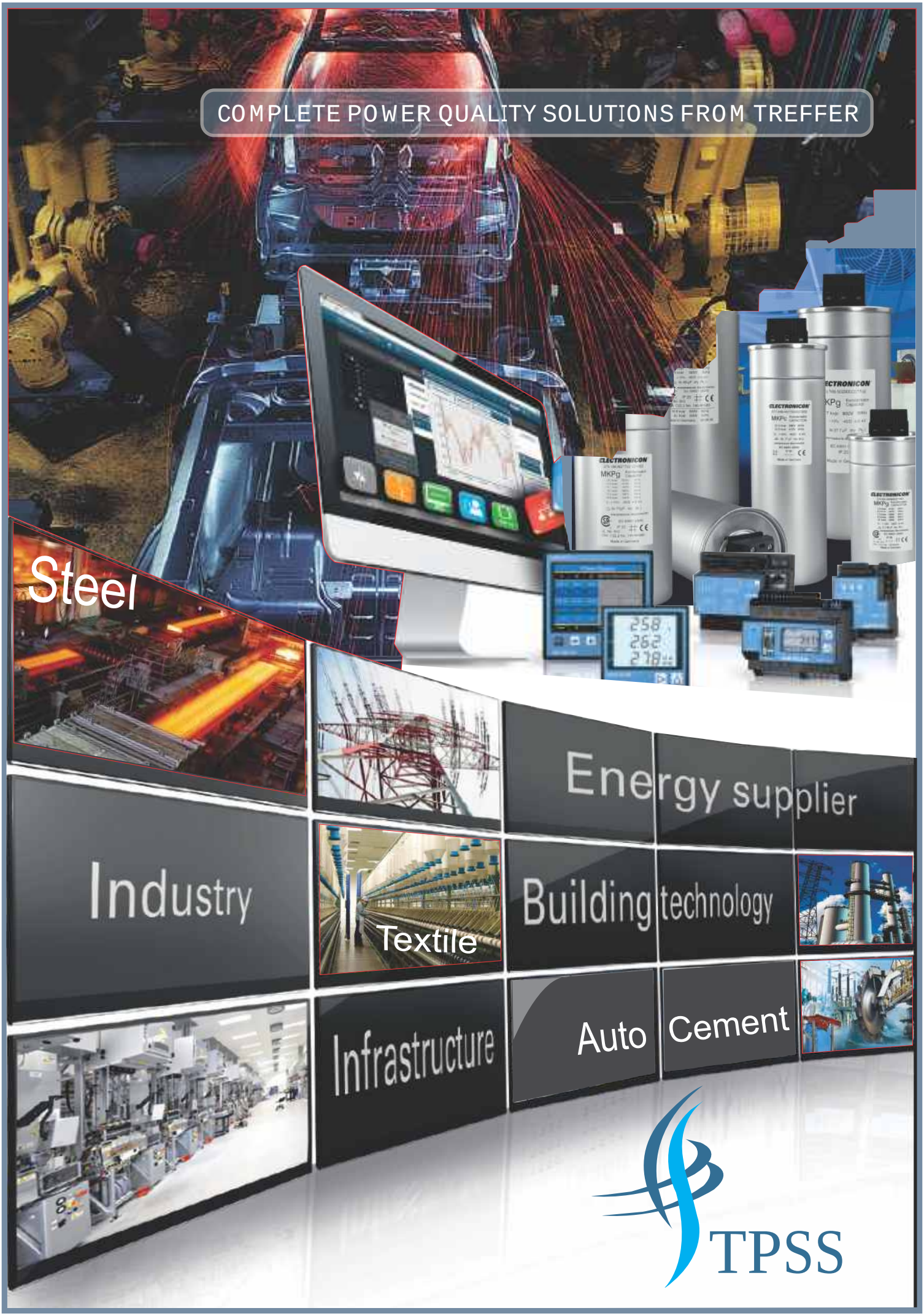
COMPLETE POWER QUALITY SOLUTIONS FROM TREFFER



Company profile;

Treffer Power System Solution Pvt. Ltd . (Formerly Claritas Power System Solution Pvt. Ltd.) is associated with manufacturing of Reactive Power Compensation Systems since 1998. Treffer Power System Solution Pvt. Ltd. has been awarded Quality Assurance Certification ISO 9001-2014 by QS Switzerland for our manufacturing facility.
Our expertise and research in field of Reactive Power Compensation & Power quality improvement has helped us establish a strong foot hold in the Industrial Sector in India & Abroad.

Philosophy

The extraordinarily close and intense co-operation between our departments of **Sales, Research & Development and Production is the key to our success.**

Along with reasonably priced world class products, we ensure

Impeccable Reliability and Quality of our products and services.

Flexibile, Fast and Punctual fulfilment of our commercial obligations.

Latest technical know- how, early identification and incorporation of new trends and methods in manufacturing.

Close Knit Relationship with our distributors and customers to help them achieve their technical and commercial goals.

