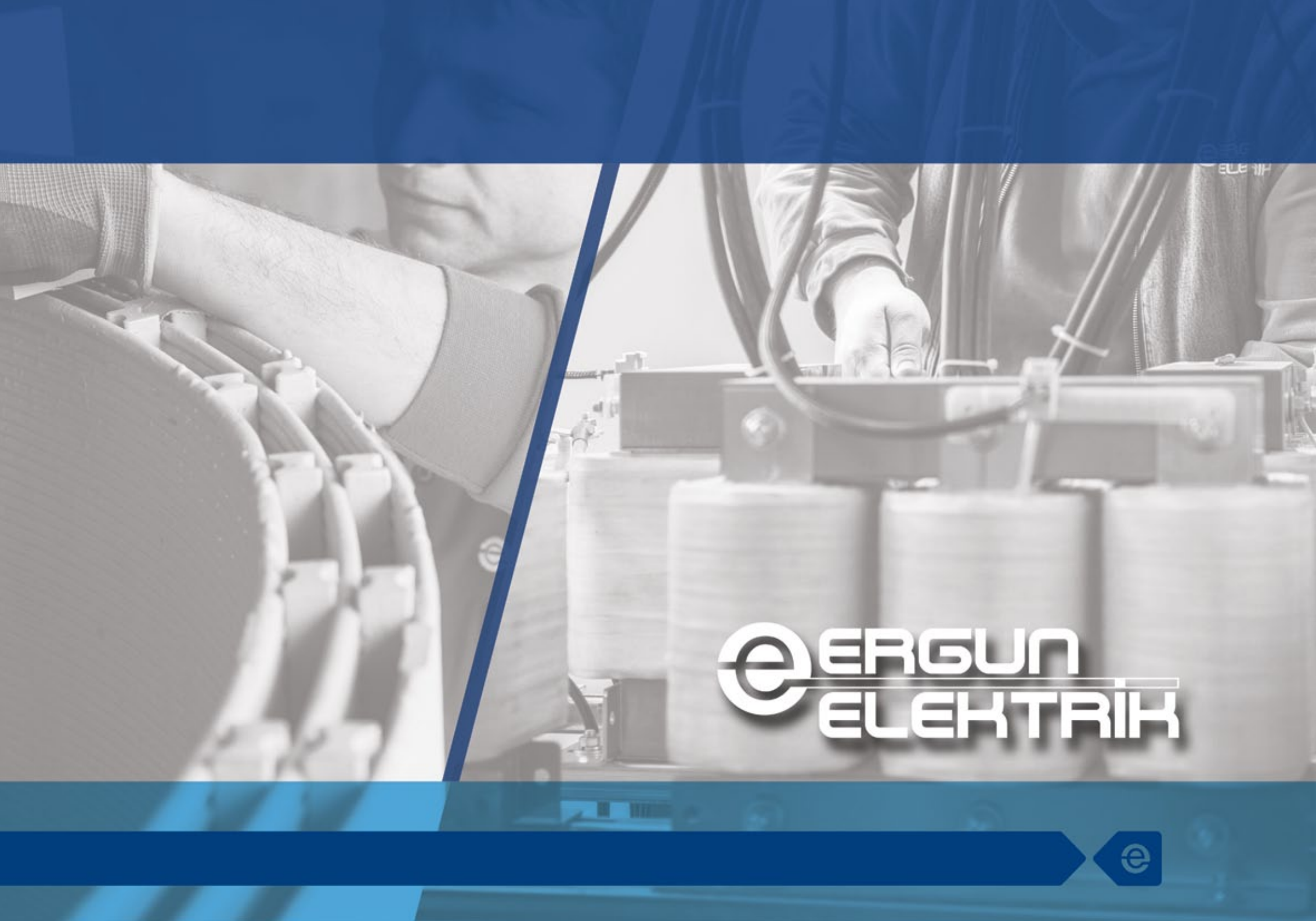
ERGUN
ELEKTRİK

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Ergun Elektrik

Ergun Elektrik belongs to Turkey's leading manufactures of reactor and capacitor banks. Since it's foundation in 1980 family owned company is developing products at highest quality standards. Continuous development, high-end engineering skills and the wish to serve optimal solutions lead to a vast portfolio of low and medium voltage electrical panels, filters, resistors and best energy quality solutions to harmonic distortion which has made Ergun Elektrik one of Turkey's leading reactor, capacitor banks and resistors producers supplying customers all around the world.

Ergun Elektrik is the only company in Turkey which is able to manufacture both capacitor banks, harmonic filter reactors and resistors; and test these products at its Impulse Voltage Withstand Resistor Laboratory which has 100kV capability and Reactor Laboratory which has 500kW capability in its 2500m^2 plant.

In 2014 Company added ISO 14000 and OHSAS 18001 Certifications next to its certification of ISO 9001 Quality Management System and successfully continues to give the best engineering services to its clients about its products.

PRODUCT GROUPS

LOW VOLTAGE PRODUCT RANGE

Harmonic Filter Reactors
Line Reactors
Load Reactors
Smoothing Reactors
Motor Starting Reactors
Transformers
Shunt Reactors
Capacitor Banks
De-tuned Capacitor Banks
De-tuned Capacitor Banks With Thyristor Switches
De-tuned Capacitor Banks Modules
Braking Resistors
Harmonix Serial Passive Harmonic Filter
Load Resistors

MEDIUM VOLTAGE PRODUCT RANGE

Harmonic Filter Reactors
Current Limiting Reactors
Capacitor Banks
Neutral Grounding Resistors
Motor Starting Reactors
Generator Neutral Grounding Resistors

ENGINEERING SERVICES

Harmonic measurement and designing suitable filtering systems.
Designing electrical facilities.

SOLUTION PARTNERS

LV/MV CAPACITORS	ELECTRONICON Kondensatoren GmbH	GERMANY
CONTACTORS	BENEDICT GmbH	AUSTRIA
THYRISTOR SWITCHES	BELUK	GERMANY
ACTIVE FILTERS	COMSYS	SWEDEN

ELECTRONICON® always in charge

BENEDICT GMBH

BELUK

COMSYS Creating Value through Power Quality™

Facilities and factories with a high proportion of variable speed motor drives and/or other harmonic generating loads may require a detuned capacitor system. This would perform the function of power factor improvement while preventing any amplification of harmonic currents and voltages caused by resonance between capacitors and inductances in the mains. Therefore, we offer three phase filter reactors to be used in the capacitor banks.

Low-loss reactors are made of specially selected transformer sheets and manufactured with flat or round copper wire technology. They are dried and impregnated in a vacuum which ensures that they can withstand high voltages and offers long operating life. Reactors can be supplied with aluminium windings on request. Depending on their rated power, the reactors are provided with either terminal blocks, lugs or copper bars. If the operating temperature of 120°C is exceded,
the reactor circuit is disconnected by a thermal switch.

L.V. COMPENSATION
HARMONIC FILTER REACTORS

TECHNICAL DATA	
Standarts	: TSEN61558-2-20, TSEN60076-6
	: CE Conformity
Rated Voltage	: 230.....1000V
Rated Power	: 3.....100kVAr
Rated Frequency	: 50Hz
Phase	: 1 – 3
Detuning Degree	: 5,67% – 7% – 14%
Tolerance of Inductance	: ±%3
Protection Class	: IP00
Temperature Switch	: 120°C, 1NC
Insulation (Winding-Core)	: 3kV
Insulation Class	: F class 155°C
Impregnation	: H Class Varnish Vacuum Impregnation
Cooling	: Natural
Ambient Temperature	: 40°C
Humidity	: 95%
Altitude	: 1000 m
Design	: 3 phase, Iron Cored, with air gap
Winding	: Copper or Aluminium foil
	: Copper or Aluminium wire
Terminal	: Terminal blocks or Cable lugs or Copper bar

THE BENEFITS OF HARMONIC FILTER REACTORS

- Eliminate the possibility of dangerous resonances
- Avert the rise of harmonic currents
- To lenghten the operating life of the contactors
- To lenghten the operating life of the capacitors

THE SPECIFICATIONS OF HARMONIC FILTER REACTORS

- Very low loss
- High linearty
- Temperature protection
- Long operating life
- Copper terminals
- Low noise

