PG - 8K

-40°C +105°C

Specifications

- **Voltage range :** 50 VDC to 500 VDC
- **Can size :** 35ϕ x 62mm to 90ϕ x 220mm
- **Operating Temperature range :** -40°C to + 105°C
- **Capacitance :** 1000 MFD to 200000 MFD
  Tolerance ± 20%
- **Leakage current:** The max. leakage current (IL) is given by the formula:
  IL = 0.003 CV (microamps)
  C = capacitance in microfarads
  V = DC rated voltage
  Pre-conditioning of the capacitors prior to testing for leakage current is essential.
- **Ripple Current:** All capacitors withstand rms ripple current at 100 Hz at 105°C. When capacitors operate at temperatures other than 105°C,the permissible rms ripple current at 105°C should be multiplied by the factors given below :

+40°C	+45°C	+50°C	+65°C
2.7	2.6	2.5	2.2

Where capacitors are required to operate at frequencies other than 100 Hz, the multiplying factors given below, may be used to determine the ripple current capacity, at that frequency.

Frequency Hz	100	120	250	500	1k to10k	>10K
Multiplying Factor	1.0	1.02	1.05	1.20	1.32	1.35

- **Notes :**

1. Can is negative, However, it is isolated with a PVC insulating sleeve and polypropylene end-disc.
2. The base stud is also negative and can be insulated with a nylon nut. Please see the page regarding mounting accessories for details.
3. Maximum ripple current for each capacitor diameter .

Capacitor Diameter (mm)	35	50	63	76	90
Max. Ripple Current (Amps)	20	20	40	40	72

Application

High Temperature 105 °C for High Ripple Current Applications like, PWM Inverters, High KVA On-Line UPS, Frequency Converters, AC Drives, Renewable Energy Power Supplies, elevators drive

Capacitor mounting

Capacitors are available in screw terminals in three mounting styles

AEST - Screw terminals with plain insulated base. *see page 6,7*

AEST-D - Screw terminals with stud mounting. *see page 6,7*

AEST-AL - Capacitor with aluminium bottom disc. *see page 8*

Capacitor Terminal Style

Capacitors are available in two different terminal style, round and across flat. Below table summarizes the available terminal styles in different capacitors diameter

Capacitors Diameter (mm)	35	50	63	76	90
Terminal Style - Round	⬭	⬭	⬭	⬭	⬭
Terminal Style - Across Flat		⬭	⬭	⬭	⬭

For details see pages 6,7,8

Marking on capacitors

Each capacitor will have the following information printed on it, sequentally:

- The Company's symbol followed by the words ALCON ELECTRONICS
- The capacitor grade viz. PG-8K
- The capacitance value __ MFD, rated voltage __VDC
- The surge voltage
- Capacity tolerance
- Climatic category
- Part number on non-standard capacitors
- CE marking
- Batch Code

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Useful life

Useful life is a period of time which the capacitor takes to reach "end of life".

For PG-8K capacitors the useful life is estimated as 2000 hours at maximum rated temperature, ripple current and voltages.

End of the defined as follows :

1. Catastrophic failure : capacitor short or open circuit
2. Mechanical failure : operation of safety vent or sleeve damage
3. Parametric failure :
   a. Capacitance change ±30%
   b. ESR exceed three times specified value
   c. Leakage current exceed specified value

The useful life for a known ripple current load and ambient temperature (Ta) °C is determined on the basis of the " Life graph" shown below.

