ICAR
technology looking ahead

2013 REV 01

POWER ELECTRONICS CAPACITORS | LNK SERIES

DC Applications
Metallized Polypropylene Film
Self Healing

IRIS Certification · CSQ · IQNet

amelec Electronics GmbH

Company profile

OUR MISSION:

"Develop and supply high-quality capacitors, providing all the customers with full assistance from the design through the delivery.
We will take care to any particular needs that the customer may have."

Established in 1946, ICAR has rapidly reached, and since then maintained, a leadership position in the research and development of new capacitors and components of which capacitors are key parts.
In the early 60's, first in the world, ICAR started the production of metallized polypropylene film capacitors, by developing the film metallization by its own.
ICAR group nowadays controls all the manufacturing phases of the capacitor: from the polypropylene film extrusion through its metallization, to the production of the finished capacitor.
The know-how accrued in almost 50 years of metallized film production, has enabled ICAR to bring to the market innovative products.
Today ICAR Group is a leader in the production of capacitors, both for power electronics applications and for low and medium voltage power factor correction.

ICAR Group today offers a wide range of products, all manufactured at its 6 plants located in Europe, that includes:

- power electronics and special capacitors
- lighting capacitors
- motor run capacitors
- Power Factor Correction capacitors and Systems
- L.V. and M.V. voltage stabilizers
- transformers and chokes

Icar group product range

POWER ELECTRONICS AND SPECIAL CAPACITORS

Polypropylene film capacitors for:

- DC link input filter both for industrial and traction inverters (LNK series and BIOENERGY D series)
- AC filter for inverters and UPS (MKV, MKP series)
- snubber capacitors for semiconductors (THY and MKV series)
- all purpose AC and DC capacitors (MKV, MKP and BIOENERGY A series)
- medium frequency furnaces (BIOFURN Series) and medical application
- special capacitors for energy storage

M.V. PFC CAPACITORS AND BANKS

Wide range of M.V. power capacitors, with powers from 50 to 800 kvar, available in single and three phase versions, up to 24 kV rated voltage.
Capacitor banks up to 150 kV both for indoor and outdoor installation can be supplied on customer need.

LIGHTING CAPACITORS

ICAR series of lighting capacitors are suitable for parallel and series power factor correction applications in both fluorescent and discharge light fittings.
Moreover Plastic Case Type A and Metal Case Type B capacitors can be equipped with a wide range of fixing devices and terminals options. ENEC and UL approvals certify that ICAR lighting capacitors are in compliance with the latest standards and assures customers of an ICAR product with high levels of quality and reliability.

MOTOR RUN CAPACITORS

ICAR motor run capacitor product range is one of the largest on the market.
The polypropylene film capacitors are available for different levels of voltage from 250V up to 500V with long life ratings up to 30.000 hours.
The variety of terminations and fixings shown in our catalogue gives the possibility to use these capacitors in any kind of application.
The special design of ICAR capacitors distinguishes these components both for their quality and for their reliability.
IMQ, VDE and UL approvals guarantee the ICAR motor capacitor range meets with international standards.

POWER CAPACITORS AND PFC CONTROLLERS

Aluminium can three phase capacitors of the CRT range are available for voltages from 230V to 800V and reactive powers ranging from 1 to 40 kvar.
Power Factor Correction Controllers of 5 to 12 steps, enjoys features like incorporated temperature sensors and control, alarms and protection functions.

PFC SISTEMS AND HARMONIC FILTERS

Range is complete of fix and automatic LV power factor correction systems, standard and detuned, active and passive harmonic absorption filters.
All of automatic systems have undergone type tests at International Laboratories

VOLTAGE STABILISERS

Electrodynamics and static voltage stabilisers, single-phase and three-phase, LV and MV from 1 up to 4000kVA with microprocessor control system. Electrodynamics line conditioners, single-phase and three-phase, LV and MV from 1 up to 2000kVA with microprocessor control system.

TRANSFORMERS AND CHOKES

Single-phase and three-phase MV and LV Electric Transformers for galvanic isolation, UPS and rectifiers. Epoxy resin MV Transformers for distribution and rectifiers.
Single-phase and Three-phase MV and LV reactors and chokes for power correction system and AC/DC filters.

www.amelec.ch
amelec Electronic GmbH

Quality policy

ICAR, a synonym for capacitor since 1946, has always considered the quality and the effectiveness of its internal processes as a key-factor in the company strategy.
The compliance with International Standards has always been kept as a fundamental reference for offering products and processes which completely match customers' requirements and expectations.
ICAR Quality System is certified according to EN ISO 9001:2008 standard and for the products used in railways applications according to IRIS standard.
ICAR representatives are members of the most important international standard committees, in charge for issuing the reference standards for the capacitor industry.
In order to comply with the international regulations and with the most severe customers acceptance criteria, products are submitted to tests both in the internal laboratories and in the most important internationally recognized laboratories.

Selection rules and definitions

SELECTION RULES

VOLTAGE

Select a capacitor with surge peak voltage (U_S), rated voltage (U_N) and max ripple voltage (U_{rms}) higher than the operating ones.

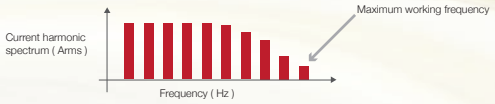
Consider that:
- rated DC voltage of the capacitor (U_N) shall be higher than the sum of operating dc voltage + operating ripple peak voltage
- rms ripple voltage shall be lower than 10% of the rated voltage U_N, and it shall not exceed 150V_{rms}

It is possible, within certain limits, to work above the rated voltage but this reduces the expected life of the capacitor.

CURRENT

Select a capacitor with maximum current I_{max}, higher than the operating current I_{rms}

Consider that:
- a thermal check shall be performed in order to verify that the chosen capacitor does not exceed the max operating temperature at operating I_{rms}
- for each family, the I_{max} has been calculated for a well defined $\vartheta_h - \vartheta_0$.
  The dielectric losses (Q tan δ_0) have not been considered and the harmonic spectrum is supposed to be made of different frequency components ending up to the specified maximum working frequency. I_{max} should not be considered totally concentrated at the maximum working frequency.



THERMAL CHECK

Double check the expected working temperature of the capacitor in your application.

Consider that:
the hot spot temperature can be estimated as follows:
$\vartheta_h = R_{th} * P + \vartheta_0$

the total dissipated power can be calculated as follows:
$P = Q \tan \delta_0 + R_S I^2_{rms}$

During stationary operation ϑ_h must not exceed the maximum hot spot temperature given in this catalogue for each families of capacitors.
At rated duty and hot spot temperature of 70°C (65°C for LNK-M3, LNK-M2 and LNK-P3 series) the expected lifetime is 100.000 hours with a statistical failure rate of 300FIT (97% survival).

WARNING

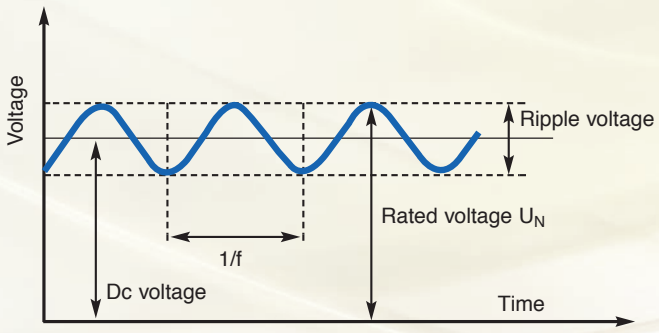
The thermal check is based on the hypothesis that the heat generated into the capacitor is transmitted to the environment through the case surface. Possible localised overheating (poor connections, hot components in the nearby as other capacitors, operation with high harmonics frequency etc.) would bring the capacitor to a dramatic failure or to a reduction of the expected life.
Special tests by means of thermocouples should be performed to be sure that the maximum hot spot temperature is not exceeded even under the most critical ambient circumstances. Capacitors with thermocouples can be supplied on request.

DEFINITIONS

C_N	Rated Capacitance measured at 20°C.
U_N	Maximum operating peak voltage of either polarity of a non reversing type waveform for which the capacitor has been designed for continuous operation.
U_{rms}	Rated rms ripple voltage = 0.1 x U_N max (max 150 V_{rms})
U_S	Surge (not repetitive) peak voltage
U_I	Rated insulation voltage. Rms value of the AC voltage for which the terminal to case insulation has been designed and tested
I_{MAX}	Maximum rms current value for continuous operation
Clearance	Shortest distance in air between terminals conducting parts or between terminal and case
Creepage	Shortest distance along an insulated surface between terminals conducting parts or between terminal and case
Q	Reactive power = $2 \times \pi \times f \times C \times U^2_{rms}$
f	Frequency of the ripple voltage
R_S	Series resistance representing the sum of all ohmic resistances in the capacitor. Rs is a typical estimated value based on average film metallization parameters.
ESR	Equivalent Series Resistance defined as ESR = R_S + tan δ_0 /(2 x π x f x C)
tan δ_0	Dielectric dissipation factor. It can be considered constant in the normal working frequency range. Typical value for polypropylene is 2×10^{-4}
tan δ	Dissipation factor calculated as follows: tan δ_0 + 2 x π x f x C x R_S
dv/dt	Maximum slope of the voltage waveform
I_{PK}	Peak current I_{PK} = C dV/dt
P	Active power (losses)=Q x tan δ_0+R_s x I^2_{rms}

R_{th}	Thermal resistance between the hot-spot in the winding and the environment (natural cooling), so that: $P=(\vartheta_h - \vartheta_0)/R_{th}$ In case of forced air cooling the thermal resistance will be reduced of 20%. R_{th} is a global parameter that doesn't consider localized overheating due to high frequency current.
ϑ_h	Hottest point in the capacitor winding = R_{th} x P+ϑ_0
ϑ_0	Operating ambient temperature. It is the air temperature measured under steady conditions at 0,1m from the capacitor case and at two-thirds of the height from its base.
Tc	Temperature coefficient of capacitance. The coefficient is equal to –260 ppm/°C
Ln	Expected life at rated voltage U_N and hot-spot temperature of 70°C (65°C for LNK-M3, LNK-M2 and LNK-P3 series)
L	Expected life at the actual working conditions
L_S	Self inductance of the capacitor. It is due to the internal connections, terminals, winding characteristics and physical dimensions.
λ	Failure rate (FIT) = 10^9 x failures/component x hour

Graphical meaning of rated voltage U_N and peak to peak ripple voltage



The maximum allowed rms ripple voltage has to be lower than 10% of the rated voltage U_N (max 150V_{rms})

Technical Information

Ratings
Capacitance tolerance: ±10%, ±5% on request
Useful life: 100.000 hrs at 70°C hot-spot and U_N
Failure rate: 300FIT (97% survival) at 70°C hot-spot and U_N

For LNK-M3, LNK-M2 and LNK-P3 series:
Useful life: 100.000 hrs at 65°C hot-spot and U_N
Failure rate: 300FIT (97% survival) at 65°C hot-spot and U_N

Application
Expressly designed for operation with direct voltage

Environmental conditions
Operating temperature
ϑ_{min} =-25°C, ϑ_{max} =+70°C
ϑ_{max} temperature of the hottest point on the case at which the capacitor may operate
ϑ_{min} minimum operating ambient temperature at which the capacitor may operate

Storage temperature
ϑ_{min} =-40°C, ϑ_{max} =+85°C
ϑ_{max} maximum ambient temperature at which the capacitor may be continuously maintained non-operating
ϑ_{min} minimum ambient temperature at which the capacitor may be continuously maintained non-operating

Humidity class
Class F Max relative humidity: 75% annual on average, 95% 30 days per year, condensation not permitted

Design
The capacitor consists of metalized polypropylene windings filled with dry resin.
This technology gives many advantages:
- high DC voltage load capability
- high specific ratio capacitance to volume
- high capability to withstand surge currents
- very good self healig characteristics

Case material and resin
- Self extinguishing in accordance to UL 94 V0
- Capacitors families identified with simbol present low smoke and toxicity emission in accordance to UNI CEI 11170-3 “GUIDELINES FOR FIRE PROTECTION OF RAILWAY VEHICLES: ACCEPTABILITY LIMITS”

UL Approval
Capacitors families identified with simbol are UL approved:
UL file E191589


Certificate of Compliance

Underwriters Laboratories

ICAR SPA INDUSTRIA CONDENSATORI

VIA ISONZO 10,
20052 MONZA MI ITALY.

COMPONENT - CAPACITORS, CONSTRUCTION ONLY

Look for the UL Recognized Component Mark on the product


Certificate of Compliance

Underwriters Laboratories

ICAR SPA INDUSTRIA CONDENSATORI

VIA ISONZO 10,
20052 MONZA MI ITALY.

COMPONENT - CAPACITORS, CONSTRUCTION ONLY

Look for the UL Recognized Component Mark on the product

Environmental Compatibility
LNK series do not contain PCB and is manufactured in accordance to RoHS restrictions

Protection against accidental contact
All the capacitors are NOT protected against accidental contact

Discharge
All the capacitors are NOT provided with internal/external discharge device

Type of protection
Unprotected: no presence of overpressure disconnector/detector

Assembly/Cooling
The useful life of a capacitor can be dramatically reduced if exposed to excessive heat. In general, an increase in the ambient temperature of 7°C will halve the expected lifetime. Capacitors must be allowed to cool and should be shielded from external heat sources. Special tests by means of thermocouples should be conducted to be sure that the maximum hot spot temperature is not exceeded even under the most critical ambient circumstances. Capacitors shall not be placed near to heat source and a minimum clearance of 20mm between the capacitors shall be maintained

Overvoltages according to IEC 61071

Overvoltage	Maximum duration
1,1 x U_N	30% of on load duration
1,15 x U_N	30 min / day
1,2 x U_N	5 min / day
1,3 x U_N	1 min /day
1,5 x U_N	30 ms, no more than 1000 times in the lifetime

Mounting position

LNK capacitors shown in this catalogue can operate in any position without restrictions.