M.D's Vision (P.S.Bisle):

Highest Quality, Innovation and Reliability in the field of Reactive Power Compensation Systems and associated products has been the core philosophy since inception. Innovation through R & D has played a pivotal role in our process of achieving various technical feats.

Experience:

After Graduation in Electrcal & Electronics, Engineering from Mysore university & a Post graduate in sales & marketing from Bombay University.
He acquired work experience and skills while working with companies like Kirloskar Coplant & Videocon. Later he was absorbed into the QA Department of HT Capacitor unit in Crompton Greaves along with the responsibility of management representative for value engineering, Kaizen & ISO.He was inducted into the panel division in the development of thyristor based panels carried out in association with central R & D, CG Bombay.
He was engaged in development of Harmonic filter panels for applications like Windmill, Steel, Cement which continued for 8 years.With such experience he ventured into his own company Claritas Power System Solution Pvt. Ltd. & Spear headed the activities like design, development & manufacturing & developed world Class APFC/RTPFC/AHFP/HTAPFC panels, tuned passive harmonic filters. Further he developed hybrid system & SVC which find application in industries like Textile/Steel/Tyres/Cement/RM/Commerical Complexes/IT parks.
Now started another company by the name Treffer Power System Solution Pvt. ltd. with a client base spreading pan India,Nigeria, Oman, Sri lanka, Kenya, Iran, Kuwait etc **With Total 22 Years of experience in this field** he has been conducting Technical Seminars in India, Oman and other Places Abroad.

Director (Rajiv Deshpande):

With a background in Electrical Engineering & a PGD in Energy Management from Pune University he has a diverse experience under the belt.With business background of 18 years he has been working in the field of Wireless Network Infrastructure Solutions & Reactive Power Compensation.With more than 15 years of experience in Power Quality improvement he has been associated with implementation of power factor correction systems in large scale projects pan India.He has been instrumental in developing in house HT Air Core Reactors required for Harmonic Mitigation in Industries like automobiles, textiles & furnace industries etc.

Product Support

1. Our company having a strong presence pan india and abroad has now been appointed as a system House for india/Bangladesh/Pakistan/South Africa by the world's second largest Manufacturer of Capacitors and Reactors-

Path of Success

The tradition of capacitor production in Eastern Thuringia dates back more than 70 years. 1938's small SIEMENS outlet producing DC capacitors for radio appliances has envoled into one of the world's leading specialists in high class capaciators for power factor correction, harmonic filtering, traction and DC link, for white goods, fluorescent lighting and many other AC and DC applications. with it's three German manufacturing sites, ELECTRONICON is the country;s largest capacitor manufacturer.

ELECTRONICON Kondensatoren GmbH GERMANY, a 75 year old company with

1938 SIEMENS & HALSKE open factory for DC capacitors in paper technology, becoming the company's key R&D location for capacitors during Ww2

1948 Nationalization. The newly created "Geraer Kondensatonerwerk"(later to become RFT VEB Elektranik Gera) grows into one of the biggest capacitor factories in the former Eastern Bloc.

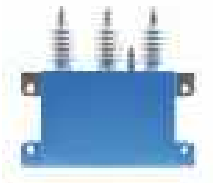
1972 Creation of in - house metal coating facility, a major keystone of today's success. The properietary know-how in paper and film metallization

1976 First range of capacitors using metallized polypropylene film

1992 ELECTRONICON Kondensatoren GmbH emerges from the old RFT/Electronicon GmbH

1994 Takeover by SYSTEM ELECTRIC GmbH, inventor of modular PFC banks and Germany's leading specialist in industrial power factor correction

2002 Launch of Pk16™ range, pioneering the systematic substitution of electrolytic capacitors in the DC links of converters



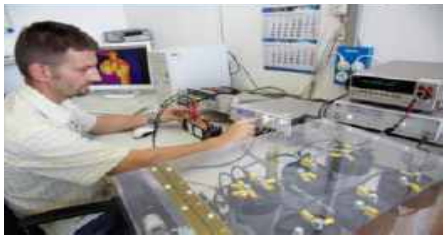
2004 ELECTRONICON 's MSD™ range is world's first liquid-free high voltage power capacitor with self healling dielectric

2010 Annual turnover reaches 47 million EURO 4.5 times higher than sales of 1992

2011 Opening of new factory in Gera Hermsdorf for production of high power and heavy current capacitors







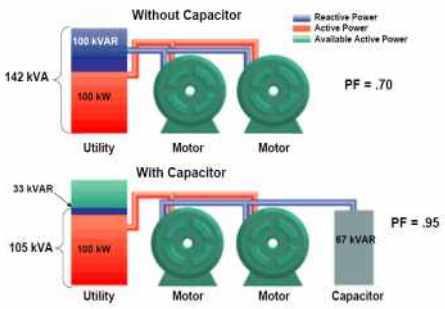
2.We are a Channel Partner for SCHAFFNER , Switzerland, a 50 Year old company into EMC and ACTIVE FILTERS.

