

Basic parameters

- Voltage 230 – 1000V
- 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.

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):

Type of terminal	Max. cable cross section	Recommended fixing torque	Screw head type
A	16 mm2	1,2 - 1,7 Nm	PH1
B	25 mm2	2,0 - 2,5 Nm	PH2
C	35 mm2	2,5 - 4,0 Nm	Hex



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 (N2) for CSADG types or semi solid resin for CSADP types. The resin is non-toxic and ecologically 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.

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)

Max. permissible voltage

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 categories

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

N - Normal

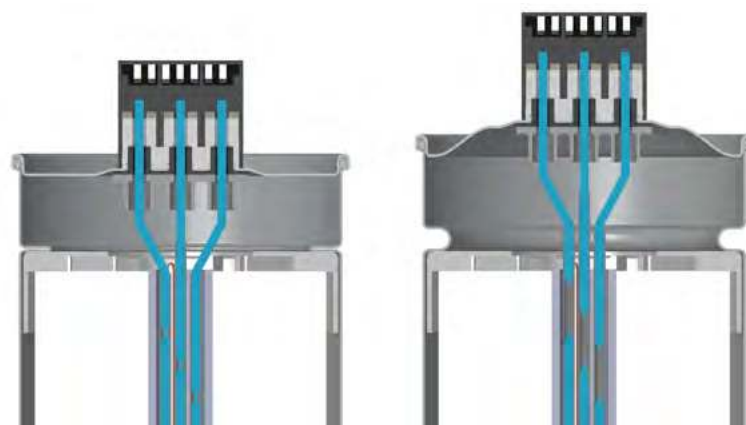
Three phase power capacitors, selfhealing, dry - gas filled



General technical parametres

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 x I _N Continuous
Max. Inrush Current	300 x 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 (50 kvar)
Safety Device	3 fuses overpressure disconnecter
Terminals	One side - 3 clamps

Overpressure disconnector function



Standard types

(other voltages, power and 60 Hz on request)

440 - 415 - 400 V / 50 Hz

Q _c (kvar)			Type	C _N (Δ) (μF)	I _N (A)			Ø D x H (mm)	m (kg)	Term.
440 V	415 V	400 V			440 V	415 V	400 V			
2,5	2,2	2,1	CSADG-0,44/2,5-N	3 x 13,7	3,3	3,1	3,0	85 x 165	0,7	A
5	4,5	4,1	CSADG-0,44/5-N	3 x 27,4	6,6	6,3	5,9	85 x 165	0,8	A
6,25	5,6	5,2	CSADG-0,44/6,25-N	3 x 34,3	8,2	7,7	7,5	85 x 165	0,9	A
7	6,25	6	CSADG-0,44/7-N	3 x 38,5	9,2	8,7	8,7	85 x 165	0,9	A
7,5	6,7	6,2	CSADG-0,44/7,5-N	3 x 41,1	9,8	9,3	8,9	85 x 165	0,9	A
8,5	7,5	7	CSADG-0,44/8,5-N	3 x 46,2	11,2	10,4	10,1	85 x 165	1,0	A
9	8	7,5	CSADG-0,44/9-N	3 x 49,7	11,8	11,1	10,8	85 x 165	1,0	A
10	9	8,3	CSADG-0,44/10-N	3 x 54,8	13,1	12,5	12,3	85 x 165	1,0	A
11	10	9	CSADG-0,44/11-N	3 x 61,6	14,4	13,9	13,0	85 x 235	1,2	A
12	10,7	10	CSADG-0,44/12-N	3 x 66,3	15,7	15,3	14,4	85 x 235	1,2	A
12,5	11	10,3	CSADG-0,44/12,5-N	3 x 68,5	16,4	15,3	15,2	85 x 235	1,3	A
14	12,5	11,5	CSADG-0,44/14-N	3 x 77,0	18,4	17,4	17,3	85 x 235	1,3	A
15	13,5	12,5	CSADG-0,44/15-N	3 x 82,2	19,7	18,1	18,0	85 x 235	1,4	A
17	15	14	CSADG-0,44/17-N	3 x 92,4	22,3	20,9	20,2	85 x 235	1,4	A
18	16	15	CSADG-0,44/18-N	3 x 99,5	23,6	22,3	21,7	85 x 235	1,5	A
20	18	16,5	CSADG-0,44/20-N	3 x 110	26,2	25,0	23,8	100 x 235	1,7	A
22	20	18,5	CSADG-0,44/22-N	3 x 123	28,9	27,8	26,7	100 x 235	1,8	A
25	22,5	20,4	CSADG-0,44/25-N	3 x 137	32,8	30,6	30,3	100 x 235	1,9	A
28,1	25	23	CSADG-0,44/28,1-N	3 x 154	36,9	34,8	33,2	116 x 235	2,1	B
30	26,5	25	CSADG-0,44/30-N	3 x 164	39,4	37,6	36,1	116 x 235	2,2	B
33,3	30	27,5	CSADG-0,44/33,3-N	3 x 183	43,7	41,7	39,7	136 x 247	2,8	B
37,5	33,3	31	CSADG-0,44/37,5-N	3 x 206	49,2	46,3	44,7	136 x 247	3,0	B
40	36	33,3	CSADG-0,44/40-N	3 x 219	52,5	50,1	47,6	136 x 247	3,1	B
50	45	41	CSADG-0,44/50-N	3 x 274	65,6	62,6	59,2	136 x 247	3,8	C
56,2	50	46,5	CSADG-0,44/56,2-N	3 x 308	73,7	69,6	66,4	136 x 341	5,2	C

