GP 42 series

Compact General Purpose Capacitors
Cylindrical Aluminum Case

With its compact size and simple construction, GP42 is an efficient solution for AC Filtering applications requiring relatively low capacities and currents.

Main characteristics:

- Self-Healing Metallized Polypropylene Film
- UL-Approved Overpressure Safety Device
- Aluminum Case
- DRY Resin filling

Main applications:

- AC Filtering
- High-Performance PFC (high harmonics, voltage and RMS/surge current)
- UPS and Wind-Power Applications

General Characteristics

RMS Voltage range	250 ÷ 930 V
Capacitance range	0.1÷100 µF
Capacitance tolerance	±5% / ±10%
Max. RMS current	10 A / 16 A
Maximum working frequency	10 kHz
Thermal resistance natural cooling (RTHc)	< 12 °C/W
Series resistance (RS)	< 5 mΩ
Terminals	Single or double tag 6.3x0.8 mm
Working temperature	–40 / +70 °C
Storage temperature	–40 / +85 °C
Test voltage	U_{tc}= 3 kVac / 6 kVac @50 Hz 10 s U_{tt}= 1.5 x UnDC 10 s
Filling	Dry polyurethane resin
Dielectric	Metallized PPM film
Cylindrical case	Aluminum
Life expectancy	80.000 h (*)
Failure quota	300/10E9
Reference standards	IEC 1071-1/2 - UL 810
Overpressure Safety Device	Integrated
M8 fixing bolt	Max 5 Nm
M12 fixing bolt	Max 10 Nm

Life expectancy	4.16.42.1xxx Series	4.16.42.2xxx Series	4.16.42.3xxx Series	4.16.42.4xxx Series	4.16.42.6xxx Series	4.16.42.9xxx Series
80.000 h (rated)	250 V	330 V	450 V	550 V	690 V	930 V
40.000 h	275 V	360 V	500 V	575 V	760 V	1025 V
20.000 h	300 V	400 V	540 V	630 V	830 V	1120 V
10.000 h	330 V	450 V	600 V	690 V	930 V	1250 V

(*) Life Derating at operating voltage (according to the chart on page 75).

Cn [µF]	I_{MAX} [A]	I_{PK} C_w [A]	I_{pk} I_w [kA]	dV/dTmax [V/µs]	R_{THC} natural cooling [°C/W]	Tan MAX @50Hz [10-4]	Ø [mm]	H [mm]	Weight [g]	Part n. 416.42.	Pcs. / box	Box type
Urms= 250 V Un_{AC}= 350 V Un_{DC}= 490 V Us= 840 V												
2	5.0	8	0.1	50	11.7	3.5	25	60	40	1.05.x	250	6
5	6.5	10	0.3	50	9.4	4.0	30	60	50	1.23.x	200	6
10	7.5	11	0.5	45	6.8	4.5	35	72	80	1.42.x	100	7
15	8.0	12	0.7	45	5.8	5.0	40	72	100	1.55.x	100	6
20	8.5	13	0.7	30	4.5	5.5	40	98	140	1.63.x	50	7
25	8.5	13	0.8	30	4.5	5.5	40	98	150	1.68.x	50	7
30	9.0	14	1.0	30	3.9	5.5	40	98	170	1.69.x	50	7
40	10.0	15	0.9	20	3.3	6.0	45	122	220	1.82.x	25	7
50	10.0	15	1.1	20	3.3	6.0	45	122	230	1.89.x	25	7
60	10.0	15	1.3	20	2.9	6.0	50	122	270	1.92.x	25	7
70	10.0	15	1.5	20	2.6	6.5	55	122	320	1.95.x	25	6
80	10.0	15	1.5	20	2.6	6.5	55	122	330	1.97.x	25	6
100	10.0	15	1.7	15	2.1	7.0	60	137	420	1.99.x	25	6
Urms= 330 V Un_{AC}= 470 V Un= 600 V Us= 1120 V												
1	5.0	8	0.1	50	11.7	3.5	25	60	40	2.03.x	250	6
2	6.0	9	0.2	70	10.4	3.5	30	53	50	2.12.x	200	7
5	7.0	11	0.3	50	7.8	4.5	35	60	80	2.39.x	125	6
10	8.0	12	0.5	45	5.8	5.0	40	72	100	2.49.x	100	6
15	8.5	13	0.5	30	4.5	5.5	40	98	140	2.58.x	50	7
20	9.0	14	0.7	30	3.9	5.5	45	98	180	2.68.x	50	6
25	10.0	15	0.6	20	3.3	6.0	45	122	220	2.75.x	25	7
35	10.0	15	0.8	20	2.9	6.5	50	122	270	2.88.x	25	7
50	10.0	15	0.8	15	2.4	6.5	55	132	350	2.94.x	25	6
60	10.0	15	1.0	15	2.1	7.0	60	137	430	2.98.x	25	6
Urms= 450 V Un_{AC}= 640 V Un= 890 V Us= 1400 V												
1	5.0	8	0.1	50	11.7	3.5	25	60	40	3.08.x	250	6
2	6.5	10	0.1	50	9.4	4.0	30	60	50	3.29.x	200	6
5	8.0	12	0.2	45	5.8	5.0	40	72	100	3.47.x	100	6
10	8.5	13	0.3	30	4.5	5.5	40	98	140	3.58.x	50	7
15	10.0	15	0.3	20	3.3	6.0	45	122	220	3.77.x	25	7
20	10.0	15	0.4	20	2.9	6.5	50	122	270	3.88.x	25	7
25	10.0	15	0.4	15	2.4	6.5	55	132	350	3.92.x	25	6
30	10.0	15	0.5	15	2.4	6.5	55	132	360	3.95.x	25	6
35	10.0	15	0.6	15	2.1	7.0	60	137	430	3.97.x	25	6
40	10.0	15	0.7	15	2.1	7.0	60	137	440	3.99.x	25	6