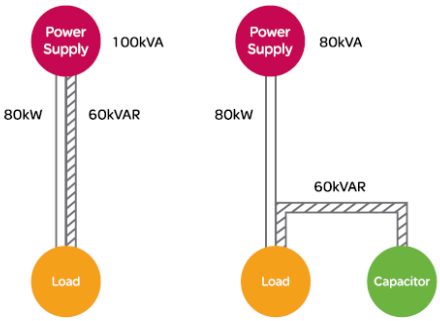
schaffner
energy efficiency and reliability

5 YEARS since 1962




CAPACITOR APPLICATION



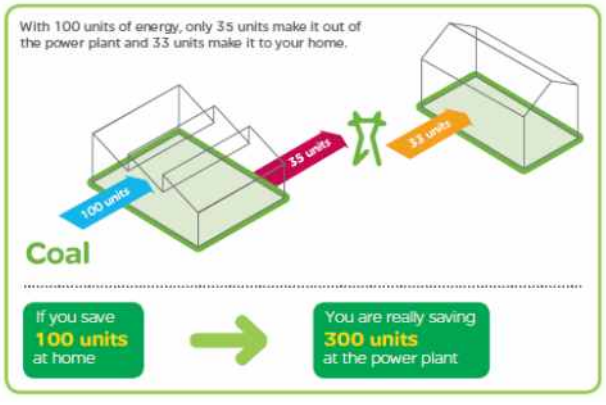


Capacitor Application :

Lower energy costs → Decreased power losses → Reduced Co_2 - emissions
= Active climate protection !

Power factor correction offers the potential for reducing Co_2 emissions a further 2.4 million tonnes.

Power factor correction offers a significant contribution to climate protection



PRODUCT RANGE

LT /HT HEAVY DUTY CAPACITOR

LT Capacitor :

BAM IP20 Torx T20 CAPAGRIP™

Model : MKP / MKPG / MKP UHD - Gas filled / Resin (oil)

Specification : 50/60Hz

MKP-/MKPg-type capacitors are based on a low-loss dielectric formed by pure polypropylene film. A thin self-healing mixture of zinc and aluminium is metallized directly on one side of the PP-film Vacuum.Our long-term experience as well as on going research and improvements in this technology ensure the excellent self-healing characteristics of the dielectric and a long operating life of our capacitors.

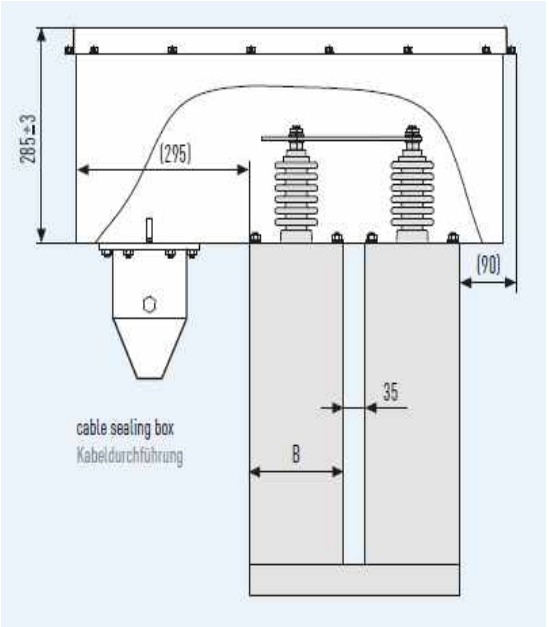
Rating : 5/7.5/10/12.5/15/20/25/50/Kvar

Voltage : 230/400/415/440/480/515/690/800/1200

Application : PF improvement/Detuned?tuned harmonic filter

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

LT /HT HEAVY DUTY CAPACITOR



Self-healing Medium Voltage

Capacitors In Dry Technology :

MODEL : MSD™ - Dry type

Specification : 50/60Hz

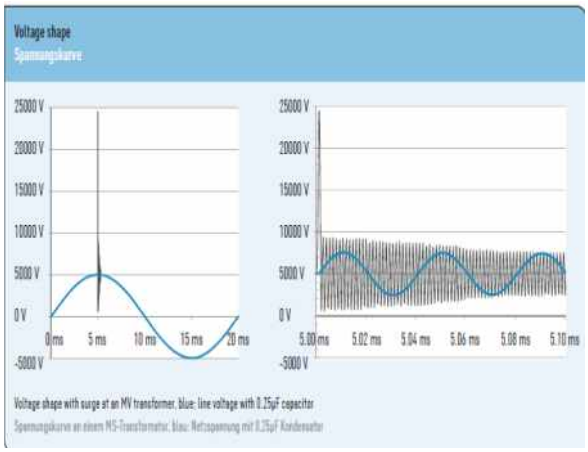
The MSD technology is based on the logical development of proven self healing for low-voltage power capacitors.It also permits the economic manufacture of medium voltage capacitors without employing inflammable and environmentally critical fluid oil filling. The actual active capacitor element consists of a large number of high-quality, self-healing round MKP elements which are wired to each other and installed in a stainless steel enclosure.