Features

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

Lifetime Expectancy: > 130 000 h

Temperature Class: -40/D

Dry type: gas filling

Features

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

Lifetime Expectancy: > 130 000 h

Temperature Class: -40/D

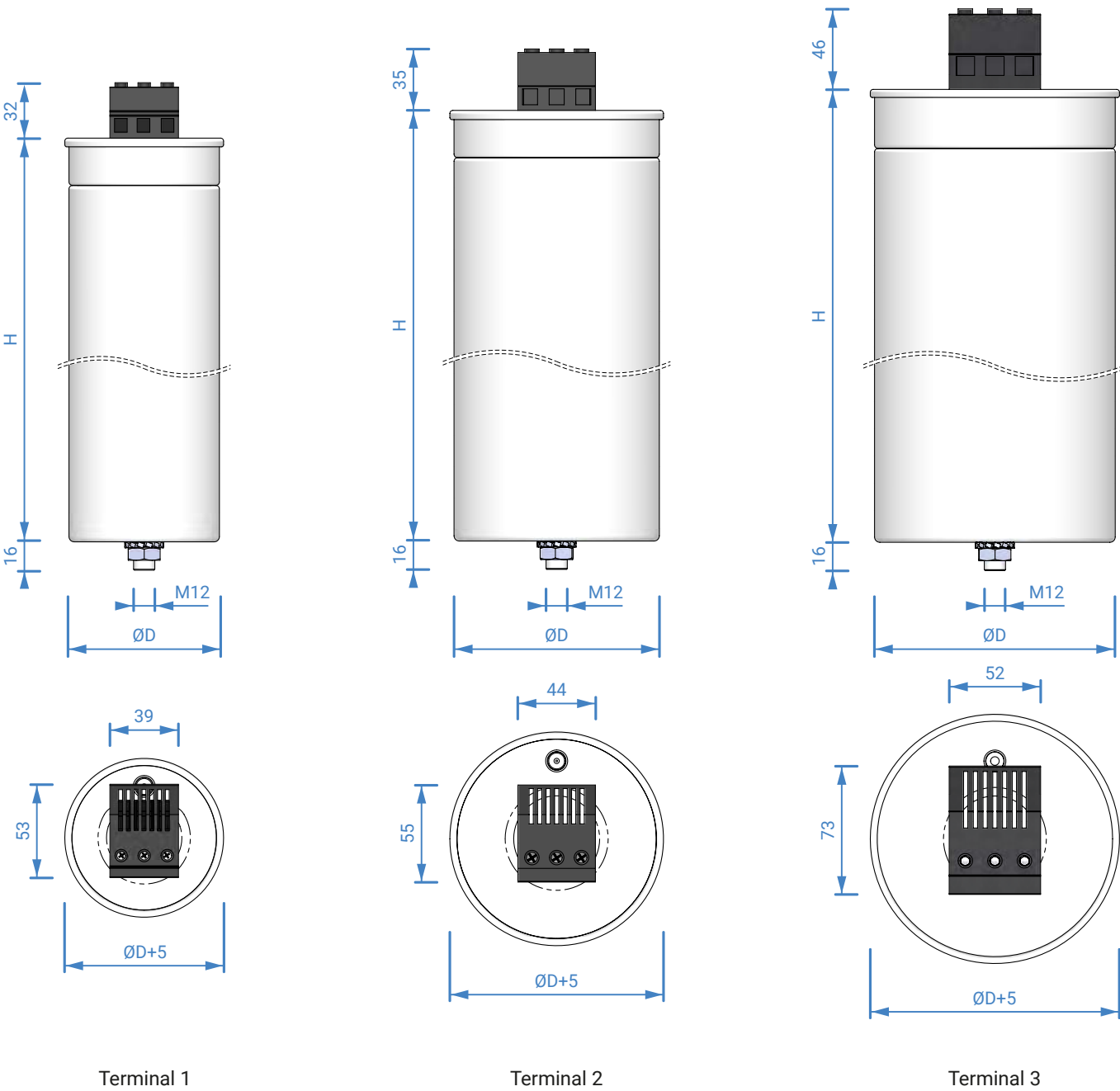
Dry type: gas filling

480 - 460 - 440 V / 50 Hz

Q _c (kvar)			Type	C _N (Δ) (μF)	I _N (A)			Ø D x H (mm)	m (kg)	Term.
480 V	460 V	440 V			480 V	460 V	440 V			
6,25	5,7	5,3	CSADG-0,48/6,25-N	3 x 28,8	7,5	7,2	7,0	85 x 165	0,9	A
7,5	7	6,25	CSADG-0,48/7,5-N	3 x 34,6	9,0	8,8	8,2	85 x 165	1,0	A
12,5	11,5	10,5	CSADG-0,48/12,5-N	3 x 57,6	15,0	14,4	13,8	85 x 235	1,3	A
15	14	12,5	CSADG-0,48/15-N	3 x 69,1	18,0	17,6	16,4	85 x 235	1,4	A
20	18,5	17	CSADG-0,48/20-N	3 x 92,2	24,1	23,2	22,3	100 x 235	1,9	A
25	23	21	CSADG-0,48/25-N	3 x 115	30,1	28,9	27,6	116 x 235	2,1	B
27,5	25	23	CSADG-0,48/27,5-N	3 x 127	33,1	31,4	30,2	116 x 235	2,2	B
30	27,5	25	CSADG-0,48/30-N	3 x 138	36,1	34,5	32,8	116 x 235	2,3	B
33,3	31	28,1	CSADG-0,48/33,3-N	3 x 153	40,1	38,9	36,7	116 x 235	2,5	B
40	37	33,3	CSADG-0,48/40-N	3 x 184	48,1	46,4	43,3	136 x 247	3,3	B