HARMONIC FILTER REACTORS DATA SHEET RATED VOLTAGE: 400V, 50 Hz, 3 PHASE, 7%								
Product Code	Resonance Frequency (Hz)	Power (KVAr)	Current (A)	Inductance (mH)	Width (mm)	Dimensions Height (mm)	Depth (mm)	Weight (kg)
HFRC0307	189	3	4,5	12,44	150	150	100	4,4
HFRC0507	189	5,6	8	7,16	180	180	95	5,8
HFRC0607	189	6	9	6,22	180	180	95	6
HFRA1207	189	12,5	18	3,07	180	210	100	10
HFRA1507	189	15,6	22,5	2,46	240	230	110	11,8
HFRA2207	189	22	32	1,73	240	175	165	17
HFRA2507	189	25	36	1,53	240	175	165	17
HFRA3107	189	31	45	1,23	280	215	180	22,8
HFRA3707	189	37,5	54	1,02	300	230	175	25,2
HFRA4407	189	44	64	0,86	300	230	170	26,8
HFRA4707	189	47	67,6	0,82	300	230	185	31,8
HFRA5007	189	50	72	0,77	300	230	180	27
HFRA6207	189	62	90	0,62	300	260	290	35,6

L.V. COMPENSATION
HARMONIC FILTER REACTORS

HARMONIC FILTER REACTORS DATA SHEET RATED VOLTAGE: 400V, 50 Hz, 3 PHASE, 5,67%				
Product Code	Resonance Frequency (Hz)	Power (KVAr)	Current (A)	Inductance (mH)
HFRC0305	210	3	4,4	10,08
HFRC0505	210	5,5	7,9	5,80
HFRC0605	210	6	8,9	5,04
HFRA1207	210	11	15,8	2,82
HFRA1205	210	12,3	17,8	2,49
HFRA1505	210	15,4	22,2	1,99
HFRA2105	210	22	31,6	1,40
HFRA2405	210	24,6	35,5	1,24
HFRA2605	210	26	37,9	1,15
HFRA3005	210	31	44,4	1,00
HFRA4405	210	43,8	63,2	0,70
HFRA4605	210	46	66,6	0,66
HFRA5005	210	50	71	0,62
HFRA6105	210	61,5	90	0,50

HARMONIC FILTER REACTORS DATA SHEET RATED VOLTAGE: 400V, 50 Hz, 3 PHASE, 14%				
Product Code	Resonance Frequency (Hz)	Power (KVAr)	Current (A)	Inductance (mH)
HFRC314	134	3	4,9	24,75
HFRA614	134	6,7	9,7	12,37
HFRA1314	134	13,5	19,5	6,11
HFRA1714	134	17	24,4	4,90
HFRA2714	134	27	39	3,05
HFRA3314	134	33,7	48,7	2,45
HFRA4014	134	40,5	58,5	2,04
HFRA5014	134	50,6	73,1	1,63
HFRA5314	134	54	77,9	1,53
HFRA6714	134	67,5	97,4	1,22

CONSTRUCTION

- Modular system
- Body and interior installation carriers assembled with perforated profile cap screws
- 2 mm sheet iron
- 2 mm sheet iron, galvanized after engraving the interior installation carries
- Panels with one lid in front, side and back lids with perforated sheet iron for ventilation
- Copper bar is placed at the top of the panel, which is equipped with NH-fuse switch disconnector, contactor and capacitor in descending order. Capacitors are placed at the bottom of the panel, where the temperature has the lowest value

L.V. COMPENSATION
CAPACITOR BANKS

TECHINICAL DATA	
Standarts	: EN60439-1 , EN60831-1
Rated Voltage	: 400V.....690V
Rated Power	: Please refer to the data sheet
Rated Frequency	: 50Hz
Short Circuit Protection	: NH-fuse switch disconnector
Switching	: Contactor
Power Factor Controller	: Microprocessor based
Capacitor	: MKPg type
Temperature Class	: T40
Cooling	: Natural (Optional Ventilation)
Protection Degree	: IP20 for indoor types, IP23 for outdoor types or demanded
Colour	: RAL 7032, RAL 7035, Powder paint or Acc. to demand

ELECTRICAL DESIGN

- All cabling engineered with flexible NYAF cables and is conformable with fuse ampere value
- Energy could be extracted from the main bar without fenestration

L.V. COMPENSATION
CAPACITOR BANKS

CAPACITOR BANK DATA SHEET
RATED VOLTAGE: 400V, 50 Hz, 3 PHASE

Product code	Voltage (V)	Phase	Total (kVAr)	Steps (Pcs)	Step Power (kVAr)	Bank Dimensions (WxHxD)	Spare Step (Pcs)
KP10315	400	3	315 kVAr	10	5 kVAr + 10 kVAr + 20 kVAr + 7 x 40 kVAr	80 x 200 x 60	0
KP10350	400	3	350 kVAr	10	10 kVAr + 20 kVAr + 8 x 40 kVAr	80 x 200 x 60	0
KP10380	400	3	380 kVAr	10	20 kVAr + 9 x 40 kVAr	80 x 200 x 60	0
KP10400	400	3	400 kVAr	10	10 x 40 kVAr	80 x 200 x 60	0
KP10437	400	3	437 kVAr	10	12,5 kVAr + 25 kVAr + 8 x 50 kVAr	80 x 200 x 60	0
KP10475	400	3	475 kVAr	10	25 kVAr + 9 x 50 kVAr	80 x 200 x 60	0
KP10500	400	3	500 kVAr	10	10 x 50 kVAr	80 x 200 x 60	0
KP10525	400	3	525 kVAr	10	15 kVAr + 30 kVAr + 8 x 60 kVAr	80 x 200 x 60	0
KP10570	400	3	570 kVAr	10	30 kVAr + 9 x 60 kVAr	80 x 200 x 60	0
KP10600	400	3	600 kVAr	10	10 x 60 kVAr	80 x 200 x 60	0
KP10660	400	3	660 kVAr	10	20 kVAr + 40 kVAr + 8 x 75 kVAr	80 x 200 x 60	0
KP10715	400	3	715 kVAr	10	40 kVAr + 9 x 75 kVAr	80 x 200 x 60	0
KP10750	400	3	750 kVAr	10	10 x 75 kVAr	80 x 200 x 60	0
KP09360	400	3	360 kVAr	9	9 x 40 kVAr	80 x 200 x 60	1
KP09450	400	3	450 kVAr	9	9 x 50 kVAr	80 x 200 x 60	1
KP09540	400	3	540 kVAr	9	9 x 60 kVAr	80 x 200 x 60	1
KP09675	400	3	675 kVAr	9	9 x 75 kVAr	80 x 200 x 60	1
KP08320	400	3	320 kVAr	8	8 x 40 kVAr	80 x 200 x 60	2
KP08400	400	3	400 kVAr	8	8 x 50 kVAr	80 x 200 x 60	2
KP08480	400	3	480 kVAr	8	8 x 60 kVAr	80 x 200 x 60	2
KP08600	400	3	600 kVAr	8	8 x 75 kVAr	80 x 200 x 60	2

