CONCAP
CAPACITORS

AMCAP
CAPACITORS

POTENTIALLY MORE POWERFUL CAPACITORS



Amit Capacitors Limited

CE Certified

IS:13340/41
CM/L-0006085165

An ISO 9001:2015 CERTIFIED COMPANY



Vision

ACL envisions being a leader not just in manufacturing but also in promoting corporate governance and bench marking strategies for success, employee welfare and social well being.

Mision

ACL progresses with the sole Mision of creating the highest product value, offering meaningful representations to its employees, customers, vendors and share holders, using globally acknowledged best business models and contemporary eco green practices.

Amit Capacitors Limited

About us

Established in 1983, **Amit Capacitors Limited (ACL)** is known as one of the most prominent Capacitor manufacturer in India. We have specialized in manufacturing of wide range of Capacitors for Air-conditioning, Fan, Motor Run & Start, Air-conditioning, Submersible Pump, Washing Machine and Oil Capacitors. Power Factor Correction Capacitors & Harmonic Filters, and have successfully reached the top 15 million US $ segment.

ACL is an ISO 9001:2015 certified company, with ISI and CE approvals and have 3 State of the Art manufacturing units located in Hyderabad and Goa, India. The company has one of the largest installed base to manufacture Capacitors, manufacturing more than 25 Million pieces per annum.

ACL manufactured products have received significant recognition in Middle East & ASEAN Countries.





Principle of Reactive Energy Management

Under normal operating conditions, certain electrical loads (e.g. induction motors, welding equipment, arc furnaces and fluorescent lighting) draw not only active power from the supply, but also inductive reactive power (KVAr).This reactive power is necessary for the equipment to operate correctly but could be interpreted as an undesirable burden on the supply. The power factor of a load is defined as the ratio of active power to apparent power, i.e. KW : KVA, and is referred to as cosØ. The closer cosØ is to unity, the less reactive power is drawn from the supply.

Awareness of the necessity of power is increasing and Power Factor Correction (PFC) is being implemented on a growing scale. Enhancing power quality, improvement of Power Factor, saves costs and endures fast return on investment, In Power distribution, in low and medium-Voltage networks, PFC focus on the Power Flow (CosØ) and the optimization of Voltage stability by generating Reactive Power to improve Voltage quality and reliability at distribution level.

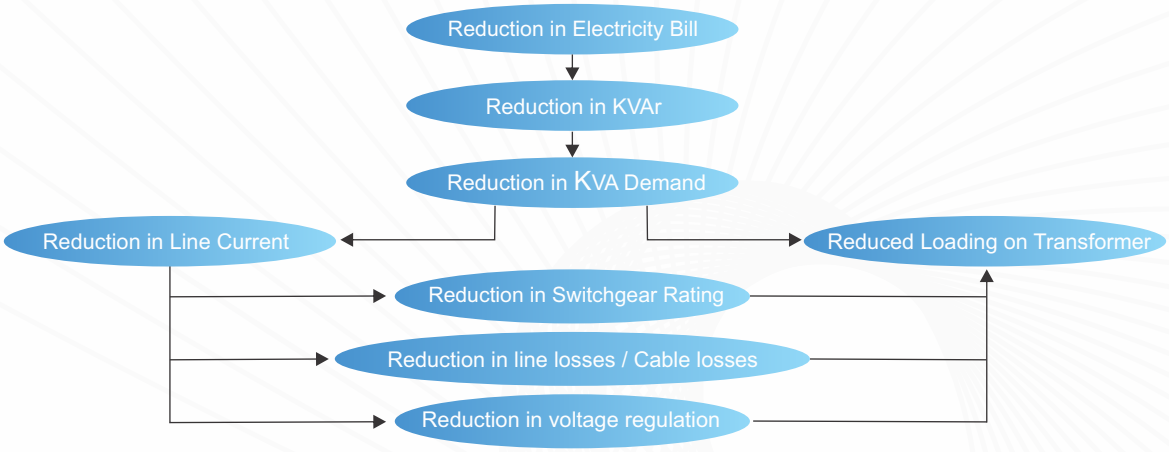
Low Power Factor results in:

- Higher energy consumption & costs
- Less power distributed via the supply line
- Power loss in the network
- High transformer losses
- Increased voltage drop in power distribution networks

Benefits of Power factor improvement

By providing proper Reactive management system, the adverse effects of flow of reactive energy can be minimized.

Following table provides some of the benefits of reactive energy management.