50	46	42	CSADG-0,48/50-N	3 x 230	60,1	57,7	55,1	136 x 341	5,2	C

525 - 480 - 460 V / 50 Hz

Q _c (kvar)			Type	C _N (Δ) (μF)	I _N (A)			Ø D x H (mm)	m (kg)	Term.
525 V	480 V	460 V			525 V	480 V	460 V			
5	4,2	3,8	CSADG-0,525/5-N	3 x 19,3	5,5	5,1	4,8	85 x 165	0,9	A
7,5	6,3	5,7	CSADG-0,525/7,5-N	3 x 28,8	8,2	7,5	7,2	85 x 165	1,0	A
10	8,4	7,7	CSADG-0,525/10-N	3 x 38,5	11,0	10,2	9,4	85 x 235	1,2	A
12,5	10,4	9,6	CSADG-0,525/12,5-N	3 x 48,1	13,7	12,6	11,9	85 x 235	1,3	A
15	12,5	11,5	CSADG-0,525/15-N	3 x 57,8	16,5	15,0	14,4	85 x 235	1,5	A
20	16,7	15,4	CSADG-0,525/20-N	3 x 77,0	22,0	20,4	19,5	100 x 235	1,9	A
25	20,9	19,2	CSADG-0,525/25-N	3 x 96,3	27,5	25,3	23,8	116 x 235	2,2	B
27,5	23	21,1	CSADG-0,525/27,5-N	3 x 116	30,2	27,7	26,4	116 x 235	2,3	B
30	25,1	23	CSADG-0,525/30-N	3 x 106	33,0	30,1	28,9	116 x 235	2,4	B
33,3	27,8	25,6	CSADG-0,525/33,3-N	3 x 128	36,6	33,7	31,4	136 x 247	2,7	B
37,5	31,3	28,8	CSADG-0,525/37,5-N	3 x 144	41,2	37,3	36,4	136 x 247	3,3	B
40	33,3	30	CSADG-0,525/40-N	3 x 154	44,0	40,1	38,9	136 x 247	3,4	B
50	41,8	38,4	CSADG-0,525/50-N	3 x 193	55,0	50,5	47,7	136 x 341	5,2	C



