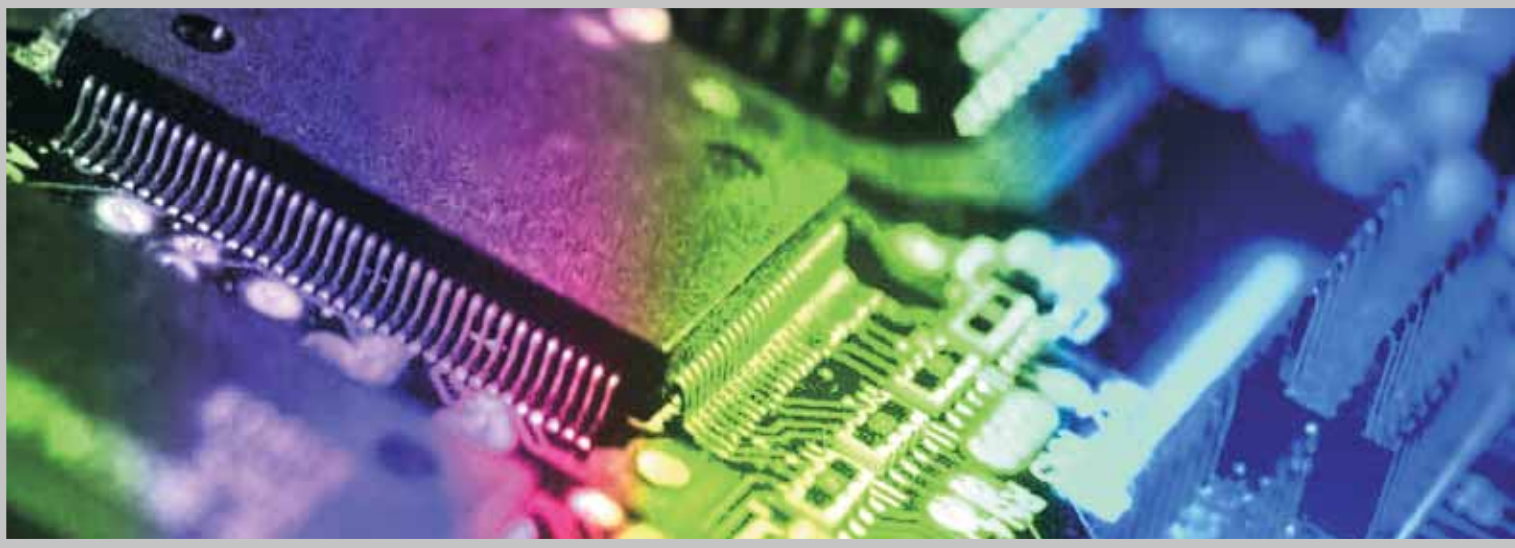
MICROIDEA

ELECTRONIC COMPANY

PRODUCTS OVERVIEW



POWER FACTOR CONTROLLER AND CAPACITORS

DPFC 01 STEP Digital Power Factor Controllers

- SUPPLY VOLTAGE DEVICE FROM 230VAC 50/60Hz (400VAC under request)
- MONITORING:
  - POWER FACTOR IND & CAP
  - SENSIBILITY
  - SINGLE PHASE CURRENT
  - RATES LINE VOLTAGE
- 1 STEP
- MANUAL OR AUTOMATIC OPERATION
- ALARM RELAY