Types of compensation

There are two types of compensation:

- Fixed compensation
- Variable compensation

Fixed compensation:

This arrangement uses one or more Capacitors to provide a constant level of compensation.
Control may be:

- Manual - By Circuit-breaker or Load-break switch
- Semi-automatic - By Contactor
- Direct connection to an appliance and switched with it.

These capacitors are applied at the terminals of inductive loads (mainly Motors), at bus bars connecting numerous small Motors and inductive appliances for which individual compensation would be too costly or in cases where the load factor is reasonably constant.

Variable compensation

- IPFC panels
- Contactor / Thyristor based
- ePFC
- Electronic VAr compensator with IGBT

The primary reason for Variable compensation is the variation of loads in the network. In many applications the process are not constant throughout the day, hence the reactive energy required varies as per the load profile. To eliminate the risk of leading power factor and to optimize the kVA demand, the variable compensation techniques are used.

Modes of compensation

The selection of the Power Factor Correction equipment can follow 3 levels of compensation:

- Central compensation
- Group compensation
- Individual compensation

Application Recommendations

ACL offers Power Capacitors for a variety of applications, divided into four separate categories:

- **Agri Duty Capacitors**
- **Standard Duty Capacitors**
- **Heavy Duty Capacitors**
- **Super Heavy Duty Capacitors (Double Di-electric)**

Design & quality

ACL manufactured CONCAP / AMCAP Brand Power Capacitors are manufactured since decades at the company's Hyderabad production site in Telangana, India. This has resulted in a consistently high product quality being maintained for assured operational reliability and long service life.

CONCAP / AMCAP Power Capacitors are manufactured in a unique dry design. Each capacitor coils wound in a low-loss, Multi Heavy Edge Metallized Polypropylene Film enclosed in a cylindrical Aluminium casing provided with Overpressure disconnector. Discharge resistors, permanently connected in the factory, guarantee that the residual voltage falls to <50 V within one minute after the capacitor has been disconnected. The electrical connections are by means of Cables or female Screw connectors (IP00).

The use of rigorously inspected materials and their careful processing guarantee excellent quality and a long product service life.

Quality control inspections after each individual manufacturing step ensure that the final product is of a high quality. These demanding quality standards, together with specially developed manufacturing technology, enable CONCAP / AMCAP Power Capacitors to achieve a longer-than-average service life. At the end of the manufacturing process, each Capacitor is inspected individually. The in-house requirements for this special inspection are considerably more stringent than those of the routine tests specified by the relevant standards.

Standards

All ACL manufactured Power Capacitors comply with the IS 13340 Part I & II and International Standards IEC 6083, I & II.

The reliability of Power Capacitors is crucially important for the problem-free operation of power factor correction systems and passive filters. Power Capacitors now a days usually use Polypropylene as the dielectric material, its surfaces being Metallized. This design has the important property that if local overloading occurs and punctures the substrate film, the fault heals automatically, a phenomenon known as Self-healing.

The other design feature for increases product safety is the 3-phase Overpressure disconnector, a mechanical fuse included in every CONCAP / AMCAP Capacitor. If an excessive internal pressure develops due to overloading, or at the end of the Capacitor's service life, the mechanical fuse isolates the Capacitor safely from the power supply by disconnecting all poles. Should puncturing of the dielectric occur on a major scale, this results in the substrate film melting and generating gases inside the casing, thus building up pressure in the Capacitor. This causes the diaphragm lid to bulge outwards, thereby tensioning the internal leads to the coils until they act as mechanical fuses, breaking cleanly at defined locations. The bulging of the lid also increases the internal volume, therefore reducing the pressure inside the Capacitor.

Special technical features In our ongoing development work on CONCAP / AMCAP Power Capacitors, we always focus on those attributes that are called for in present-day applications. The three following factors are especially important:

• Overvoltage tolerance • Current-carrying capacity • Thermal endurance

Overvoltage tolerance

All CONCAP / AMCAP Power Capacitors are designed to withstand the following Overvoltages:

8 hours daily: 1.10 × Capacitor Nominal Voltage
30 minutes daily: 1.15 × Capacitor Nominal Voltage
5 minutes: 1.20 × Capacitor Nominal Voltage
1 minute: 1.30 × Capacitor Nominal Voltage

Current-carrying capacity

All over the modern world, harmonics are polluting the electricity supply networks. The increasing use of devices such as frequency converters has a growing impact on Capacitors. If these are operated in a power supply network contaminated by harmonics, dangerous resonances can result, which can again significantly increase the currents that the Capacitors must withstand.

The applicable standards call for a continuous current-carrying capacity of at least 1.3 times of the nominal current to be designed for in Power Capacitors. In reality, however, even this value can be exceeded under conditions with extreme levels of harmonics.