Terminal	A	B	C
Max. cross section (mm²)	16	25	35

HD - Heavy Duty

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	230 - 800 V / 50 Hz
Rated Power	1 - 50 kvar
Capacitance Tolerance	-5 / +10 %
Max. Permissible Current	1,5 x I _N Continuous, 2 x I _N Short period*
Max. Inrush Current	400 x I _N
Capacitor Losses	cca 0,4 W / kvar
Discharge Resistors	built-in 75 V / 3 min (50 V / 1 min up to 30 kvar)
Statistical Life Expectancy	> 150 000 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 (50 kvar)
Safety Device	3 fuses overpressure disconnecter
Terminals	One side - 3 clamps

Note: * Maximum current for 48 hours continuous operation with relation to highest mean ambient temperature of 45°C over period of 24 h.

Overpressure disconnector function



Standard types

(other voltages, power and 60 Hz on request)

Features

$I_{max} = 2 \times I_N$
 Lifetime Expectancy: > 150 000 h
 Temperature Class: -40/D (60 °C), ** -40/C
 Dry type: gas filling

440 - 415 - 400 V / 50 Hz

Q _c (kvar)			Type	C _N (Δ) (μF)	I _N (A)			Ø D x H (mm)	m (kg)	Term.
440 V	415 V	400 V			440 V	415 V	400 V			
0,5	0,45	0,4	CSADG-0,44/0,5-HD	3 x 2,7	0,7	0,6	0,6	85 x 175	0,6	A
0,75	0,67	0,6	CSADG-0,44/0,75-HD	3 x 4,1	1,0	0,9	0,9	85 x 175	0,6	A
1	0,89	0,8	CSADG-0,44/1-HD	3 x 5,5	1,3	1,2	1,2	85 x 175	0,6	A
2,5	2,2	2	CSADG-0,44/2,5-HD	3 x 13,7	3,3	3,1	3,0	85 x 175	0,6	A
3,15	2,8	2,6	CSADG-0,44/3,15-HD	3 x 16,6	4,1	3,9	3,8	85 x 175	0,7	A
5	4,5	4	CSADG-0,44/5-HD	3 x 27,4	6,6	6,3	5,9	85 x 175	0,8	A
6,25	5,6	5	CSADG-0,44/6,25-HD	3 x 34,4	8,2	7,8	7,5	85 x 175	0,9	A
7,5	6,7	6,25	CSADG-0,44/7,5-HD	3 x 41,1	9,8	9,3	9,0	85 x 175	0,9	A
10	9	8	CSADG-0,44/10-HD	3 x 54,8	13,1	12,5	12,0	85 x 245	1,1	A
12,5	11,0	10	CSADG-0,44/12,5-HD	3 x 69,0	16,4	15,3	14,4	85 x 245	1,2	A
14	12,5	11,5	CSADG-0,44/14-HD	3 x 76,8	18,4	17,4	16,6	85 x 245	1,4	A
15	13,5	12,5	CSADG-0,44/15-HD	3 x 82,5	19,7	18,8	18,0	85 x 245	1,4	A
18,2	16	15	CSADG-0,44/18,2-HD	3 x 100	23,9	22,3	21,7	100 x 245	1,6	A
20	18	16,5	CSADG-0,44/20-HD	3 x 110	26,2	25,0	23,8	100 x 245	1,8	A
25	22,5	20	CSADG-0,44/25-HD	3 x 137	32,8	31,3	29,4	100 x 245	1,9	A
28,1	25	23	CSADG-0,44/28,1-HD	3 x 154	36,9	34,8	33,2	116 x 245	2,1	B
30	26,5	25	CSADG-0,44/30-HD	3 x 165	39,4	36,9	36,1	116 x 245	2,2	B
36	32	30	CSADG-0,44/36-HD	3 x 199	47,2	44,5	43,3	136 x 261	3,8	B
37,5	33,3	31	CSADG-0,44/37,5-HD	3 x 206	49,2	46,3	44,7	136 x 261	3,9	B
40	36	33,3	CSADG-0,44/40-HD	3 x 219	52,5	50,1	48,1	136 x 261	4,0	B
50	44,5	41	CSADG-0,44/50-HD	3 x 274	65,6	61,9	59,2	136 x 355	5,0	C
56,2	50	46,5	CSADG-0,44/56,2-HD	3 x 308	73,8	64,7	67,1	136 x 355	5,1	C
60**	53,4	50	CSADG-0,44/60-HD	3 x 329	78,7	74,3	72,2	136 x 355	5,2	C