Failure criteria

Capacitors are considered failed when one of the following conditions happens:

a. short circuit
b. open circuit
c. capacitance reduction higher than 3% of the initial value
d. tan δ increase over 3 times the initial value

Please contact ICAR Tech. Dept. in case of doubt

Routine dielectric tests

The performed tests before delivery are the following:

- capacitance and tan δ measurement
- D.C. voltage test between terminals (1.5 U_N for 10s)
- A.C. voltage test between terminals and case 1.414 x U_N + 1000V for 10s but not less than 2000 V

Risk of Esplosion and Fire

Capacitors consist mainly of polypropylene film.
The film may ignite as a result of internal fault or external overload. Appropriate measures should be ensured to avoid any risk of hazard in the event of failure.
FIRE LOAD: 46MJ/kg
EXTINGUISH WITH: solid extinguish agent, CO2, foam

Reference standard

IEC 61071

Storage and handling

We suggest not to keep the capacitors stored for more than 6 years.
After 1 years of storage, we recommend before energizing a preliminary measurement of capacitance and dissipation factor.
Polypropylene film capacitors do not need to be energized before using (polypropylene film capacitor do not need reforming process as for electrolytic one).

Storage condition to be respected are the following:

- relative humidity: 75% annual on average
- maximum relative humidity: 95%, 30 days per year
- condensation: not permitted
- minimum storage temperature: -40°C
- maximum storage temperature: +85°C

Capacitors shall be stored indoors packed.
Do not store capacitors in corrosive atmosphere (as example it is not allowed the presence of chloride and sulphide gas, acid, alkali, salt or equivalent substances).
Move packed capacitors with care, especially when using a fork lift truck. Do not strain connectors.
The theoretical expected life time curves given in “Operating Life pag.7” are not applicable after 2 years storage.

Maintenance

Before any operation, disconnect the capacitor or the bank, wait 5 minutes, short-circuit and earth the terminals.
Do not touch any capacitor terminal if not previously short circuited and earthed.
Periodical checks and inspections are required to ensure reliable operations: disregarding the following basic maintenance rules may result in severe operation, bursting and fire.

Two weeks after installation

- current measurement in the capacitors and comparison with the nominal one. In case of difference from the nominal value, check the capacitors and the application where they are installed
- check the tightness of the connection and terminals. This operation is always required before the start up

Periodically* (at least every year)

- visual inspection in order to check mechanical deformation;
- clean the bushings and terminal boards to avoid short circuit due to dust or contaminants
- check the temperature in the cabinet where the capacitors are installed. An increase of temperature could be an indication of reduced efficiency of the cooling systems due to dust and other contaminants
- current measurement in the capacitors and comparison with the nominal one. In case of difference from the nominal value, check the application where they are installed
- check the surface temperature of energized capacitors. In case of excessive temperature is recommended to replace the capacitor. This could be due to an increase of loss angle which is an indication of reached end of life
- check the tightness of the connection and terminals
- perform a C and tan δ measurement. In case of capacitance reduction higher than 3% of the initial value or in case of tan δ increase over 3 times the initial value, capacitors shall be replaced

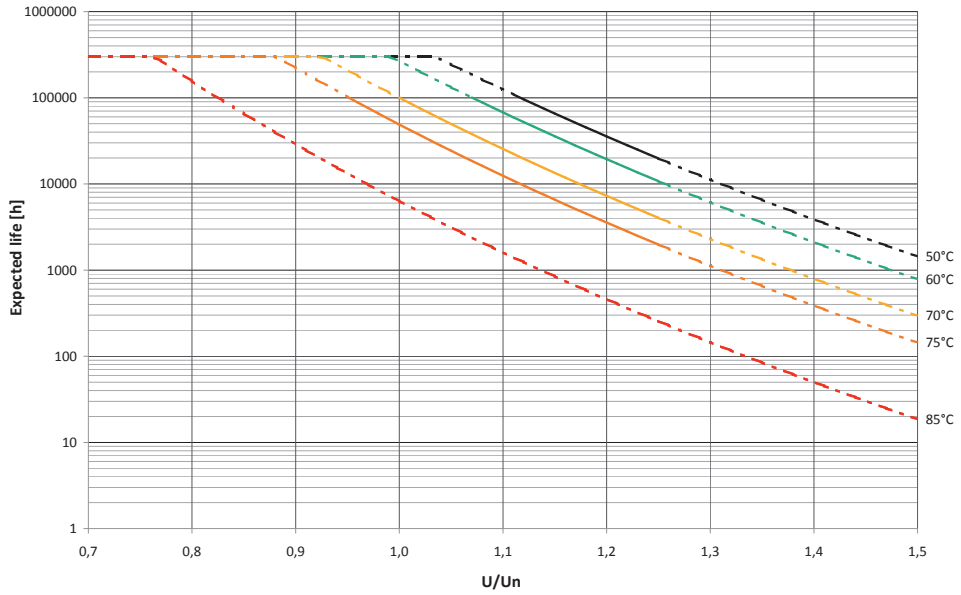
** maintenance schedule has to be established according to the specific operating conditions (for instance, in a polluted environment cleaning should be more frequent) and to the total safety requirement of the whole equipment where they are installed.*

Operating Life

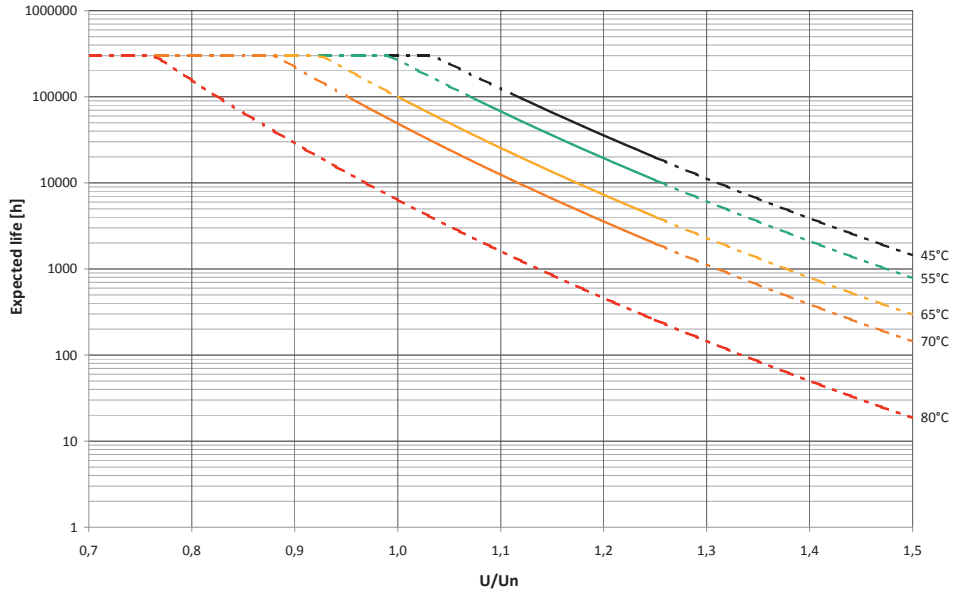
The lifetime of a capacitor depends on the hot spot temperature and on the field strength in its dielectric during operation. The capacitors have been designed for an average probable service life of 100.000hrs at rated duty (voltage, temperature and frequency).
During the life of the product the probable failure rate is 300FIT at rated duty (voltage, temperature and frequency).
Operating condition higher than the rated duty may increase the FIT rate. Failures are considered short circuits, interruptions, capacitance drifts. Lifetime is a statistical value calculated on the basis of experience and on theoretical evaluations.
It does not have an absolute value and it is not possible to transfer automatically data coming from a limited quantity of capacitors to a whole population or even to a single batch of capacitors.
The following diagrams show the correlation between useful life, hot spot temperature and operating voltage.
The diagrams should be considered only as a theoretical reference.
Dashed lines underline an high degree of uncertainty in case of voltage and hot temperature far from the rated ones, whose effect is a wide scattering in the experimental data. Please consult our technical department in case of working condition different from the rated ones.

Theoretical expected life time vs voltage and hot spot temperature

APPLICABLE FOR LNK-P1X, P2X, P2Z, P2L, P2T, P4X, P5X, P6X, P7X, P8X, P9X OF THIS CATALOGUE

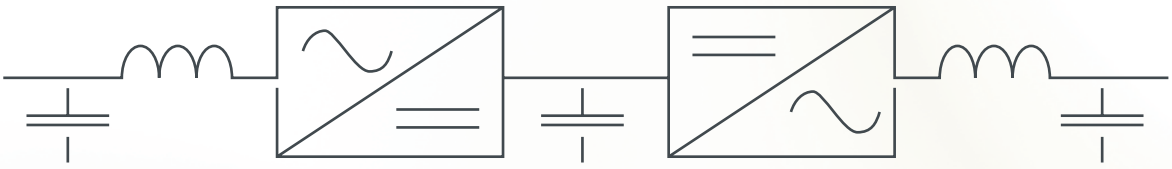


APPLICABLE FOR LNK-M3, LNK-M2 AND LNK-P3X OF THIS CATALOGUE



LNK Series

THE EFFECTIVE WAY TO REPLACE ELECTROLYTIC CAPACITORS



LNK SERIES
DC LINK
CAPACITORS

KEY POINTS

- COMPACT DESIGN
- LOW LOSSES
- HIGH RIPPLE CURRENT
- DRY TECHNOLOGY I.E. NO LEAKAGE PROBLEMS
- SELF EXTINGUISHING RESINS AND PLASTICS ACCORDING TO UL94
- RESINS AND PLASTICS IN ACCORDANCE TO UNI CEI 11170-3 “Guidelines for fire protection of railway vehicles: acceptability limits”

ADVANTAGES OF LNK CAPACITORS AGAINST ELECTROLITYC CAPACITORS

A typical industrial converter basically consists of an AC/DC section (to convert the AC voltage of the grid into a DC voltage) and a DC/AC section either at variable frequency (motor drive) or fixed frequency (generators or UPS).
These two parts are connected through a DC bus (link circuit) where capacitors are required in order to filter the high frequency components (DC Link Capacitors).

Most important requirements for these capacitors are:
- capability to withstand high currents at frequencies above 1000 Hz
- high energy density (Joule/dm^3)

Electrolytic Capacitors banks are used up to a voltage of 2000V, but their limits are:
- maximum working voltage across each capacitor limited to about 450÷500V
- maximum current, especially at high frequency, limited by the high ESR (Equivalent Series Resistance) typical of this technology.

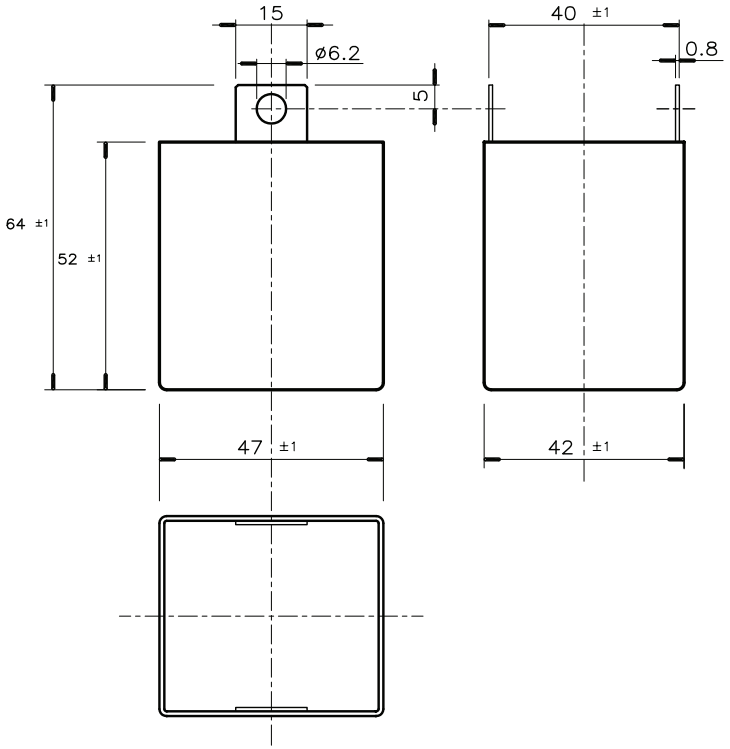
For these reasons, in general, Electrolytic Capacitors have to be connected in series/parallel to form banks able to withstand the voltages and the currents required by the application.

Polypropylene film capacitors are able to overcome these limits and **in most cases they are able to replace favourably electrolytic capacitors** in applications where the voltage is above 500Vdc.