Thermal endurance

Excessive temperatures also have a negative impact on the service life of a Capacitor. Storage or operation of Capacitors above their permitted temperature limits results in a drastic shortening of their service life.

Temperature Class	Maximum ambient temperature		
	Absolute maximum temp.	Max average temp. over 1 day	Max average over 1 year
B	45°C	35°C	25°C
C	50°C	40°C	30°C
D	55°C	45°C	35°C

The temperatures stated above refer to the direct environment of the Capacitors. This means the internal temperature in the enclosure or control cabinet that houses them. Experience shows that the limits given in the table for the temperature classes can easily be exceeded in practice. Higher temperatures are to be expected in particular in the case of power factor correction systems fitted with filter reactors.

CONCAP / AMCAP Power Capacitors in the Standard Duty, Heavy Duty, Super Heavy Duty and Agri Gold categories are therefore designed for continuous ambient temperatures of at least 70 °C.

This continuously rated thermal endurance is helped by the compact construction of the Capacitors, which is conducive to optimum heat dissipation.

Product Range

CONCAP / AMCAP
CAPACITORS

Cylindrical | **Harmonic Filters** | **MS Box**



Agri Gold
Standard Duty
Heavy Duty
Super Heavy Duty (Double Di-electric)
Harmonic Filters







CONCAP CAPACITORS

Cylindrical - Agriculture Application

Specifications:

Conforming to BIS Standards 13340 Part I & Part II, IEC 60831 - I & II

Applications:

- Power Factor improvement Correction in Agriculture application
- Fixed PFC applications, e.g. Motor compensation

Electrical:

- Long life expectancy up to 100000 hours
- Max inrush current handling capability 200 x IR

Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Shock hazard protected optimized safety terminals

Features:

- Cylindrical Aluminium Casing with stud
- Impregnation: Oil Jelly / PU Resin
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer lifer
- Wall mounting arrangement
- Compact Size and light weight
- Voltage range 415 / 440V, 50 / 60Hz 3-phase
- Output range 1 - 20 KVAr

AgriGold

Standard Duty



Voltage range: 400 - 440V, 50Hz
Output range: 1.00 -15.00 KVAr
Impregnation: PU Resin

Agri Gold Heavy Duty

- **Burst Proof**
- **Oil Jelly Filled**



Voltage range: 380 - 440V, 50Hz
Output range: 1.00 -20.00 KVAr



MS Box - Agriculture Application

Specifications:

Conforming to BIS Standards 13340 Part I & Part II, IEC 60831 - I & II

Applications:

- Power Factor improvement Correction in Agriculture application
- Fixed PFC applications, e.g. Motor compensation

Electrical:

- Long life expectancy up to 100000 hours
- Max inrush current handling capability 200 x IR

Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Easy Connection - Wire terminal

Features:

- MS Box / Plastic Box
- Impregnation: PU Resin
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer lifer
- Wall mounting arrangement
- Compact Size and light weight
- Voltage range 380 - 440V, 50Hz 3-phase
- Output range 1 - 20 KVAr

MS Box with Wire



Voltage range: 380 - 440V, 50Hz
Output range: 1.00 - 20.00 KVAr

Plastic Box with Wire



Voltage range: 380 - 440V, 50Hz
Output range: 1.00 - 7.00 KVAr



CONCAP CAPACITORS

Cylindrical - Industrial Application

Specifications:

Conforming to BIS Standards 13340 Part I & Part II, IEC 60831 - I & II

Applications:

- Power Factor improvement Correction in small scale industries, Machine shops, tool rooms small frame Motor compensation and Agriculture application
- Automatic Capacitor Banks
- Fixed PFC applications, e.g. individual Motor compensation
- Detuned PFC systems
- Dynamic PFC systems
- Filter Application

Electrical:

- Long life expectancy
- Max inrush current handling capability upto 300 x IR

Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Shock hazard protected optimized Capacitor safety terminals

Features:

- Cylindrical Aluminium Casing with stud• Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Easy mounting arrangement
- Compact Size and light weight
- Voltage range 380V - 690V, 50 / 60Hz 3-phase

• Overpressure Disconnector
• Jelly Oil Filled

LONGER THAN AVERAGE SERVICE LIFE

Standard Duty	Heavy Duty	Super Heavy Duty
		 Double Dielectric
Voltage range: 380 - 440V, 50 / 60Hz Output range: 1.00 - 25.00 KVAr Life Expectancy: 100000 hours Max inrush current capability 200 x IR	Voltage range: 380 - 480V, 50 / 60Hz Output range: 5.00 - 25.00 KVAr Life Expectancy: 150000 hours Max inrush current capability 250 x IR	Voltage range: 380 - 690V, 50 / 60Hz Output range: 5.00 - 25.00 KVAr Life Expectancy: 200000 hours Max inrush current capability 300 x IR