RoHS lead-free

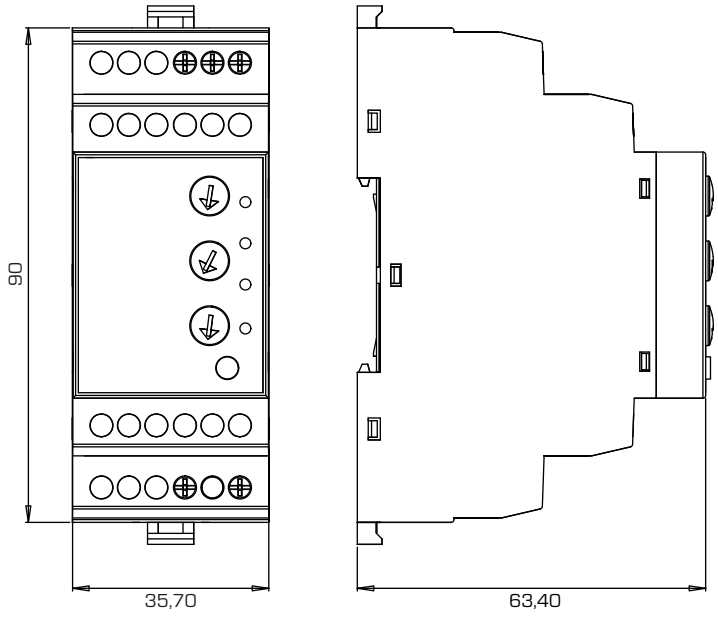
NORMS COMPLIANCE

CE Marking - IEC 60255-5 - IEC 60255-6 - IEC 60068-2-6 - IEC 60068-2-61 - EN50081-1 - EN50082-2

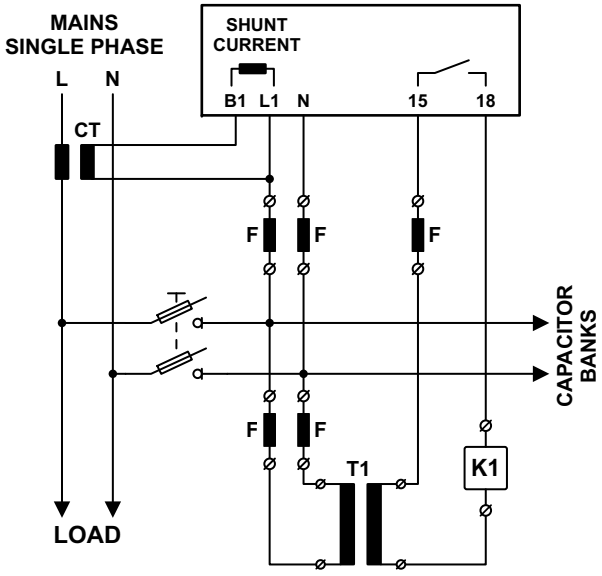
TECHNICAL DATA

	UNIT	Type: DPFC01D
Supply Voltage	VAC	230
Operating Limits (Ue)	%	-15 to +10
Rated Frequency	Hz	50 or 60 +-1% (automatic)
Power consumption (max.AC)	VA	4.3
Dissipation (max.AC)	W	2.6
Immunity Time For Microbreakings	ms	<6
Rated Current	A	5
Operation Limits (I)	A	0.125 to 5.5
Voltage Reading Limits	VAC	253
Current Reading Limits	A	0.125 to 5.5
Measuring Values	-	Real Effective Value (RMS)
Power Factor Adj.	-	0.85 Inductive -0.95 Capacitive
Number of Output	Relay	1 NOC
Contact Capacity	Relay	5A - 250VAC (AC1)
Protection Degree	IP	20 terminals
Box Type	mm	2M - DIN module
Weight	g	140

DIMENSIONS (mm)



WIRING DIAGRAM



DPFC 04-06-08-12 STEPS Digital Power Factor Controllers

- MULTIVOLTAGE DEVICE FROM 220V/230V/380V/400V/440V
- MEASUREMENTS:
  - POWER FACTOR IND & CAP
  - REACTIVE POWER NEEDED
  - TOTAL HARMONIC DISTORTION
  - SENSIBILITY
  - SINGLE PHASE CURRENT
  - RATED LINE VOLTAGE
  - AMBIENT TEMPERATURE
- DISPLAY LED 3x7 SEGMENTS
- 4 - 6 - 8 AND 12 STEPS AVAILABLE
- MANUAL OR AUTOMATIC OPERATION
- FUNCTION & ALARM RELAY PROGRAMMABLE
- FAN RELAY PROGRAMMABLE