Main advantages of Metallized Film Capacitor are:
- high current per capacitance (A/µF)
- high voltage per element
- high capability to withstand overvoltages up to 2 times the rated voltage
- more than 10 years estimated lifetime in the temperature range -25/+70°C
- easy connections and low equivalent inductance
- non polar dielectric
- no leakage of dangerous or poisonous electrolytes

Case Cross Reference Table

Capacitance C (µF)	Rated DC Voltage Un (V)						
	500-1000	1000-1500	1500-2000	2000-2500	2500-3000	3000-4000	4000-5000
0-50	P1X P6X	P1X P2L P2X P2T P2Z P6X	P1X P2L P2X P2T P2Z P6X				P4X
50-100	P2X P6X P2Z M3..2	P2X P2T P2Z P3X P2L P6X	P3X M3..2			P4X	
100-150	P2X P6X P2Z M3..1 P2L M3..2 P2T M2..1	P3X	P3X M3..1 M3..2 M2..1			P9X	
150-200	P3X M3..2 M3..1 M2..1	P3X M3..2	P7X M3..2 P8X M2..1 M3..1 M2..2		P4X P9X		
200-250	P2L M3..1 P2T M3..2 P3X M2..1	P3X M2..1 M3..1 M2..2 M3..2	M3..1 M2..2 M3..2 M2..1	P4X	P9X		
250-300	P3X M2..1 M3..1 M3..2	P3X M3..2 P7X M2..1 M3..1 M2..2	M3..1 M2..2 M3..2 M2..1	P4X P9X		P5X	
300-350	M3..1 M3..2 M2..1	P3X M3..2 P8X M2..1 M3..1	P4X M2..1 M3..1 M2..2 M3..2	P9X			
350-400	P3X M3..2 M3..1 M2..1	P3X M3..2 P7X M2..2	P9X M2..1 M3..1 M2..2 M3..2			P5X	
400-450	M3..1 M3..2 M2..1	P3X M3..2 P8X M2..1 M3..1 M2..2	P4X M3..2 M2..1				
450-500	P3X M2..1 M3..1 M2..2 M3..2	P4X M3..2 P7X M2..1 M3..1 M2..2	P9X M3..1 M2..1		P5X	P5X	
500-600	P3X M3..2 P7X M2..1 M3..1 M2..2	P8X M2..1 M3..1 M2..2 M3..2	M3..1 M2..1				
600-700	P3X M3..2 P8X M2..1 M3..1 M2..2	P3X M3..2 P4X M2..1 M3..1	P9X M3..1 M2..1	P5X	P5X		
700-800	P3X M3..2 P7X M2..1 M3..1 M2..2	P4X M2..2 M3..1 M3..2	M3..1 M2..1				
800-900	P3X M3..2 P8X M2..1 M3..1	P4X M3..2 P9X M2..1 M3..1 M2..2		P5X			
900-1000	M3..1 M2..1 M3..2 M2..2	P4X M3..2 M3..1 M2..1	P5X	P5X			
1000-1500	P3X M3..1 P4X M3..2 P7X M2..1 P8X M2..2	P4X P9X M3..1 M2..1	P5X				
1500-2000	P4X M3..2 P9X M2..1 M3..1	P5X M3..1 M2..1	P5X				
2000-4000	P4X M2..1 P9X M3..1	P5X					
4000-8000	P5X						
8000-10000	P5X						



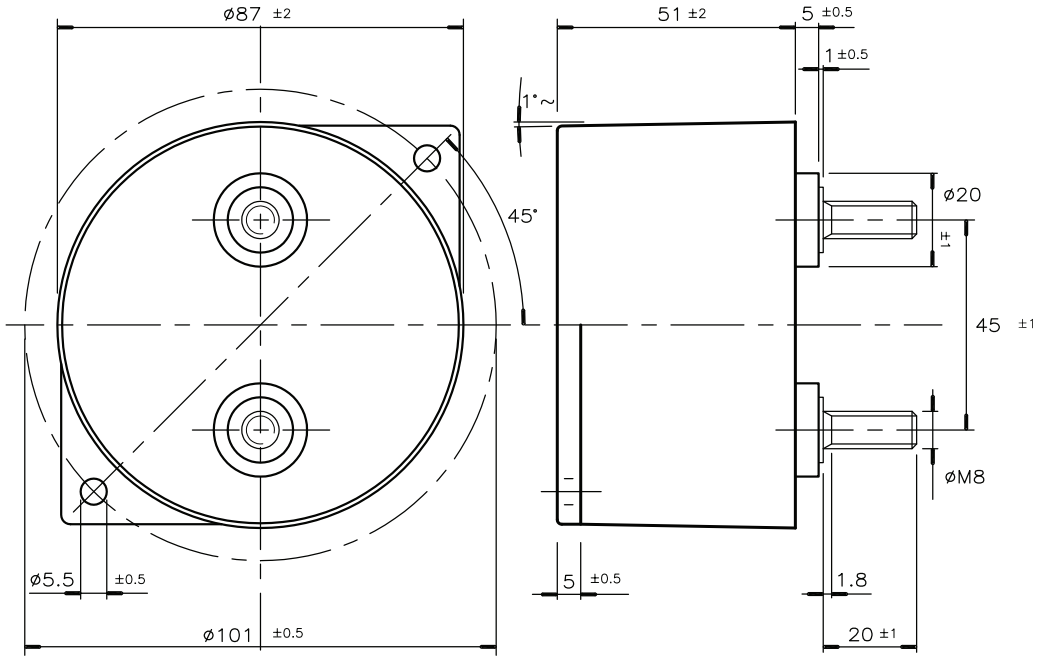
LNK – P1X

In accordance to UNI CEI 11170-3

- VERY LOW INDUCTANCE
- SMALL SIZE

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage between terminals (mm)	Clearence (mm)	Weight (Kg)	Box qty (pcs)
LNK-P1X-45-70	**45**	700	**1400**	40	**1500**	15	**1,40**	12,8	**40**	36	**36**	0,15	**49**
LNK-P1X-30-90	**30**	900	**1800**	35	**1300**	15	**1,70**	12,8	**40**	36	**36**	0,15	**49**
LNK-P1X-25-100	**25**	1000	**2000**	35	**1300**	15	**1,80**	12,8	**40**	36	**36**	0,15	**49**
LNK-P1X-22-110	**22**	1100	**2200**	35	**1200**	15	**1,90**	12,8	**40**	36	**36**	0,15	**49**
LNK-P1X-16-125	**16**	1250	**2500**	30	**1000**	15	**2,28**	12,8	**40**	36	**36**	0,15	**49**
LNK-P1X-10-145	**10**	1450	**2900**	25	**700**	15	**3,00**	12,8	**40**	36	**36**	0,15	**49**
LNK-P1X-7,5-180	**7,5**	1800	**3600**	20	**700**	15	**3,25**	12,8	**40**	36	**36**	0,15	**49**

- In case of doubt regarding the full current maximum working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention)
- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 UN x 10 s, AC voltage test between terminals and case = 3500V x 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 30°C (for more details see “Selections rules and definitions”)



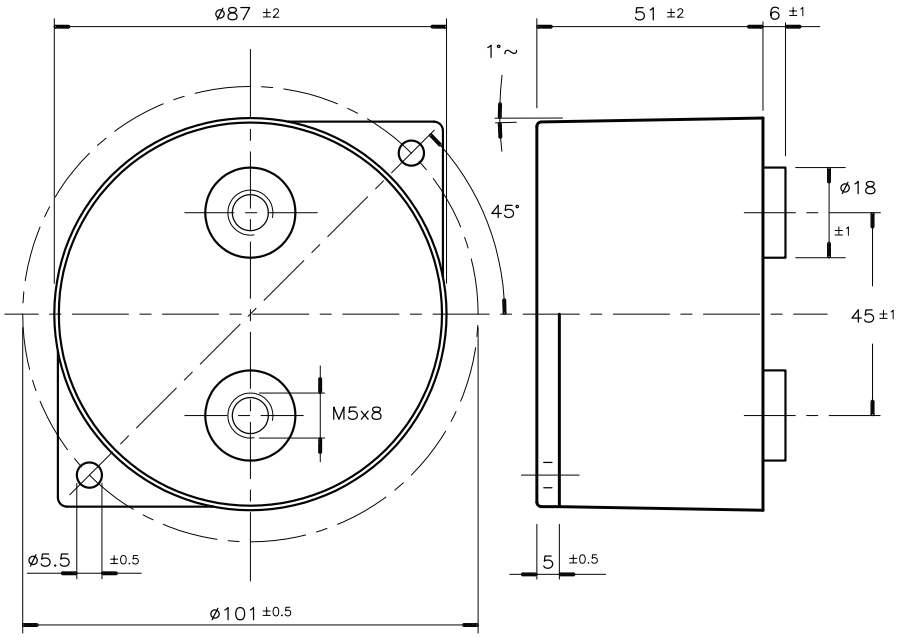
LNK – P2X

ULfile: E191589 In accordance to UNI CEI 11170-3

- HIGH CURRENT
- OPTIMIZED FOR HEATSINK MOUNTING

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage between terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P2X-150-70	**150**	700	**1400**	85	**5300**	<30	**0,4**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2X-100-90	**100**	900	**1800**	75	**4500**	<30	**0,55**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2X-80-100	**80**	1000	**2000**	70	**4000**	<30	**0,6**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2X-70-110	**70**	1100	**2200**	70	**3800**	<30	**0,65**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2X-50-125	**50**	1250	**2500**	65	**3200**	<30	**0,75**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2X-40-145	**40**	1450	**2900**	60	**2900**	<30	**0,8**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2X-25-180	**25**	1800	**3600**	55	**2300**	<30	**1**	10	**10**	28	**28**	10	**2**	0,45	**16**

- In order to decrease the thermal resistance, the capacitor should be installed on a heatsink through an heat conductive paste.
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention)
- In case of doubt regarding the full current maximum working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 3500V x 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 30°C (for more details see “Selections rules and definitions”)



LNK – P2Z

ULfile: E191589 In accordance to UNI CEI 11170-3

- HIGH CURRENT
- OPTIMIZED FOR HEATSINK MOUNTING
- FEMALE CONNECTOR

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage between terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P2Z-150-70	**150**	700	**1400**	85	**5300**	<30	**0,4**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2Z-100-90	**100**	900	**1800**	75	**4500**	<30	**0,55**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2Z-80-100	**80**	1000	**2000**	70	**4000**	<30	**0,6**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2Z-70-110	**70**	1100	**2200**	70	**3800**	<30	**0,65**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2Z-50-125	**50**	1250	**2500**	65	**3200**	<30	**0,75**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2Z-40-145	**40**	1450	**2900**	60	**2900**	<30	**0,8**	10	**10**	28	**28**	10	**2**	0,45	**16**
LNK-P2Z-25-180	**25**	1800	**3600**	55	**2300**	<30	**1**	10	**10**	28	**28**	10	**2**	0,45	**16**

- In order to decrease the thermal resistance, the capacitor should be installed on a heatsink through an heat conductive paste.
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- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 3500V x 10 s
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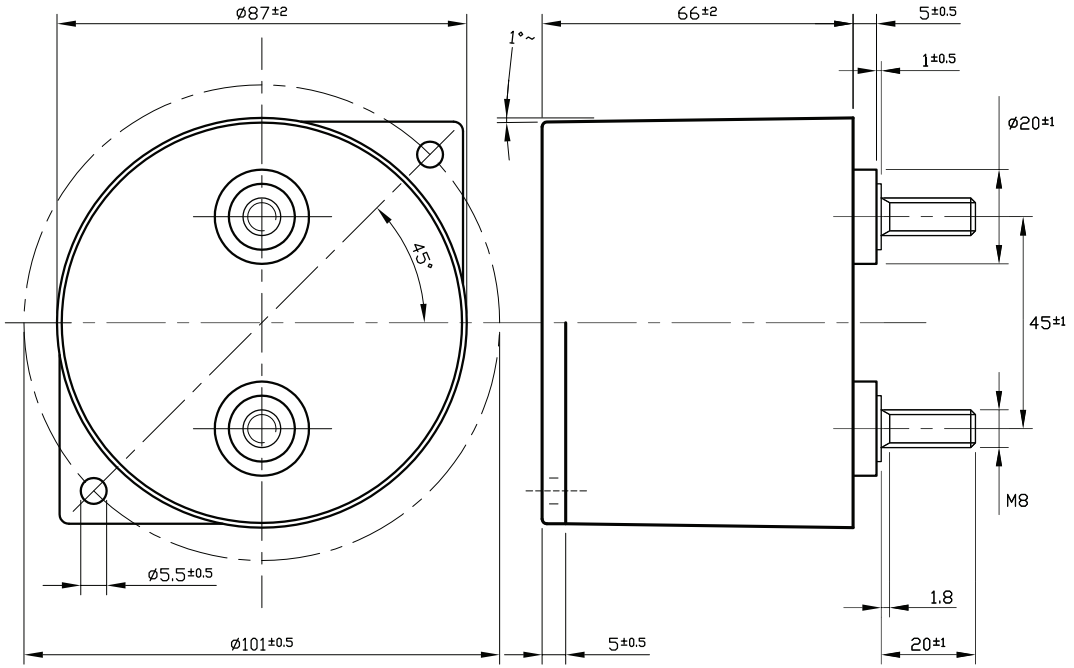

LNK – P2L

ULfile: E191589 In accordance to UNI CEI 11170-3

- HIGH CURRENT
- OPTIMIZED FOR HEATSINK MOUNTING

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency R_{thn} (°C/W)	Creepage between terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P2L-240-70	**240**	700	**1400**	60	**5600**	40	**1**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2L-150-90	**150**	900	**1800**	55	**4400**	40	**1,1**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2L-100-100	**100**	1100	**2200**	50	**3600**	40	**1,3**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2L-75-125	**75**	1250	**2500**	45	**3100**	40	**1,5**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2L-50-145	**50**	1450	**2900**	45	**2400**	40	**1,6**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2L-35-180	**35**	1800	**3600**	40	**2100**	40	**2**	8,75	**10**	28	**28**	10	**2**	0,55	**16**

