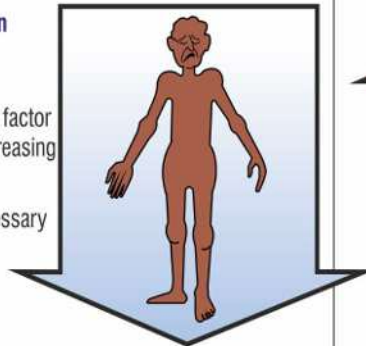


## Why Self Healing Metallised Polypropylene (MPP) power capacitors are short lived in our country ?

compared to - **FILM+FOIL** POWER CAPACITORS

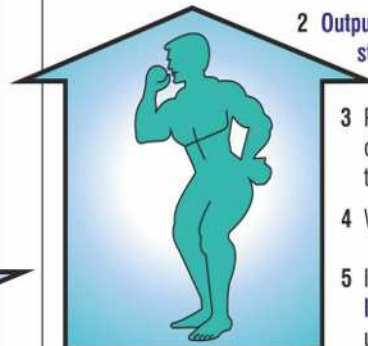
### SELF HEALING MPP (SH - MPP) POWER CAPACITOR

- 1 Quantity of dielectric material used is **only** 8% to 13% compared to **FILM+FOIL** design.
- 2 Output of capacitor will go on reducing with time.
- 3 Because of above, the power factor will go on reducing hence increasing the maximum demand.
- 4 Frequent replacement is necessary to maintain the power factor.
- 5 Initial cost is much low, but **short** working life ultimately proves **very costly**.



### FILM+FOIL POWER CAPACITOR

- 1 Quantity of dielectric material used is **more** than 12.5 to 7.7 times compared to **SH - MPP** design.
- 2 Output of capacitor will remain steady over a very long period.
- 3 Power factor and maximum demand will remain steady at the corrected value.
- 4 Working life is very long.
- 5 Initial cost is high but with very **long dependable** working life ultimately proves **very economical**.



One can verify the above truth by measuring the capacitive current with a Tong Tester / Ammeter.

- You are investing your hard earned money — protect it wisely.
- Don't procure power capacitors unless you get a meaningful written guarantee that **NO REDUCTION IN OUTPUT OR NO FALL IN CURRENT FOR 60 MONTHS.**

#### FOR DETAILS READ THE FOLLOWINGS:

- 1 Electrical stresses at the edges are 1000 times or more. (Thickness of conducting plate is 0.015 micron).
- 2 Normal dielectric stresses are very high (**T=6 micron**). (T = Thickness of Dielectric)
- 3 Winding is fairly tight. Trapped air cannot be taken out by any vacuum process and it can not be impregnated.
- 4 Initiation of partial discharge voltage is very low and it continues upto 350 Volts due to ionisation of air.
- 5 Duration of partial discharges is fairly long - in **milli** seconds. Damage to dielectric is more. Quantum of gas (H<sub>2</sub>) generated is very high. Since no impregnant within the dielectric, hence no adsorption of generated gases in nascent form.
- 6 Bulging, Bursting and Fire incidents are common.
- 7 Phenomenon of corrosion exists - **deterioration of output**.
- 8 End contact area is critically small compared to it's current rating. Hence **can not bear high switching inrush current**.
- 9 Can not bear normal transients and harmonics.
- 10 Not Suitable for supertropical countries like ours.
- 11 Reliable for 220 / 250V application **without transients and harmonics**.
- 12 No built in fuses.
- 13 **ELECTRICALLY WEAK CONSTRUCTION.**

