

LOW VOLTAGE POWER CAPACITORS

Basic parameters

- Voltage 230 – 1000 V
- Output up to 50 kvar
- Self-healing dry design
- Three phase – Delta connection
- Single phase on request
- Overpressure disconnector
- Built-in discharge resistors
- Other voltages and power on request

Options

- IP 54 protection covers for selected types
- Mounting clamps

Application

Power capacitors are intended for individual, group or central power factor correction to compensate inductive reactive power of industrial appliances such as electric motors, welding equipments, etc. This inductive power is undesirable for the grid provider and shall be avoided with power factor compensation.

Construction

Power capacitors are produced in MKP system. It means metallized polypropylene with self-healing properties and extremely low dielectric losses. Capacitors are filled either with inert gas (N_2) or semi solid resin for 50kvar. The resin is non-toxic and environmentally friendly. Three phase capacitors have three elements connected in delta. Capacitors are protected with overpressure disconnector, which ensures safe disconnection of the capacitor from the network in the event of overloading or at the end of its operation life. All the capacitors are equipped with built-in discharge resistors.

The case of the capacitor is protected against bursting by the overpressure disconnector. Its proper function is ensured only if the specifications and conditions (voltage, current, temperature, correct installation, maintenance) are observed. Failure to meet and/or exceed these conditions may result in bursting of the capacitor case or even explosion and subsequent fire.

Installation instructions

Before installation it is necessary to make sure whether the nominal data of the capacitors correspond with the data indicated in the project and in the purchase order.

For cable connection of terminals or bolts and earthing bolts the following torques must be respected (unless different values for individual parts of the equipment are specified):

- M5 - terminal screw 2 Nm
- M7 - terminal screw 5 Nm
- M12 Al - earthing bolt 5 Nm



Recommended distance between capacitors situated in the capacitor bank is 20 mm at least.

It is recommended to check all the electric connections after a few days of operation and to make a visual inspection of all capacitors.

Before the switch on of the equipment check the connection and function of protection devices in the absence of voltage.

The fuses must be designed for capacitors, characteristic gG. The nominal voltage of the fuses must comply at least with the next higher normative voltage of the net, and the fuses must withstand current 1,6 times higher of the max. current on the capacitor.

Product application guide

Series	Specification	THD-U	Lifetime expectancy	Temp. category
N	For standard operating conditions	≤ 2 %	> 130 000 h	-40 / D
HD	For general use in high level applications	≤ 3 %	> 150 000 h	-40 / D (60 °C)
UHD	For applications with more demanding operating conditions	≤ 4 %	> 180 000 h	-40 / D (60 °C)

Permitted overvoltages

RMS overvoltage	Max. period
1,10 x U_N	8 hours/day
1,15 x U_N	30 min/day
1,20 x U_N	5 min (200x)
1,30 x U_N	1 min (200x)

Temperature category

Temperature category	Ambient temperature		
	Max.	24 hours*	1 year*
C	50 °C	40 °C	30 °C
D	55 °C	45 °C	35 °C
D (60 °C)	60 °C	45 °C	35 °C

*Max. mean value during period

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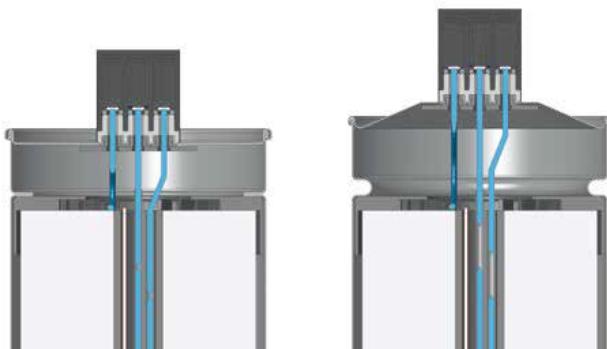
N - Normal

Three phase power capacitors, selfhealing, dry - gas filled.