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- In case of doubt regarding the full current maximum working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
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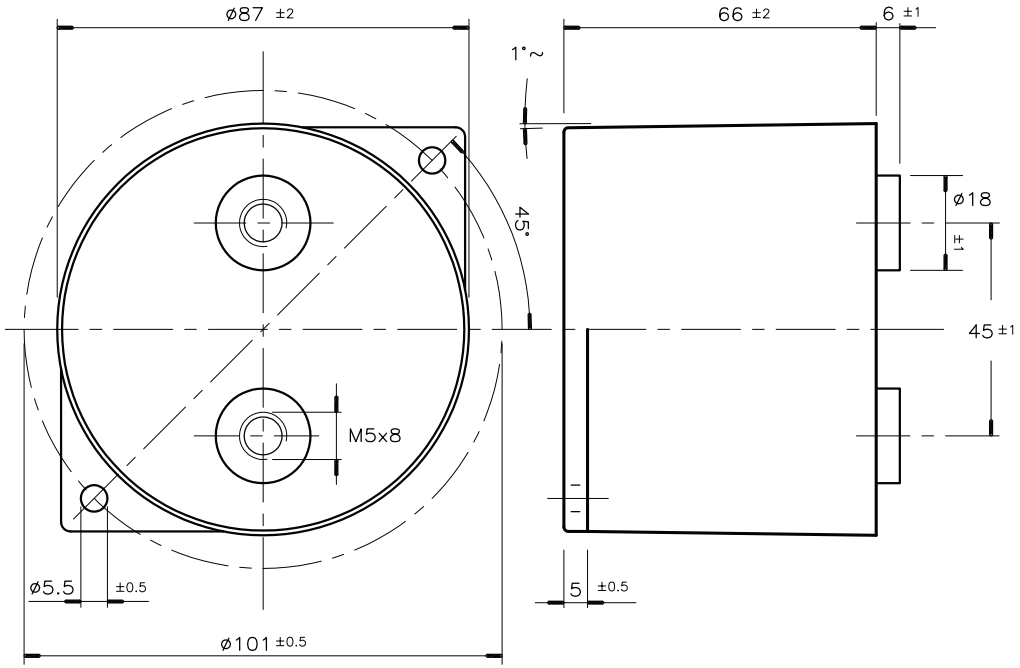

LNK – P2T

ULfile: E191589 In accordance to UNI CEI 11170-3

- HIGH CURRENT
- OPTIMIZED FOR HEATSINK MOUNTING
- FEMALE CONNECTOR

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency R_{thn} (°C/W)	Creepage between terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P2T-240-70	**240**	700	**1400**	60	**5600**	40	**1**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2T-150-90	**150**	900	**1800**	55	**4400**	40	**1,1**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2T-100-100	**100**	1100	**2200**	50	**3600**	40	**1,3**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2T-75-125	**75**	1250	**2500**	45	**3100**	40	**1,5**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2T-50-145	**50**	1450	**2900**	45	**2400**	40	**1,6**	8,75	**10**	28	**28**	10	**2**	0,55	**16**
LNK-P2T-35-180	**35**	1800	**3600**	40	**2100**	40	**2**	8,75	**10**	28	**28**	10	**2**	0,55	**16**

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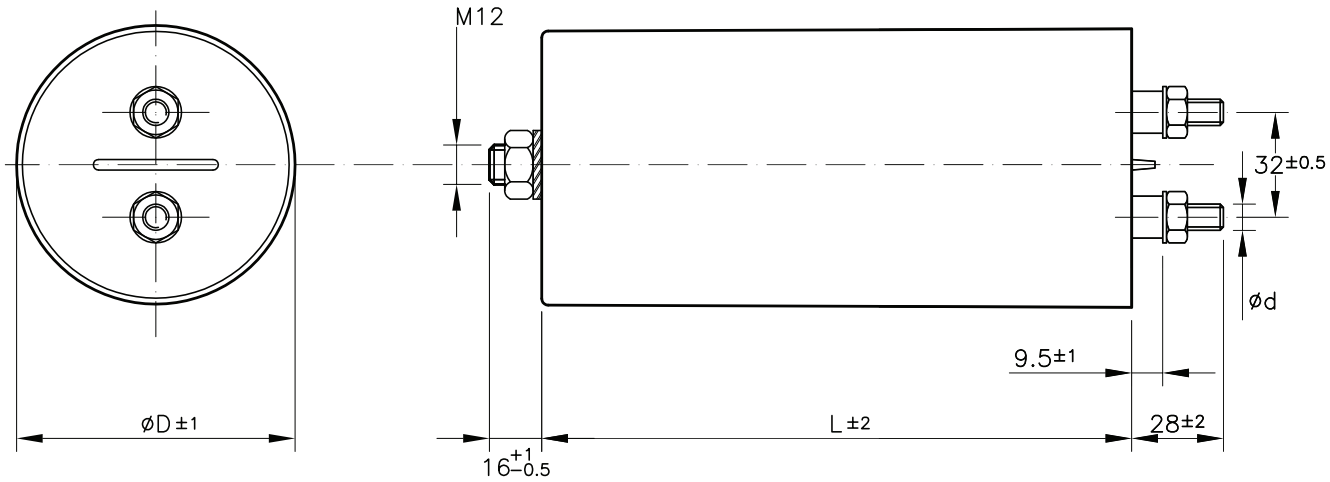

* Diameter 60mm available only with screw terminals

LNK – P3X

ULfile: E191589 In accordance to UNI CEI 11170-3

- MECHANICAL LAYOUT OPTIMIZED TO EASY REPLACE ELECTROLYTIC CAPACITORS
- ALSO AVAILABLE WITH THREADED HOLE TERMINALS, ON REQUEST

D (mm)	Creepage (mm)	Clearence (mm)	Screw terminals d	Tightening fixing stud (Nm)	Torque terminals (Nm)
60	30	**19,5**	M6	**10**	6
75	30	**19,5**	M6	**10**	6
85	30	**19,5**	M8	**10**	6
100	30	**19,5**	M8	**10**	10

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-P3X-260-70	**260**	700	**1050**	25	**1200**	65	**5,3**	6,1	**5**	0,5	**60***	140	**36**
LNK-P3X-400-70	**400**	700	**1400**	40	**3400**	75	**2,7**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-470-70	**470**	700	**1050**	35	**2200**	65	**3,1**	5,9	**5**	0,75	**75**	140	**16**

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MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-P3X-540-70	**540**	700	**1050**	35	**2200**	75	**3,0**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-640-70	**640**	700	**1050**	40	**3000**	65	**2,4**	5,7	**5**	0,9	**85**	140	**16**
LNK-P3X-750-70	**750**	700	**1400**	55	**6400**	75	**1,6**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-1050-70	**1050**	700	**1050**	50	**4200**	75	**1,6**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-220-90	**220**	900	**1350**	25	**1100**	65	**5,7**	6,1	**5**	0,5	**60***	140	**36**
LNK-P3X-250-90	**250**	900	**1800**	40	**2700**	75	**2,3**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-400-90	**400**	900	**1350**	35	**2000**	65	**3,3**	5,9	**5**	0,75	**75**	140	**16**
LNK-P3X-460-90	**460**	900	**1350**	35	**2000**	75	**3,2**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-500-90	**500**	900	**1800**	55	**5500**	75	**1,9**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-540-90	**540**	900	**1350**	40	**2800**	65	**2,5**	5,7	**5**	0,9	**85**	140	**16**
LNK-P3X-890-90	**890**	900	**1350**	45	**4000**	75	**1,7**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-200-100	**200**	1000	**2000**	40	**2500**	75	**3,3**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-400-100	**400**	1000	**2000**	50	**5000**	75	**2,0**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-160-110	**160**	1100	**1650**	25	**1000**	65	**6,5**	6,1	**5**	0,5	**60***	140	**36**
LNK-P3X-190-110	**190**	1100	**2200**	40	**2500**	75	**3,3**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-285-110	**285**	1100	**1650**	35	**1800**	65	**3,8**	5,9	**5**	0,75	**75**	140	**16**
LNK-P3X-325-110	**325**	1100	**1650**	30	**1800**	75	**3,8**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-350-110	**350**	1100	**2200**	50	**4600**	75	**2,2**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-385-110	**385**	1100	**1650**	35	**2300**	65	**2,9**	5,7	**5**	0,9	**85**	140	**16**
LNK-P3X-630-110	**630**	1100	**1650**	45	**3300**	75	**2,0**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-140-125	**140**	1250	**2500**	35	**2100**	75	**3,8**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-250-125	**250**	1250	**2500**	45	**3800**	75	**2,5**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-105-130	**105**	1300	**1950**	20	**800**	65	**8,0**	6,1	**5**	0,5	**60***	140	**36**
LNK-P3X-190-130	**190**	1300	**1950**	30	**1400**	65	**4,6**	5,9	**5**	0,75	**75**	140	**16**
LNK-P3X-220-130	**220**	1300	**1950**	30	**1400**	75	**4,5**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-260-130	**260**	1300	**1950**	35	**1900**	65	**3,4**	5,7	**5**	0,9	**85**	140	**16**
LNK-P3X-420-130	**420**	1300	**1950**	40	**2700**	75	**2,4**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-100-145	**100**	1450	**2900**	30	**1700**	75	**4,6**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-200-145	**200**	1450	**2900**	45	**3500**	75	**2,7**	5,5	**5**	1,4	**100**	155	**9**
LNK-P3X-66-180	**66**	1800	**3600**	30	**1400**	75	**5,6**	5,8	**5**	0,8	**75**	155	**16**
LNK-P3X-125-180	**125**	1800	**3600**	40	**2700**	75	**3,3**	5,5	**5**	1,4	**100**	155	**9**

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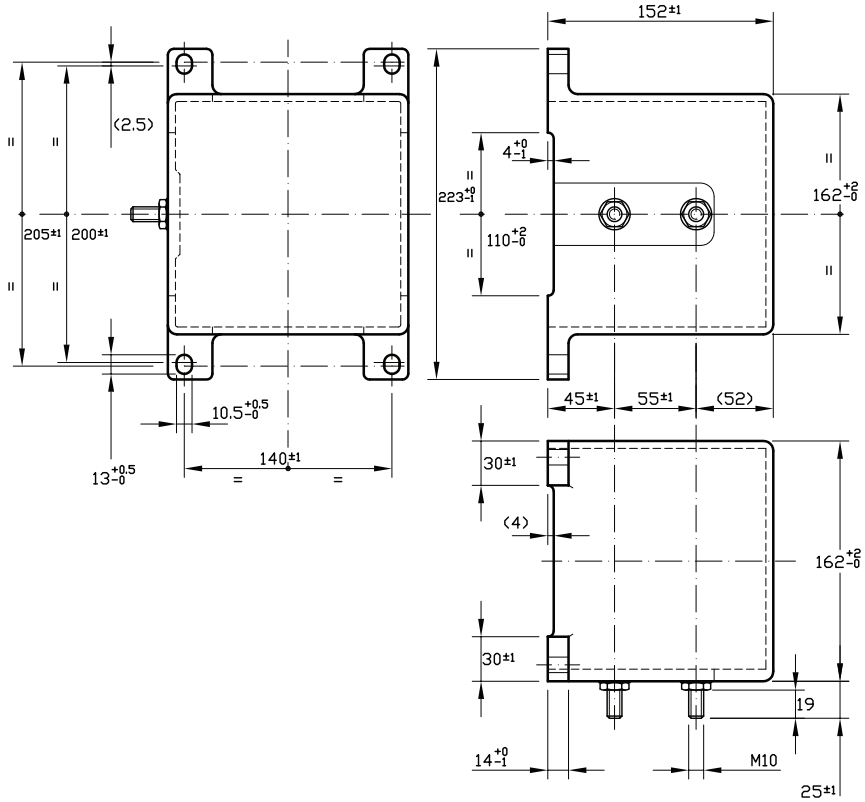
* Diameter 60mm available only with screw terminals



LNK – P4X

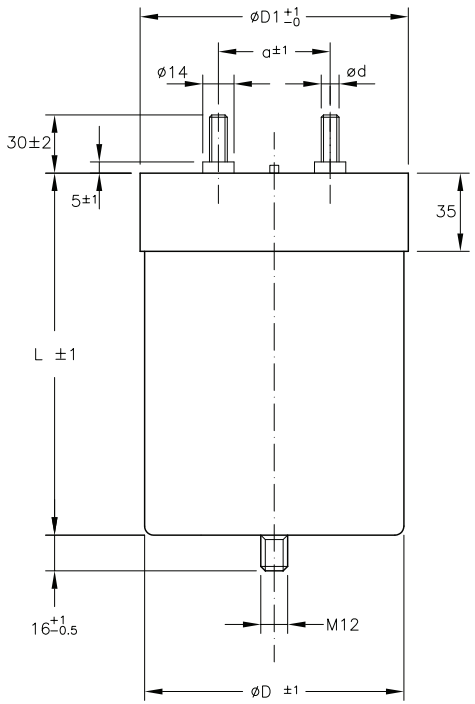
ULfile: E191589 In accordance to UNI CEI 11170-3

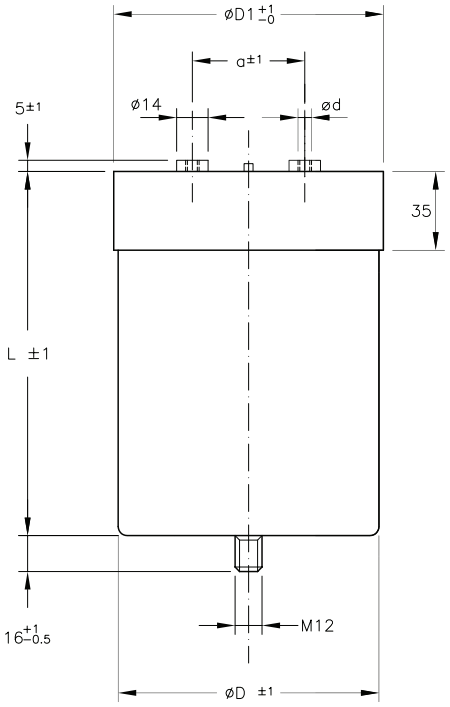
- HEAVY DUTY CONSTRUCTION

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal Resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage Between Terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P4X-2750-65	2750	650	975	120	10500	<30	0,62	2,75	15	47	35	20	8	5,2	4
LNK-P4X-2000-70	2000	700	1400	120	8800	<30	0,5	2,75	15	47	35	20	8	5,2	4
LNK-P4X-2350-80	2350	800	1200	120	10000	<30	0,65	2,75	15	47	35	20	8	5,2	4
LNK-P4X-1300-90	1300	900	1800	120	7200	<30	0,6	2,75	15	47	35	20	8	5,2	4