Rating : 50/100/150/200/250/300 Kvar
Voltage : 3.3/3.6/6.6/7.2/11/12 KV
Application : PF improvement /Detuned/Tuned harmonic filter

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

ELECTRONICON®

LT /HT HEAVY DUTY CAPACITOR



Self-healing Surge Protection Capacitors In Dry Technology

Model : DSC™- Dry type

Specification : 50/60Hz

Keeping with its tradition of completely dry products. ELECTRONICON has launched the first MV Surge Capacitor in self-healing technology.The DSC™ surge voltage protection capacitor ("surge capacitor") is the ideal solution for limiting transient overvoltages.In combination with the PD-free layout.The self-healing dielectric provides for extremely long operating life and highest operational safety.Thanks to the solid polyurethane filling. the DSC™ can be installed in any mounting position. Moreover, there are no liquids to threaten the enviroment or to be considered during disposal at the end of operational life.

Rating : 0.1/0.125/0.25 uF

Voltage : 3.3/3.6/6.6/7.2/11/12/17.5 KV

Application : Surge suppression/limiting transient voltage

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

HT CAPACITOR

HT Capacitor In A New Technology :

Model : T - HT - Oil Type

Specification : 50/60Hz

HT capacitor consists of following major raw materials Impregnated using Environment friendly, Non Toxic, Non-Hazardous, Non PCB Dielectric.ALL POLYPROPYLENE. (Film +Foil). Watt Loss 0.0010 Watts/Kvar (Max.) Filled with biodegradable dielectric fluid, Foil material used ALUMINIUM FOIL. Discharge device Internally fitted resistors.

IS : 13985 Part - I/1998
Rating : 50/100/150/200/250/300 Kvar
Voltage : 3.3/3.6/6.6/7.2/11/12 KV
Application : PF improvement/Detuned/ Tuned harmonic filter

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

LT /HT REACTOR

THE ECO-FRIENDLY ALTERNATIVE

LT Reactor:

MODEL : FK-Dr-Dry type

Specification : 50/60Hz

Our filter reactors are made of high-class transformer sheets and copper wire or aluminum band.They are dried and impregnated in vacuum with evironment friendly low-styrole resin which ensures they can withstand high voltages. have low noise levels, and offer a long operating life.Depending on their rated power, the reactors are provided with either terminal blocks or terminal lugs/cables.The connection of the aluminium reactors is made through copper terminals as well, which are reliably connected with the aluminium band by a special, well-proven welding method.

Rating : 12.5/25/50/75/100/150 Kvar
Voltage : 400/415/440/480/515/690/800/1200 KV
Application : Detuned/Tuned harmonic filter.

.....Pl refer further details on catalogues for
with standing capacity, life of capacitor etc.

LT /HT REACTOR

Detuning Reactors for medium voltage capacitors :

Model : FKD-MV-Dry type (Iron Core)

Specification : 50/60Hz

Our filter reactors are made of high-class transformer sheets and copper wire or aluminum band.They are dried and impregnated in vacuum with evironment friendly low-styrole resin which ensures they can withstand high voltages. have low noise levels, and offer a long operating life.Depending on their rated power, the reactors are provided with either terminal blocks or terminal lugs/cables.The connection of the aluminium reactors is made through copper terminals as well, which are reliably connected with the aluminium band by a special, well-proven welding method.

Rating : 75/100/150/200/ Kvar

Voltage : 3.3/3.6/6.6/7.2/11/12 KV

Application : Detuned/Tuned harmonic fillter

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

LT /HT REACTOR

Ht Reactor:

Model : FKD-HT-Air Core Dry type

Low loss

Long service life

Specification : 50Hz

Our reactor windings consist of numerous aluminum or copper conductors connected in parallel.These conductors can be insulated single wires, insulated cables or aluminium profiles separated by fiberglass spacers. The cost-effective Solution to be selected, in terms of dimensions and conductor type to be used in each design, depends on the required ratings for the equipment.For encapsulated design, the conductors are mechanically immobilized and Encapsulated by epoxy impregnated fiberglass filaments forming cylinders.Depending on the reactor ratings, one or more of these cylinders are connected in parallel between aluminum or copper spiders. The individual cylinders are separated by fiberglass spacers forming cooling Ducts. F+155 C & H-180 C Class

Rating : 75/100/150 Kvar

Voltage : 3.3/3.6/6.6/7.2/12/22/33 KV

Application : Detuned/Tuned harmonic fillter

.....Pl refer further details on catalogues for
with standing capacity, life of capacitor etc.