Features

$I_{\max} = 2 \times I_N$

Lifetime Expectancy: > 150 000 h

Temperature Class: -40/D (60 °C), ** -40/C

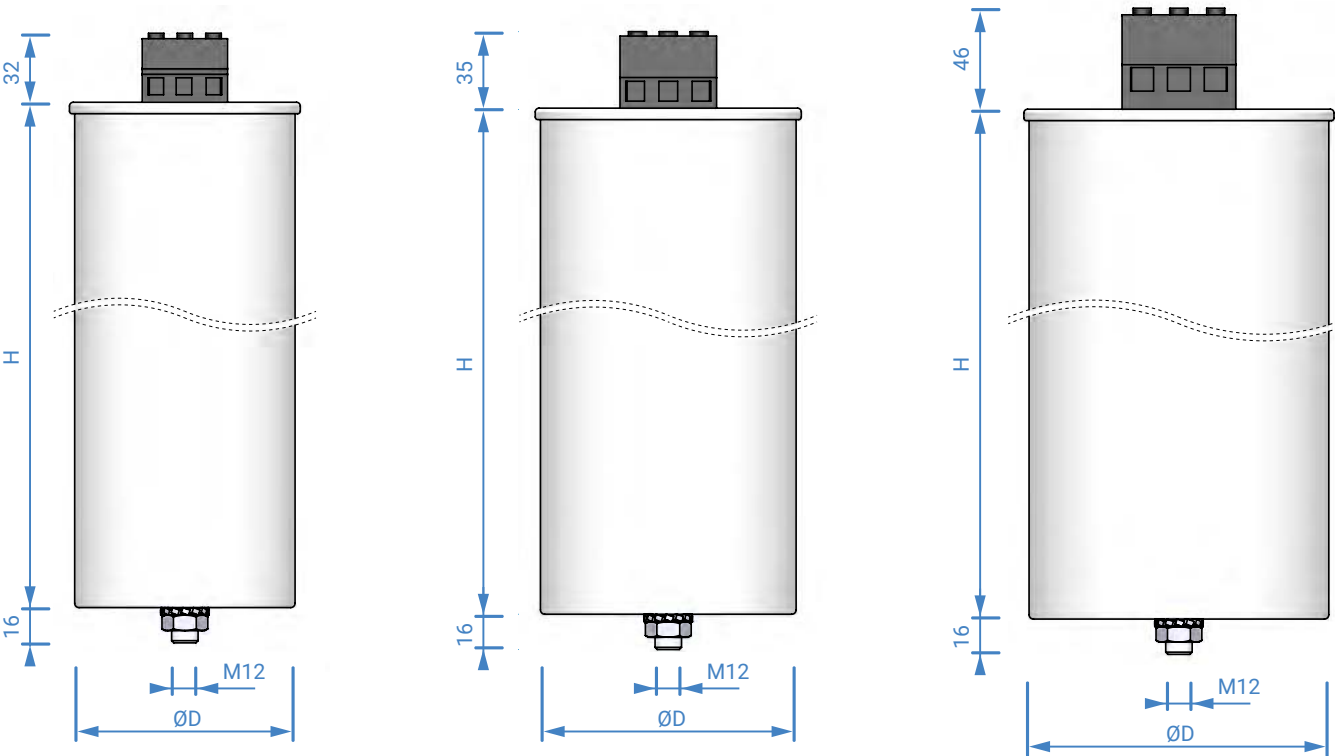
Dry type: gas filling

480 - 460 - 440 V / 50 Hz

Q _c (kvar)			Type	C _N (Δ) (μF)	I _N (A)			Ø D x H (mm)	m (kg)	Term.
480 V	460 V	440 V			480 V	460 V	440 V			
6,25	5,7	5,3	CSADG-0,48/6,25-HD	3 x 28,7	7,5	7,2	6,9	85 x 175	0,8	A
7,5	7	6,3	CSADG-0,48/7,5-HD	3 x 34,5	9,0	8,8	8,3	85 x 175	0,8	A
10	9,2	8,4	CSADG-0,48/10-HD	3 x 46,0	12,0	11,5	11,0	85 x 245	1,1	A
12,5	11,5	10,5	CSADG-0,48/12,5-HD	3 x 57,6	15,0	14,4	13,8	85 x 245	1,3	A
15	13,7	12,6	CSADG-0,48/15-HD	3 x 69,1	18,0	17,2	16,5	85 x 245	1,5	A
20	18,5	16,8	CSADG-0,48/20-HD	3 x 92,1	24,1	23,2	22,1	100 x 245	2,2	A
25	23	21	CSADG-0,48/25-HD	3 x 115	30,1	28,9	27,6	116 x 245	2,4	B
30	27,5	25	CSADG-0,48/30-HD	3 x 137	36,1	34,5	33,1	116 x 245	2,6	B
33,3	31	28	CSADG-0,48/33,3-HD	3 x 154	40,1	38,9	36,7	116 x 245	2,1	B
40	37	33,6	CSADG-0,48/40-HD	3 x 183	48,1	46,4	44,1	136 x 261	3,8	B
48	44	40	CSADG-0,48/48-HD	3 x 219	57,7	55,2	52,9	136 x 261	4,0	B
50	46	42	CSADG-0,48/50-HD	3 x 230	60,1	57,7	55,1	136 x 355	5,2	C
60**	55,1	50	CSADG-0,48/60-HD	3 x 274	72,2	69,2	66,2	136 x 355	5,2	C

525 - 480 - 460 V / 50 Hz

Q _c (kvar)			Type	C _N (Δ) (μF)	I _N (A)			Ø D x H (mm)	m (kg)	Term.
525 V	480 V	460 V			525 V	480 V	460 V			
7,5	6,3	5,8	CSADG-0,525/7,5-HD	3 x 28,9	8,2	7,5	7,2	85 x 175	0,8	A
10	8,4	7,7	CSADG-0,525/10-HD	3 x 38,5	11,0	10,1	9,6	85 x 245	1,0	A
