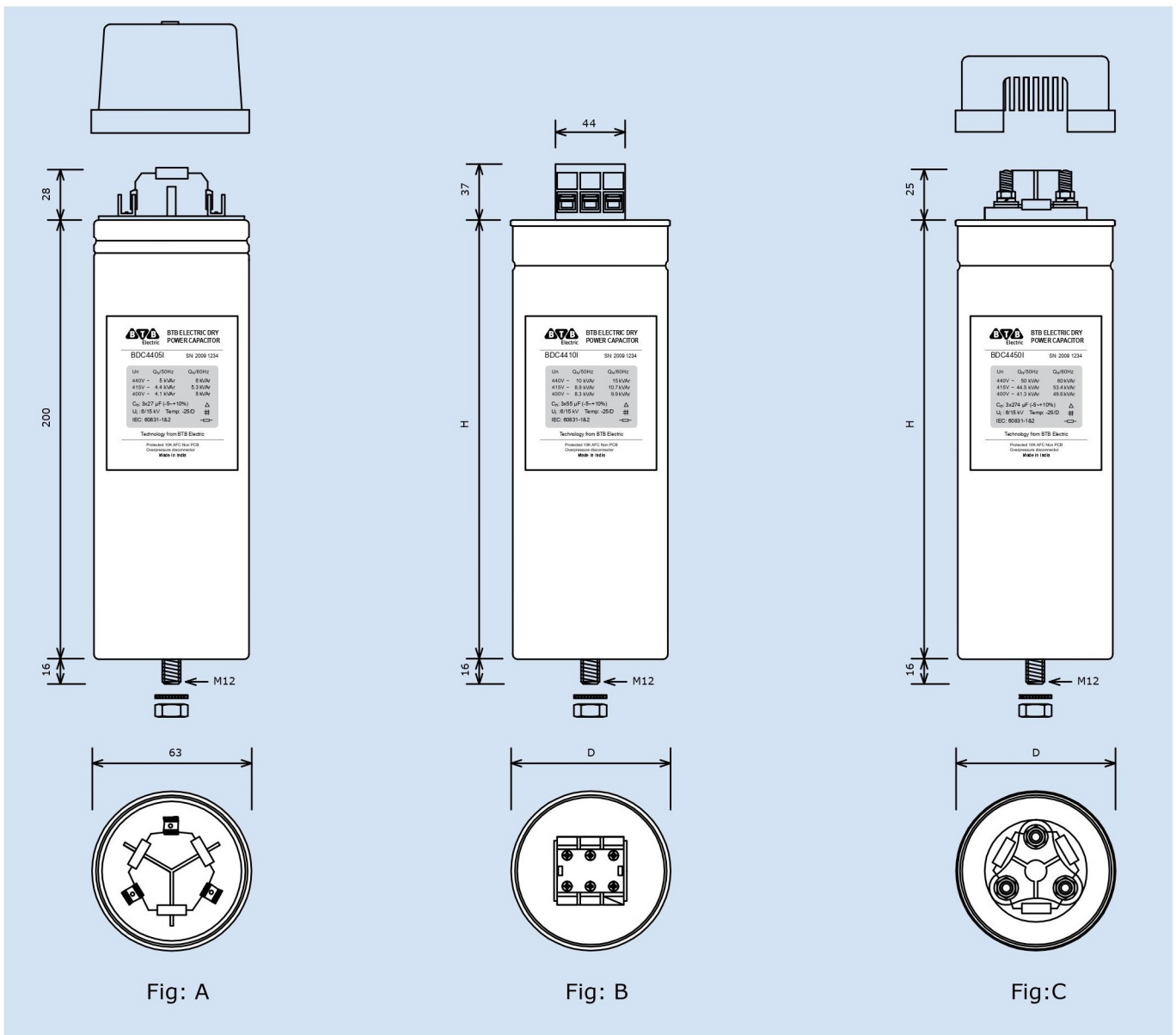




CAPACITOR DRAWING



GENERAL TECHNICAL PARAMETERS

No	Specifications	Data (BDCxxxxI)
1	Construction	Cylindrical
2	External Terminal Box & Casing Finishing	Extruded Aluminum Casing
3	Type	Dry, Self Healing
4	Dielectric	Polypropylene
5	Plate	Zinc-Aluminum Alloy (*)
6	Impregnation	Biodegradable soft resin (non PCB)
7	Rated Voltage (Un)	230V to 690V
8	Frequency	50/60Hz
9	Connection	3-phase (Internal Delta)
10	Temperature Category	- 25°C to +55°C (class D)
11	Max altitude	2000 m
12	Max relative humidity	95%
13	Capacitance Tolerance	-5% / +10%
14	Dielectric Loss	≤ 0.2W / kVAR
15	Testing Voltage Between Terminals / Time	2.15 Un / 10s
16	Testing Voltage Between Terminals And Container / Time	4kV / 10s
17	Maximum Permissible Voltage	1.1 Un (8hours in evenry 24hours)
		1.15 Un (30minutes in evenry 24hours)
		1.2 Un (5 minutes)
		1.3 Un (1 minute)
18	Maximum Permissible Current	1.5 In
19	Maximum inrush current	200 In
20	Lighting Impulse Test Between Terminal and Container	8kV (Peak)
21	Discharge Resistor For 05 - 50 kVAR	Picture
22	Fastening / Earthing	Threaded M12 stud at the bottom (≤ 15Nm)
23	Terminal Arrangements	Screw Terminal Top Deck
24	Mounting Position	Any Position
25	Statistical Life Expectancy	> 130,000 Operating Hours (**)
26	Standards	IEC 60831-1/ 2
27	IP Rating	IP20
28	Safety Device	Auto disconnect, when capacitor has trouble (Pressure Active Series Interruptor)

(*) Special resisity & profile, special edge - Wave-cut (THD ≤5%)”

(**) Respect the manufacturer’s technique

SPECS & SIZE : 250V, 50HZ

Product Code	Rated Voltage	Frequency	Rated Capacity		Rated Current	Dimensions (mm)		Discharge Resistor	Figure
	V AC		Hz	kVAR		µF	Ø D	H	
BCD2505I	250	50	5	3x85	13	75	200	100	Fig A
BCD2510I	250	50	10	3x170	25	85	300	100	Fig C
BCD2515I	250	50	15	3x255	38	100	300	47	Fig C
BCD2520I	250	50	20	3x340	50	116	300	47	Fig C
BCD2525I	250	50	25	3x424	63	136	300	47	Fig C
BCD2530I	250	50	30	3x509	75	136	300	47	Fig C

SPECS & SIZE : 415V, 50HZ