APFC-RTPFC RELAY

Power Factor Controller

Dynamic PFC

Smart control

Model :PFR/12X-12T

Specification : 50/60Hz

The PFR-X power factor controller calculates the active and reactive power in the mains from the measured current and voltage.The intelligent control algorithm optimizes the switching sequences and guarantees for short regulation times with minimum number of switchings.At the same time, switching operations are equally shared among the available capacitor branches where possible.The integrated connection control immediately detects in which phase voltage and current are measured, and adapts the entire system automatically.The very low current threshold of 10mA allow for very reliable and exact PF control.1A as well as 5A current transform can be used without additional manual adjustments.The power supply cover a voltage range of 90....550V

Rating : 4/6/12
Voltage : 90 to 550 V
Application : Contactor / Static

.....Pl refer further details on catalogues for
with standing capacity, life of capacitor etc.

CAPACITOR DUTY CONTACTOR

Capacitor Contactors:

Model : K3 - 18K00.....K3115K00

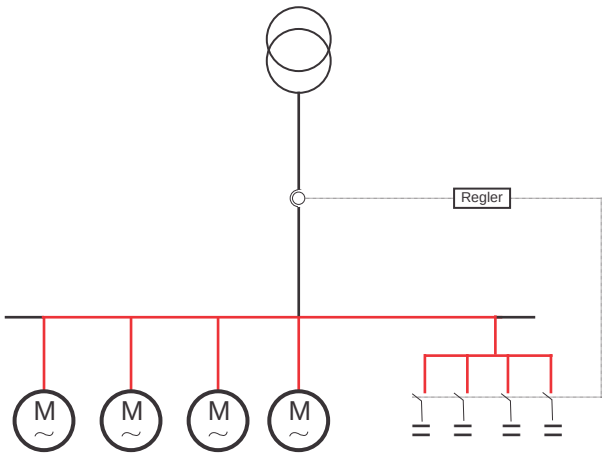
Specification : 50/60Hz

Design	Magnetic, three phase, with pre-load contacts for inrush protection
Voltage range	U_{mains} = 400...440V (other voltages available on request)
Control Voltage	220...240V (Other voltage available on request)
Mounting	DIN hat rail W x H = 35 x 7.5mm or base mounting lugs for 5mm screws
Snap-on auxiliary contacts	available on request
Standards	IEC947-4-1. EN60947-4-1, VDE0660

Rating : 12.5/20/25/33.3/50/75/80/100 Kvar
Voltage : 400/415 V
Application : PF improvement/Harmonic Filter

.....Pl refer further details on catalogues for
with standing capacity, life of capacitor etc.

APFC PANEL



Automatic power factor correction panel :

CE

Long service life

Optimised, thermal design

Model :T-APFC

Specification : 50/60Hz

APFC panel is a system integrated with CRCA sheet enclosure with powder coated, fully wired with self healing MPP capacitors, capacitor duty contactors, capacitor fan, APFCR, all switchgears, with IP protection, busbar - AL/CU with IEC STD

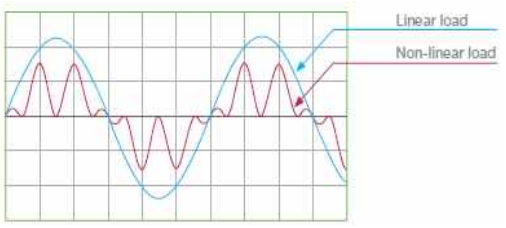
Rating : 50.....4000Kvar

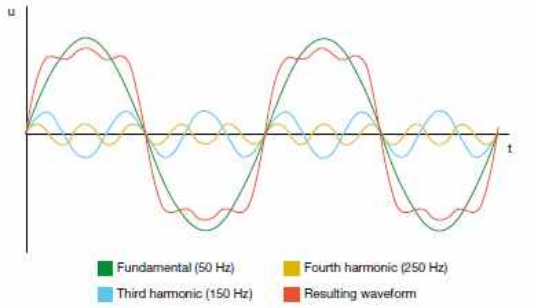
Voltage : 400/415/440/525/690/800/1200V

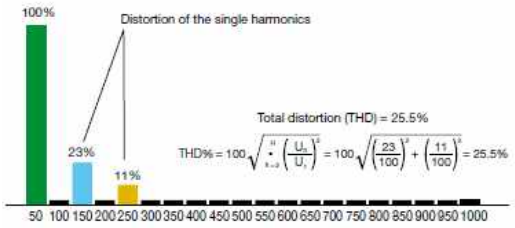
Application : PF improvement

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

HARMONIC THEORY







The resonance occurs when the inductive and the capacitive reactance are equal. As a consequence, we shall talk of series resonant circuit when the inductance and the capacitance are connected in series or of parallel resonant circuit.When the inductance and the capacitance are connected in parallel. A series resonance and a parallel resonance can be present in the same network.Resonance occurs at a precise freqency, which is called resonance frequency.

Capacitor Application :

Technological development in the industrial and household field has lead to the spread of electronic equipment which, due to their operating principle, absorb a non sinusoidal current (non linear load).Such current causes on the supply side of the network a voltage drop of non sinusoidal type with the consequence that also the linear loads are supplied by a distorded voltage.The harmonics are the components of a distorted waveform and their use allows to analyze any non-sinusoidal periodic waveform by decomposing into several sinusoidal components.