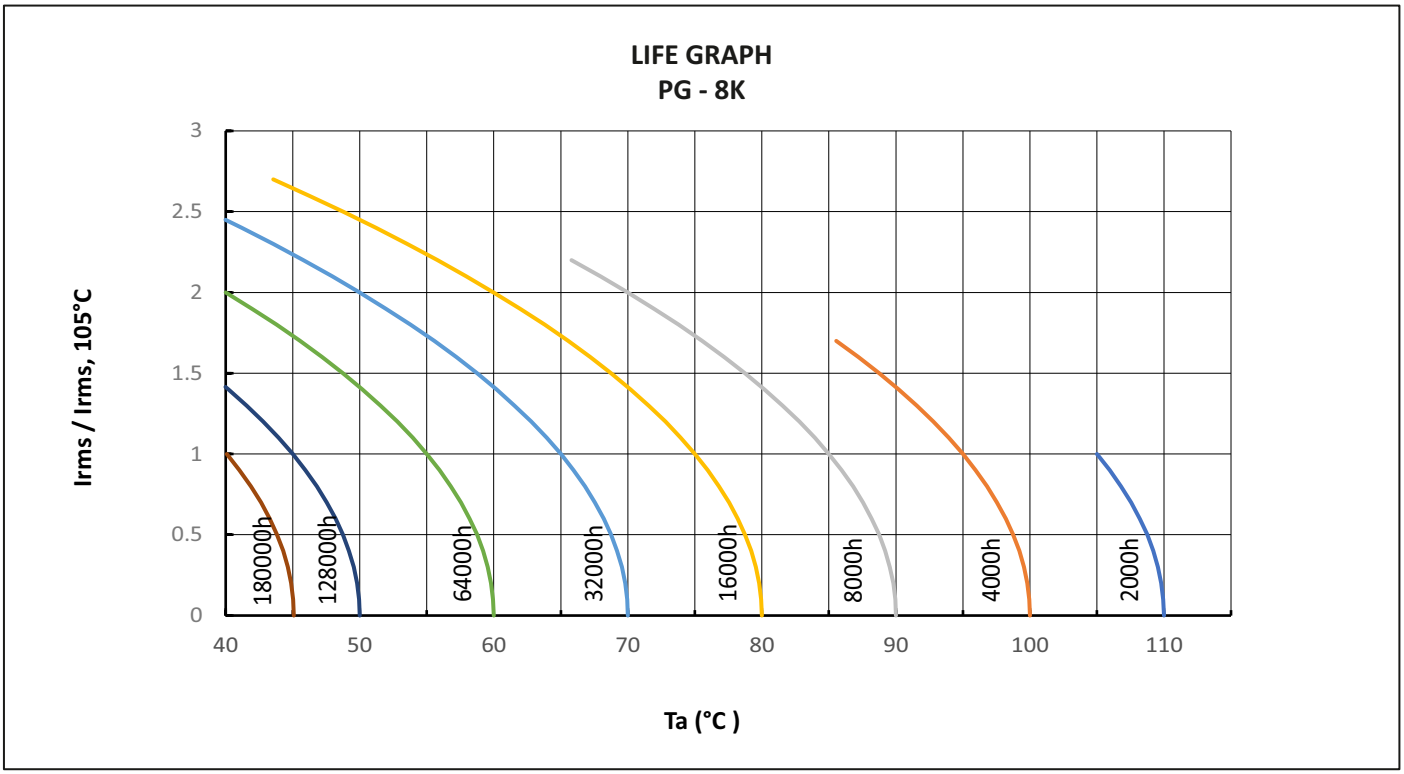
Manufacturing Date Code Chart

The manufacturing code shall consists of four digits (alphanumeric). The first two shall denote the date (numeric). The third stands for the month (alpha-numeric). The fourth stands for the year (alphabet)

First two spaces	Third space	Fourth space	
DATE	MONTH	YEAR	
01	1 = JANUARY	A = 2012	N = 2024
02	2 = FEBRUARY	B = 2013	P = 2025
03	3 = MARCH	C = 2014	R = 2026
.	4 = APRIL	D = 2015	S = 2027
.	5 = MAY	E = 2016	T = 2028
.	6 = JUNE	F = 2017	U = 2029
10	7 = JULY	G = 2018	V = 2030
11	8 = AUGUST	H = 2019	W = 2031
.	9 = SEPTEMBER	J = 2020	X = 2032
.	X = OCTOBER	K = 2021	Y = 2033
.	Y = NOVEMBER	L = 2022	Z = 2034
31	Z = DECEMBER	M = 2023	A = 2035

For example :