CAPACITOR BANK DATASHEET
RATED VOLTAGE: 400V, 50 Hz, 3 PHASE

Product code	Voltage (V)	Phase	Total (kVAr)	Steps (Pcs)	Step Power (kVAr)	Bank Dimensions (WxHxD)	Spare Step (Pcs)
KP07280	400	3	280 kVAr	7	7 x 40 kVAr	80 x 200 x 60	3
KP07350	400	3	350 kVAr	7	7 x 50 kVAr	80 x 200 x 60	3
KP07420	400	3	420 kVAr	7	7 x 60 kVAr	80 x 200 x 60	3
KP07525	400	3	525 kVAr	6	7 x 75 kVAr	80 x 200 x 60	3
KP06240	400	3	240 kVAr	6	6 x 40 kVAr	80 x 200 x 60	4
KP06300	400	3	300 kVAr	6	6 x 50 kVAr	80 x 200 x 60	4
KP06360	400	3	360 kVAr	6	6 x 60 kVAr	80 x 200 x 60	4
KP06450	400	3	450 kVAr	5	6 x 75 kVAr	80 x 200 x 60	4
KP05200	400	3	200 kVAr	5	5 x 40 kVAr	80 x 200 x 60	5
KP05250	400	3	250 kVAr	5	5 x 50 kVAr	80 x 200 x 60	5
KP05300	400	3	300 kVAr	5	5 x 60 kVAr	80 x 200 x 60	5
KP05375	400	3	375 kVAr	4	5 x 75 kVAr	80 x 200 x 60	5
KP04160	400	3	160 kVAr	4	4 x 40 kVAr	80 x 200 x 60	6
KP04200	400	3	200 kVAr	4	4 x 50 kVAr	80 x 200 x 60	6
KP04240	400	3	240 kVAr	4	4 x 60 kVAr	80 x 200 x 60	6
KP04300	400	3	300 kVAr	3	4 x 75 kVAr	80 x 200 x 60	6
KP03120	400	3	120 kVAr	3	3 x 40 kVAr	80 x 200 x 60	7
KP03150	400	3	150 kVAr	3	3 x 50 kVAr	80 x 200 x 60	7
KP03180	400	3	180 kVAr	3	3 x 60 kVAr	80 x 200 x 60	7
KP03225	400	3	225 kVAr		3 x 75 kVAr	80 x 200 x 60	7

The traditional method of reactive energy compensation is to directly connect the capacitors fixed or with a reactive control relay to main network.
However connecting the capacitors to the network without Harmonic Filter Reactors cause the failures below:

- If there are harmonic currents generated by the non-linear loads in the facility, the capacitors and the inductive loads have resonance and the supply breakers make nuisance tripping
- Breaking down of the capacitors and the other equipment in a very short time
- Generating voltage drops and other faults in sudden temporary events which is caused by the switching of the capacitors
- Increasing failures of electronic boards

L.V. COMPENSATION
DE-TUNED CAPACITOR BANKS

TECHNICAL DATA	
Standarts	: EN60439-1, EN60831-1, EN60076-6
Rated Voltage	: 400V.....690V
Rated Power	: Please refer to the data sheet
Rated Frequency	: 50Hz
Short Circuit Protection	: NH-fuse switch disconnectors
Switching	: Contactor
Power Factor Controller	: Microprocessor based
Reactor	: Harmonic filter reactor
Capacitor	: MKPg type
Temperature Class	: T40
Cooling	: Natural (Optional Ventilation)
Protection Degree	: IP for indoor types, IP23 for outdoor types or demanded
Colour	: RAL 7032, RAL 7035, Powder paint or Acc . to demand

CONSTRUCTION

- Moduler system,
- Body and interior installation carriers assembled with perforated profile cap screws. Universal and serial layout potentiality with square hole system
- 2mm sheet iron
- 2mm sheet iron, galvanized after engraving the interior installation carriers
- Panels with one lid in front, side and back lids with perforated sheet iron for ventilation
- Copper bar is placed at the top of the panel, which is equipped with NH-fuse switch disconnector, contactor, reactor and capacitor in descending order. Capacitors are placed at the bottom of the panel, which has the lowest temperature

THE BENEFITS OF USING DE-TUNED CAPACITOR BANKS

- Eliminates the possibility of resonance
- Prevents increase in harmonic currents
- Prevents the breakdown of the capacitors and contactors; reduces maintanence costs and eliminates the risk of paying reactive fee due to the capacitor banks capacitance value loss
- Extends the lifetime of the capacitor banks
- Prevents unwanted production stop caused by unnecessary nuisance tripping of the main circuit breakers of the distribution network

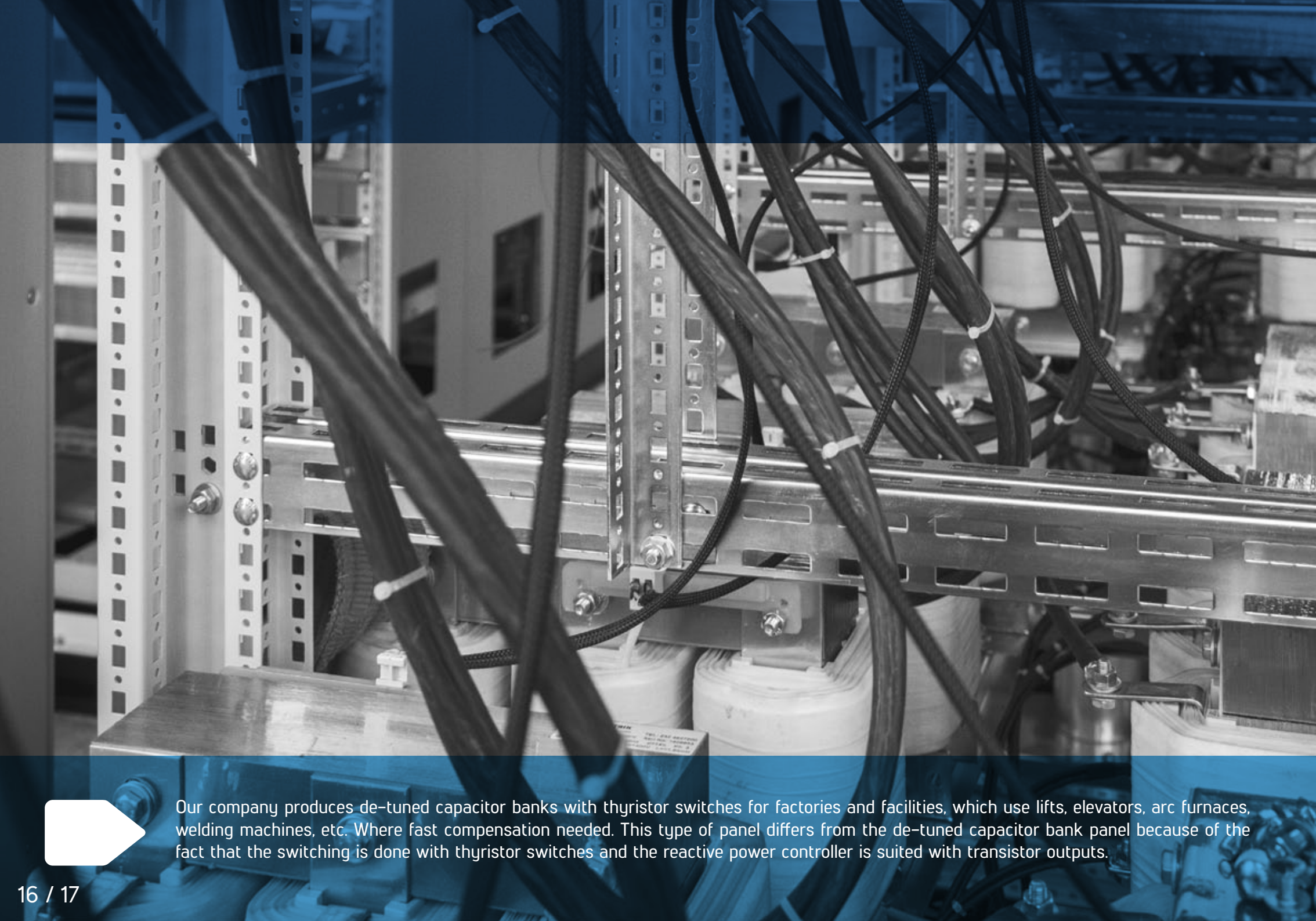
ELECTRICAL DESIGN

- All cabling is engineered with flexible NYAF cables and is conformable with fuse ampere value
- Energy could be extracted from the main bar without fenestration