RoHS lead-free

NORMS COMPLIANCE

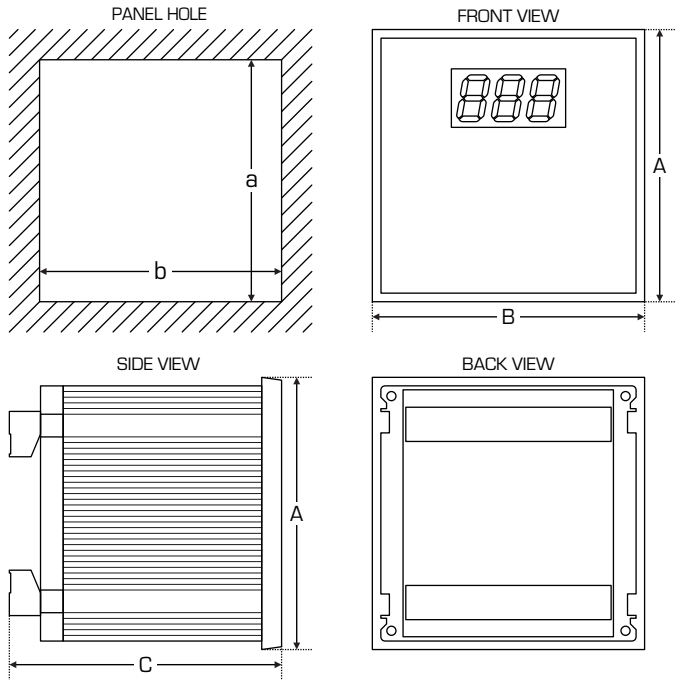
CE Marking - IEC 60255 - IEC 60255-6 - IEC 60068-2-6 - IEC 60068-2-61 - EN50081-1 - EN50082-2

CE

TECHNICAL DATA

	UNIT	Type: DPFC04A	Type: DPFC06A	Type: DPFC06B	Type: DPFC08B	Type: DPFC12B
Supply Voltage	VAC	220 - 230 - 380 - 400 - 440				
Operating Limits (Ue)	%	-15 to +10				
Rated Frequency	Hz	50 o 6 0				
Power consumption (max.AC)	VA	5		5.4		
Dissipation (max.AC)	W	2.5		2.6		
Immunity Time For Microbreakings	ms	<6				
Display Type	-	1 Display 3x7 Segment				
Rated Current	A	5				
Operation Limits (I)	A	0.125 to 5.5				
Voltage Reading Limits	VAC	185 to 485				
Current Reading Limits	A	0.125 to 5.5				
Measuring Values	-	Real Effective Value (RMS)				
Power Factor Adj.	-	0.85 Inductive -0.95 Capacitive				
Number of Output	Relay	4	6		8	12
Protection Degree	IP	41 Front Cover ; 20 Terminal Block Connections				
Box Type	mm	Standard 96 x 96		Standard 144 x 144		
Weight	g	345	365	620	640	660

DIMENSIONS (mm)



	DPFC04A	DPFC06A	DPFC06B	DPFC08B	DPFC12B
A	96mm	96mm	144mm	144mm	144mm
B	96mm	96mm	144mm	144mm	144mm
C	74mm	74mm	82mm	82mm	82mm
a	90mm	90mm	137mm	137mm	137mm
b	90mm	90mm	137mm	137mm	137mm

WIRING DIAGRAM

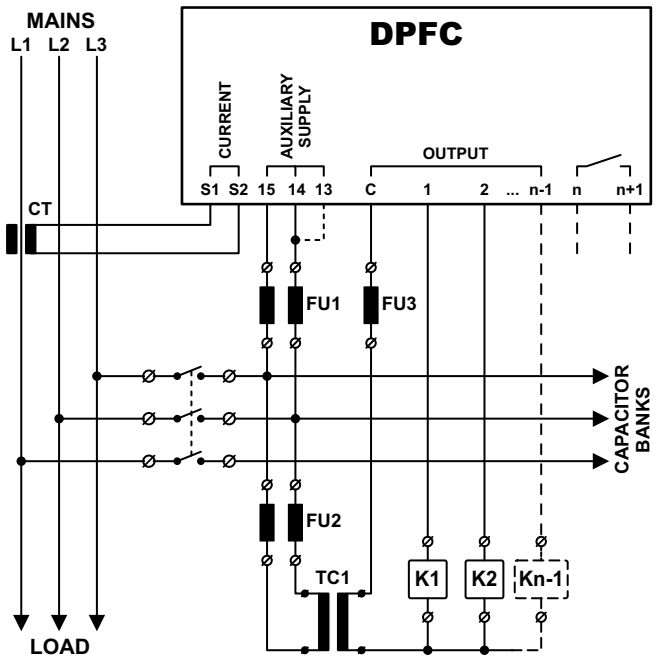


TABLE OF SET UP BASIC

PARAMETER	DESCRIPTION	RANGE
P.01	Primary current transformer	5...10.000
P.02	Rated power (nameplate) in kvar of the smallest capacitor bank (step unit)	0.10...300
P.03	Rated capacitor voltage (nameplate) in volts	80...750
P.04	Reconnection time of the same step in seconds	5...240
P.05 LED 1	Step 1 coefficient **(a)**	0...16
P.05 LED 2	Step 2 coefficient **(a)**	0...16
P.05 LED ...	Step ... coefficient **(a)**	0...16
P.05 LED ...	Programming of the before last step: Step coefficient **(a)** or Fan output **(b)**	Fan - 0...16
P.05 LED ...	Programming of the last step: Step coefficient **(a)** or Alarm output **(b)**	NoA - NcA-0...16