1. Manufacturing code 023A will mean 2nd March, 2012
2. Manufacturing code 10XA will mean 10th October, 2012



Standard Capacitor Values

Rated Voltage (VDC)	Surge Voltage (VDC)	Capacitance Nominal (MFD)	MAX ESR at 100 Hz, 25°C (miliOhm)	Ripple Current at 100 Hz, 85°C (Amps)	Ripple Current (Irms) at 100 Hz, 105°C (Amps)	Can size Nominal D x L mm	Case Code	Ordering code
50	60	4700	30.1	10.4	6	35x62	025	SA047000050AB025_ _ _ _M01
		6800	25.7	11.2	6.5	35x62	025	SA068000050AB025_ _ _ _M01
		10000	26.6	14.0	8.1	35x105	013	SA100000050AB013_ _ _ _M01
		10000	24.5	15.7	9.1	50x80	020	SA100000050AB020_ _ _ _M01
		15000	24.1	14.7	8.5	35x105	013	SA150000050AB013_ _ _ _M01
		22000	16.5	19.2	11.1	50x80	020	SA220000050AB020_ _ _ _M01
		33000	14.1	23.4	13.5	50x105	022	SA330000050AB022_ _ _ _M01
		47000	12.2	28.5	16.5	63x105	026	SA470000050AB026_ _ _ _M01
		68000	11.4	32.9	19	76x105	028	SA680000050AB028_ _ _ _M01
		100000	9.1	38.9	22.5	76x120	041	SA1000H0050AB041_ _ _ _M01
		150000	7.5	46.7	27	76x146	081	SA1500H0050AB081_ _ _ _M01
		220000	7.8	55.4	32	76x220	092	SA2200H0050AB092_ _ _ _M01
63	75	4700	26.5	11.1	6.4	35x62	025	SA047000063AB025_ _ _ _M01
		6800	22.2	12.1	7	35x62	025	SA068000063AB025_ _ _ _M01
		10000	19.7	16.3	9.4	35x105	013	SA100000063AB013_ _ _ _M01
		10000	19.7	17.6	10.15	50x80	020	SA100000063AB020_ _ _ _M01
		15000	17.4	18.7	10.8	50x80	020	SA150000063AB020_ _ _ _M01
		22000	15.2	22.5	13	50x105	022	SA220000063AB022_ _ _ _M01
		33000	13.0	27.7	16	63x105	026	SA330000063AB026_ _ _ _M01
		47000	11.4	32.9	19	76x105	028	SA470000063AB028_ _ _ _M01
		68000	10.3	39.8	23	76x146	081	SA680000063AB081_ _ _ _M01
		100000	6.1	57.1	33	90x145	095	SA1000H0063AB095_ _ _ _M01
		100000	6.2	62.3	36	76x220	092	SA1000H0063AB092_ _ _ _M01
		150000	4.8	76.8	44.4	90x220	094	SA1500H0063AB094_ _ _ _M01
75	90	4700	31.2	11.4	6.6	35x80	012	SA047000075AB012_ _ _ _M01
		6800	31.9	12.8	7.4	35x105	013	SA068000075AB013_ _ _ _M01
		10000	29.1	16.3	9.4	50x105	022	SA100000075AB022_ _ _ _M01
		15000	23.3	18.2	10.5	50x105	022	SA150000075AB022_ _ _ _M01
		22000	19.1	22.8	13.2	63x105	026	SA220000075AB026_ _ _ _M01
		33000	14.3	29.4	17	76x105	028	SA330000075AB028_ _ _ _M01
		47000	12.4	33.4	19.3	76x120	041	SA470000075AB041_ _ _ _M01
		68000	11.2	38.2	22.1	76x146	081	SA680000075AB081_ _ _ _M01
		100000	9.8	49.3	28.5	76x220	092	SA1000H0075AB092_ _ _ _M01
100	115	2200	56.1	7.6	4.4	35x62	025	SA022000100AB025_ _ _ _M01
		3300	52.3	8.8	5.1	35x80	012	SA033000100AB012_ _ _ _M01
		4700	43.9	10.9	6.3	35x105	013	SA047000100AB013_ _ _ _M01
		6800	34.2	13.3	7.7	50x80	020	SA068000100AB020_ _ _ _M01
		10000	21.7	18.9	10.9	50x105	022	SA100000100AB022_ _ _ _M01
		15000	18.3	23.4	13.5	63x105	026	SA150000100AB026_ _ _ _M01
		22000	17.2	26.8	15.5	76x105	028	SA220000100AB028_ _ _ _M01
		33000	13.6	34.6	20	76x146	081	SA330000100AB081_ _ _ _M01
		47000	11.5	41.5	24	90x145	095	SA470000100AB095_ _ _ _M01
		47000	12.8	43.3	25	76x220	092	SA470000100AB092_ _ _ _M01
		68000	10.0	48.8	28.2	76x220	092	SA680000100AB092_ _ _ _M01
		100000	6.9	64.4	37.2	90x220	094	SA1000H0100AB094_ _ _ _M01