According to the Fourier theorem, any periodic function with period T generally countinuous and limited may be represented by a series of infinite of the frequency of the original function.

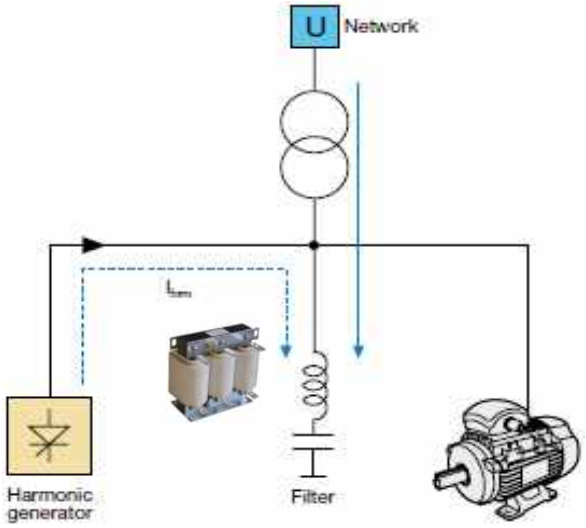
When applying power factor correction in the harmonic a couple of issues come to surface.

First, capacitor are a natural low impedance path for harmonic currents and will, therefor, absorb these energies.These increase the level of the capacitor current results in higher element temprature which reduces the life of the capacitor.Also, because capacitors reduce the network impedance, capacitor can actualy increase the level of harmonic current on the network.It is important to remember that while capacitor do not produce harmonic currents, they can mightily their effects Furthermore, harmonic voltage stresses on the capacitor.

The Second and potentialy more serious concern, is network resonance.When capacitors are added to the network, they set up a parallel resonance circuit between the capacitors and the network inductance. Harmonic current compoments that are close to the parallel resonance point are magnified(See f.4).The magnified current can cause serious problems such as excessive voltage distortion, nuisance fuse and breaker operation, overvoltage tripping of drives and insulation breakdown within motors, transformers and conductors. Both risks increase with the size of the capacitor bank. The larger the size of the capbank, the higher the risk.

PASSIVE HARMONIC FILTER PANEL

Back Side of
the AHPFC
Panel



Automatic Harmonic Filter Pannel : Detuned/Tuned

Model :T-AHPC

Specification : 50/60Hz

T-AHPFC panel is an integration of CRCA Ms Sheet enclosure with powder coated, fully wired with self healing MPP capacitor & Reactor, capacitor duty contactor, fan, APFCR, all switchgear, with IP protection busbar AL/CU with IEC STD.

Rating : 50.....4000Kvar

Voltage : 400/440/480/525/690/800/1200V

Mode of Switching : Contactor/Static

Application : Harmonic Reduction

PASSIVE FILTER TYPE

Type : Detuned Filter (5.6%, 7%, 14%)

Type : Tuned Filter (3rd, 5th, 11th & 13th)

.....Pl refer further details on catalogues for
with standing capacity, life of capacitor etc.

ACTIVE HARMONIC FILTER

Active Harmonic Filter Panel :

Minimised grid distortion

Model : Ecosine™

Specification : 50/60Hz

The Smallest Ecosine™ Active Version is Ideal for the reliable compensation up to the 50th harmonic, as well as reactive power, in a targeted manner.Thanks to its compact dimensions and low weight, this filter can be easily installed in any environment.For protection class requirements up to IP54 both wall and cabinet installation are possible.Not only space saving, it is also economical in terms of power loss with only 1300W.With a response time of less than 300 µs in ultra-fast mode, it is also possible to optimally compensate dynamic loads.

Rating : 30/50/60/100/120/200/250/300 A

Voltage : 380.....480V, 690V

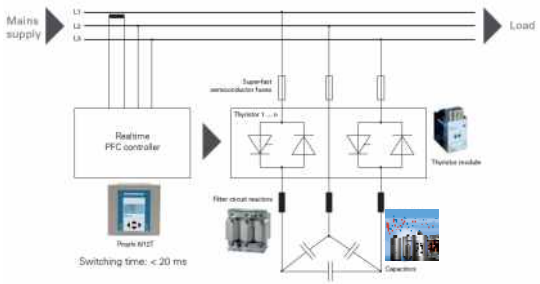
Application : Harmonic Reduction / Unbalanced Load / PFI

Application example: Automobile factory, Body Shop

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

SCHAFFNER

REAL TIME POWER FACTOR CORRECTION PANEL



Automatic Thyristor Switched Panel:

CE Optimised, thermal design Long service life min THD Minimised grid distortion

Model : T-RTPFC

Specification : 50/60Hz

T-RTPFC panel is an integration of CRCA powder coated MS Sheet enclosure , fully wired with Self healing MPP capacitor & Reactor , capacitor duty Thyristor, fan, APFCR, all switchgears, with IP protection , busbar AL/CU, with IEC STD,

a) The thyristor switched contactor shall be capable of handling the continuous current of 130% of the rated capacitor current at rated voltage of 415V. The blocking voltage of the thyristor switch during off Condition should be minimum 1800 Volt peak. Every thyristor switch should be capable of handling the dv/dt of 2000 Volts/µS.

b) The thyristor switched contactor used shall turn on at zero differential voltage across it. This zero differential voltage tolerance shall not exceed 6 Volts peak value around zero.

c) The time delay between turn off and subsequent turn on should be as minimum as possible and in the range of milliseconds. There should not be any discharge devices across capacitor that can exceed the watt loss of more than 30 watt.