L.V. COMPENSATION
DE-TUNED CAPACITOR BANKS

DE-TUNED CAPACITOR BANKS DATA SHEET RATED VOLTAGE 400V, 50HZ, 3 PHASE, 7%						
Product Code	400 V Rated Power (kVAr)	525 V Cap. Power (kVAr)	Steps (Pcs)	Step Power (kVAr)	Bank Dimensions (WxHxD)	Spare Steps (Pcs)
HKP19307	193 kVAr	310 kVAr	6	1 x 6,25 kVAr + 1 x 12,5 kVAr + 1 x 25 kVAr + 3 x 50 kVAr	80 x 200 x 60	0
HKP21207	212 kVAr	340 kVAr	6	1 x 12,5 kVAr + 2 x 25 kVAr + 3 x 50 kVAr	80 x 200 x 60	0
HKP23707	237 kVAr	380 kVAr	6	1 x 12,5 kVAr + 1 x 25 kVAr + 4 x 50 kVAr	80 x 200 x 60	0
HKP27507	275 kVAr	440 kVAr	6	1 x 25 kVAr + 5 x 50 kVAr	80 x 200 x 60	0
HKP30007	300 kVAr	480 kVAr	6	6 x 50 kVAr	80 x 200 x 60	0
HKP14307	143 kVAr	230 kVAr	5	1 x 6,25 kVAr + 1 x 12,5 kVAr + 1 x 25 kVAr + 2 x 50 kVAr	80 x 200 x 60	1
HKP16207	162 kVAr	260 kVAr	5	1 x 12,5 kVAr + 2 x 25 kVAr + 2 x 50 kVAr	80 x 200 x 60	1
HKP18707	187 kVAr	300 kVAr	5	1 x 12,5 kVAr + 1 x 25 kVAr + 3 x 50 kVAr	80 x 200 x 60	1
HKP22507	225 kVAr	360 kVAr	5	1 x 25 kVAr + 4 x 50k VAr	80 x 200 x 60	1
HKP25007	250 kVAr	400 kVAr	5	5 x 50 kVAr	80 x 200 x 60	1
HKP13707	137 kVAr	220 kVAr	4	1 x 12,5 kVAr + 1 x 25 kVAr + 2 x 50 kVAr	80 x 200 x 60	2
HKP20007	200 kVAr	320 kVAr	4	4 x 50 kVAr	80 x 200 x 60	2
HKP12507	125 kVAr	200 kVAr	3	1 x 25 kVAr + 2 x 50 kVAr	80 x 200 x 60	3
HKP15007	150 kVAr	240 kVAr	3	3 x 50 kVAr	80 x 200 x 60	3
HKP8707	87 kVAr	140 kVAr	3	1 x 12,5 kVAr + 1 x 25 kVAr + 1 x 50 kVAr	80 x 200 x 60	3
HKP10007	100 kVAr	160 kVAr	2	2 x 50 kVAr	80 x 200 x 60	4

DE-TUNED CAPACITOR BANKS DATA SHEET RATED VOLTAGE 400V, 50HZ, 3 PHASE, 7%						
Product Code	400 V Rated Power (kVAr)	525 V Cap. Power (kVAr)	Steps (Pcs)	Step Power (kVAr)	Bank Dimensions (WxHxD)	Spare Steps (Pcs)
HKP7507	75 kVAr	120 kVAr	2	1 x 25 kVAr + 1 x 50 kVAr	80 x 200 x 60	4
HKP26307	263 kVAr	425 kVAr	6	1 x 15 kVAr + 2 x 31 kVar + 3 x 62 kVAr	80 x 200 x 60	0
HKP29407	294 kVAr	475 kVAr	6	1 x 15 kVAr + 1 x 31 kVAr + 4 x 62 kVAr	80 x 200 x 60	0
HKP34107	341 kVAr	550 kVAr	6	1 x 31 kVAr + 5 x 62 kVAr	80 x 200 x 60	0
HKP37207	372 kVAr	600 kVAr	6	6 x 62 kVAr	80 x 200 x 60	0
HKP20107	201 kVAr	325 kVAr	5	1 x 15 kVAr + 2 x 31 kVAr + 2 x 62 kVAr	80 x 200 x 60	1
HKP23207	232 kVAr	375 kVAr	5	1 x 15 kVAr + 1 x 31 kVAr + 3 x 62 kVAr	80 x 200 x 60	1
HKP27907	279 kVAr	450 kVAr	5	1 x 31 kVAr + 4 x 62 kVAr	80 x 200 x 60	1
HKP31007	310 kVAr	500 kVAr	5	5 x 62 kVAr	80 x 200 x 60	1
HKP17007	170 kVAr	275 kVAr	4	1 x 15 kVAr + 1 x 31 kVAr + 2 x 62 kVAr	80 x 200 x 60	2
HKP24807	248 kVAr	400 kVAr	4	4 x 62 kVAr	80 x 200 x 60	2
HKP10807	108 kVAr	175 kVAr	3	1 x 15 kVAr + 1 x 31 kVAr + 1 x 62 kVAr	80 x 200 x 60	3
HKP15507	155 kVAr	250 kVAr	3	1 x 31 kVAr + 2 x 62 kVAr	80 x 200 x 60	3
HKP18607	186 kVAr	300 kVAr	3	3 x 62 kVAr	80 x 200 x 60	3
HKP9307	93 kVAr	150 kVAr	2	1 x 31 kVAr + 1 x 62 kVAr	80 x 200 x 60	4
HKP12407	124 kVAr	200 kVAr	2	2 x 62 kVAr	80 x 200 x 60	4



Our company produces de-tuned capacitor banks with thyristor switches for factories and facilities, which use lifts, elevators, arc furnaces, welding machines, etc. Where fast compensation needed. This type of panel differs from the de-tuned capacitor bank panel because of the fact that the switching is done with thyristor switches and the reactive power controller is suited with transistor outputs.

L.V. COMPENSATION

DE-TUNED CAPACITOR BANKS WITH THYRISTOR SWITCHES

TECHNICAL DATA	
Standarts	: EN60439-1, EN60831-1, EN60076-6
Rated Voltage	: 400V.....690V
Rated Power	: Please refer to the data sheet
Rated Frequency	: 50Hz
Short Circuit Protection	: NH-fuse switch disconnector
Switching	: Thyristor switch
Power Factor Controller	: Microprocessor based
Reactor	: Harmonic filter reactor
Capacitor	: MKPg type
Temperature Class	: T40
Cooling	: Natural (Optional Ventilation)
Protection Degree	: IP20 for indoor types, IP23 for outdoor types or demanded
Colour	: RAL 7032, RAL 7035, Powder paint or Acc. to demand

DESIGN ADVANTAGE

In our design, the thyristor switch is not inside the delta connection. Hence the cabling is extremely simple. 3 phase capacitors that are produced normative can be used and the spares of each brand can be supplied easily.

CONSTRUCTION

- Modular system
- Body and interior installation carriers assembled with perforated profile cap screws. Universal and serial layout potentiality with square hole system
- 2 mm sheet iron
- 2 mm sheet iron, galvanized after engraving the interior installation carries
- Panels with one lid in front, side and back lids with perforated sheet iron for ventilation
- Copper bar is placed at the top of the panel, which is equipped with NH-fuse switch disconnector, thyristor switch, reactor and capacitor in descending order. Capacitors are placed at the bottom of the panel, which has the lowest temperature

L.V. COMPENSATION

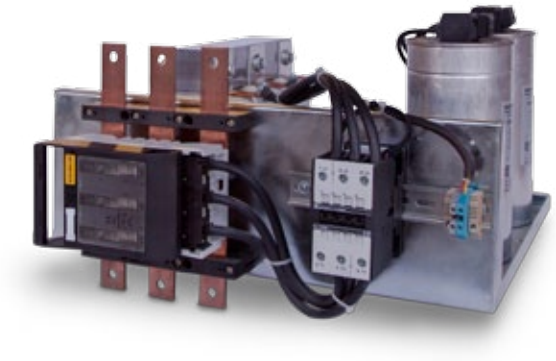
DE-TUNED CAPACITOR BANKS WITH THYRISTOR SWITCHES