MODEL	Capacitance C(µF)	Rated DC Voltage U_N (V)	Peak Voltage U_S (V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls (nH)	Series Resistance Rs (mΩ)	Thermal Resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage Between Terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P4X-1500-90	**1500**	900	**1350**	110	**8000**	<30	**0,80**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-900-110	**900**	1100	**2200**	120	**6000**	<30	**0,7**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-1150-110	**1150**	1100	**1650**	105	**7000**	<30	**0,90**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-650-125	**650**	1250	**2500**	115	**5200**	<30	**0,8**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-1000-125	**1000**	1250	**1875**	100	**6500**	<30	**0,95**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-500-145	**500**	1450	**2900**	100	**8800**	<30	**0,9**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-730-145	**730**	1450	**2175**	95	**5500**	<30	**1,10**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-350-180	**350**	1800	**3600**	100	**7600**	<30	**1,1**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-430-180	**430**	1800	**2700**	85	**4000**	<30	**1,40**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-220-220	**220**	2200	**4400**	120	**8400**	<30	**0,7**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-265-220	**265**	2200	**3300**	105	**6800**	<30	**0,90**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-170-280	**170**	2800	**4200**	95	**5400**	<30	**1,10**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-55-400	**55**	4000	**8000**	60	**4200**	<30	**2,85**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-75-400	**75**	4000	**6000**	55	**3400**	<30	**3,25**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-20-500	**20**	5000	**10000**	50	**2300**	<30	**4,5**	2,75	**15**	47	**35**	20	**8**	5,2	**4**
LNK-P4X-50-500	**50**	5000	**7500**	50	**2600**	<30	**4,05**	2,75	**15**	47	**35**	20	**8**	5,2	**4**

- In case of doubt regarding the full current maximum working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention)
- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, voltage test between terminals and case = 8000V x 10s (terminals and fixing bolts)
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 30°C (for more details see “Selections rules and definitions”)





LNK – M3

ULfile: E191589 In accordance to UNI CEI 11170-3

- MECHANICAL LAYOUT OPTIMIZED TO EASY REPLACE ELECTROLYTIC CAPACITORS
- AVAILABLE BOTH WITH SCREW AND THREADED HOLES TERMINALS

Terminals selection	
M3**R**	**M6 threaded holes**
M3**S**	**M8 threaded holes**
M3**T**	**M6 screw terminals**
M3**U**	**M8 screw terminals**

D (mm)	D1 (mm)	a (mm)	Creepage between terminals (mm)	Clearence (mm)	Terminal Screw or Threaded hole	Torque fixing stud M12 (Nm)	Torque terminals M6/M8 (Nm)
116	**120**	**50**	**45**	**36**	M6/M8	**10**	**6/8**
85	**89**	**32**	**36**	**20**	M6/M8	**10**	**6/8**

LNK – M3...1 HIGH CURRENT

U_N: 700V U_s: 1050V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...1-560-70	560	70	6000	40	0,65	6,2	10	0,9	85	133	16
LNK-M3...1-710-70	710	70	6000	45	0,75	5,3	10	1,1	85	158	16
LNK-M3...1-870-70	870	70	6000	50	0,90	4,6	10	1,2	85	182	16
LNK-M3...1-1180-70	1180	70	6000	60	1,30	3,7	10	1,5	85	233	4
LNK-M3...1-1100-70	1100	100	12000	40	0,40	4,3	10	1,6	116	133	9
LNK-M3...1-1450-70	1450	100	12000	45	0,45	3,7	10	1,9	116	158	9
LNK-M3...1-1750-70	1750	100	12000	50	0,50	3,3	10	2,2	116	182	9
LNK-M3...1-2400-70	2400	100	12000	60	0,70	2,7	10	2,7	116	233	3
LNK-M3...1-2650-70	2650	100	12000	60	0,75	2,5	10	2,9	116	253	3
LNK-M3...1-3000-70	3000	100	12000	60	0,75	2,2	10	3,2	116	283	3

U_N: 900V U_s: 1350V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...1-470-90	470	70	5500	40	0,70	6,2	10	0,9	85	133	16
LNK-M3...1-605-90	605	70	5500	45	0,80	5,3	10	1,1	85	158	16
LNK-M3...1-740-90	740	70	5500	50	0,95	4,6	10	1,2	85	182	16
LNK-M3...1-1000-90	1000	70	5500	60	1,40	3,7	10	1,5	85	233	4
LNK-M3...1-950-90	950	100	11000	40	0,40	4,3	10	1,6	116	133	9
LNK-M3...1-1220-90	1220	100	11000	45	0,45	3,7	10	1,9	116	158	9
LNK-M3...1-1500-90	1500	100	11000	50	0,55	3,3	10	2,2	116	182	9
LNK-M3...1-2030-90	2030	100	11000	60	0,75	2,7	10	2,7	116	233	3
LNK-M3...1-2250-90	2250	100	11000	60	0,78	2,5	10	2,9	116	253	3
LNK-M3...1-2570-90	2570	100	11000	60	0,78	2,2	10	3,2	116	283	3

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M3...1 HIGH CURRENT

U_N: 1100V U_s: 1650V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...1-335-110	335	70	4700	40	0,75	6,2	10	0,9	85	133	16
LNK-M3...1-430-110	430	70	4700	45	0,90	5,3	10	1,1	85	158	16
LNK-M3...1-530-110	530	70	4700	50	1,05	4,6	10	1,2	85	182	16
LNK-M3...1-720-110	720	65	4700	60	1,55	3,7	10	1,5	85	233	4
LNK-M3...1-680-110	680	100	9400	40	0,45	4,3	10	1,6	116	133	9
LNK-M3...1-870-110	870	100	9400	45	0,50	3,7	10	1,9	116	158	9
LNK-M3...1-1065-110	1065	100	9400	50	0,58	3,3	10	2,2	116	182	9
LNK-M3...1-1450-110	1450	100	9400	60	0,85	2,7	10	2,7	116	233	3
LNK-M3...1-1600-110	1600	100	9400	60	0,85	2,5	10	2,9	116	253	3
LNK-M3...1-1850-110	1850	100	9400	60	0,85	2,2	10	3,2	116	283	3

U_N: 1300V U_s: 1950V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...1-225-130	225	65	3800	40	0,85	6,2	10	0,9	85	133	16
LNK-M3...1-290-130	290	65	3800	45	1,05	5,3	10	1,1	85	158	16
LNK-M3...1-350-130	350	65	3800	50	1,25	4,6	10	1,2	85	182	16
LNK-M3...1-480-130	480	60	3800	60	1,80	3,7	10	1,5	85	233	4
LNK-M3...1-455-130	455	100	7700	40	0,50	4,3	10	1,6	116	133	9
LNK-M3...1-585-130	585	100	7700	45	0,55	3,7	10	1,9	116	158	9
LNK-M3...1-710-130	710	100	7700	50	0,65	3,3	10	2,2	116	182	9
LNK-M3...1-970-130	970	100	7700	60	0,95	2,7	10	2,7	116	233	3
LNK-M3...1-1070-130	1070	100	7700	60	1,00	2,5	10	2,9	116	253	3
LNK-M3...1-1230-130	1230	100	7700	60	1,00	2,2	10	3,2	116	283	3

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M3...1 HIGH CURRENT

U_N: 1650V U_s: 2475V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...1-145-165	145	60	3100	40	1,00	6,2	10	0,9	85	133	16
LNK-M3...1-190-165	190	60	3100	45	1,20	5,3	10	1,1	85	158	16
LNK-M3...1-230-165	230	60	3100	50	1,45	4,6	10	1,2	85	182	16
LNK-M3...1-315-165	315	55	3100	60	2,15	3,7	10	1,5	85	233	4
LNK-M3...1-300-165	300	100	6200	40	0,55	4,3	10	1,6	116	133	9
LNK-M3...1-380-165	380	100	6200	45	0,65	3,7	10	1,9	116	158	9
LNK-M3...1-465-165	465	100	6200	50	0,75	3,3	10	2,2	116	182	9
LNK-M3...1-635-165	635	90	6200	60	1,10	2,7	10	2,7	116	233	3
LNK-M3...1-700-165	700	90	6200	60	1,15	2,5	10	2,9	116	253	3
LNK-M3...1-800-165	800	95	6200	60	1,15	2,2	10	3,2	116	283	3

U_N: 1850V U_s: 2780V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...1-112-185	112	60	2700	40	1,10	6,2	10	0,9	85	133	16
LNK-M3...1-145-185	145	60	2700	45	1,35	5,3	10	1,1	85	158	16
LNK-M3...1-175-185	175	55	2700	50	1,60	4,6	10	1,2	85	182	16
LNK-M3...1-240-185	240	50	2700	60	2,40	3,7	10	1,5	85	233	4
LNK-M3...1-225-185	225	95	5500	40	0,60	4,3	10	1,6	116	133	9
LNK-M3...1-290-185	290	95	5500	45	0,75	3,7	10	1,9	116	158	9
LNK-M3...1-355-185	355	95	5500	50	0,85	3,3	10	2,2	116	182	9
LNK-M3...1-485-185	485	85	5500	60	1,25	2,7	10	2,7	116	233	3
LNK-M3...1-535-185	535	85	5500	60	1,30	2,5	10	2,9	116	253	3
LNK-M3...1-610-185	610	90	5500	60	1,30	2,2	10	3,2	116	283	3

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M3...2 HIGH SPECIFIC CAPACITANCE

U_N: 700V U_S: 1050V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...2-445-70	445	45	3100	45	1,35	7,7	10	0,7	85	102	16
LNK-M3...2-610-70	610	45	3100	45	2,05	6,4	10	0,8	85	127	16
LNK-M3...2-670-70	670	45	3100	45	2,15	6,0	10	0,9	85	137	16
LNK-M3...2-770-70	770	45	3100	50	2,10	5,5	10	1,0	85	152	16
LNK-M3...2-1220-70	1220	70	6200	45	1,10	4,5	10	1,5	116	127	9
LNK-M3...2-1350-70	1350	70	6200	45	1,15	4,2	10	1,6	116	137	9
LNK-M3...2-1550-70	1550	75	6200	50	1,15	3,8	10	1,8	116	152	9

U_N: 900V U_S: 1350V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...2-380-90	380	45	2900	45	1,45	7,7	10	0,7	85	102	16
LNK-M3...2-520-90	520	40	2900	45	2,20	6,4	10	0,8	85	127	16
LNK-M3...2-570-90	570	40	2900	45	2,30	6,0	10	0,9	85	137	16
LNK-M3...2-655-90	655	45	2900	50	2,25	5,5	10	1,0	85	152	16
LNK-M3...2-1040-90	1040	65	5700	45	1,15	4,5	10	1,5	116	127	9
LNK-M3...2-1150-90	1150	70	5700	45	1,25	4,2	10	1,6	116	137	9
LNK-M3...2-1320-90	1320	70	5700	50	1,25	3,8	10	1,8	116	152	9

U_N: 1100V U_S: 1650V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...2-270-110	270	40	2400	45	1,65	7,7	10	0,7	85	102	16
LNK-M3...2-370-110	370	40	2400	45	2,55	6,4	10	0,8	85	127	16
LNK-M3...2-420-110	420	40	2500	45	2,60	6,0	10	0,9	85	137	16
LNK-M3...2-470-110	470	40	2400	50	2,60	5,5	10	1,0	85	152	16
LNK-M3...2-740-110	740	60	4800	45	1,35	4,5	10	1,5	116	127	9
LNK-M3...2-820-110	820	65	4800	45	1,45	4,2	10	1,6	116	137	9
LNK-M3...2-940-110	940	65	4800	50	1,40	3,8	10	1,8	116	152	9

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M3...2 HIGH SPECIFIC CAPACITANCE

U_N: 1300V U_S: 1950V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...2-180-130	180	40	2000	45	1,95	7,7	10	0,7	85	102	16
LNK-M3...2-245-130	245	35	2000	45	3,05	6,4	10	0,8	85	127	16
LNK-M3...2-275-130	275	35	2000	45	3,20	6,0	10	0,9	85	137	16
LNK-M3...2-310-130	310	35	2000	50	3,10	5,5	10	1,0	85	152	16
LNK-M3...2-495-130	495	60	4000	45	1,60	4,5	10	1,5	116	127	9
LNK-M3...2-550-130	550	60	4000	45	1,70	4,2	10	1,6	116	137	9
LNK-M3...2-625-130	625	60	4000	50	1,65	3,8	10	1,8	116	152	9