MS Box - Industrial Application

Specifications:

Conforming to BIS Standards 13340 Part I & Part II, IEC 60831 - I & II

Applications:

- Power Factor improvement Correction in small scale industries, Machine shops, tool rooms, small frame Motor compensation and Agriculture application
- Automatic capacitor banks
- Fixed PFC applications, e.g. Motor compensation
- Detuned PFC systems
- Dynamic PFC systems
- Filter Application

Electrical:

- Long life expectancy
- Max inrush current handling capability upto 300 x IR

Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Shock hazard protected optimized Capacitor safety terminals

Features:

- MS Box
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Easy mounting arrangement
- Voltage range 380V - 690V, 50 / 60Hz 3-phase

• Over pressure Disconnector
• Jelly Oil Filled

LONGER THAN AVERAGE SERVICE LIFE

Standard Duty



Voltage range: 380 - 440V, 50 / 60Hz
Output range: 1.00 - 25.00 KVAr
Life Expectancy: 100000 hours
Max inrush current capability 200 x IR

Heavy Duty



Voltage range: 380 - 480V, 50 / 60Hz
Output range: 5.00 - 25.00 KVAr
Life Expectancy: 150000 hours
Max inrush current capability 250 x IR

Super Heavy Duty



Voltage range: 400 - 690V, 50 / 60Hz
Output range: 5.00 - 25.00 KVAr
Life Expectancy: 200000 hours
Max inrush current capability 300 x IR

Cylindrical - Monophase Capacitors

Specifications:

Conforming to BIS Standards 13340 Part I & Part II, IEC 60831 - I & II

Applications:

- Power Factor improvement Correction in Agriculture application
- Fixed PFC applications, e.g. Motor compensation

Electrical:

- Long life expectancy
- Max inrush current handling capability upto 200 x IR

Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Overpressure disconnector
- Shock hazard protected optimized Capacitor safety terminals

Features:

- Cylindrical Aluminium Casing with Stud
- Impregnation: Oil Jelly
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Easy mounting arrangement
- Compact Size and light weight
- Voltage range 230-275V, 50 / 60Hz Monophase

Monophase Capacitors



- **Explosion Proof**
- **Impregnation: Oil Jelly**
- **Wire Terminal for easy installation**

Voltage range: 230 - 275V, 50 / 60Hz
Output range: 1.00 - 10.00 KVAr
Life Expectancy: 100000 hours
Max inrush current capability 200 x IR

General Technsical Particular

Parameter	Unit	Standard Duty / Agriculture Application
Reference Standard		13340 Part I & Part II, IEC 60831 - I & II
Power (Rated Capacitance)	Qn	1 - 25 KVAr
Tolerance		± 5%
Connection		Delta
Rated voltage	V_R	380V - 440V, 3-Phase
Rated Frequency	f_R	50 / 60 Hz
Max. Ratings		
Max. Permissible Voltage	Vmax	V_R + 10 % (up to 8 hours daily) V_R + 15 % (up to 30 Minutes daily) V_R + 20 % (up to 5 Minutes daily) V_R + 30 % (up to 1 Minute daily) "
Max. Permissible Current	Imax	Up to 1.3 x I_R (up to 1.5 x I_R incl. combined effects of harmonics, over voltages and capacitance)
Max. Transient Inrush Current Handling Capacity	I_S	up to 200 x I_R
Test Data		
AC Test Voltage Terminal to Terminal	V_{TT}	2.15 x UN, 2 Sec.
Insulation Voltage Between Terminal & Container	V_{TC}	3600 V AC, 2 Sec
Losses		
– Dielectric		<0.2 W/KVAr
– Total (without discharge resister)		<0.5 W/KVAr
Ambient Temperature	^{0}C	(-)25 / D; max. temp. 55 ^{0}C; max mean 24h = 45 ^{0}C; max. mean 1 year = 35 ^{0}C; lowest temp. = -25 ^{0}C
Max. humidity	H_m	95%
Max. Permisible Altitute		4000 M above Sea level
Mean Life Expectancy	t_{LD} (co)	100000 Hrs
Design Data		
Case Material / Shape		Aluminium Cylindrical, MS Box
Dimensions		According to Rated Capacitance
Dielectric		Polypropylene Film
Impregnation		Oil Jelly
Fixing		Threaded Bolt M8 / M12
Max. Tourque for Fixing	N_m	4 N_m / 10 N_m
Mounting Position		Upright. Horizontal mounting with additional head support possible, Base Mounting
Terminals		Screw / Bolt Terminal
Degree of Protection Safety		IP20 / IP41 Fabricated Sheet Metal
Max. Tourque for Connection Terminals (5 KVAr and above)	N_m	2.5 N_m
Safety		
Mechanical Safety		Tear of fuses, Overpressure disconnector
Discharge Device		Resister
Discharge Device Time	Seconds	⩽ 60 Sec (50 V)
Cooling		Natural or Forced
Max. Switching Operations		Max. 5000 Nos. Per Year