DE-TUNED CAPACITOR BANKS WITH THYRISTOR SWITCHES DATA SHEET RATED VOLTAGE 400V, 50 Hz, 3 PHASE							
Product Code	400 V Rated Power (kVAr)	Reactor Factor (%)	525 V Cap. Power (kVAr)	Steps (Pcs)	Step Power (kVAr)	Bank Dimensions (WxHxD)	Spare Step (Pcs)
TKP14307	143 kVAr	7	230 kVAr	2	1 x 6,25 kVAr + 1 x 12,5 kVAr + 1 x 25kVAr + 2 x 50kVAr	80 x 200 x 60	0
TKP22507	225 kVAr	7	360 kVAr	6	1 x 25 kVAr + 4 x 50 kVAr	80 x 200 x 60	0
TKP25007	250 kVAr	7	400 kVAr	6	5 x 50 kVAr	80 x 200 x 60	0
TKP13807	138 kVAr	7	220 kVAr	6	1 x 12,5 kVAr + 1 x 25 kVAr + 2 x 50 kVAr	80 x 200 x 60	0
TKP17507	175 kVAr	7	280 kVAr	6	1 x 25 kVAr + 3 x 50 kVAr	80 x 200 x 60	1
TKP20007	200 kVAr	7	320 kVAr	5	4 x 50 kVAr	80 x 200 x 60	1
TKP8807	88 kVAr	7	140 kVAr	5	1 x 12,5 kVAr + 1 x 25 kVAr + 1 x 50 kVAr	80 x 200 x 60	1
TKP12507	125 kVAr	7	200 kVAr	5	1 x 25 kVAr + 2 x 50 kVAr	80 x 200 x 60	2
TKP15007	150 kVAr	7	240 kVAr	5	3 x 50 kVAr	80 x 200 x 60	2
TKP7507	75 kVAr	7	120 kVAr	4	1 x 25 kVAr + 1 x 50 kVAr	80 x 200 x 60	2
TKP10007	100 kVAr	7	160 kVAr	4	2 x 50 kVAr	80 x 200 x 60	3

ELECTRICAL DESIGN

- System design is made by three phase capacitors and therefore, cabling isn't complex
- All cabling is engineered with flexible NYAF cables and is conformable with fuse ampere value
- Energy could be extracted from the main bar without fenestration

L.V. COMPANSATION
DE-TUNED CAPACITOR BANK MODULES



Our company builds de-tuned capacitor bank modules in order to increase the production of low voltage de-tuned capacitor banks. The capacitor bank module has a fuse, contactor, reactor and a capacitor cabled for each step. There is no need for bar installation because the module consists of NH-Fuse Switch Disconnector, which is installed directy to the copper bar.

TECHNICAL DATA	
Standarts	: TS EN60076-6 / TS EN60831-1
Rated Voltage	: 400V.....690V
Rated Power	: Please see data sheet
Rated Frequency	: 50Hz
Short Circuit Protection	: NH Fuse Switch Disconnector, installed directly to the copper bar
Switching	: Contactors or thyrister switches
Reactor	: Harmonic filter reactor
Capacitor	: MKPg type
Temperature Class	: T40
Protection Degree	: IP00, indoor type
Design	: 2mm sheet iron, galvanized after engraving the interior installation carriers
Copper barcross-section	30 x 5 mm² Cu 30 x 10 mm² Cu

L.V. COMPANSATION
POWER FACTOR CONTROL RELAYS

- Optimum and cost effective solutions
- User friendly and easy to use smart relays
- Online monitoring software with modem and communication solutions
- Qualified software which works stable, blocking and without forgetting to adjust and trouble free
- Maximum contribution to integrity of the system/facility
- Maximum easiness in starting the system/facility, by running automatic connection and step detection

FEATURES	MODELS			
	ERG12 MS	ERG18 KS	ERG18 TSC	ERG15 TCR
Graphical Display	✓	✓	✓	✓
Harmonics from 2 to 63; Voltage and/or current in THD	M	✓	✓	✓
5mA min. measurement current	✓	✓	✓	✓
Checking the connections	-	✓	✓	✓
Polarity Connection	✓	✓	✓	✓
Learning the steps and following	✓	✓	✓	✓
Recognation capacitor or reactor	✓	✓	✓	✓
Same aging for the steps	✓	✓	✓	✓
Switching and duration counters	✓	✓	✓	✓
Suggestions	✓	✓	✓	✓
Smart application and timing	✓	✓	✓	✓
Setting target in 3 ways	✓	✓	✓	✓
Measuring Speed 20ms	✓	✓	✓	✓
Password protection	✓	✓	✓	✓
Setting the language (EN/TR)	✓	✓	✓	✓
Measuring the temperature, temp alarm	✓	✓	✓	✓
Digital input (Target for genertaor)	-	✓	✓	✓
Outputs alarm/fan	✓	✓	✓	✓
RTC and records of events	-	✓	✓	✓
Modbus RTU	-	✓	✓	✓
Steps switching by contactor	12	18	-	12
Steps switching by thyristor	-	-	18	3

L.V. SHUNT COMPENSATION
SHUNT REACTORS

SHUNT REACTOR DATA SHEET 230 V, 50 Hz, 1 PHASE		
Product Code	Power	Inductance
EYR0N5M	0,5 kVAr	336 mH
EYR1M	1 kVAr	168 mH
EYR1N5M	1,5 kVAr	112 mH
EYR2M	2 kVAr	84,2 mH
EYR2N5M	2,5 kVAr	67,4 mH
EYR3N3M	3,3 kVAr	51,0 mH
EYR5M	5 kVAr	33,7 mH
EYR7N5M	7,5 kVAr	22,5 mH
EYR10M	10 kVAr	16,8 mH

SHUNT REACTORS DATA SHEET 400V, 50 Hz, 3 PHASE					
Product Code	Voltage	Phase	Power	Current	Inductance
EYR-1-T	400 V	3	1 kVAr	1,45 A	500 mH
EYR-2-T	400 V	3	2 kVAr	2,9 A	253 mH
EYR-2N5-T	400 V	3	2,5 kVAr	3,61 A	203 mH
EYR-5-T	400 V	3	5 kVAr	7,23 A	101 mH
EYR-10-T	400 V	3	10 kVAr	14,45 A	50,9 mH
EYR-12N5-T	400 V	3	12,5 kVAr	18 A	40,9 mH
EYR-15-T	400 V	3	15 kVAr	21,7 A	34 mH
EYR-20-T	400 V	3	20 kVAr	29 A	25 mH
EYR-25-T	400 V	3	25 kVAr	36,2 A	20 mH
EYR-30-T	400 V	3	30 kVAr	43,35 A	17 mH
EYR-35-T	400 V	3	35 kVAr	50,58 A	14,5 mH
EYR-40-T	400 V	3	40 kVAr	57,8 A	12,7 mH
EYR-50-T	400 V	3	50 kVAr	73 A	10 mH

TECHNICAL DATA	
Standards	: TS EN61558-2-20 / TS EN60076-6
	: CE Conformity
Rated Voltage	: 230 V 1000V
Rated Power	: 0.8 kVar.....50kVar
Rated Frequency	: 50 Hz
Phase	: 1-3 Phase
Reactor Factor	: 100%
Tolerance of Inductance	: ±5%
Protection Class	: IP00
Insulation (Core-winding)	: 3kV
Insulation Class	: F class, 155°C
Impregnation	: H Class Varnish Vacuum Impregnation
Cooling	: Natural, T40
Ambient Temp.	: 40°C
Hummidity	: 95%
Altitide	: 1000 m
Design	: 3 Phase, Iron copper with air gap, star connected
Winding	: Copper or Aluminium
Terminal	Terminal blocks or Cable lugs or Copper bar

Shunt Reactors are used in the systems where inductive load is needed, such as:

- To eliminate the capasitive load of the cables and to prevent paying reactive energy cost.
- In test setups where inductive currents are needed to test the products.

Power transmission and distribution systems are designed for operation with sinusoidal voltage and current wave forms at a constant frequency. However, when non-linear loads, such as thyristor drives, converters and arc furnaces, are connected to the system, excessive harmonic currents are generated, which cause both current and voltage distortion. If there is a capactor bank needed in such distribution systems, harmonic filter reactors should be used.

Our reactors could be manufactured at desired impedance and high current levels.