Custom designed capacitors available

Standard Capacitor Values

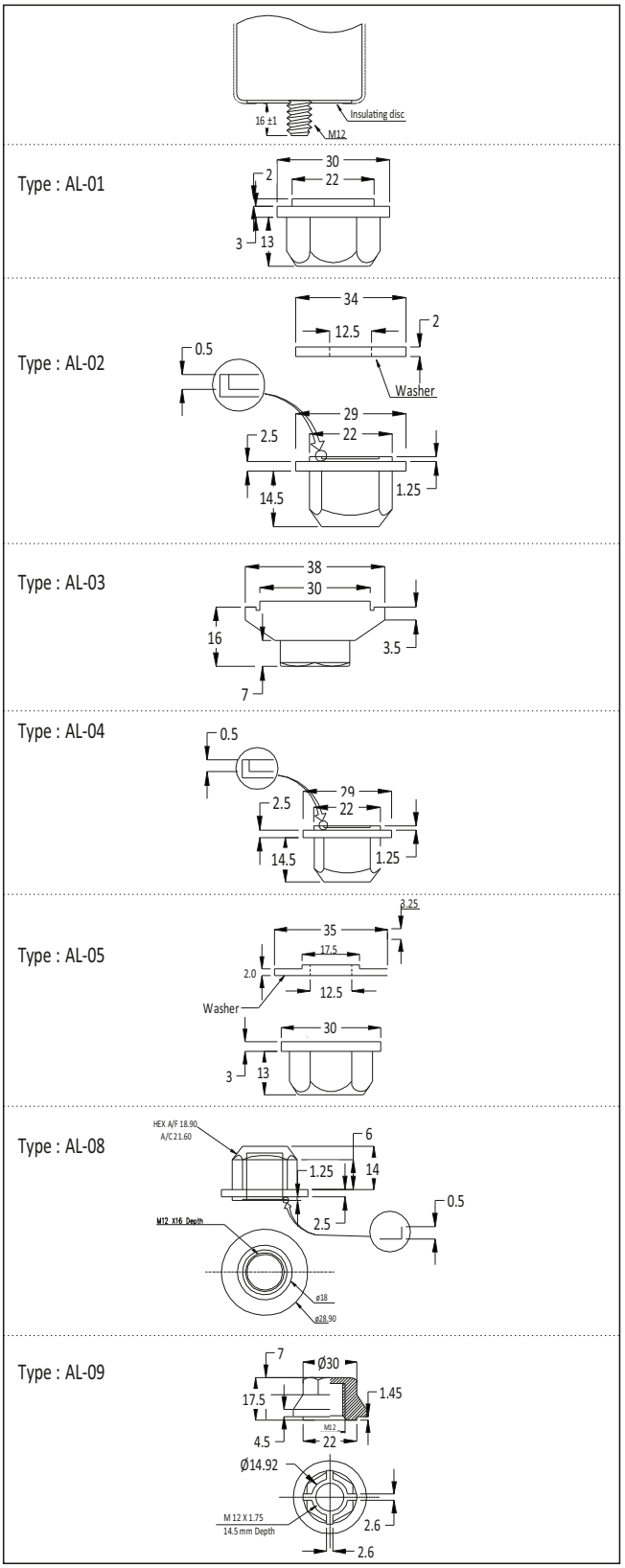
Rated Voltage (VDC)	Surge Voltage (VDC)	Capacitance Nominal (MFD)	MAX ESR at 100 Hz, 25°C (miliOhm)	Ripple Current at 100 Hz, 85°C (Amps)	Ripple Current (Irms) at 100 Hz, 105°C (Amps)	Can size Nominal D x L mm	Case Code	Ordering code
150	172	1000	151.2	5.2	3	35x80	012	SA010000150AB012____M01
		1500	114.7	6.7	3.9	35x105	013	SA015000150AB013____M01
		2200	98.9	7.3	4.2	35x105	013	SA022000150AB013____M01
		3300	85.1	9.5	5.5	50x105	022	SA033000150AB022____M01
		4700	59.1	11.4	6.6	50x105	022	SA047000150AB022____M01
		6800	49.6	14.2	8.2	63x105	026	SA068000150AB026____M01
		10000	34.1	19.7	11.4	63x145	035	SA100000150AB035____M01
		12000	31.3	22.8	13.2	76x146	081	SA120000150AB081____M01
		15000	23.9	26.1	15.1	76x146	081	SA150000150AB081____M01
		22000	17.3	37.2	21.5	76x220	092	SA220000150AB092____M01
		33000	11.0	51.0	29.5	90x220	094	SA330000150AB094____M01
200	230	1000	141.6	5.4	3.1	35x80	012	SA010000200AB012____M01
		1500	94.3	7.4	4.3	35x105	013	SA015000200AB013____M01
		2200	72.2	9.2	5.3	50x80	020	SA022000200AB020____M01
		3300	69.1	10.6	6.1	50x105	022	SA033000200AB022____M01
		4700	64.3	12.5	7.2	63x105	026	SA047000200AB026____M01
		6800	47.8	16.1	9.3	76x105	028	SA068000200AB028____M01
		10000	25.9	25.1	14.5	76x146	081	SA100000200AB081____M01