CONCAP CAPACITORS

General Technical Particulars

Parameter	Unit	Heavy Duty
Reference Standard		13340 Part I & Part II, IEC 60831 - I & II
Power (Rated Capacitance)	Qn	5– 25 KVAr
Tolerance		± 5%
Connection		Delta
Rated voltage	V_R	380V - 480V, 3-Phase
Rated Frequency	f_R	50 / 60 Hz
Max. Ratings		
Max. Permissible Voltage	Vmax	V_R + 10 % (up to 8 hours daily) V_R + 15 % (up to 30 Minutes daily) V_R + 20 % (up to 5 Minutes daily) V_R + 30 % (up to 1 Minute daily) "
Max. Permissible Current	Imax	Up to 1.3 x I_R (up to 1.5 x I_R incl. combined effects of harmonics, over voltages and capacitance)
Max. Transient Inrush Current Handling Capacity	I_S	up to 250 x I_R
Test Data		
AC Test Voltage Terminal to Terminal	V_{TT}	2.15 x UN, 2 Sec.
Insulation Voltage Between Terminal & Container	V_{TC}	3600 V AC, 2 Sec
Losses		
– Dielectric		<0.2 W/KVAr
– Total (without discharge resister)		<0.5 W/KVAr
Ambient Temperature	^0C	(-)25 / D; max. temp. 55 ^{0}C; max mean 24h = 45 ^{0}C; max. mean 1 year = 35 ^{0}C; lowest temp. = -25 ^{0}C
Max. humidity	H_m	95%
Max. Permisible Altitute		4000 M above Sea level
Mean Life Expectancy	t_{LD}(co)	150000 Hrs
Design Data		
Case Material / Shape		Aluminium Cylindrical, MS Box
Dimensions		According to Rated Capacitance
Dielectric		Polypropylene Film
Impregnation		Oil Jelly
Fixing		Threaded Bolt M8 / M12
Max. Tourque for Fixing	N_m	4 N_m / 10 N_m
Mounting Position		Upright. Horizontal mounting with additional head support possible, Base Mounting
Terminals		Screw / Bolt Terminal
Degree of Protection Safety		IP20 / IP41 Fabricated Sheet Metal
Max. Tourque for Connection Terminals	N_m	2.5 N_m
Safety		
Mechanical Safety		Tear of fuses, Overpressure disconnector
Discharge Device		Resister
Discharge Device Time	Seconds	⩽ 60 Sec (50 V)
Cooling		Natural or Forced
Max. Switching Operations		Max. 5000 Nos. Per Year

General Technical Particulars

Parameter	Unit	Super Heavy Duty
Reference Standard		13340 Part I & Part II, IEC 60831 - I & II
Power (Rated Capacitance)	Qn	5– 25 KVAr
Tolerance		±5%
Connection		Delta
Rated voltage	V_R	380V - 690V, 3-Phase
Rated Frequency	f_R	50 / 60 Hz
Max. Ratings		
Max. Permissible Voltage	Vmax	V_R + 10 % (up to 8 hours daily) V_R + 15 % (up to 30 Minutes daily) V_R + 20 % (up to 5 Minutes daily) V_R + 30 % (up to 1 Minute daily) "
Max. Permissible Current	Imax	Up to 1.3 x I_R (up to 1.5 x I_R incl. combined effects of harmonics, over voltages and capacitance)
Max. Transient Inrush Current Handling Capacity	I_S	up to 300 x I_R
Test Data		
AC Test Voltage Terminal to Terminal	V_{TT}	2.15 x UN, 2 Sec.
Insulation Voltage Between Terminal & Container	V_{TC}	3600 V AC, 2 Sec
Losses		
– Dielectric		<0.2 W/KVAr
– Total (without discharge resister)		<0.5 W/KVAr
Ambient Temperature	^0C	(-)25 / D; max. temp. 55^{0}C; max mean 24h = 45^{0}C; max. mean 1 year = 35^{0}C; lowest temp. = -25^{0}C
Max. humidity	H_m	95%
Max. Permisible Altitute		4000 M above Sea level
Mean Life Expectancy	t_{LD} (co)	200000 Hrs
Design Data		
Case Material / Shape		Aluminium / Cylindrical
Dimensions		According to Rated Capacitance
Dielectric		Polypropylene Film
Impregnation		Oil Jelly
Fixing		Threaded Bolt M8 / M12
Max. Tourque for Fixing	N_m	4 N_m / 10 N_m
Mounting Position		Upright. Horizontal mounting with additional head support possible, Base Mounting
Terminals		Screw / Bolt Terminal
Degree of Protection Safety		IP20 / IP41 Fabricated Sheet Metal
Max. Tourque for Connection Terminals (5 KVAr and above)	N_m	2.5 N_m
Safety		
Mechanical Safety		Tear of fuses, overpressure disconnector
Discharge Device		Resister
Discharge Device Time	Seconds	⩽ 60 Sec (50 V)
Cooling		Natural or Forced
Max. Switching Operations		Max. 5000 Nos. Per Year