Rating : 50.....4000Kvar

Voltage : 400/440/480/525/690/800V

Mode of Switching : Static

Application : Pf Improvement for dynamic load/ Harmonic Reduction

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

HYBRIDE FILTER

HOT DEAL

Active Filter + Passive Filter :

Optimised, thermal design | Long service life | Minimised grid distortion

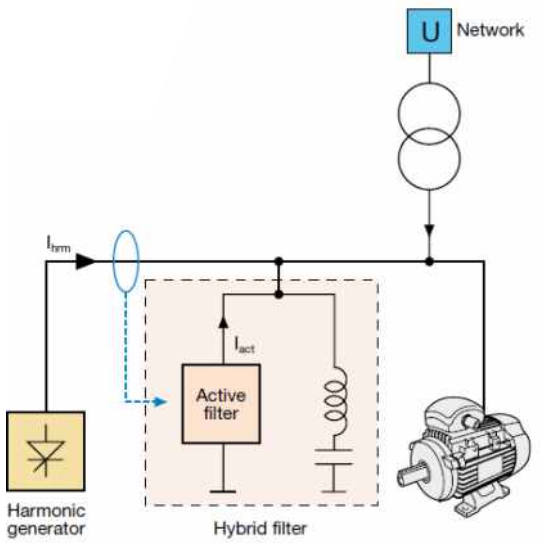
Model : HY-P

Specification : 50/60Hz

Active : IGBT-Based Power Converter that reduces harmonic distortion

Hybrid : Combination of passive and active filters

- Reduces THD upto 5% to 8%
- Dynamic Correction of THD is Possible
- Improves Distortion PF
- Load Balancing and Displacement
- PF improvement Possible
- Modular - Can be expanded along with the load



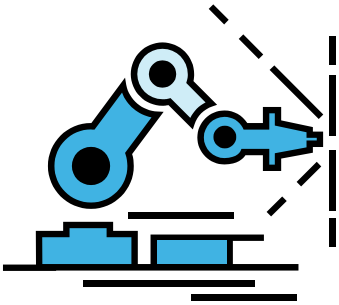
Rating : 200A + 1000Kvar
Voltage : 400/440/480.....690
Mode of switching : Static
Application : Pf improvement Harmonic Reduction

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

TPSS | SCHAFFNER | ELECTRONICON

INTERNATIONAL CLIENTS - HYBRIDE FILTER

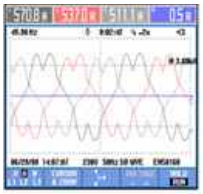
Installed Welding Application: Hybride Solution

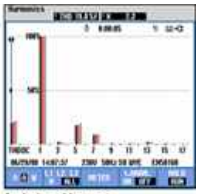


VOLKSWAGEN SHANGHAI

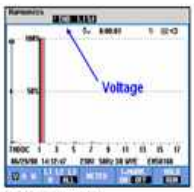
Grid current and -voltage with reactive power compensation and AHF