M.V. COMPENSATION
HARMONIC FILTER REACTORS

TECHNICAL DATA	
Standard	:TS EN60076-6
Design	: Air cored, Dry type, Indoor / Outdoor
Protection Class	: IP00
Rated Voltage	: 6,3kV.....36kV
Rated Current	: 30A.....250A
Rated Frequency	: 50Hz
Rated Inductance	: Acc. to demands
Insulation Class	: F class 155^{0}C,
Heating	: max. 120^{0}C
Impregnation	: H Class Varnish Vacuum Impregnation
Cooling	: Natural
Ambient Temperature	: 40^{0}C
Phase Number	: 1 Phase (Single or tower configuration)
Tolerance of Inductance	: ± 5%
Winding Material	: Copper or Aluminium
Terminals	: Copper or Aluminium bar

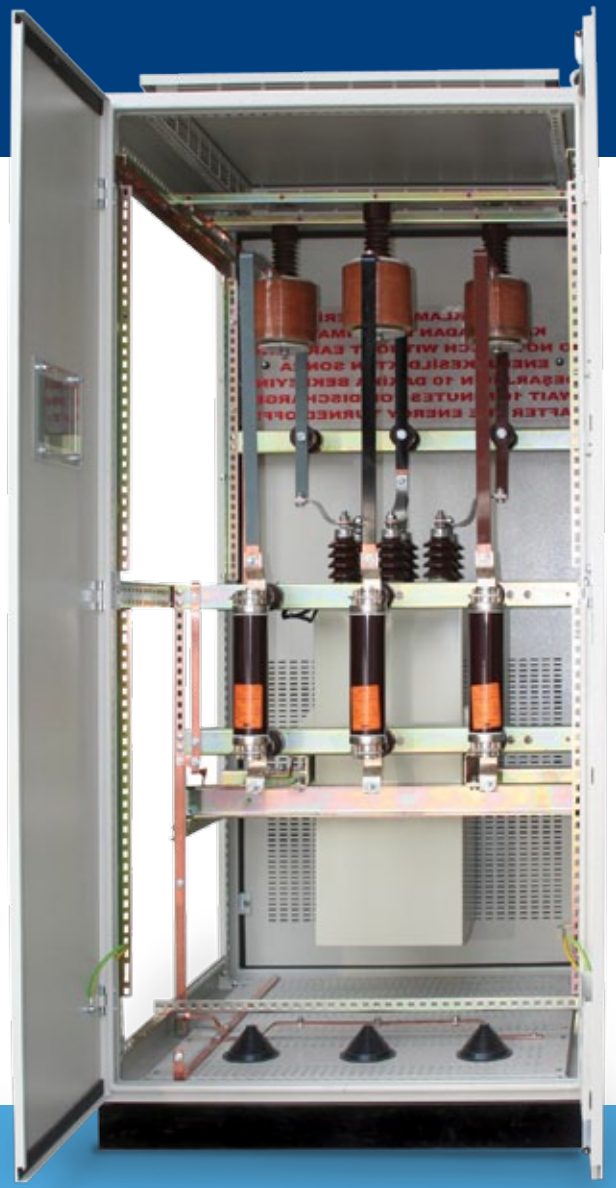
Our company can manufacture iron cored M.V. Harmonic Filter Reactors with three or one phase configuration.

M.V. CURRENT LIMITING REACTORS DATA SHEET			
Product Code	Voltage (V)	Current (A)	Inductance (μH)
ASR...30	6,3...36	30	70
ASR...40	6,3...36	40	70
ASR...50	6,3...36	50	70
ASR...60	6,3...36	60	70
ASR...80	6,3...36	80	60
ASR...100	6,3...36	100	60
ASR...120	6,3...36	120	50
ASR...160	6,3...36	160	50
ASR...180	6,3...36	180	50
ASR...200	6,3...36	200	50
ASR...250	6,3...36	250	40
ASR...300	6,3...36	300	40

During the switch of a capacitor bank, the switching transient current is very high. Such that the switching transient current can even be very close to short circuit current level. By mounting a current limiting reactor to the system, the switching transient current can be reduced to a much more safer level. As a result, circuit breaker and supply units will be protected.

M.V. COMPENSATION
CURRENT LIMITING REACTORS

TECHNICAL DATA	
Standarts	: TS EN60076-6
Design	: Air cored, Dry type, Indoor/Outdoor
Protection Class	: IP00
Rated Voltage	: 3,3kV.....36kV
Rated Current	: 30A.....1000A
Rated Frequency	: 50-60 Hz
Insulation Class	: F Class 155°C
Impregnation	: H Class Varnish Vacuum Impregnation
Heating	: max. 120°C
Cooling	: Natural
Ambient Temperature	: 40°C
Phase	: 1 phase
Tolerance of Inductance	: + 20%
Winding	: Aluminium
Terminal	: Indoor Type : Aluminium or Copper bar Outdoor Type : Aluminium bar



TECHNICAL DATA	
Design	: Indoor / Outdoor
Rated Voltage	: 6,3kV.....36kV
Rated Frequency	: 50Hz
Cooling	: Natural
Ambient Temperature	: 40°C
Protection	: IP20 for indoor type, IP23 for outdoor type, or demanded
Colour	: RAL 7032 / RAL 7035, Powder paint Acc. to demand

Our company manufactures medium voltage capacitor banks to compensate the reactive power of medium voltage motors and transformers. They are pressure switch protected and designed with a two-star imbalance protection system. Our capacitor banks can be designed automatic or fixed.

M.V. COMPENSATION
CAPACITOR BANKS

TECHNICAL DATA	
Design	: Indoor
Protection Degree	: IP00
Rated Voltage	: 6,3kV.....36kV
Rated Frequency	: 50Hz
Cooling	: Natural
Ambient Temperature	: 40^{0}C
Construction	: 4mm galvanized iron built by bolts

Our company can manufacture medium voltage capacitor banks with a two-star imbalance protection system. They could be designed automatic or fixed.

FEATURES OF ERGUN ELEKTRİK BRANDED NEUTRAL GROUNDING RESISTORS

- Resistor components are manufactured from AISI 304 alloy stainless steel sheet
- Resistor plates are mounted with steatite porcelain material
- During transportation, there would be no damage on the steatite bindings for resistor plates even on the rugged roads
- Because of using steatite material, the resistors would not be damaged and would be ready for function even after the increase of fault current and the increase of the temperature due to delay of the function of the relays
- Voltage and eye control test and observation of any damage of the isolated parts can be done easily with two doors design of the construction of the Neutral Grounding Resistor
- Enclosure of the Neutral Grounding Resistor is made of hot dip galvanized steel sheet instead of galvanized steel sheet

RESISTORS
NEUTRAL GROUNDING RESISTORS

TECHNICAL DATA	
Standards	: IEEE32
Network Voltage	: 1kV.....52kV
Rated Short Time Current	: Up to 50000A
Ohmic Value at 25°C	: Depends on Rated Short Time Current
Fault Time	: 5sec or demanded
Ambient Temperature	:≤50°C
Insulator	: Porcelain, Epoxy or Silicon Rubber
Enlosure	: Galvanized Steel Sheet, Hot Dip Galvanized Steel Sheet
Paint	: RAL7035, RAL7032 or demanded (Hot Dip Galvanized Enclosures are not painted)
Resistor Temperature Rise (Δt)	: Calculated according to the demand
Enlosure Protection Degree	: IP00 ..... IP55

Because of the fact that the fault currents at star point grounded mains should be limited, transformers/generators are grounded over star point with neutral grounding resistors. In this way earth fault could be sensed by protection relays while limiting the current damage.

Our neutral grounding resistors could be manufactured at desired power and resistance values for transformer substations, wind power stations and generator applications.

ADVANTAGES OF LIMITING THE CURRENT BY NEUTRAL GROUNDING RESISTOR

- To reduce burning and melting effects in faulted electric equipment, such as switchgear, transformers, cables and rotating machines
- To reduce mechanical stresses in circuits and apparatus carrying fault currents
- To reduce electric-shock hazard to personnel caused by contact with ground-fault currents in the ground return path
- To reduce the arc blast or flash hazard to personnel who may have accidentally caused or who happen to be in close proximately to the ground fault
- To reduce the momentary line-voltage dip occasioned by the clearing of a ground fault