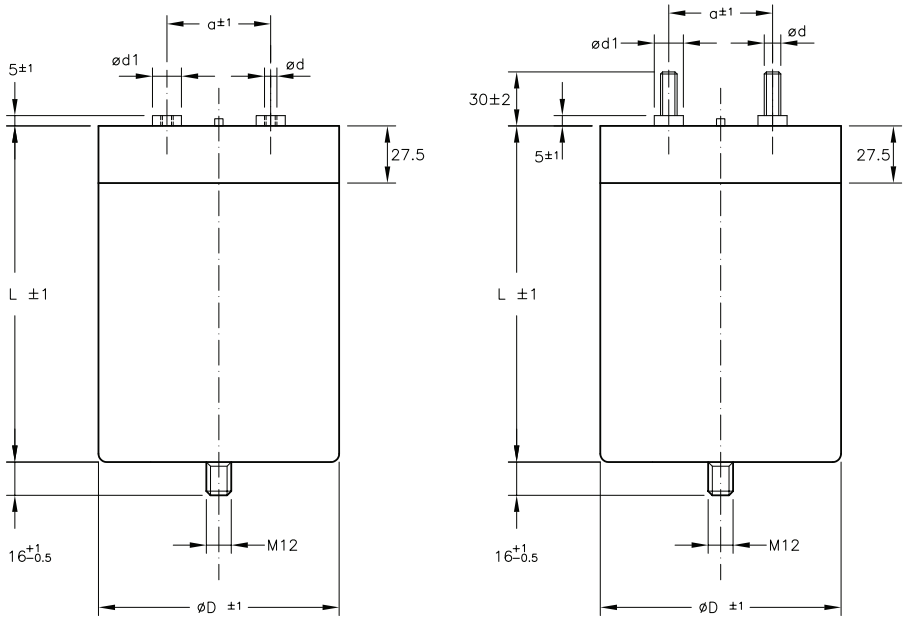
U_N: 1650V U_S: 2475V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...2-118-165	118	35	1600	45	2,35	7,7	10	0,7	85	102	16
LNK-M3...2-160-165	160	30	1600	45	3,65	6,4	10	0,8	85	127	16
LNK-M3...2-180-165	180	30	1600	45	3,85	6,0	10	0,9	85	137	16
LNK-M3...2-205-165	205	35	1600	50	3,75	5,5	10	1,0	85	152	16
LNK-M3...2-325-165	325	50	3200	45	1,95	4,5	10	1,5	116	127	9
LNK-M3...2-360-165	360	50	3200	45	2,05	4,2	10	1,6	116	137	9
LNK-M3...2-410-165	410	55	3200	50	1,95	3,8	10	1,8	116	152	9

U_N: 1850V U_S: 2780V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M3...2-90-185	90	35	1400	45	2,65	7,7	10	0,7	85	102	16
LNK-M3...2-122-185	122	30	1400	45	4,15	6,4	10	0,8	85	127	16
LNK-M3...2-135-185	135	30	1400	45	4,40	6,0	10	0,9	85	137	16
LNK-M3...2-155-185	155	30	1400	50	4,25	5,5	10	1,0	85	152	16
LNK-M3...2-245-185	245	50	2800	45	2,15	4,5	10	1,5	116	127	9
LNK-M3...2-270-185	270	50	2800	45	2,30	4,2	10	1,6	116	137	9
LNK-M3...2-310-185	310	50	2800	50	2,25	3,8	10	1,8	116	152	9

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)



LNK – M2

ULfile: E191589 In accordance to UNI CEI 11170-3

- MECHANICAL LAYOUT OPTIMIZED TO EASY REPLACE ELECTROLYTIC CAPACITORS
- COMPACT DESIGN

Terminals selection diameter D116	
M2**R**	**M6 threaded holes**
M2**S**	**M8 threaded holes**
M2**T**	**M6 screw terminals**
M2**U**	**M8 screw terminals**
Terminals selection diameter D85	
M2**R**	**M6 threaded holes**

D (mm)	a (mm)	d1 (mm)	Creepage between terminals (mm)	Clearence (mm)	Terminal d	Torque fixing stud M12 (Nm)	Torque terminals M6/M8 (Nm)
116	**50**	**14**	**45**	**36**	M6/M8 screw and threaded holes	**10**	**6/8**
85	**32**	**12**	**36**	**20**	M6 threaded holes	**10**	**6**

LNK – M2...1 HIGH CURRENT

U_N: 700V U_s: 1050V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...1-530-70	530	70	5800	40	0,65	6,2	10	0,9	85	133	16
LNK-M2...1-685-70	685	70	5800	45	0,80	5,3	10	1,1	85	156	16
LNK-M2...1-835-70	835	70	5800	50	0,95	4,6	10	1,2	85	182	16
LNK-M2...1-1140-70	1140	70	5800	60	1,35	3,7	10	1,5	85	233	4
LNK-M2...1-1080-70	1080	100	11600	40	0,40	4,3	10	1,6	116	133	9
LNK-M2...1-1380-70	1380	100	11600	45	0,45	3,7	10	1,9	116	158	9
LNK-M2...1-1700-70	1700	100	11600	50	0,50	3,3	10	2,2	116	182	9
LNK-M2...1-2300-70	2300	100	11600	60	0,70	2,7	10	2,7	116	233	3
LNK-M2...1-2550-70	2550	100	11600	60	0,75	2,5	10	2,9	116	253	3
LNK-M2...1-2900-70	2900	100	11600	60	0,75	2,2	10	3,2	116	283	3

U_N: 900V U_s: 1350V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...1-450-90	450	70	5300	40	0,70	6,2	10	0,9	85	133	16
LNK-M2...1-580-90	580	70	5300	45	0,85	5,3	10	1,1	85	156	16
LNK-M2...1-710-90	710	70	5300	50	1,00	4,6	10	1,2	85	182	16
LNK-M2...1-970-90	970	70	5300	60	1,45	3,7	10	1,5	85	233	4
LNK-M2...1-915-90	915	100	10700	40	0,40	4,3	10	1,6	116	133	9
LNK-M2...1-1170-90	1170	100	10700	45	0,45	3,7	10	1,9	116	158	9
LNK-M2...1-1430-90	1430	100	10700	50	0,55	3,3	10	2,2	116	182	9
LNK-M2...1-1950-90	1950	100	10700	60	0,75	2,7	10	2,7	116	233	3
LNK-M2...1-2150-90	2150	100	10700	60	0,80	2,5	10	2,9	116	253	3
LNK-M2...1-2450-90	2450	100	10700	60	0,80	2,2	10	3,2	116	283	3

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x UN +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M2...1 HIGH CURRENT

U_N: 1100V U_s: 1650V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...1-320-110	320	70	4500	40	0,78	6,2	10	0,9	85	133	16
LNK-M2...1-415-110	415	70	4500	45	0,95	5,3	10	1,1	85	156	16
LNK-M2...1-500-110	500	70	4500	50	1,10	4,6	10	1,2	85	182	16
LNK-M2...1-690-110	690	65	4500	60	1,60	3,7	10	1,5	85	233	4
LNK-M2...1-650-110	650	100	9000	40	0,45	4,3	10	1,6	116	133	9
LNK-M2...1-840-110	840	100	9000	45	0,50	3,7	10	1,9	116	158	9
LNK-M2...1-1020-110	1020	100	9000	50	0,60	3,3	10	2,2	116	182	9
LNK-M2...1-1400-110	1400	100	9000	60	0,85	2,7	10	2,7	116	233	3
LNK-M2...1-1550-110	1550	100	9000	60	0,90	2,5	10	2,9	116	253	3
LNK-M2...1-1750-110	1750	100	9000	60	0,90	2,2	10	3,2	116	283	3

U_N: 1300V U_s: 1950V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...1-215-130	215	65	3700	40	0,90	6,2	10	0,9	85	133	16
LNK-M2...1-275-130	275	65	3700	45	1,05	5,3	10	1,1	85	156	16
LNK-M2...1-340-130	340	65	3700	50	1,25	4,6	10	1,2	85	182	16
LNK-M2...1-460-130	460	60	3700	60	1,85	3,7	10	1,5	85	233	4
LNK-M2...1-435-130	435	100	7400	40	0,50	4,3	10	1,6	116	133	9
LNK-M2...1-560-130	560	100	7400	45	0,60	3,7	10	1,9	116	158	9
LNK-M2...1-685-130	685	100	7400	50	0,70	3,3	10	2,2	116	182	9
LNK-M2...1-930-130	930	100	7400	60	1,00	2,7	10	2,7	116	233	3
LNK-M2...1-1030-130	1030	100	7400	60	1,05	2,5	10	2,9	116	253	3
LNK-M2...1-1180-130	1180	100	7400	60	1,05	2,2	10	3,2	116	283	3

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M2...1 HIGH CURRENT

U_N: 1650V U_s: 2475V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...1-140-165	140	60	3000	40	1,05	6,2	10	0,9	85	133	16
LNK-M2...1-180-165	180	60	3000	45	1,25	5,3	10	1,1	85	156	16
LNK-M2...1-220-165	220	60	3000	50	1,45	4,6	10	1,2	85	182	16
LNK-M2...1-300-165	300	55	3000	60	2,25	3,7	10	1,5	85	233	4
LNK-M2...1-285-165	285	100	6000	40	0,55	4,3	10	1,6	116	133	9
LNK-M2...1-365-165	365	100	6000	45	0,65	3,7	10	1,9	116	158	9
LNK-M2...1-450-165	450	100	6000	50	0,80	3,3	10	2,2	116	182	9
LNK-M2...1-610-165	610	90	6000	60	1,15	2,7	10	2,7	116	233	3
LNK-M2...1-675-165	675	90	6000	60	1,20	2,5	10	2,9	116	253	3
LNK-M2...1-770-165	770	95	6000	60	1,20	2,2	10	3,2	116	283	3

U_N: 1850V U_s: 2780V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...1-105-185	105	60	2600	40	1,15	6,2	10	0,9	85	133	16
LNK-M2...1-135-185	135	60	2600	45	1,40	5,3	10	1,1	85	156	16
LNK-M2...1-165-185	165	55	2600	50	1,65	4,6	10	1,2	85	182	16
LNK-M2...1-230-185	230	50	2600	60	2,50	3,7	10	1,5	85	233	4
LNK-M2...1-215-185	215	95	5200	40	0,65	4,3	10	1,6	116	133	9
LNK-M2...1-280-185	280	95	5200	45	0,75	3,7	10	1,9	116	158	9
LNK-M2...1-340-185	340	95	5200	50	0,85	3,3	10	2,2	116	182	9
LNK-M2...1-460-185	460	85	5200	60	1,30	2,7	10	2,7	116	233	3
LNK-M2...1-510-185	510	85	5200	60	1,35	2,5	10	2,9	116	253	3
LNK-M2...1-585-185	585	90	5200	60	1,35	2,2	10	3,2	116	283	3

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x UN +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M2...2 HIGH SPECIFIC CAPACITANCE

U_N: 700V U_V: 1050V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...2-585-70	585	40	3000	45	2,10	6,4	10	0,8	85	127	16
LNK-M2...2-650-70	650	40	3000	45	2,25	6,0	10	0,9	85	137	16
LNK-M2...2-740-70	740	45	3000	50	2,20	5,5	10	1,0	85	152	16
LNK-M2...2-1180-70	1180	70	6000	45	1,15	4,5	10	1,5	116	127	9
LNK-M2...2-1300-70	1300	70	6000	45	1,20	4,2	10	1,6	116	137	9
LNK-M2...2-1500-70	1500	75	6000	50	1,15	3,8	10	1,8	116	152	9

U_N: 900V U_V: 1350V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...2-500-90	500	40	2800	45	2,25	6,4	10	0,8	85	127	16
LNK-M2...2-550-90	550	40	2800	45	2,40	6,0	10	0,9	85	137	16
LNK-M2...2-630-90	630	45	2800	50	2,35	5,5	10	1,0	85	152	16
LNK-M2...2-1000-90	1000	65	5500	45	1,20	4,5	10	1,5	116	127	9
LNK-M2...2-1100-90	1100	65	5500	45	1,30	4,2	10	1,6	116	137	9
LNK-M2...2-1260-90	1260	70	5500	50	1,25	3,8	10	1,8	116	152	9

U_N: 1100V U_V: 1650V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...2-355-110	355	40	2300	45	2,60	6,4	10	0,8	85	127	16
LNK-M2...2-400-110	400	40	2400	45	2,70	6,0	10	0,9	85	137	16
LNK-M2...2-450-110	450	40	2300	50	2,70	5,5	10	1,0	85	152	16
LNK-M2...2-710-110	710	60	4600	45	1,40	4,5	10	1,5	116	127	9
LNK-M2...2-790-110	790	65	4600	45	1,45	4,2	10	1,6	116	137	9
LNK-M2...2-900-110	900	65	4600	50	1,45	3,8	10	1,8	116	152	9

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – M2...2 HIGH SPECIFIC CAPACITANCE

U_N: 1300V U_V: 1950V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...2-235-130	235	35	1900	45	3,15	6,4	10	0,8	85	127	16
LNK-M2...2-260-130	260	35	1900	45	3,30	6,0	10	0,9	85	137	16
LNK-M2...2-300-130	300	35	1900	50	3,25	5,5	10	1,0	85	152	16
LNK-M2...2-475-130	475	55	3800	45	1,65	4,5	10	1,5	116	127	9
LNK-M2...2-525-130	525	60	3800	45	1,75	4,2	10	1,6	116	137	9
LNK-M2...2-600-130	600	60	3800	50	1,70	3,8	10	1,8	116	152	9

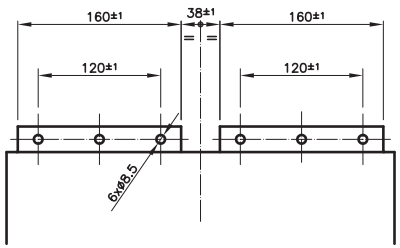
U_N: 1650V U_V: 2475V

MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...2-155-165	155	30	1600	45	3,80	6,4	10	0,8	85	127	16
LNK-M2...2-170-165	170	30	1600	45	4,00	6,0	10	0,9	85	137	16
LNK-M2...2-195-165	195	35	1600	50	3,90	5,5	10	1,0	85	152	16
LNK-M2...2-310-165	310	50	3100	45	2,00	4,5	10	1,5	116	127	9
LNK-M2...2-345-165	345	50	3100	45	2,10	4,2	10	1,6	116	137	9
LNK-M2...2-395-165	395	55	3100	50	2,05	3,8	10	1,8	116	152	9