Grid current with reactive power compensation and AHF

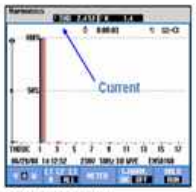




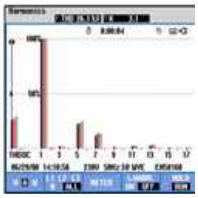
Analysies grid current



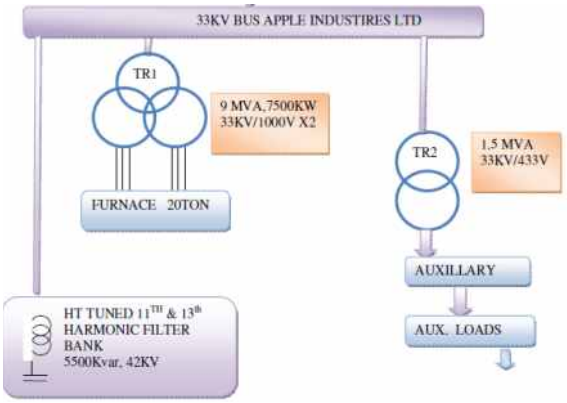
Analysies grid voltage



Analysies grid current



HT HARMONIC FILTER BANK



HT Harmonic Filter Bank : Detuned / Tuned Scheme

Long service life

Minimised grid distortion

Model : T - HTF

Specification : 50/60Hz

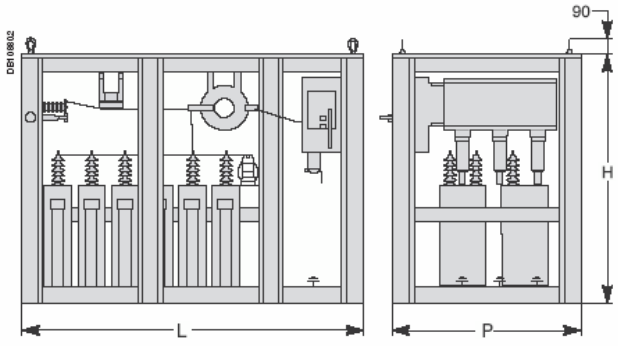
T-HTF bank comprises of HT capacitor and HT reactor assembled in a single star or Double star with protection NCT/RVT along with protection relay see Schematic diagram for Steel industries

Rating : 500....6000Kvar
Voltage : 3.3/6.6/11/22/33 Kv
Mode of Switching : VCB
Application : PF Improvement / Harmonic Reduction

PASSIVE FILTER TYPE
Type: Detuned Filter (6%)
Type: Tuned Filter (for 3^{rd},5^{th} ,7^{th} ,11^{th} &13^{th} Harmonics)

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

HT APFC PANEL



HT Automatic Power Factor Correction Panel :

Optimised, thermal design

Long service life

Minimised grid distortion

Model : T - HTAPFC

Specification : 50/60Hz

APFC Panel is an integration of CRCA powder coated MS Sheet enclosure, fully wired with self healing HT capacitor, Vacuum contactor, fan, APFCR, all switchgears, with IP protection, busbar AL/CU, with IEC STD, See Schematic Diagram.

Rating : 500.....5000Kvar
Voltage : 3.3/3.6/6.6/11/22/33 KV
Application : Pf improvement/Harmonic

.....Pl refer further details on catalogues for with standing capacity, life of capacitor etc.

ASSOCIATED EQUIPMENT

Residual Voltage Transformer:

Model : Dry Type /Oil Cooled
Voltage : 3.3/6.6/11/22/33KV
Application : For unbalanced protection

Neutral Current Transformer:

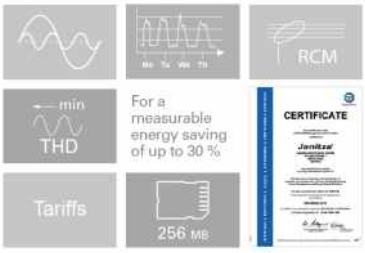
Model : Dry Type /Oil Cooled
Voltage : 3.3/6.6/11/22/33KV
Application : For unbalanced protection

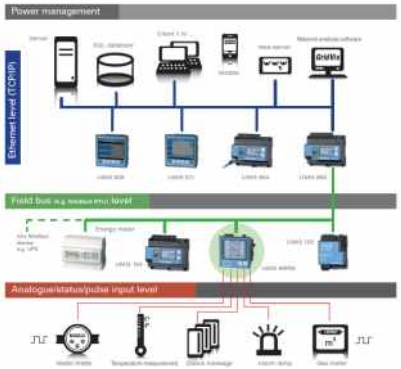
Current Transformer / Voltage Transformer:

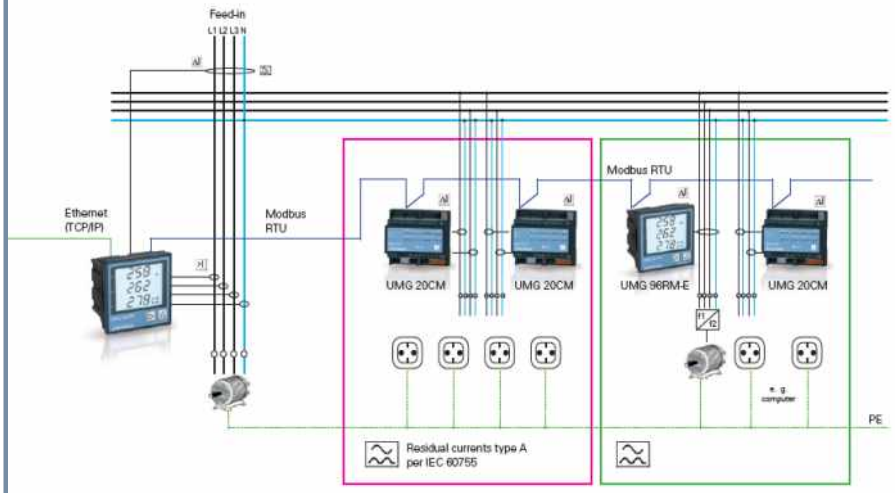
Model : Dry Type /Oil Cooled
Voltage : 3.3/6.6/11/22/33KV
Application : For unbalanced protection

.....Pl refer further details on catalogues for
with standing capacity, life of capacitor etc.

COMPLETE EMS-SYSTEM







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.....Pl refer further details on catalogues for METER specs, etc

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