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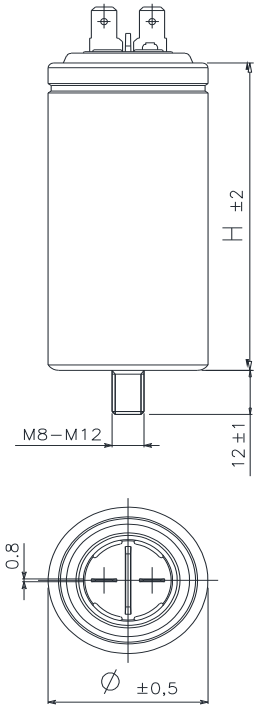
Cn [µF]	I_{MAX} [A]	I_{PK} C_w [A]	I_{pk} I_w [kA]	dV/dTmax [V/µs]	R_{THC} natural cooling [°C/W]	Tan MAX @50Hz [10-4]	Ø [mm]	H [mm]	Weight [g]	Part n. 416.42.	Pcs. / box	Box type
Urms= 550 V Un_{AC}= 780 V Un_{DC}= 940 V Us= 1680 V												
1	7.0	11	0.1	60	6.3	3.0	30	98	70	4.10.x	125	6
2	7.0	11	0.1	60	5.2	3.0	30	98	80	4.15.x	125	6
5	8.5	13	0.3	60	4.5	3.5	40	98	140	4.33.x	50	7
10	9.5	14	0.7	60	3.5	4.0	50	98	220	4.58.x	25	7
15	10.0	15	0.7	40	2.4	4.5	55	132	360	4.63.x	25	6
20	10.0	15	0.9	40	2.4	4.5	55	132	370	4.68.x	25	6
25	10.0	15	1.1	40	2.1	5.0	60	137	420	4.78.x	25	6
35	10.0	15	1.0	25	1.7	5.5	60	181	560	4.88.x	18	6
Urms= 690 V Un_{AC}= 990 V Un= 1350 V Us= 2240 V												
0.68	7.0	11	0.1	60	6.3	3.0	30	98	80	6.12.x	125	6
1	7.0	11	0.1	60	6.3	3.0	30	98	90	6.15.x	125	6
2	8.0	12	0.1	60	5.2	3.0	35	98	110	6.23.x	50	7
5	9.5	14	0.3	60	3.5	4.0	50	98	220	6.51.x	25	7
8	10.0	15	0.4	40	2.4	4.5	55	132	360	6.62.x	25	6
10	10.0	15	0.4	40	2.4	4.5	55	132	370	6.68.x	25	6
12	10.0	15	0.7	40	2.1	5.0	60	137	420	6.74.x	25	6
20	10.0	15	0.6	25	1.7	5.5	60	181	560	6.88.x	18	6
Urms= 930 V Un_{AC}= 1300 V Un= 1700 V Us= 2800 V												
0.68	8.5	13	0.1	60	3.9	3.0	40	115	160	9.10.4	50	7
1	8.5	13	0.1	60	3.9	3.0	40	115	170	9.14.4	50	7
2	8.5	13	0.1	60	3.9	3.0	40	115	190	9.18.4	50	7
5	10.5	16	0.3	60	2.7	4.0	55	115	300	9.49.4	25	6
8	12.0	18	0.4	40	2.0	4.5	60	150	470	9.61.4	25	6
10	14.0	21	0.4	40	1.8	5.0	65	150	550	9.75.4	20	6
12	16.0	24	0.5	35	1.7	5.5	65	165	600	9.85.4	15	6
14	16.0	24	0.5	35	1.7	5.5	65	165	620	9.89.4	15	6

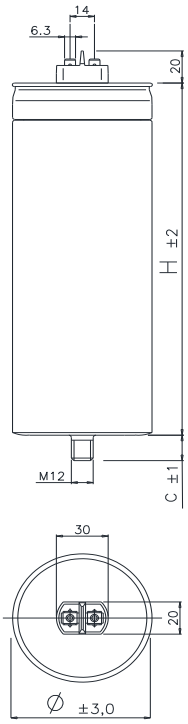
(Cn) Standard values, other values on request.
Code "x": according to the mechanical configuration, see figures at page 17 (only for A solution).