RESISTORS
NEUTRAL GROUNDING RESISTORS

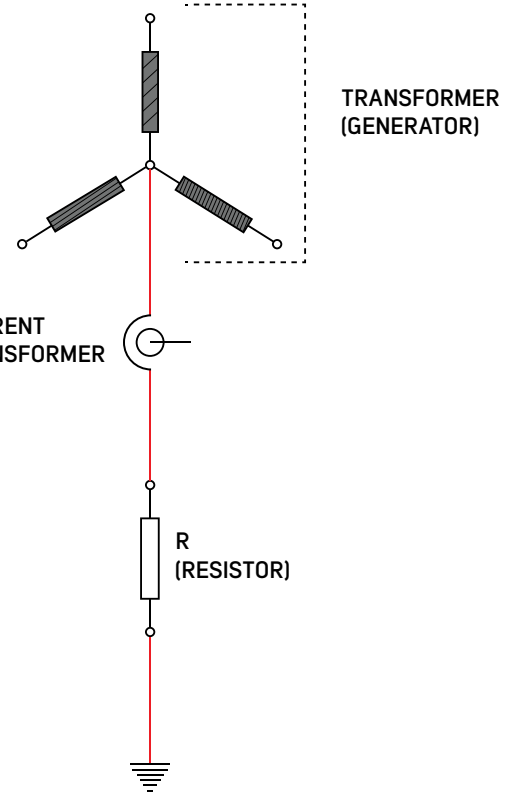
Transformer (Generator) Voltage: U_n

Star Point Voltage : $\frac{U_n}{\sqrt{3}}$

Permissible Fault Current : I_n

Required Resistance : $R = \frac{U_n}{I_n\sqrt{3}}$

Fault Time : 5 – 10 sec. or demanded



Routine Tests :
- Measurement of DC Resistance Value
- Paint and Galvanization Thickness Measurement
- Power Frequency Withstand Voltage Test
- DC Insulation Test

Type Tests :
- Temperature Rise Test
- Lightning Impulse Voltage Test
- Power Frequency Voltage Test
- Verification of protection degree
- Seismic test

ADVANTAGES OF LIMITING THE CURRENT BY GENERATOR NEUTRAL GROUNDING RESISTOR

- To reduce burning and melting effects in faulted electric equipment, such as switchgear, transformers, cables and rotating machines
- To reduce mechanical stresses in circuits and apparatus carrying fault currents
- To reduce electric-shock hazard to personnel caused by stay ground-fault currents in the ground return path
- To reduce the arc blast or flash hazard to personnel who may have accidentally caused or who happen to be in close proximately to the ground fault
- To reduce the momentary line-voltage dip occasioned by the clearing of a ground fault
- To secure control transient overvoltages while at the same time avoiding the shut down of a fault circuit on the occurrance of the first ground fault

RESISTORS
GENERATOR NEUTRAL GROUNDING RESISTORS

TECHNICAL DATA	
Rated Voltage	: 0,4kV.....6,3kV.....12kV
Rated Current	: 10A, 10sec. or demanded
Rated Frequency	: 50Hz – 60Hz
Rated Resistance	: Demanded
Cooling	: Natural
Ambient Temperature	: 40°C

Faults seen networks are commonly Phase-to-Neutral short circuits. Intensity of the current flows through the Phase-to-Neutral fault depends on the transaction of star point. Current that flows through solidly earthed generator star point may occur damage on genarator windings. We produce Generator Neutral Grounding Resistors to limit this current flow and protect generator windings by keeping the physical damage at minimum. Generator Star Point is ensured by means of Current Transformers mounted in Floor Standing type enclosures.

RESISTORS
BREAKING RESISTORS

TECHNICAL DATA	
Rated Voltage	: 1kV.....10kV
Rated Power	: 50W.....200kW
Rated Resistance	: Customizable
Protection Class	: Acc. to demand Indoor applications : IP20 Outdoor applications : IP23
Cooling	: Natural
Ambient Temperature	: 40°C

Breaking resistors are used to dissipate the energy when the motor changes to the generative zone for the speed drive applications. They are connected to DC bar of the speed drives.
Breaking resistors which have low power are produced with wire windings and the resistors have high power level are produced with stainless steel plates. Both wire winding and stainless steel plate breaking resistors are mounted in a perforated galvanized enclosure with natural cooling.
We can produce breaking resistors at each power and resistance value.
Breaking resistors can also be used to start ring asynchronous motors.

DRIVE APPLICATIONS
SMOOTHING REACTORS

TECHNICAL DATA	
Standards	: TSEN61558-2-20, TSEN60076-6
	CE Conformity
Rated Voltage	: 230V...400V...600V...1000V
Rated Current	: 10A.....3000A
Impedance	: According to the demand
Tolerance of Inductivty	: ±5%
Thermal Strength	: 1,15In Cont
Linearity	: 1,4In above
Protection Class	: IP00
Insulation (Core-Winding)	: 3kV
Insulation Class	: F class 155°C
Impregnation	: H Class Varnish Vacuum Impregnation
Cooling	: Natural T40
Ambient Temprature	: 40°C
Humidty	: 95%
Altitude	: 1000m
Design	: Iron Cored with air gap
Winding	: Copper or Aluminium foil or Copper or Alumunium wire
Terminal	: Terminal Block or Cable lugs or Copper Bars

Smoothing reactors are used on the DC side of the converter for obtaining smooth DC voltage.
Our company produces smoothing reactors in accordance with desired current value.

Harmonix, serial passive harmonic filter, is an easy to apply and cost effective solution that mitigate harmonics caused by AC variable frequency drives without problems observed by other filtering applications.
Harmonix do not resonate with other loads in the power system and serves the needs for drive isolation transformer, AC line reactor and DC chokes. It also increases the total power factor of the system by eliminating the harmonics.

BENEFITS OF HARMONIX – SERIAL PASSIVE HARMONIC FILTER

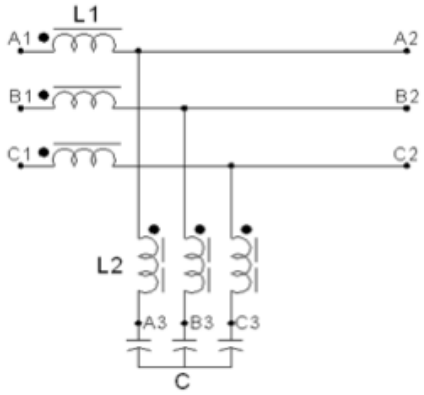
- Efficient mitigation of the harmonic currents
- Compliance with IEEE 519 and other Power Quality standards
- Eliminate possibility of dangerous resonances
- Low capacitive reactance can be used at generator applications
- Long term savings in system operation and maintenance costs
- Improve true power factor
- Absorbs surges and spikes
- Decrease voltage peaks
- Extends operating lifetime of inverters

DRIVE APPLICATIONS

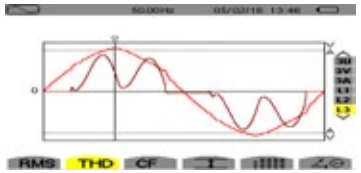
HARMONIX SERIAL PASSIVE HARMONIC FILTER

TECHNICAL DATA		
Rated Voltage	:	400V
Rated Power	:	18kW...600kW
Rated Frequency	:	50Hz
Filtered Harmonics	:	3.-5.-7.-9.-11.-13. and above
Protection	:	NH Fuse Switching Disconnector, 100kA
Enclosure Protection Degree	:	IP20
Ambient Temperature	:	40°C
Applicable Standards	:	EN61558-2-20, IEC60076 – 6, IEC60831

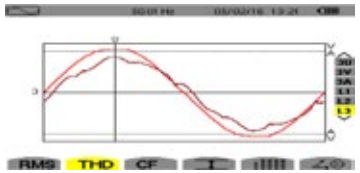
Circuit Diagram Of Harmonix



Before Harmonix



After Harmonix



Line reactors help to keep your equipment to run longer by absorbing many of the disturbances, especially spikes coming from the electrical system, which otherwise damage or shut down your inverters, variable speed controllers, or other sensitive equipments. They are the modern technological solution to the problems of the inverter and drive applications. They are very effective at reducing harmonic distortion produced by inverters and drives.