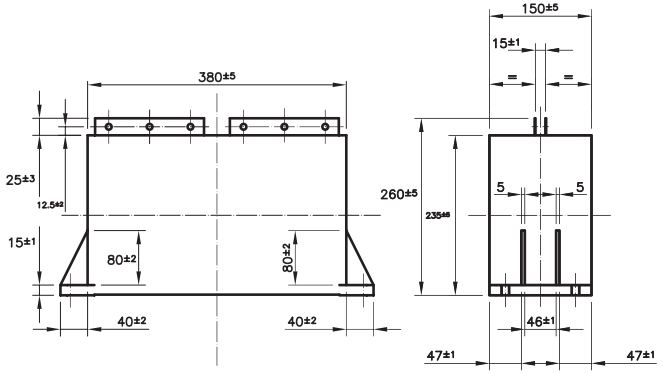
U_N: 1850V U_V: 2780V

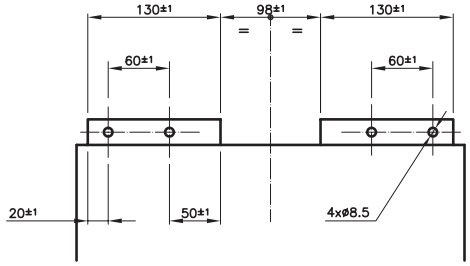
MODEL	Capacitance C(µF)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Weight (Kg)	D (mm)	L (mm)	Box qty (pcs)
LNK-M2...2-115-185	115	30	1400	45	4,35	6,4	10	0,8	85	127	16
LNK-M2...2-130-185	130	30	1400	45	4,55	6,0	10	0,9	85	137	16
LNK-M2...2-150-185	150	30	1400	50	4,45	5,5	10	1,0	85	152	16
LNK-M2...2-235-185	235	50	2700	45	2,25	4,5	10	1,5	116	127	9
LNK-M2...2-260-185	260	50	2700	45	2,35	4,2	10	1,6	116	137	9
LNK-M2...2-300-185	300	50	2700	50	2,30	3,8	10	1,8	116	152	9

- In case of doubt regading the full current maximun working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention).
- Maximum hot spot temperature for diameter 85mm: 85°C
- Maximum hot spot temperature for diameter 116mm: 80°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 1.414 x U_N +1000 for 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

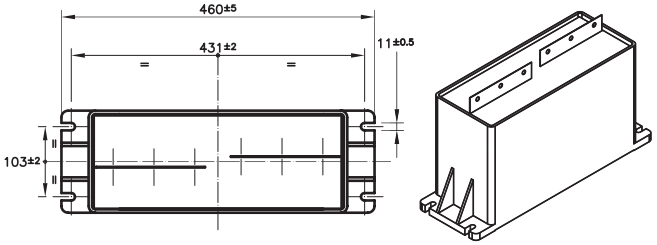


Terminals for $U_N \leq 3200Vdc$





Terminals for $U_N > 3200Vdc$

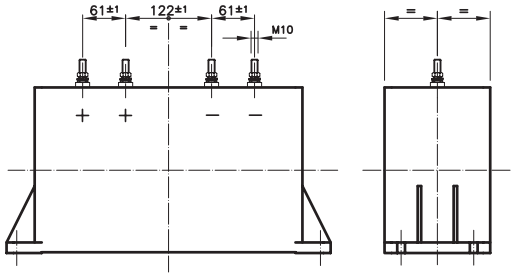


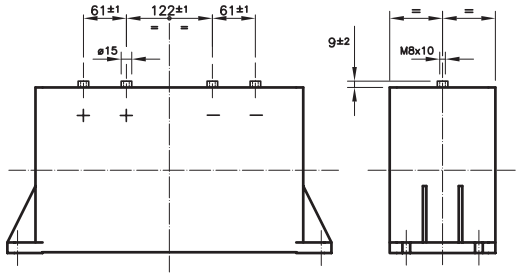
LNK – P5X

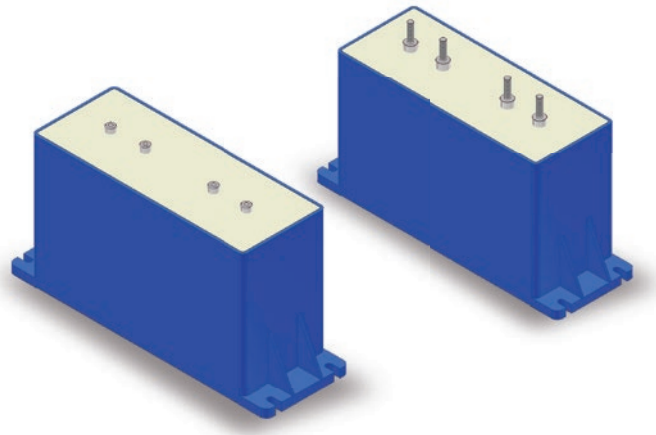
ULfile: E191589 In accordance to UNI CEI 11170-3

- HIGH CAPACITANCE
- LOW INDUCTANCE CONNECTIONS
- STANDARD CONFIGURATION

CUSTOM VERSIONS WITH SCREWS OR THREADED HOLES TERMINALS ARE AVAILABLE ON REQUEST







LNK – P5X

- HIGH CAPACITANCE
- LOW INDUCTANCE CONNECTIONS

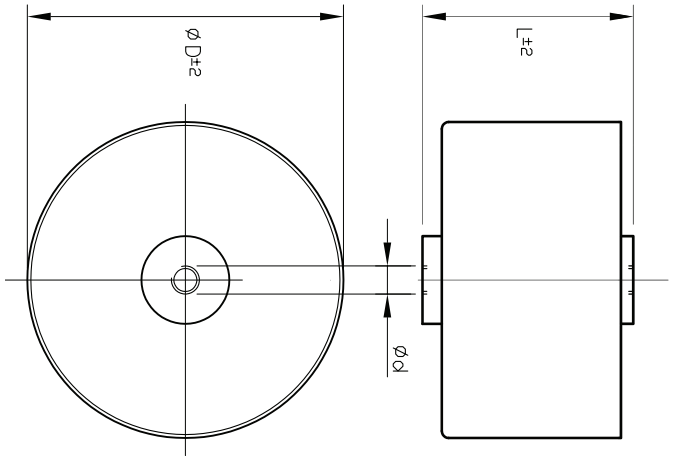
MODEL	Capacitance C(µF)	Rated DC Voltage U_N(V)	Peak Voltage U_S(V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage between terminals (mm)	Clearence (mm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P5X-10000-65	**10000**	650	**975**	300	**38000**	<30	**0,20**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-8000-70	**8000**	700	**1400**	300	**34000**	<30	**0,14**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-8500-80	**8500**	800	**1200**	300	**36000**	<30	**0,22**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-5000-90	**5000**	900	**1800**	300	**27000**	<30	**0,18**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-5300-100	**5300**	1000	**1500**	250	**29000**	<30	**0,25**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-4200-100	**4200**	1000	**2000**	250	**26000**	<30	**0,19**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-3500-110	**3500**	1100	**2200**	250	**23000**	<30	**0,21**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-3600-120	**3600**	1200	**1800**	230	**23000**	<30	**0,30**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-2600-125	**2600**	1250	**2500**	250	**20000**	<30	**0,24**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-2650-135	**2650**	1350	**2025**	220	**20000**	<30	**0,35**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-2000-145	**2000**	1450	**2900**	200	**17000**	<30	**0,28**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-1600-160	**1600**	1600	**3200**	200	**16000**	<30	**0,31**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-2000-160	**2000**	1600	**2400**	200	**17500**	<30	**0,38**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-1300-180	**1300**	1800	**3600**	200	**14000**	<30	**0,34**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-1600-180	**1600**	1800	**2700**	200	**15000**	<30	**0,40**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-1000-200	**1000**	2000	**4000**	250	**25000**	<30	**0,19**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-1000-210	**1000**	2100	**3150**	240	**26000**	<30	**0,28**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-850-220	**850**	2200	**4400**	250	**23000**	<30	**0,21**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-650-250	**650**	2500	**5000**	250	**20000**	<30	**0,23**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-650-270	**650**	2700	**4050**	220	**20000**	<30	**0,32**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-500-290	**500**	2900	**5800**	200	**25000**	<30	**0,27**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-500-320	**500**	3200	**4800**	210	**18000**	<30	**0,36**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-400-320	**400**	3200	**6400**	200	**23000**	<30	**0,3**	1,45	**20**	40	**40**	8	**18**	1
LNK-P5X-300-360	**300**	3600	**7200**	200	**19000**	<30	**0,36**	1,45	**20**	95	**95**	8	**18**	1
LNK-P5X-300-380	**300**	3800	**5700**	200	**13500**	<30	**0,45**	1,45	**20**	95	**95**	8	**18**	1

- In case of doubt regarding the full current maximum working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention)
- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 6000V x 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 30°C (for more details see “Selections rules and definitions”)

LNK – P6X

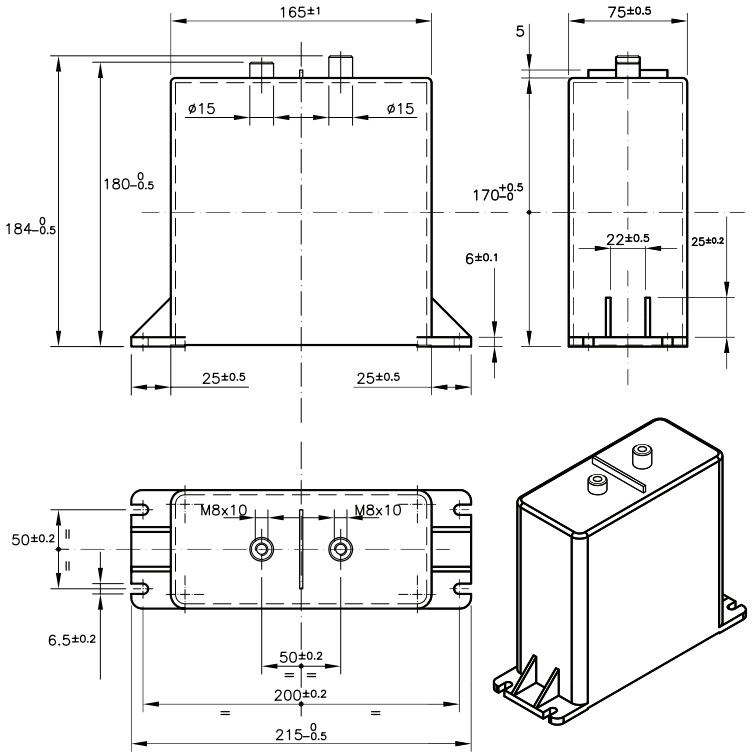
In accordance to UNI CEI 11170-3

- VERY LOW INDUCTANCE



MODEL	Capacitance C(µF)	Rated DC Voltage U_N(V)	Peak Voltage U_S(V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Tightening Torque (Nm)	Weight (Kg)	d (mm)	D (mm)	L (mm)	Box qty (pcs)
LNK-P6X-90-70	**90**	700	**1400**	80	**3100**	15	**0,7**	7,3	**20**	6	**0,27**	M6	**70**	59	**25**
LNK-P6X-125-70	**125**	700	**1400**	80	**4400**	15	**0,5**	7,0	**20**	10	**0,41**	M8	**80**	60	**16**
LNK-P6X-150-70	**150**	700	**1400**	80	**5300**	15	**0,4**	6,7	**20**	10	**0,47**	M8	**90**	60	**16**
LNK-P6X-50-90	**50**	900	**1800**	55	**2200**	15	**1**	7,3	**20**	6	**0,27**	M6	**70**	59	**25**
LNK-P6X-75-90	**75**	900	**1800**	70	**3400**	15	**0,7**	7,0	**20**	10	**0,41**	M8	**80**	60	**16**
LNK-P6X-100-90	**100**	900	**1800**	80	**4400**	15	**0,5**	6,7	**20**	10	**0,47**	M8	**90**	60	**16**
LNK-P6X-33-110	**33**	1100	**2200**	50	**1700**	15	**1,3**	7,3	**20**	6	**0,27**	M6	**70**	59	**25**
LNK-P6X-50-110	**50**	1100	**2200**	60	**2700**	15	**0,9**	7,0	**20**	10	**0,41**	M8	**80**	60	**16**
LNK-P6X-66-110	**66**	1100	**2200**	75	**3500**	15	**0,6**	6,7	**20**	10	**0,47**	M8	**90**	60	**16**
LNK-P6X-30-125	**30**	1250	**2500**	50	**1900**	15	**1,6**	7,3	**20**	6	**0,27**	M6	**70**	59	**25**
LNK-P6X-40-125	**40**	1250	**2500**	55	**2500**	15	**1,1**	7,0	**20**	10	**0,41**	M8	**80**	60	**16**
LNK-P6X-50-125	**50**	1250	**2500**	65	**3100**	15	**0,8**	6,7	**20**	10	**0,47**	M8	**90**	60	**16**
LNK-P6X-20-145	**20**	1450	**2900**	45	**1400**	15	**1,6**	7,3	**20**	6	**0,27**	M6	**70**	59	**25**
LNK-P6X-30-145	**30**	1450	**2900**	55	**2100**	15	**1,1**	7,0	**20**	10	**0,41**	M8	**80**	60	**16**
LNK-P6X-40-145	**40**	1450	**2900**	65	**2900**	15	**0,8**	6,7	**20**	10	**0,47**	M8	**90**	60	**16**
LNK-P6X-15-180	**15**	1800	**3600**	40	**1300**	15	**1,7**	7,3	**20**	6	**0,27**	M6	**70**	59	**25**
LNK-P6X-20-180	**20**	1800	**3600**	50	**1800**	15	**1,3**	7,0	**20**	10	**0,41**	M8	**80**	60	**16**
LNK-P6X-25-180	**25**	1800	**3600**	60	**2300**	15	**1**	6,7	**20**	10	**0,47**	M8	**90**	60	**16**