		12000	19.3	29.1	16.8	76x146	081	SA120000200AB081____M01
		15000	18.3	32.9	19	90x145	095	SA150000200AB095____M01
		22000	14.4	40.7	23.5	76x220	092	SA220000200AB092____M01
		27000	12.7	47.5	27.44	90x220	094	SA270000200AB094____M01
250	288	1000	114.7	6.7	3.9	35x105	013	SA010000250AB020____M01
		1500	88.0	8.3	4.8	50x80	020	SA015000250AB020____M01
		2200	71.5	10.4	6	50x105	022	SA022000250AB022____M01
		3300	53.4	13.7	7.9	63x105	026	SA033000250AB026____M01
		4700	41.3	17.3	10	76x105	028	SA047000250AB028____M01
		6800	32.3	22.5	13	76x146	081	SA068000250AB081____M01
		10000	20.8	28.0	16.2	76x175	090	SA100000250AB090____M01
		12000	18.1	36.3	21	76x220	092	SA120000250AB092____M01
		15000	15.7	35.5	20.5	90X175	096	SA150000250AB096____M01
		15000	15.8	38.9	22.5	76x220	092	SA150000250AB092____M01
		22000	9.9	53.8	31.1	90x220	094	SA220000250AB094____M01
315	362	1000	126.7	6.9	4	50x80	020	SA010000315AB020____M01
		1500	107.2	8.5	4.9	50x105	022	SA015000315AB022____M01
		2200	66.1	12.3	7.1	63x105	026	SA022000315AB026____M01
		3300	58.6	14.5	8.4	76x105	028	SA033000315AB028____M01
		4700	37.5	18.2	10.5	76x105	028	SA047000315AB028____M01
		6800	27.8	24.2	14	76x146	081	SA068000315AB081____M01
		10000	22.1	32.9	19	76x220	092	SA100000315AB092____M01
		15000	16.4	41.7	24.1	90x220	094	SA150000315AB094____M01
		22000	11.0	51.0	29.5	90x220	094	SA220000315AB094____M01