- 1 Electrical stresses at the edges are 1000 times less. (Thickness of conducting plate is 5 micron).
- 2 Normal dielectric stresses are very low (**T=14 micron**). (T = Thickness of Dielectric)
- 3 Trapped air is removed by Heating & Vacuum process followed by Oil Impregnation process which gives complete void-free impregnation - electrically strong structure.
- 4 Initiation of partial discharge voltage is extremely high and if it occurs - gets extinguished quickly due to adsorption of (H<sup>+</sup>) (Hydrogen in Nascent form) by SAS-60E Impregnant.
- 5 Duration of partial discharges is very short - in **micro** seconds. Negligible damage to dielectric. No gas (H<sub>2</sub>) generated. Since impregnant within the dielectric adsorbs the generated gases (H<sup>+</sup> in nascent form).
- 6 No Bulging, Bursting or Fire incidents.
- 7 No corrosion exists - **No deterioration of output**.
- 8 Due to use of tin clad copper tabs, one gets a very big end contact area and hence **can bear high switching inrush current**.
- 9 Can bear all normal transients and harmonics.
- 10 Suitable for supertropical countries like ours.
- 11 Reliable for 415 / 440V application **with normal transients and harmonics**.
- 12 Built in fuses with each wound coil.
- 13 **ELECTRICALLY ROBUST CONSTRUCTION.**

Now you will realise,  
Why our design engineers go for the costlier

### FILM+FOIL

super technology  
and have always  
flatly refused the acceptance  
of Self Healing MPP (SH-MPP)  
technology for

**MALDE POWER CAPACITORS.**



**Q** *Is the specification  
**FILM+FOIL**  
sufficient to get good power capacitor ?*

**A** ***ABSOLUTELY NO.**  
Something else also should be  
specified.*

- Must be genuine **FILM+FOIL** DESIGN - Which is non self healing. It comprises of a layer of hazy polypropylene film of 14 micron as dielectric and 5 micron high purity, soft – annealed aluminium foil as a conducting plate.

#### Beware of following terminologies - MISUSED

- 1 **MD - XL** : Some manufacturers may offer Single Layer - Self Healing Double Metallised Paper designed capacitors with 0.2 Watt to 0.5 Watt / KVAr losses.
- 2 **Double Dielectric / Heavy Duty** : Some manufacturers may offer Single Layer - Self Healing MPP designed capacitors with 0.5 Watt / KVAr losses.
- 3 **All PP / FILM+FOIL** : Some manufacturers may offer Single Layer PP designed capacitors with 10 micron Polypropylene film.

- Impregnant should be of Capacitor Grade i.e. SAS - 60E Premixed with 0.7% epoxide' and should not be transformer oil, castor oil and rape-seed oil.

- Raw material should be of good quality. By going for inferior quality raw materials, price can be reduced considerably, but premature failure becomes confirmed.
- Bushing should have high mechanical strength and the method of fixing should be proper to get leak-proof joint.
- Must have built in fuses with each wound coil.
- There should be a meaningful guarantee that **NO REDUCTION IN OUTPUT OR NO FALL IN CURRENT FOR 60 MONTHS.** If any reduction is found, either capacitor should be replaced and the same guarantee should be given from the date of replacement or **REFUND** of hard earned money invested.
- If you want to know more details about the different technologies of power capacitors, please ask for detailed technical booklet. It is yours, absolutely free of cost.



#### ➡ **HUMBLE REQUEST TO ALL POWER CAPACITOR USERS**

At least now, make a routine habit to measure a capacitor current with help of Ammeter / Tong Tester once in two months and maintain the records. If any reduction in current / failure of capacitor is noticed, please protest to the supplier / manufacturer immediately. This may help you to protect your investment in power capacitor.

**Check the Name Plate of failed capacitor - MAY FIND TYPE AS "SH-MPP", MAY CONCLUDE AS NOT SUITABLE FOR OUR VOLTAGE SUPPLY SYSTEM AND AMBIENT TEMPERATURE.**

**READ**

If you feel that we are providing Good Information, then please send the Name, Contact Number & Address of Electrical Consultants / Contractor / Panel Builder

Given for information upto our best of knowledge without any guarantee as regards either for mistake or omission



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25 KVAr x 4 Nos. in Bank form