Anti Harmonic Detuned Filter

The increasing use of modern power electronic apparatus (drives, uninterruptible power supplies, etc) produces nonlinear current and thus, influences and loads the network with harmonics (line pollution). The power factor correction or capacitance of the Power Capacitor forms a resonant circuit in conjunction with the feeding transformer. Experience shows that the self resonant frequency of this circuit is typically between 250 and 500 Hz, i.e. in the region of the 5th and 7th harmonics.

Such a resonance can lead to the following undesirable effects:

- Overloading of Capacitors
- Overloading of transformers and transmission equipment
- Interference with metering and control systems, computers and electrical gear
- Resonance elevation, i.e. amplification of harmonics Voltage distortion.

These resonance phenomena can be avoided by connecting Capacitors in series with filter reactors in the PFC system. These so called “detuned” PFC systems are scaled. in a way that the self-resonant frequency is below the lowest line harmonic. The detuned PFC system is purely inductive seen by harmonics above this frequency. For the base line frequency (50 or 60 Hz usually), the detuned system on the other hand acts purely capacitive, thus correcting the reactive power.

Applications

• Avoidance of resonance conditions • Tuned and detuned harmonic filters • Reduction of harmonic distortion (network clearing) • Reduction of power losses

Features

• High harmonic loading capability • Very low losses • High linearity to avoid choke tilt • Low noise • Convenient mounting • Long expected life time

Mechanical and maintenance

• Low mounting costs • Easy installation and connection • Compact volume • Maintenance-free

Anti Harmonic Detuned Filter Data Sheet

Reference Standard	IEC 61558 / IS 5553
Tolerance of Inductance	± 3%
Harmonics*	V3 = 0.5% VR (duty cycle = 100%) V5 = 6.0% VR (duty cycle = 100%) V7 = 5.0% VR (duty cycle = 100%) V11 = 3.5% VR (duty cycle = 100%) V13 = 3.0% VR (duty cycle = 100%)
Effective current	Irms = $\sqrt{I_1^2 + I_3^2 + ... I_{13}^2}$
Fundamental current	I1 = 1.06 . IR (50 Hz or 60 Hz current of capacitor)
Insulation (winding-core)	3 kV
Temperature protection	Microswitch (NC)
Three-phase filter reactors to EN 60289 / IEC 61558	
Frequency	50 Hz or 60 Hz
Voltage	400, 440 V AC
Output	5 … 100 KVAr
Detuning Factors	5.67%, 7%, 14%
Cooling	Natural
Ambient temperature	40 °C
Humidity	95%
Insulation class	H
Class of protection	
Enclosure	IP00
Max. Permissible Attitude	Max. 4000M above sea level
Terminals	Lugs / Busbar
Response Temperature	140° C
Voltage	250 V AC (<4A) ... 500 V AC (<2A)



Direct Individual Compensation for induction Motor

Motor HP	3000 RPM	1500 RPM	1000 RPM	750 RPM	600 RPM	500 RPM
2.5	1	1	1.5	2	2.5	2.5
5	2	2	2	3	3	3
7.5	2	2	3	3	3	3
10	3	3	4	5	5	5
12.5	3.5	4.5	5	6.5	7.5	8
15	3	4	5	7	7	7
20	5	6	7	8	8	10
25	6	7	8	9	9	12
30	7	8	9	10	10	15
40	9	10	12	15	16	20
50	10	12	15	18	20	22
60	12	14	15	20	25	25
75	15	16	20	22	25	30
100	20	22	25	26	32	35
125	25	26	30	32	35	40
150	30	32	35	40	45	50
200	40	45	45	50	55	60
250	45	50	55	60	65	70

*Above 250HP - KVAr approximate 35% of the motor power.