Custom designed capacitors available

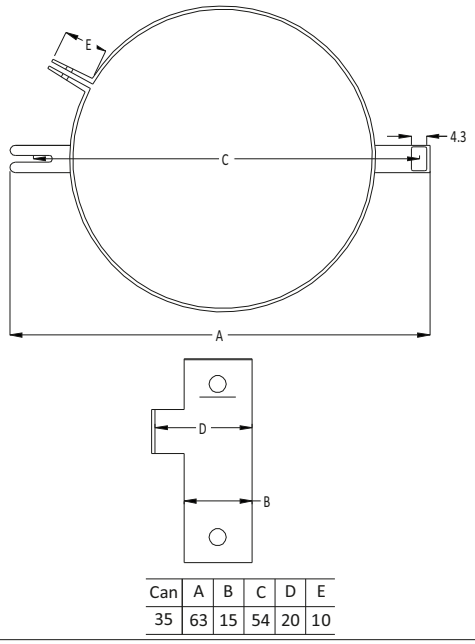
PG-PED2 - High Pulse Discharge -40°C +70°C

Mounting Accessories

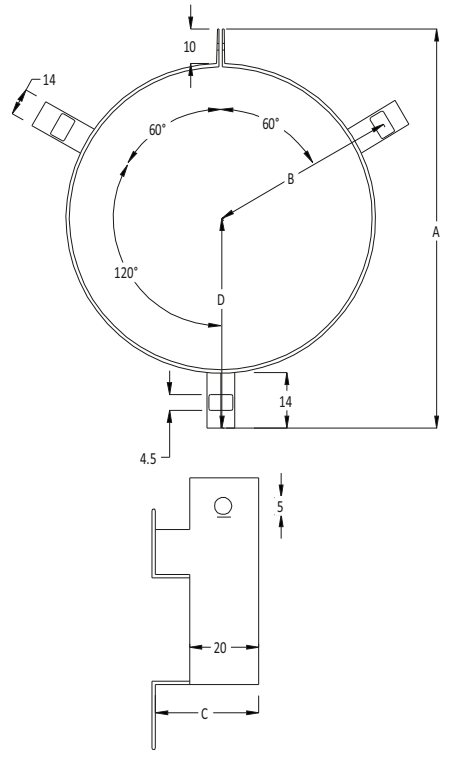
▪ **Mounting Nut and Washers for Cans with Bottom Stud**



▪ **Vertical Mounting Clamps**



Can	A	B	C	D	E
35	63	15	54	20	10



Can	A	B	C	D
50	76	33	30	40
63	89	39.5	30	46.5
76	102	46	30	53
90	116	53	30	60

All dimensions are in mm.

Part Number System

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	**2**	**3 to 7**					**8 to 11**				**12 to 13**		**14 to 16**			**17 to 20**				**21**	**22 to 23**	

Standard / Non-standard

S - Standard

N - Non-standard

Series

A - Aluminium Electrolytic Capacitors

I - IGBT Snubber Capacitors

D - DC-Link Capacitors

P - Power Film Capacitors

Capacitance Rating

example : 00001 - 1 MFD
01U20 - 1.2 MFD
04700 - 4700 MFD
00680 - 680 MFD
00U10 - 0.1 MFD
3300H - 330000 MFD

Voltage Rating

example : 1000 - 1000 VDC/VRMS
0700 - 700 VDC/VRMS
0500 - 500 VDC/VRMS

Grade

example : AA - PG6DI
PD - PG-PED2
HD - PG-2HED
AC - PG-LL9
AE - PG-5KL

Case code

(Refer table)

Terminal Style

example :
00ST - AEST
0STD - AEST-D
STAL - AEST-AL
0FLT - AFLT

Tolerance

M : ±20%

Canias Code

By Default - 01

Cautions For Proper Use Of Aluminium Electrolytic Capacitors

To use Aluminum Electrolytic Capacitors properly, please pay attention to the points listed below.

1) To avoid rapid deterioration of electrical Specifications, please avoid using following types of electrical loads on Aluminum Electrolytic Capacitors

- reverse voltage
- voltage beyond rated voltage
- ripple current beyond rated value
- severe charging/discharging

During such conditions, capacitors get overheated and there can be evolution of gas, which will be increase the internal pressure enough to operate the safety vent.

In some rare /extreme condition, capacitors may catch fire or explode.

2) Storage & use conditions

- Keep Aluminum Electrolytic Capacitors away from the following environments:
  1. Damp atmosphere where spray of water, saltwater or oil is expected, or where condensation of these may occur.
  2. Atmosphere including hazardous gas/fumes such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia or bromine. Exposure to ozone, ultraviolet rays or radiation is not advisable.
  3. Severe vibration or shock beyond the condition specified in the catalog or specification sheets.
  4. Any condition that does not conform to the operating specifications mentioned in the specification sheet or catalogue.

3) Cautions during assembly process

1. Follow the orientation instruction as in catalogue.
2. Keep capacitors from falling onto the floor. Do not use capacitors if they have fallen on to a hard surface.
3. Use the specified value of torque stated in the catalog or specification sheets to tighten the screw terminals.

4) Periodical checks

Visual inspection of pressure relief vent operation and leakage of electrolyte.

5) Disposal

- For disposal do either of the followings.
  1. Incineration (at high temperature over 800°C) after piercing or crushing capacitor body.
  2. Consignment to specialists of industrial waste. As per the compliance prescribed by the law.