(a) - Step Coefficient **(b)** - Fan Output **(c)** - Alarm Output

TABLE OF SET UP ADVANCE

PARAMETER	DESCRIPTION	RANGE
A.01	Three/Single-phase Connection	0 - 1
A.02	Direction of the current in the TA	1 - 2
A.03	Set frequency	1 - 2
A.04	Set serial port	0 -199
A.05	Temperature Alarm	0 - 1
A.06	Temperature measuring unit °C - °F	0 - 1
A.07	THD (%) (I) - Alarm	110 - 130
A.08	THD (%) - Trip time secs	1 - 240
A.09	Alarm > Relay (0=none, 1=all, 2=A.HU, 3=A.LU, 4=A.HI, 5=A.LI, 6=A.HC, 7=A.LC, 8=A.th)	0 - 8
A.10	Disconnection time steps with too-low current alarm (secs)	1 - 240
A.11	Minimum temperature for fan relay disactivation	1 - 240
A.12	Maximum temperature for fan relay activation	1 - 240
A.13	Mains nominal voltage	220 - 230- 380 400 - 440

TABLE OF ALARMS

PARAMETER	DESCRIPTION	RANGE
A.HU	Too high voltage	15 min.
A.LU	Too low voltage	15 min.
A.HI	Too high current	2 min.
A.LI	Too low current	5 sec.
A.HC	Overcompensation	2 min.
A.LC	Undercompensation	15 min.
A.OT	Overtemperature	10 sec.
A.TH	Total I Harmonics distortion	0
A.PS	Set-up parameters error	0
A.PC	Adjustment/setting parameters error	0
A.PU	Parameters error	0
A.EE	Cancellation EPROM error	0

MICROIDEA

ELECTRONIC COMPANY

PRODUCTS OVERVIEW

THREE-PHASE LOW VOLTAGE POWER FACTOR CAPACITOR SERIE PFC

ENERGY IMPROVEMENT

Introduction:

PFC capacitors are produced under the latest technology and conforming to international standard of EN/IEC 60831-1&2

BOPP film is dielectric material and the electrode is being prepared by ven thin metallic layer in vacuum evaporation process.
Therefore, one of the important features of these capacitors is self-healing property.
After self-healing, the capacitors continue working automatically.

In order to prevent the capacitor from exploding or bursting because of rising inside pressure, the safety mechanism is provided by a folded crimp and pushing the lid upwards.
This safety mechanism breaks the internal connections and stops the current flow consequently.

Applications:

- Low Voltage distribution networks for power factor correction.
- Automatic and manual capacitor banks for centralized compensation.
- Individual power factor correction for electric motors, transformers & lighting.

Technical Data & Specification

Rated Power (KVAR) Rated Voltage (V) Rated Capacitance (µF)	According to Specification Table	Insulation level	3/8 KV AC
Capacitance Tolerance (%)	- 5 /+10	Safety Mechanism	- Self-healing technology - Overpressure disconnector
Rated Frequency (Hz)	50 (60 Hz on request)	Protection	IP 20
Mean life expectancy	Up to 100,000 operating hours	Can / Shape	Aluminum / Cylindrical
Permitted Overload - Max. permissible overvoltage (V_{max}) - Max. permissible overcurrent (I_{max})	Rated Voltage +10% (8 h. in every 24 h.) Rated Voltage +15% (30 min. in every 24 h.) Rated Voltage +20% (5 min.) Rated Voltage +30% (1 min.) 1.3 × Rated current	Max. permissible humidity	95%
Permitted ambient temperature	- 25 °C to 55 °C Max. temp. 55 °C Max. mean 24 h = 45 °C Max. mean 1 year = 35 °C	Mounting - Position - Installation - Expansion space	Upright Indoor 2 cm (It is necessary to leave free space above the terminals to enable the overpressure protection device operates effectively.)
Number of switching operations	Max. 5000 switching per year according to EN/ IEC 60831 / 1&2	Max. permissible altitude	2000 m above sea level
Dielectric loss Total loss	< 0.2 Watt / KVAR < 0.5 Watt / KVAR	Fixing / Grounding	By threaded stud M8 (for can diameter 45) / 5 Nm M12 (for can diameter 50 mm and more) / 12Nm
Max. transient inrush current	100 × Rated current	Fluid material	Non PCB
Max. discharge time	1 min. (from rated voltage to 75 V)	Terminal type	6.3 mm Tag, ST & MT
Internal connection	Delta (Δ)	Standard	EN/IEC 60831-1 & 2
Voltage Test - Between terminals -Terminal to Can (Case)	2.15 Rated voltage, 2 Sec. 3 KV_{AC}, 10 Sec.		