Box TYPE	Standard box dimensions
6	mm 195 x 390 x 250
7	mm 195 x 390 x 200

STUD	Capacitor diameter
M8	Ø 25 - 30 - 40 - 45 - 50
M12	Ø 55 - 60

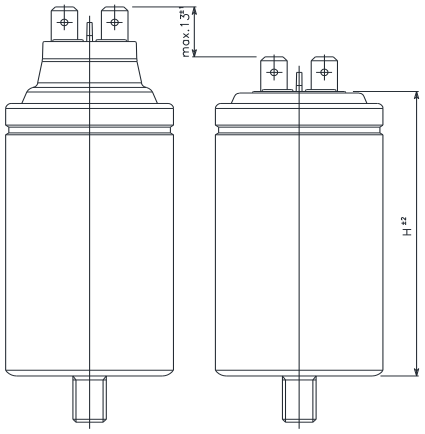


Example of cover configuration - A solution



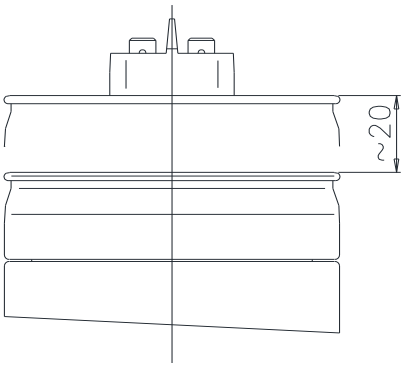
Cover configuration - B solution

C



A SOLUTION

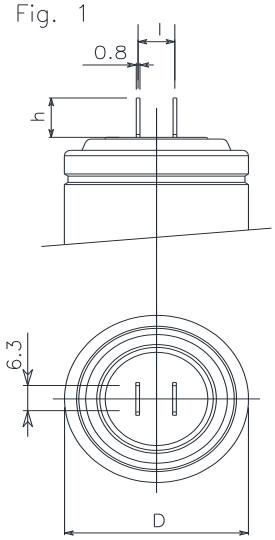
Overpressure safety device



B SOLUTION

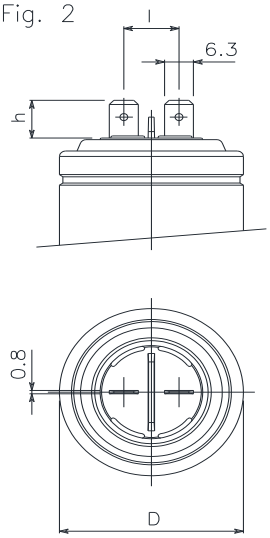
Overpressure safety device

Fig. 1



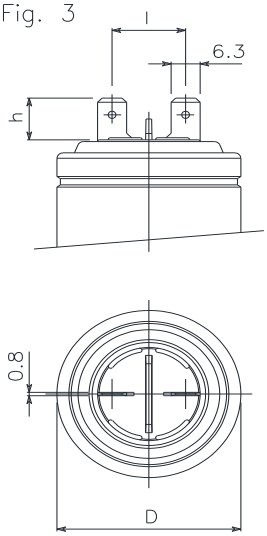
CODE .x. = 1

Fig. 2



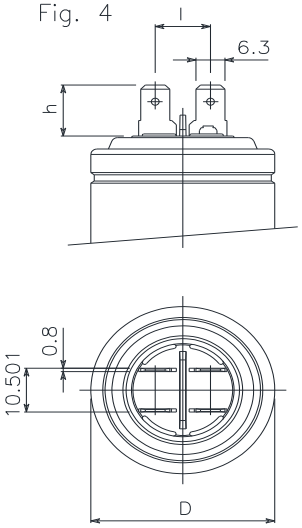
CODE .x. = 2

Fig. 3



CODE .x. = 3

Fig. 4



CODE .x. = 4

Capacitance Cn [µF]	Fig 1		Fig 2		Fig 3		Fig 4	
	h (mm)	h (mm)	h (mm)	h (mm)	h (mm)	h (mm)	h (mm)	h (mm)
25	10.9	8						
30	10.9	8	9	12				
35			9	12			12.2	12
40			9	12	10	16	12.2	12
45			9	12	10	16	12.2	12
50			9	12	10	16	12.2	12
55			9	12	10	16	12.2	12
60			8.9	15.5			12	20.5