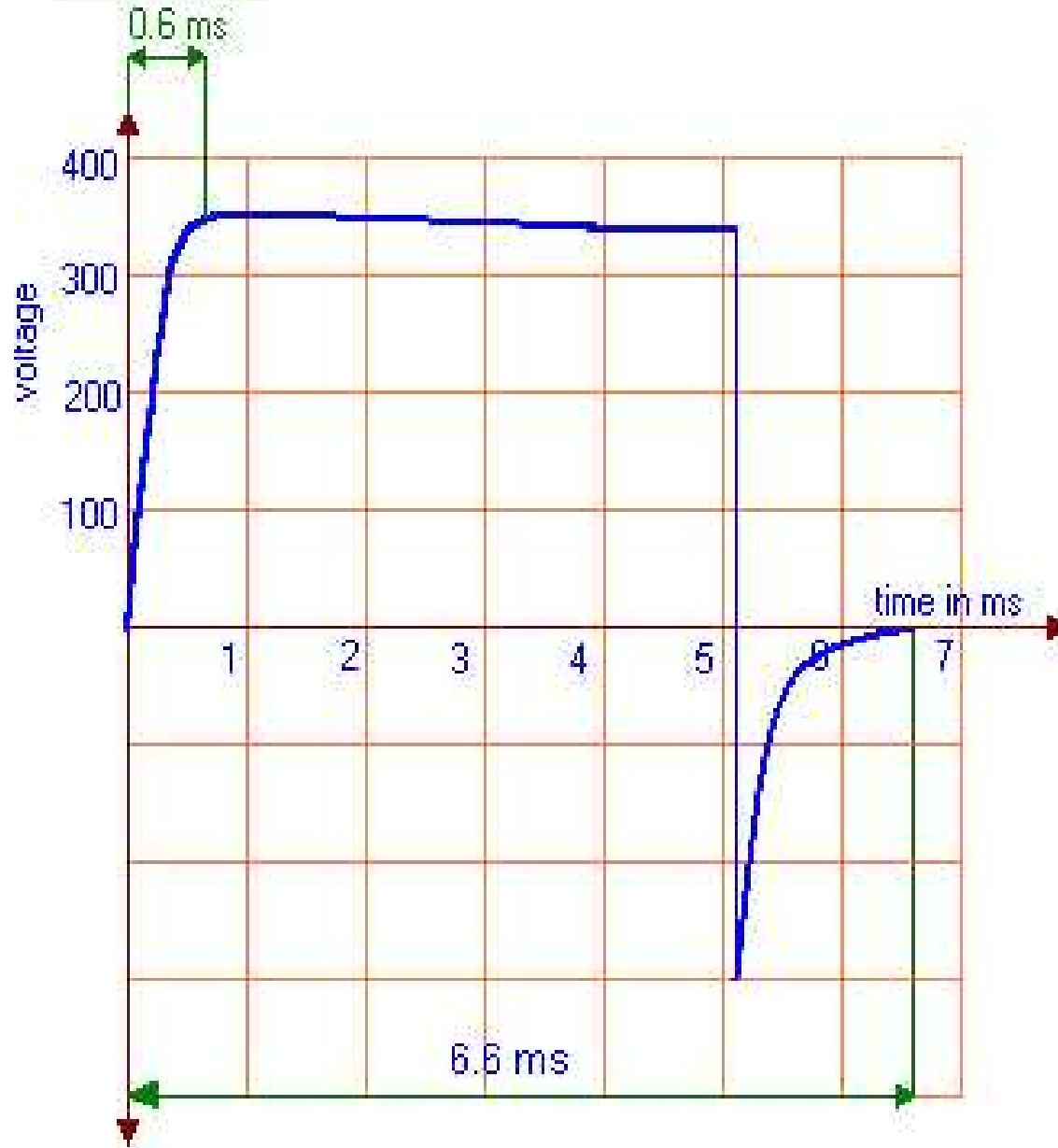
MPET

MPP

Tan δ vs frequency



Test condition for MPET



volt: 350 V

Freq: 150Hz

Cur : 42 A

Time: 300Hrs





Test condition for MPP