230V - 50Hz

Power (Kvar)	Capacitance (µF)	Current (A)	Type of Terminal	Dimension D × H (mm)	Net Weight (kg)	Cap. Code No.
1	20.1	2.5	Tag 6.3mm	55x129	0.350	793100
1.5	30.1	3.8	Tag 6.3mm	60x129	0.400	793110
2.5	50.2	6.3	ST	70x150	0.675	793390
5	100.3	12.6	ST	70x230	1.000	793310
7.5	150.5	18.8	MT	85x280	1.825	793410
10	200.7	25.1	MT	95x280	2.180	793420
12.5	250.8	31.4	MT	116x280	3.150	793430
15	301.0	37.7	MT	116x280	3.150	793440

415V - 50Hz

Power (Kvar)	Capacitance (µF)	Current (A)	Type of Terminal	Dimension D × H (mm)	Net Weight (kg)	Cap. Code No.
1	6.2	1.4	Tag 6.3mm	45x129	0.230	795101
1.5	9.2	2.1	Tag 6.3mm	45x129	0.230	795111
2.5	15.4	3.5	Tag 6.3mm	55x129	0.350	795121
5	30.8	7.0	ST	70x129	0.515	795301
7.5	46.2	10.4	ST	70x205	0.910	795311
10	61.6	13.9	ST	70x205	0.910	795321
12.5	77.0	17.4	ST	70x270	1.200	795331
15	92.5	20.9	MT	85x280	1.825	795441
20	123.3	27.8	MT	95x280	2.180	795451
25	154.1	34.8	MT	100x280	2.500	795461
30	184.9	41.7	MT	116x280	3.150	795471

460V - 50Hz

Power (Kvar)	Capacitance (µF)	Current (A)	Type of Terminal	Dimension D × H (mm)	Net Weight (kg)	Cap. Code No.
1	5	1.3	Tag 6.3mm	45x129	0.230	797100
1.5	7.5	1.9	Tag 6.3mm	45x129	0.230	797110
2.5	12.5	3.1	Tag 6.3mm	55x129	0.350	797120
5	25.1	6.3	ST	70x150	0.675	797300
7.5	37.6	9.4	ST	70x205	0.910	797310
10	50.2	12.6	ST	70x230	1.000	797320
12.5	62.7	15.7	ST	70x270	1.200	797330
15	75.3	18.8	MT	85x280	1.825	797440
20	100.3	25.1	MT	95x280	2.180	797450
25	125.4	31.4	MT	100x280	2.500	797460
30	150.5	37.7	MT	116x280	3.150	797470

525V - 50Hz

Power (Kvar)	Capacitance (µF)	Current (A)	Type of Terminal	Dimension D × H (mm)	Net Weight (kg)	Cap. Code No.
1	3.9	1.1	Tag 6.3mm	45x129	0.230	798100
1.5	5.8	1.6	Tag 6.3mm	55x129	0.350	798110
2.5	9.6	2.7	Tag 6.3mm	60x129	0.400	798120
5	19.3	5.5	ST	70x150	0.675	798300
7.5	28.9	8.2	ST	70x205	0.910	798310
10	38.5	11.0	ST	70x270	1.200	798320
12.5	48.1	13.7	MT	85x280	1.825	798430
15	57.8	16.5	MT	85x280	1.825	798440
20	77.0	22.0	MT	95x280	2.180	798450
25	96.3	27.5	MT	116x280	3.150	798460
30	115.5	33.0	MT	116x280	3.150	798470