Product Code	Rated Voltage	Frequency	Rated Capacity		Rated Current	Dimensions (mm)		Discharge Resistor	Figure
	V AC		Hz	kVAR		µF	Ø D	H	
BDC4105I	415	50	5	3x31	7	63	200	680	Fig A
BDC4110I	415	50	10	3x62	14	85	200	100	Fig B, C
BDC4115I	415	50	15	3x92	21	85	300	100	Fig B, C
BDC4120I	415	50	20	3x123	28	90	300	100	Fig B, C
BDC4125I	415	50	25	3x154	35	100	300	100	Fig B, C
BDC4130I	415	50	30	3x185	42	116	300	47	Fig B, C
BDC4140I	415	50	40	3x246	56	116	300	47	Fig C
BDC4150I	415	50	50	3x308	70	136	300	47	Fig C

SPECS & SIZE : 440V, 50HZ

Product Code	Rated Voltage	Frequency	Rated Capacity		Rated Current	Dimensions (mm)		Discharge Resistor	Figure
	V AC		Hz	kVAR		µF	Ø D	H	
BDC4405I	440	50	5	3x27	7	63	200	680	Fig A
BDC4410I	440	50	10	3x55	13	75	200	100	Fig B, C
BDC4415I	440	50	15	3x82	20	75	300	100	Fig B, C
BDC4420I	440	50	20	3x110	26	85	300	100	Fig B, C
BDC4425I	440	50	25	3x137	33	90	300	100	Fig B, C
BDC4430I	440	50	30	3x164	39	100	300	47	Fig B, C
BDC4440I	440	50	40	3x219	52	116	300	47	Fig C
BDC4450I	440	50	50	3x274	66	136	300	47	Fig C

SPECS & SIZE : 480V, 50HZ

Product Code	Rated Voltage	Frequency	Rated Capacity		Rated Current	Dimensions (mm)		Discharge Resistor	Figure
	V AC		Hz	kVAR		µF	A	Ø D	
BDC4805I	480	50	5	3x23	6	63	200	680	Fig A
BDC4810I	480	50	10	3x46	12	85	200	100	Fig B, C
BDC4815I	480	50	15	3x69	18	85	300	100	Fig B, C
BDC4820I	480	50	20	3x92	24	90	300	100	Fig B, C
BDC4825I	480	50	25	3x115	30	100	300	100	Fig B, C
BDC4830I	480	50	30	3x138	36	116	300	47	Fig B, C
BDC4840I	480	50	40	3x184	48	116	300	47	Fig C
BDC4850I	480	50	50	3x230	60	136	300	47	Fig C

SPECS & SIZE : 525V, 50HZ

Product Code	Rated Voltage	Frequency	Rated Capacity		Rated Current	Dimensions (mm)		Discharge Resistor	Figure
	V AC		Hz	kVAR		µF	A	Ø D	
BDC5205I	525	50	5	3x19	5	63	200	680	Fig A
BDC5210I	525	50	10	3x38	11	85	200	100	Fig B, C
BDC5215I	525	50	15	3x58	16	85	300	100	Fig B, C
BDC5220I	525	50	20	3x77	22	90	300	100	Fig B, C
BDC5225I	525	50	25	3x96	27	100	300	100	Fig B, C
BDC5230I	525	50	30	3x115	33	116	300	100	Fig B, C
BDC5240I	525	50	40	3x154	44	136	300	100	Fig C
BDC5250I	525	50	50	3x192	55	136	300	47	Fig C