Important Notes

1. The following applies to all products named in this publication:
2. Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. As a rule, AMIT CAPACITORS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an AMIT CAPACITORS product with the properties described in the product specification is suitable for use in a particular customer application.
3. We also point out that in individual cases, a malfunction of passive electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of a passive electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of a passive electronic component.
4. The warnings, cautions and product-specific notes must be observed.
5. In order to satisfy certain technical requirements, some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as “hazardous”). Useful information on this will be found in our catalogue. Should you have any more detailed questions, please contact our sales offices.
6. We constantly strive to improve our products. Consequently, the products described in this publication may change from time to time. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order. We also reserve the right to discontinue production and delivery of products. Consequently, we cannot guarantee that all products named in this publication will always be available.

Calculation Table for Reactive Power Demand (Qc)

Current (ACTUAL) tanφ	cosφ	Achievable (TARGET) cosφ 0.80	0.82	0.85	0.88	0.90	0.92	0.94	TARGET cosφ=0.96 Qc	0.96	0.98	cosφ≤1 1.00
		Faktor F							Qc = Pmot · F(0.96)=...[kvar] 100 • 1.01=101.0 kvr			
3.18	0.30	2.43	2.48	2.56	2.64	2.70	2.75	2.82		2.89	2.98	3.18
2.96	0.32	2.21	2.26	2.34	2.42	2.48	2.53	2.60		2.67	2.76	2.96
2.77	0.34	2.02	2.07	2.15	2.23	2.28	2.34	2.41		2.48	2.56	2.77
2.59	0.36	1.84	1.89	1.97	2.05	2.10	2.17	2.23		2.30	2.39	2.59
2.43	0.38	1.68	1.73	1.81	1.89	1.95	2.01	2.07		2.14	2.23	2.43
2.29	0.40	1.54	1.59	1.67	1.75	1.81	1.87	1.93		2.00	2.09	2.29
2.16	0.42	1.41	1.46	1.54	1.62	1.68	1.73	1.80		1.87	1.96	2.16
2.04	0.44	1.29	1.34	1.42	1.50	1.56	1.61	1.68		1.75	1.84	2.04
1.93	0.46	1.18	1.23	1.31	1.39	1.45	1.50	1.57		1.64	1.73	1.93
1.83	0.48	1.08	1.13	1.21	1.29	1.34	1.40	1.47		1.54	1.62	1.83
1.73	0.50	0.98	1.03	1.11	1.19	1.25	1.31	1.37		1.45	1.63	1.73
1.64	0.52	0.89	0.94	1.02	1.10	1.16	1.22	1.28		1.35	1.44	1.64
1.56	0.54	0.81	0.86	0.94	1.02	1.07	1.13	1.20		1.27	1.36	1.56
1.48	0.56	0.73	0.78	0.86	0.94	1.00	1.05	1.12		1.19	1.28	1.48
1.40	0.58	0.65	0.70	0.78	0.86	0.92	0.98	1.04		1.11	1.20	1.40
1.33	0.60	0.58	0.63	0.71	0.79	0.85	0.91	0.97		1.04	1.13	1.33
1.30	0.61	0.55	0.60	0.68	0.76	0.81	0.87	0.94		1.01	1.10	1.30
1.27	0.62	0.52	0.57	0.65	0.73	0.78	0.84	0.91		0.99	1.06	1.27
1.23	0.63	0.48	0.53	0.61	0.69	0.75	0.81	0.87		0.94	1.03	1.23
1.20	0.64	0.45	0.50	0.58	0.66	0.72	0.77	0.84		0.91	1.00	1.20
1.17	0.65	0.42	0.47	0.55	0.63	0.68	0.74	0.81		0.88	0.97	1.17
1.14	0.66	0.39	0.44	0.52	0.60	0.65	0.71	0.78		0.85	0.94	1.14
1.11	0.67	0.36	0.41	0.49	0.57	0.63	0.68	0.75		0.82	0.90	1.11
1.08	0.68	0.33	0.38	0.46	0.54	0.59	0.65	0.72		0.79	0.88	1.08
1.05	0.69	0.30	0.35	0.43	0.51	0.56	0.62	0.69		0.76	0.85	1.05
1.02	0.70	0.27	0.32	0.40	0.48	0.54	0.59	0.66		0.73	0.82	1.02
0.99	0.71	0.24	0.29	0.37	0.45	0.51	0.57	0.63		0.70	0.79	0.99
0.96	0.72	0.21	0.26	0.34	0.42	0.48	0.54	0.60		0.67	0.76	0.96
0.94	0.73	0.19	0.24	0.32	0.40	0.45	0.51	0.58		0.65	0.73	0.94
0.91	0.74	0.16	0.21	0.29	0.37	0.42	0.48	0.55		0.62	0.71	0.91
0.88	0.75	0.13	0.18	0.26	0.34	0.40	0.46	0.52		0.59	0.68	0.88
0.86	0.76	0.11	0.16	0.24	0.32	0.37	0.43	0.50		0.57	0.65	0.86
0.83	0.77	0.08	0.13	0.21	0.29	0.34	0.40	0.47		0.54	0.63	0.83
0.80	0.78	0.05	0.10	0.18	0.26	0.32	0.38	0.44		0.51	0.60	0.80
0.78	0.79	0.03	0.08	0.16	0.24	0.29	0.35	0.42		0.49	0.57	0.78
0.75	0.80		0.05	0.13	0.21	0.27	0.32	0.39		0.46	0.55	0.75
0.72	0.81			0.10	0.18	0.24	0.30	0.36		0.43	0.52	0.72
0.70	0.82			0.08	0.16	0.21	0.27	0.34		0.41	0.49	0.70
0.67	0.83			0.05	0.13	0.19	0.25	0.31		0.38	0.47	0.67
0.65	0.84			0.03	0.11	0.16	0.22	0.29		0.36	0.44	0.65
0.62	0.85				0.08	0.14	0.19	0.26		0.33	0.42	0.62
0.59	0.86				0.05	0.11	0.17	0.23		0.30	0.39	0.59
0.57	0.87					0.08	0.14	0.21		0.28	0.36	0.57
0.54	0.88					0.06	0.11	0.18		0.25	0.34	0.54
0.51	0.89					0.03	0.09	0.15		0.22	0.31	0.51
0.48	0.90						0.06	0.12		0.19	0.28	0.48
0.46	0.91						0.03	0.10		0.17	0.25	0.46
0.43	0.92							0.07		0.14	0.22	0.43
0.40	0.93							0.04		0.11	0.19	0.40
0.36	0.94									0.07	0.16	0.36
0.33	0.95										0.13	0.33