400V - 50Hz

Power (Kvar)	Capacitance (µF)	Current (A)	Type of Terminal	Dimension D × H (mm)	Net Weight (kg)	Cap. Code No.
1	6.6	1.4	Tag 6.3mm	45x129	0.230	794101
1.5	10.0	2.2	Tag 6.3mm	45x129	0.230	794111
2.5	16.6	3.6	Tag 6.3mm	55x129	0.350	794122
5	33.2	7.2	ST	70x150	0.675	794301
7.5	49.8	10.8	ST	70x205	0.910	794311
10	66.3	14.4	ST	70x230	1.000	794321
12.5	82.9	18.0	ST	70x270	1.200	794331
15	99.5	21.7	MT	85x280	1.825	794441
20	132.7	28.9	MT	95x280	2.180	794451
25	165.9	36.1	MT	100x280	2.500	794461
30	199.0	43.3	MT	116x280	3.150	794471

440V - 50Hz

Power (Kvar)	Capacitance (µF)	Current (A)	Type of Terminal	Dimension D × H (mm)	Net Weight (kg)	Cap. Code No.
1	5.5	1.3	Tag 6.3mm	45x129	0.230	796100
1.5	8.2	2.0	Tag 6.3mm	45x129	0.230	796110
2.5	13.7	3.3	Tag 6.3mm	55x129	0.350	796120
5	27.4	6.6	ST	70x150	0.675	796300
7.5	41.1	9.8	ST	70x205	0.910	796310
10	54.8	13.1	ST	70x230	1.000	796320
12.5	68.5	16.4	ST	70x270	1.200	796330
15	82.2	19.7	MT	85x280	1.825	796440
20	109.7	26.2	MT	95x280	2.180	796450
25	137.1	32.8	MT	100x280	2.500	796460
30	164.5	39.4	MT	116x280	3.150	796470