General technical parameters

Standards	IEC EN 60831-1/2, VDE 0560-46/47, GOST 1282-88
Rated voltage	400 - 525 V / 50 Hz
Rated power	1 - 50 kvar
Capacitance tolerance	-5 / +10 %
Max. permissible current	$1,5 \times I_N$ continuous
Max. inrush current	$300 \times I_N$
Capacitor losses	cca 0,4 W / kvar
Discharge resistors	built-in 50 V / 1 min (75 V / 3 min over 30 kvar)
Statistical life expectancy	> 130 000 hours according to operating conditions
Protection degree	IP 20 (IP 54 selected types on request)
Max. relative humidity	95 %
Cooling	Natural air or forced
Max. altitude	4 000 m
Mounting position	Any position
Case	Aluminium can
Dielectric system	Dry metallized polypropylene
Impregnant / Filling	Inert gas N ₂ or semi-dry resin (50kvar)
Safety device	Overpressure disconnector
Terminals	Two side - 6 clamps

Overpressure disconnector function



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Three phase power capacitors, selfhealing, dry - gas filled.

Standard types

(other voltages, power and 60 Hz on request)



400 V / 50 Hz

Q_c (kvar)	Type	$C_N(\Delta)$ (μ F)	I_N (A)	$\emptyset D \times H$ (mm)	m (kg)	Drawing
10	CSADG 1-0,4/10N	3 x 66,3	14,4	85 x 245	1,1	1
12,5	CSADG 1-0,4/12,5N	3 x 82,9	18,0	85 x 245	1,2	1
20	CSADG 4-0,4/20N	3 x 133	28,9	110 x 245	1,7	2
25	CSADG 4-0,4/25N	3 x 166	36,1	110 x 245	2,0	2
30	CSADG 4-0,4/30N	3 x 199	43,3	110 x 245	2,2	2
40	CSADG 3-0,4/40N	3 x 265	57,8	136 x 261	3,4	3

415 V / 50 Hz

Q_c (kvar)	Type	$C_N(\Delta)$ (μ F)	I_N (A)	$\emptyset D \times H$ (mm)	m (kg)	Drawing
10	CSADG 1-0,415/10N	3 x 61,6	13,9	85 x 245	1,1	1
15	CSADG 1-0,415/15N	3 x 92,5	20,9	85 x 245	1,3	1
20	CSADG 1-0,415/20N	3 x 123	27,8	110 x 245	1,7	1
25	CSADG 1-0,415/25N	3 x 154	34,8	110 x 245	2,0	1
30	CSADG 3-0,415/30N	3 x 185	41,7	136 x 220	2,8	3
40	CSADG 3-0,415/40N	3 x 247	55,6	136 x 261	3,1	3
50	CSADP 3-0,415/50N	3 x 308	69,6	136 x 261	2,8	3

440 V / 50 Hz

Q_c (kvar)	Type	$C_N(\Delta)$ (μ F)	I_N (A)	$\emptyset D \times H$ (mm)	m (kg)	Drawing
10	CSADG 1-0,44/10N	3 x 54,8	13,1	85 x 245	1,1	1
12,5	CSADG 1-0,44/12,5N	3 x 68,5	16,4	85 x 245	1,1	1
15	CSADG 1-0,44/15N	3 x 82,2	19,7	85 x 245	1,2	1
20	CSADG 4-0,44/20N	3 x 110	26,2	110 x 245	1,7	2
25	CSADG 4-0,44/25N	3 x 137	32,8	110 x 245	1,9	2
28,1	CSADG 4-0,44/28,1N	3 x 154	36,8	110 x 245	2,1	2
30	CSADG 4-0,44/30N	3 x 164	39,4	110 x 245	2,2	2
40	CSADG 3-0,44/40N	3 x 219	52,5	136 x 261	3,1	3
50	CSADP 3-0,44/50N	3 x 274	65,6	136 x 261	3,8	3