SPECS & SIZE : 690V, 50HZ

Product Code	Rated Voltage	Frequency	Rated Capacity		Rated Current	Dimensions (mm)		Discharge Resistor	Figure
	V AC		Hz	kVAR		µF	A	Ø D	
BDC6905I	690	50	5	3x11	4	68	200	1 M	Fig A
BDC6910I	690	50	10	3x22	8	90	200	680	Fig B, C
BDC6915I	690	50	15	3x33	13	90	300	100	Fig B, C
BDC6920I	690	50	20	3x45	17	100	300	100	Fig B, C
BDC6925I	690	50	25	3x56	21	116	300	100	Fig B, C
BDC6930I	690	50	30	3x67	25	136	300	100	Fig B, C

BASIC CHARACTERISTICS

Many electrical devices, equipments and systems needs an electromagnetic field for their standard operation. This physical necessity leads to a consumption of reactive power which is used to provide basic function but not any active power. It means that transmission and distribution system is loaded with this reactive power and that's not an economically effective use and therefore it's penalized by electrical utility companies.

The solution is to use local power factor compensation to provide the required rective power from power capacitors directly to the appliance to avoid undesired load of the mains network.

CALCULATION TABLE AND FORMULA FOR REQUIRED REACTIVE POWER

Original cos φ ₁	k coefficient for target cosφ ₂										
	0,90	0,91	0,92	0,93	0,94	0,95	0,96	0,97	0,98	0,99	1,00
0,70	0,54	0,56	0,59	0,62	0,66	0,69	0,73	0,77	0,82	0,88	1,02
0,75	0,40	0,43	0,46	0,49	0,52	0,55	0,59	0,63	0,68	0,74	0,88
0,80	0,27	0,29	0,32	0,35	0,39	0,42	0,46	0,50	0,55	0,61	0,75
0,82	0,21	0,24	0,27	0,30	0,34	0,37	0,41	0,45	0,49	0,56	0,70
0,84	0,16	0,19	0,22	0,25	0,28	0,32	0,35	0,40	0,44	0,50	0,65
0,85	0,14	0,16	0,19	0,22	0,26	0,29	0,33	0,37	0,42	0,48	0,62
0,86	0,11	0,14	0,17	0,20	0,23	0,26	0,30	0,34	0,39	0,45	0,59
0,87	0,08	0,11	0,14	0,17	0,20	0,24	0,28	0,32	0,36	0,42	0,57
0,88	0,06	0,08	0,11	0,14	0,18	0,21	0,25	0,29	0,34	0,40	0,54
0,89	0,03	0,06	0,09	0,12	0,15	0,18	0,22	0,26	0,31	0,37	0,51
0,90		0,03	0,06	0,09	0,12	0,16	0,19	0,23	0,28	0,34	0,48
0,91			0,03	0,06	0,09	0,13	0,16	0,20	0,25	0,31	0,46
0,92				0,03	0,06	0,10	0,13	0,18	0,22	0,28	0,43
0,93					0,03	0,07	0,10	0,14	0,19	0,25	0,40
0,94						0,03	0,07	0,11	0,16	0,22	0,36
0,95							0,04	0,08	0,13	0,19	0,33

$$Q_c = P \cdot k = P \cdot (\tan \varphi_1 - \tan \varphi_2)$$

$$P = S \cdot \cos \varphi$$

CALCULATION EXAMPLE

Load power P = 100 kW
 Original cosφ₁ = 0,75
 Target cosφ₂ = 0,95
 K coeff. (from table) = 0,55



Q_c - Reactive power of the required power capacitor
 P - Active power of the load to be corrected
 K - Conversion coefficient
 φ₂ - Original cosφ
 φ₁ - Target cosφ

Capacitor reactive power Q_c

$$Q_c = P \cdot k = 100 \cdot 0,55 = 55 \text{ kvar}$$

BASIC FORMULAS FOR DETUNED POWER FACTOR CORECTION

$$U_c = \frac{UN}{1 - \frac{p}{100\%}}$$

$$p = \frac{X_L}{X_C} \cdot 100\%$$

$$f_r = f_N \cdot \sqrt{\frac{100\%}{p}}$$

U_c - Capacitor voltage – rms value of required voltage of the capacitor. The reactor cause increase of the mains voltage at capacitor.
 P - Detuning factor – ratio of reactor inductance and capacitor capacitance reactances
 f_r - Serie resonance frequency between reactor and capacitor.
 U_N - Nominal (rated) mains voltage
 f_N - Nominal (rated) mains frequency