Qc = PA • (tanφ 1– tanφ 2)
Qc [kvar]=PA • F=active power [kW] • factor "F"
PA =S • cosφ =apparent power • cosφ
tanφ 1+ 2 according to cosφ values ref. table

Example:

Actual motor power	P=100 kW
ACTUAL cosφ	0.61
TARGET cosφ	0.96
Factor F from table	1.01

Capacitor reactive power Qc
Qc = 100 x 1.01.0 kvar

Other Product Range


Fan Capacitors


Motor Capacitors


Lighting Capacitors


Submersible panel Capacitors


AC Motor Start Capacitors


Air Conditioner Capacitors


Washing Machine Capacitors

FAN & MOTOR RUN CAPACITORS
SUBMERSIBLE PUMP START & RUN
AIR-CONDITIONING AND REFRIGERATION
GENERATORS CVTS / UPS
SUBMERSIBLE PUMP PANELS

Specifications:

Fan Capacitors:
Conforming to IS 1709
Capacitance: 1 – 10 µF, 440V, 50 Hz

Motor Run Capacitors:
Conforming to IS 2993
Capacitance: 1 – 144 µF, 440V, 50 Hz

Submersible Pump Panel Capacitors:
Conforming to IS 2993
Capacitance: 25 – 72 µF, 275 / 440V, 50Hz

Lighting Capacitors:
Conforming to IS 1569
Capacitance: 3.15 – 42 µF, 250 / 440V, 50Hz

Air Conditioner Capacitors:
Conforming to IS 2993
Capacitance: 1 – 80 µF, 275 / 440V, 50Hz

Washing Machine Capacitors:
Conforming to IS 2993
Available in Single and Dual Rating

Motor Start Capacitors:
Conforming to IS 2993
Capacitance: 40 / 60 - 250 / 300 µF, 275 / 440V, 50Hz
New MPP Technology

Features:

- Manufactured with Metallized Polypropylene Film
- Almunium / Plastic Casing, Single / Dual Rating
- Manufactured using state of Art Automatic computerized equipments
- Stud Type Configuration also available



Registered Office:
Amit Capacitors Limited
A-8, Co-operative Industrial Estate
Balanagar, Hyderabad - 500037, Telangana, India.
Phones: +91-40-2387 9990 / 91 /92 / 93 / 94 I Fax: +91-40-2387 9998
eMail: info@concap.in, amit@concap.in

www.concap.in

*Edition-2: 2019