N Features

$I_{max} = 1,5 \times I_N$

Lifetime expectancy: > 130 000 h

Temperature class: -40/D

Dry type: gas filling

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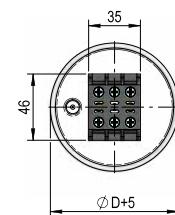
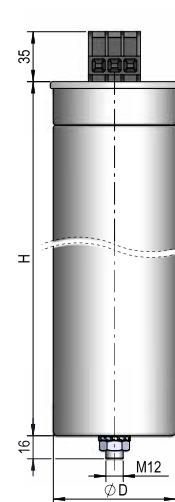
480 V / 50 Hz

Q_c (kvar)	Type	$C_N(\Delta)$ (μF)	I_N (A)	$\emptyset D \times H$ (mm)	m (kg)	Drawing
7,5	CSADG 1-0,48/7,5N	3 x 34,6	9,0	85 x 175	0,8	1
12	CSADG 1-0,48/12N	3 x 55,3	14,4	85 x 245	1,0	1
15	CSADG 1-0,48/15N	3 x 69,1	18,0	85 x 245	1,3	1
18	CSADG 1-0,48/18N	3 x 82,9	21,7	110 x 245	1,5	1
20	CSADG 1-0,48/20N	3 x 92,2	24,1	110 x 245	1,7	1
25	CSADG 1-0,48/25N	3 x 115	30,1	110 x 245	1,9	1
30	CSADG 1-0,48/30N	3 x 138	36,1	110 x 245	2,1	1
50	CSADG 3-0,48/50N	3 x 230	60,1	136 x 261	3,4	3

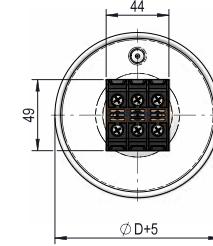
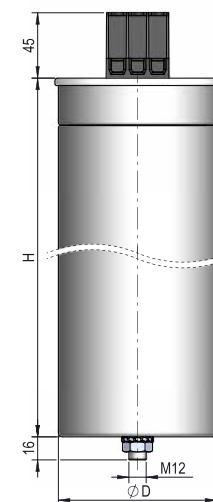
525 V / 50 Hz

Q_c (kvar)	Type	$C_N(\Delta)$ (μF)	I_N (A)	$\emptyset D \times H$ (mm)	m (kg)	Drawing
10	CSADG 1-0,525/10N	3 x 38,5	11,0	85 x 175	1,0	1
12,5	CSADG 1-0,525/12,5N	3 x 48,1	13,7	85 x 245	1,1	1
15	CSADG 1-0,525/15N	3 x 57,8	16,5	85 x 245	1,2	1
20	CSADG 1-0,525/20N	3 x 77,0	22,0	110 x 245	1,7	1
25	CSADG 4-0,525/25N	3 x 96,3	27,5	110 x 245	1,9	2
30	CSADG 4-0,525/30N	3 x 116	33,0	110 x 245	2,1	2
37,5	CSADG 3-0,525/37,5N	3 x 144	41,2	136 x 261	3,2	3
40	CSADG 3-0,525/40N	3 x 154	44,0	136 x 261	3,3	3
50	CSADP 3-0,525/50N	3 x 193	55,0	136 x 261	3,8	3

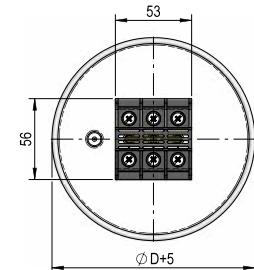
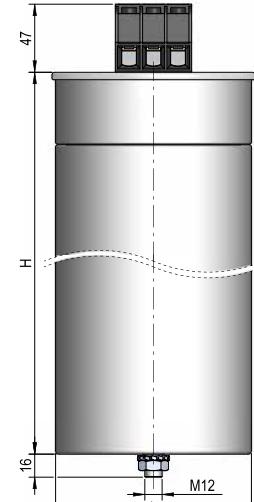
Drawing



No. 1



No. 2



No. 3