THE BENEFITS OF LINE REACTORS

- Decrease the harmonic distortion
- Absorb surges and spikes
- Decrease the voltage peaks
- Improve the true power factor
- Extend operating life of the inverters

DRIVE APPLICATIONS
LINE REACTORS

LINE REACTORS DATA SHEET
230V, 1PHASE, 4% IMPEDANCE

Product Code	Power (kW)	Voltage (V)	Phase	Current (A)	Inductance (mH)	Inductance (mH)
GKRON3704	0,37	230	1	4	8	84 x 100 x 75
GKRMN5504	0,55	230	1	6	5	84 x 100 x 80
GKRMN7504	0,75	230	1	8	4	84 x 100 x 80
GKRM1N104	1,1	230	1	10	3	96 x 120 x 95
GKRM1N504	1,5	230	1	12	2,5	96 x 110 x 95
GKRM204	2,2	230	1	20	1,5	96 x 115 x 80
GKRM304	3	230	1	25	1,2	96 x 105 x 120
GKRM404	4	230	1	30	1	96 x 100 x 120

LINE REACTORS DATA SHEET
400V, 3PHASE, 4% IMPEDANCE

Product Code	Power (kW)	Voltage (V)	Phase	Current (A)	Inductance (mH)	Dimensions (WxHxD mm)
GKRTN3704	0,37	400	3	1,5	20	120 x 130 x 65
GKRTN5504	0,55	400	3	2	15	120 x 130 x 70
GKRTN7504	0,75	400	3	2,5	12	120 x 130 x 70
GKRT1N104	1,1	400	3	3	10	120 x 130 x 70
GKRT1N504	1,5	400	3	4	7,4	120 x 130 x 75
GKRT204	2,2	400	3	6	4,9	120 x 130 x 85
GKRT304	3	400	3	8	3,7	120 x 130 x 80
GKRT404	4	400	3	10	3,0	150 x 150 x 90
GKRT504	5,5	400	3	12	2,4	150 x 150 x 85
GKRT704	7,5	400	3	16	1,84	150 x 150 x 100
GKRT1104	11	400	3	25	1,20	180 x 160 x 110
GKRT1504	15	400	3	35	0,84	180 x 155 x 115
GKRT1804	18,5	400	3	40	0,73	180 x 155 x 130
GKRT2204	22	400	3	50	0,59	180 x 155 x 140
GKRT3004	30	400	3	63	0,47	240 x 210 x 150
GKRT3704	37	400	3	80	0,37	240 x 210 x 155
GKRT4504	45	400	3	100	0,29	240 x 205 x 160
GKRT5504	55	400	3	110	0,27	240 x 210 x 175
GKRT7504	75	400	3	160	0,18	300 x 260 x 175
GKRT9004	90	400	3	200	0,15	300 x 260 x 185
GKRT11004	110	400	3	220	0,13	300 x 260 x 200
GKRT13204	132	400	3	260	0,11	300 x 260 x 205
GKRT16004	160	400	3	320	0,092	360 x 310 x 205

TECHNICAL DATA	
Standards	: TSEN61558-2-20, TSEN60076-6
	: CE Conformity
Rated Voltage	: 230V...400V...600V...1000V
Rated Current	: 4A.....3000A
Rated Power	: 0,37kW.....1600kW
Rated Frequency	: 50Hz
Phase	: 1 – 3
Impedance	: 4% or demanded
Tolerance of Inductivity	: ±5%
Thermal Strength	: 1,15In Cont
Linearity	: 1,4In above
Protection Class	: IP00
Insulation Class	: F class 155°C
Impregnation	: H Class Varnish Vacuum Impregnation
Cooling	: Natural T40
Ambient Temprature	: 40°C
Humidty	: 95%
Altitude	: 1000m
Design	: Iron Cored with air gap
Winding	: Copper or Aluminium foil or Copper or Alumunium wire
Terminal	: Terminal Block or Cable lugs or Copper Bars

Rapid Switching semiconductors can cause sudden voltage level rising. Standard motor insulation is damaged by the high dv/dt ratio.
Load Reactors ensure to reduce the cable earth currents and noises at long lines and prevent the selection of the speed drives unnecessarily high.
Our company produces Load Reactors at speed drive applications for long trouble free operation life of the motors.
For high switching frequencies and long cable supplies, special productions are made.

THE BENEFITS OF LOAD REACTORS

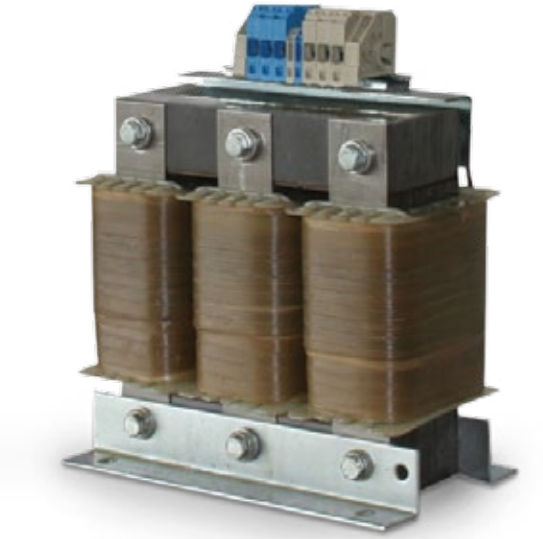
- Decrease the ratio of dv/dt
- Decrease the peak voltage
- Increase the efficiency of the motor
- Decrease over heating of the motor
- Extend the isolation life of the motor

DRIVE APPLICATIONS
LOAD REACTORS

LOAD REACTORS DATA SHEET 230V, 50 Hz, 3PHASE						
Product Code	Voltage (V)	Phase	Motor Power (kW)	Current (A)	Inductance (mH)	Dimensions (WxHxD mm)
MKRMN75	230	3	0,75	4	2	120 x 130 x 70
MKRM1N1	230	3	1.1	6	1,7	120 x 130 x 70
MKRM1N5	230	3	1.5	8	1,2	120 x 130 x 80
MKRM2	230	3	2.2	10	1,0	120 x 130 x 80

LOAD REACTORS DATA SHEET 400V, 50 Hz, 3PHASE						
Product Code	Power (kW)	Voltage (V)	Phase	Current (A)	Inductance (mH)	Dimensions (WxHxD mm)
MKRT1N1	400	3	1,1	3	4	120 x 130 x 70
MKRT1N5	400	3	1,5	4	3	120 x 130 x 80
MKRT2	400	3	2,2	6	2,4	120 x 130 x 80
MKRT3	400	3	3	8	1,5	120 x 130 x 80
MKRT4	400	3	4	10	1,4	150 x 150 x 80
MKRT5	400	3	5,5	12	1,2	150 x 150 x 80
MKRT7	400	3	7,5	16	0,9	150 x 180 x 90
MKRT11	400	3	11	25	0,55	150 x 180 x 90
MKRT15	400	3	15	35	0,40	150 x 160 x 100
MKRT18	400	3	18,5	40	0,35	180 x 155 x 120
MKRT22	400	3	22	45	0,30	180 x 155 x 120
MKRT30	400	3	30	63	0,24	240 x 210 x 145
MKRT37	400	3	37	80	0,18	240 x 210 x 140
MKRT45	400	3	45	100	0,15	240 x 210 x 145
MKRT55	400	3	55	110	0,12	240 x 210 x 145
MKRT75	400	3	75	160	0,09	300 x 265 x 145
MKRT90	400	3	90	200	0,07	300 x 255 x 185
MKRT110	400	3	110	220	0,06	300 x 260 x 200
MKRT132	400	3	132	260	0,05	300 x 260 x 200
MKRT160	400	3	160	320	0,04	360 x 310 x 200

DRIVE APPLICATIONS
MOTOR STARTING REACTORS



Motor Starting Reactors can be used to prevent high current demands and high voltage drops at the network while commissioning high power motors. After motor started, the reactor can be deactivated with a second switch.

Advantages of Motor Starting Reactors instead of Y-Δ method

- It resolves technical issues like, breaking wedge while starting relay motors and sudden changes of rotation directions at rolling mill facilities.
- It does not required 6 poled motor, 3 poled motor are used so that the price of the motor will be decreased. 3 cable core joint will be quite enough.
- 1 cable is housed to the shaft instead of 2 cables, so that cheapness provided.
- 2 contactors are used instead of 3 contactors.
- The life time of the contactors will be extended as the motor is starting with reactor.
- Heating is not occur as the reactor will take part while starting.
- All these advantages ensure up to 50% cost reduction according to facility.

TRANSFORMERS

In addition to the below mentioned transformers, our company also produces dry type transformers with low and medium voltage output that are used in different processes.

Single Phase, Three Phase, Dry Type
- Control Transformers
- Isolation Transformers
- Autotransformers
- Motor Starting Autotransformers
- Transformers for Special Applications

CERTIFICATES

NOTES

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