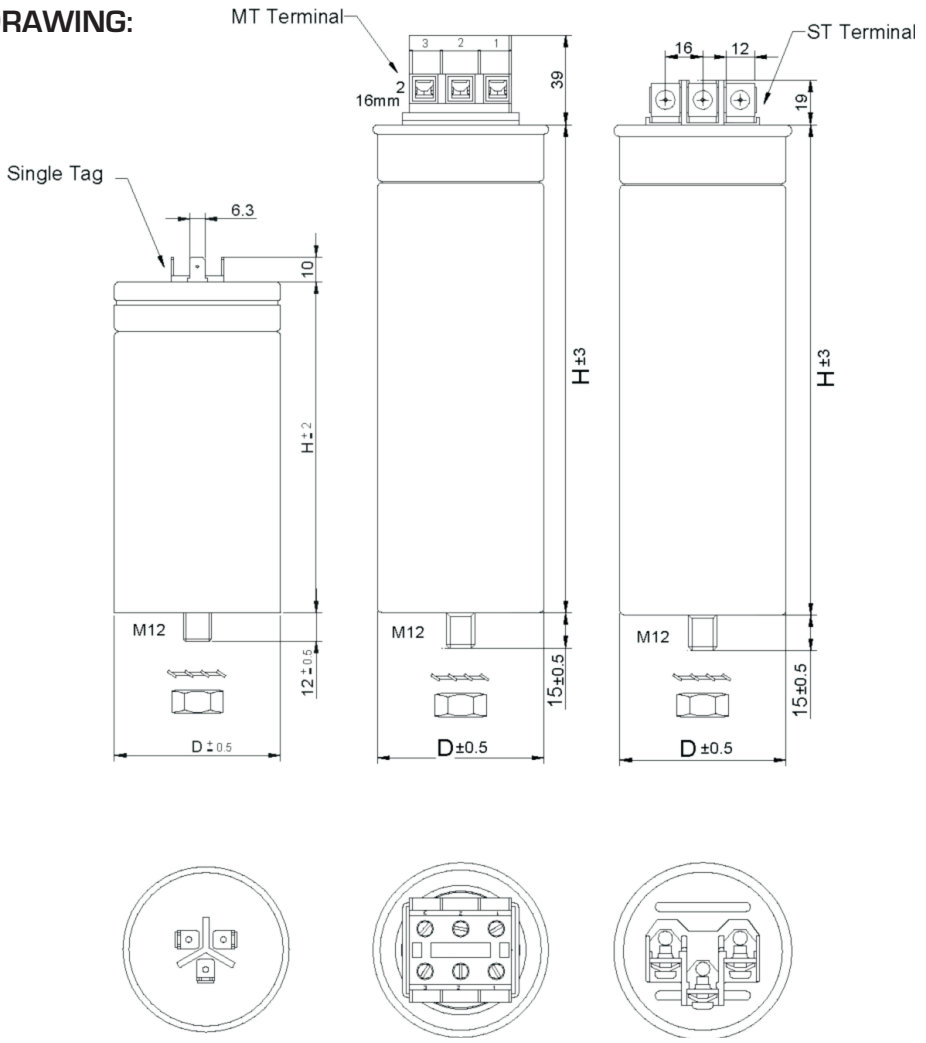
480V - 50Hz

Power (Kvar)	Capacitance (µF)	Current (A)	Type of Terminal	Dimension D × H (mm)	Net Weight (kg)	Cap. Code No.
1	4.6	1.2	Tag 6.3mm	45x129	0.230	792100
1.5	6.9	1.8	Tag 6.3mm	45x129	0.230	792110
2.5	11.5	3	Tag 6.3mm	55x129	0.350	792120
5	23	6	ST	70x129	0.515	792300
7.5	34.6	9	ST	70x205	0.910	792310
10	46.1	12	ST	70x205	0.910	792320
12.5	57.6	15	ST	70x270	1.200	792330
15	69.1	18	MT	85x280	1.825	792440
20	92.2	24.1	MT	85x280	1.825	792450
25	115.2	30.1	MT	95x280	2.180	792460
30	138.2	36.1	MT	116x280	3.150	792470

Note:

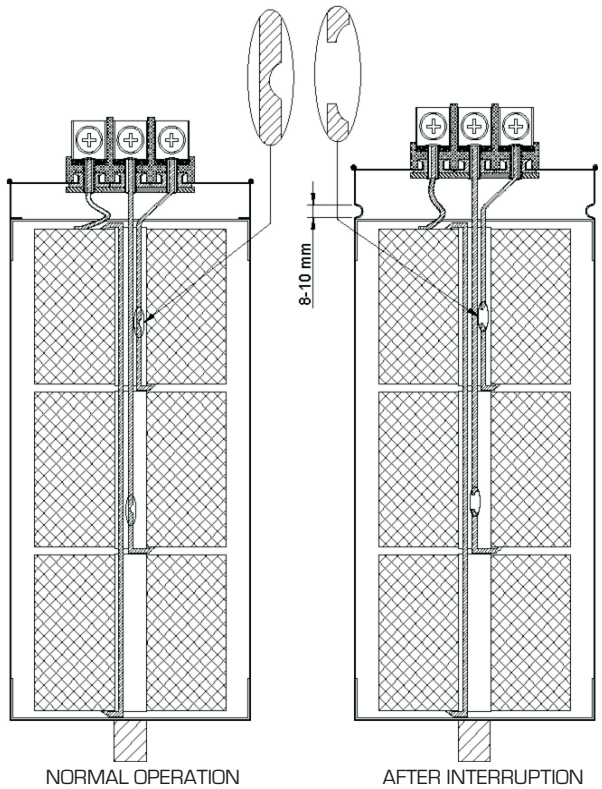
1) All Capacitors with Tag 6-3mm are supplied with IP20 Top Cover.
2) ST Terminal can be replaced by MT Terminal upon customer's request.
3) The Net Weights are given approximately.
4) Fordiameters of45mm, M8 Stud will be used and for bigger diameters than 45mm, M12 Stud will be applied.

DIMENSIONAL DRAWING:

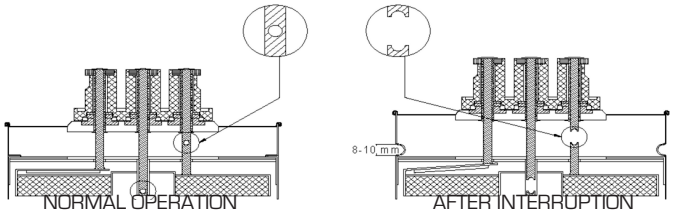


OVERPRESSURE DISCONNECTOR MECHANISM DRAWING:

a) PFC Capacitor with ST Terminal



b) PFC Capacitorwith MT Terminal



c) Overpressure System with Tag Terminal is the same as ST Terminal