- In case of doubt regarding the full current maximum working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention)
- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 3500V x 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 35°C (for more details see “Selections rules and definitions”)



LNK – P7X

ULfile: E191589 In accordance to UNI CEI 11170-3

- HIGH CURRENT
- DESIGNED FOR BUSBARS CONNECTIONS

MODEL	Capacitance C(µF)	Rated DC Voltage U_N(V)	Peak Voltage U_S(V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage between terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P7X-1200-70	**1200**	700	**1400**	165	**10800**	30	**0,22**	4,1	**15**	45	**35**	12	**6**	2,8	**8**
LNK-P7X-750-90	**750**	900	**1800**	155	**8800**	30	**0,28**	4,1	**15**	45	**35**	12	**6**	2,8	**8**
LNK-P7X-600-100	**600**	1000	**2000**	150	**7800**	30	**0,32**	4,1	**15**	45	**35**	12	**6**	2,8	**8**
LNK-P7X-500-110	**500**	1100	**2200**	145	**13500**	30	**0,35**	4,1	**15**	45	**35**	12	**6**	2,8	**8**
LNK-P7X-400-125	**400**	1250	**2500**	140	**13000**	30	**0,38**	4,1	**15**	45	**35**	12	**6**	2,8	**8**
LNK-P7X-300-145	**300**	1450	**2900**	130	**11000**	30	**0,44**	4,1	**15**	45	**35**	12	**6**	2,8	**8**
LNK-P7X-200-180	**200**	1800	**3600**	120	**9300**	30	**0,53**	4,1	**15**	45	**35**	12	**6**	2,8	**8**

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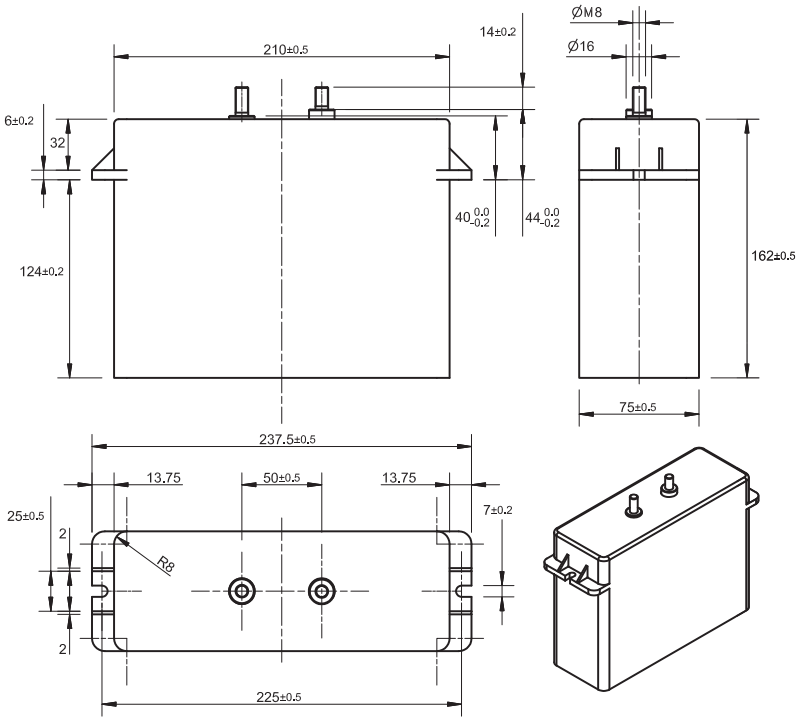
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention)
- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 3500V x 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 30°C (for more details see “Selections rules and definitions”)



LNK – P8X

ULfile: E191589 In accordance to UNI CEI 11170-3

- HEAVY DUTY CONSTRUCTION
- DESIGNED FOR BUSBARS CONNECTIONS
- LOW INDUCTANCE

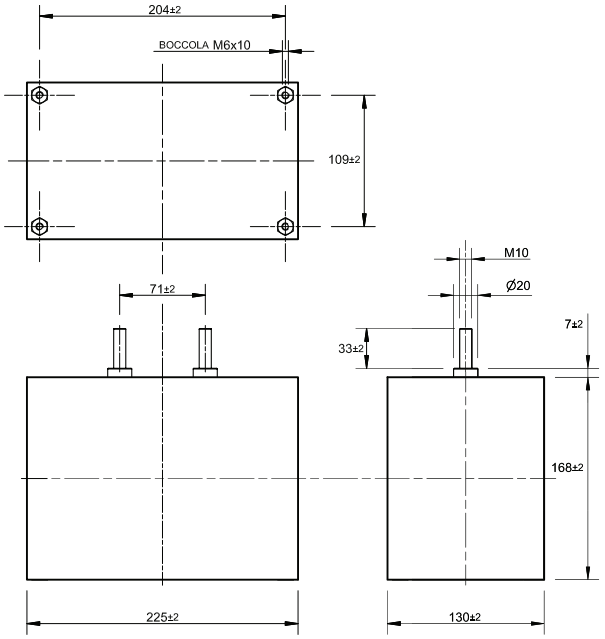
MODEL	Capacitance C(µF)	Rated DC Voltage U_N(V)	Peak Voltage U_S(V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage between terminals (mm)	Clearence (mm)	Tightening Torque (Nm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P8X-1500-70	**1500**	700	**1400**	165	**13500**	30	**0,22**	3,4	**15**	34	**34**	12	**6**	3,8	**6**
LNK-P8X-850-90	**850**	900	**1800**	155	**9700**	30	**0,27**	3,4	**15**	34	**34**	12	**6**	3,8	**6**
LNK-P8X-700-100	**700**	1000	**2000**	150	**9200**	30	**0,30**	3,4	**15**	34	**34**	12	**6**	3,8	**6**
LNK-P8X-600-110	**600**	1100	**2200**	145	**8300**	30	**0,31**	3,4	**15**	34	**34**	12	**6**	3,8	**6**
LNK-P8X-430-125	**430**	1250	**2500**	140	**14000**	30	**0,36**	3,4	**15**	34	**34**	12	**6**	3,8	**6**
LNK-P8X-330-145	**330**	1450	**2900**	130	**12000**	30	**0,40**	3,4	**15**	34	**34**	12	**6**	3,8	**6**
LNK-P8X-200-180	**200**	1800	**3600**	120	**9600**	30	**0,51**	3,4	**15**	34	**34**	12	**6**	3,8	**6**

- In case of doubt regarding the full current maximum working frequency, please contact ICAR Tech. Dept. for de-rating according to current spectrum
- The thermal resistance is estimated considering the capacitor alone, not fixed and in free air condition (natural convention)
- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 3500V x 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 25°C (for more details see “Selections rules and definitions”)

LNK – P9X

ULfile: E191589 In accordance to UNI CEI 11170-3

- HIGH CURRENT
- LOW INDUCTANCE
- DESIGNED FOR BUSBARS CONNECTIONS



MODEL	Capacitance C(µF)	Rated DC Voltage U_N(V)	Peak Voltage U_S(V)	Max rms Current I_{max} (A)	Peak Current I_{PK} (A)	Self inductance Ls(nH)	Series Resistance Rs (mΩ)	Thermal resistance with natural cooling R_{thn} (°C/W)	Full current Max Working Frequency (KHz)	Creepage between terminals (mm)	Clearence (mm)	Fixing feet Tightening Torque (Nm)	Weight (Kg)	Box qty (pcs)
LNK-P9X-3000-80	**3000**	800	**1400**	150	**14500**	<30	**0,32**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-1750-100	**1750**	1000	**2000**	150	**11000**	<30	**0,41**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-1350-110	**1350**	1100	**2200**	150	**9500**	<30	**0,46**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-1250-120	**1250**	1200	**2400**	150	**9500**	<30	**0,46**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-850-140	**850**	1400	**2800**	140	**7500**	<30	**0,56**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-650-160	**650**	1600	**3200**	135	**6500**	<30	**0,63**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-500-180	**500**	1800	**3600**	125	**11000**	<30	**0,71**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-400-200	**400**	2000	**4000**	120	**10000**	<30	**0,79**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-330-220	**330**	2200	**4400**	150	**13500**	<30	**0,27**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-300-240	**300**	2400	**4800**	150	**13000**	<30	**0,28**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-220-270	**220**	2700	**5400**	150	**11000**	<30	**0,30**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-200-280	**200**	2800	**5600**	150	**10000**	<30	**0,38**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-150-320	**150**	3200	**6400**	150	**8500**	<30	**0,38**	2,75	**10**	51	**51**	6	**6,5**	4
LNK-P9X-120-350	**120**	3500	**7000**	150	**8000**	<30	**0,41**	2,75	**10**	51	**51**	6	**6,5**	4

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- Maximum hot spot temperature: 85°C
- Routine dielectric test: DC voltage test between terminals = 1.5 U_N x 10 s, AC voltage test between terminals and case = 6000V x 10 s
- I_{max} has been calculated for a thermal rise $\vartheta_h - \vartheta_0$ within about 35°C (for more details see “Selections rules and definitions”)

Custom DC link capacitors

Beside the standard products shown in this catalogue, ICAR produces also a wide range of custom capacitors.
ICAR technical department is ready to support customers in developing capacitors based on their requests and specifications.

Custom capacitors for DC link are grouped as follows:

- **LNK-P** series are the capacitors based on the same technology as standard products: metallised polypropylene film, plastic case, dry type resin filled. Customization is mostly related to connections, capacitance value and other special characteristics; the cases are the same used in the standard series.
- **LNK-M** series are metallised polypropylene film, metal cases (aluminium or steel) capacitors, dry type resin filled.
  Beside the personalization of the P series, the metal case allows our designers to follow mechanical requirements of the customer without any investment related to the plastic case mould.
- **BIOENERGY-D65** series are metallised polypropylene film, metal case (aluminium or steel) capacitors, oil filled.
  This solution is generally suggested for higher voltage applications

The range of our customized products is extremely wide and covers most of the possible requirements in the railway and traction equipments, industrial drives, wind and solar inverters, special industrial plants.

For any further information please contact our sales department.

Warning

DO NOT MISAPPLY CAPACITORS FOR POWER ELECTRONICS

Icar is not responsible for any kind of possible damages to persons or things, derived from the improper installation and application of Power Electronics capacitors

MOST COMMON MISAPPLICATION FORMS:

- Ripple current and peak current beyond specification or not according with the maximum power that can be dissipated.
- Surge or working voltage beyond specified value.
- Hot spot or storage temperature beyond the specified limits or not according with the maximum power that can be dissipated.
- Incorrect mounting or wrong installation
  - installation nearby hot components or heat sources
  - not suitable connections (not adequate cable or busbars cross section)
  - nuts and washers material, shape or size not suitable for the application
  - tightening torque not according to the specification
- Unusual service conditions as:
  - mechanical shock and vibrations
  - corrosive or abrasive conductive parts in cooling air
  - oil or water vapour or corrosive substances
  - explosive gas or dust
  - radioactivity
  - excessive and fast variations of ambient conditions
  - service areas higher than 2000 m above sea level

Periodic check of the connection conditions and tightening torque is strongly recommended.

In case of doubt in choice or in performances of the capacitors **Icar technical service MUST be contacted.**

DISCLAIMER

All the information and data shown in this catalogue are not binding and can be modified without notice.
Contact ICAR sales department to get updated specifications.
Reliability data quoted by ICAR are based on statistical evaluations, and does not guarantee properties or performance of each single component.

All the products described in the catalogue shall be used within the limits stated in the technical specifications, nevertheless it is understood that a failure or an abnormal operation, even when capacitors are working within the specified limits, cannot be completely excluded or foreseen at the current state of the art of technology.

Capacitors may become hazardous.
Most common risks are related to combustible gas generation, explosion, fire, electrocution or abnormal operation of the capacitor. Not all the possible risks and safety measures are mentioned in this catalogue, further information are available on request. It is on customer responsibility to select and take all the necessary safety measures in his applications in order to avoid any possible personal injury or property damage related to the use of capacitors.
This is valid in particular for applications in which a failure or an abnormal operation of the capacitors could put at risk human life or health.

ICAR SpA and all the persons acting on its behalf, disclaim any and all liabilities for possible damages resulting from the use of the products described in this catalogue or in any other publication.

ICAR reserves the right to discontinue the production of any item without notice. All orders are subject to ICAR General Conditions of Sales – latest revision.

Blank Data Sheet for DC Link Capacitors

Company .....

Name .....

Phone .....

Fax .....

Address .....

Department .....

E-mail .....

ELECTRICAL CHARACTERISTICS

Rated capacitance	[µF]	.....
Tolerance	[%]	.....
Rated capacitor voltage	[V]	.....
Dc voltage	[V]	.....
Ripple voltage (peak to peak value)	[V]	.....
Ripple voltage (rms value)	[V]	.....
Ripple frequency	[Hz]	.....
Rated rms current	[A]	.....
Repetitive peak current	[A]	.....
Surge peak current	[A]	.....
Max self inductance	[nH]	.....

DRAWING

THERMAL CHARACTERISTICS

Average operating ambient temperature	θ [°C] .....
Max and Min. Operating ambient temperature	θ max/ θ min [°C] ..... / .....
Cooling system	NATURAL CONV. ☐ FORCED AIR ☐

MECHANICAL CHARACTERISTICS

Max dimensions - Number of terminals	[mm] Length ..... x Width ..... x Height ..... [Nr] .....
Operating position	Vertical ☐ Horizontal ☐ Other – Specify ☐ .....
Installation	Indoor ☐ Outdoor ☐

If possible please add voltage and current wave shapes

REMARKS

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