12,5	10,4	9,6	CSADG-0,525/12,5-HD	3 x 48,1	13,7	12,6	12,0	85 x 245	1,1	A
15	12,5	11,5	CSADG-0,525/15-HD	3 x 57,7	16,5	15,1	14,5	85 x 245	1,3	A
20	16,7	15,4	CSADG-0,525/20-HD	3 x 77,0	22,0	20,1	19,3	100 x 245	1,9	A
25	21	19	CSADG-0,525/25-HD	3 x 96,2	27,5	25,1	24,1	116 x 245	2,1	B
30	25	23	CSADG-0,525/30-HD	3 x 116	33,0	30,2	28,9	116 x 245	2,3	B
37,5	31,3	28,8	CSADG-0,525/37,5-HD	3 x 144	41,2	37,7	36,1	136 x 261	3,6	B
40	33,4	30,7	CSADG-0,525/40-HD	3 x 154	44,0	40,2	38,5	136 x 261	3,7	B
50	41,8	38,4	CSADG-0,525/50-HD	3 x 193	55,0	50,3	48,2	136 x 355	5,5	C



Terminal A

Terminal B

Terminal C

Terminal	A	B	C
Max. cross section (mm²)	16	25	35

UHD - Ultra Heavy Duty

Three phase power capacitors, selfhealing, semi dry resin

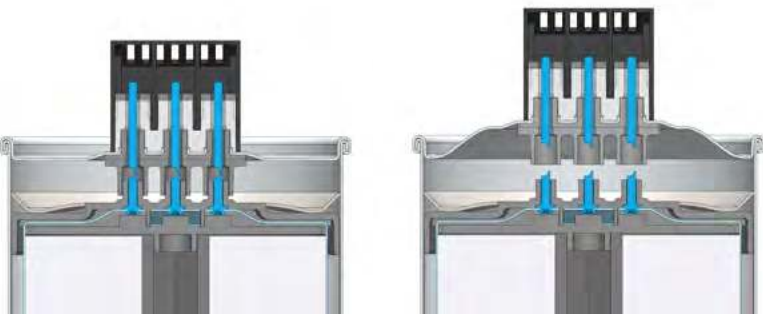


General technical parameters

Standards	IEC EN 60831-1/2, VDE 0560-46/47, GOST 1282-88
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Rated Power	1 - 50 kvar
Capacitance Tolerance	-5 / +10 %
Max. Permissible Current	1,5 x I _N Continuous, 2,5 x I _N Short period *
Max. Inrush Current	400 x I _N
Capacitor Losses	cca 0,4 W / kvar
Discharge Resistors	built-in 75 V / 3 min
Statistical Life Expectancy	> 180 000 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	Semi-dry resin
Safety Device	3 fuses overpressure disconnector
Terminals	One side - 3 clamps

Note: * Maximum current for 48 hours continuous operation with relation to highest mean ambient temperature of 45°C over period of 24 h.

Overpressure disconnector function



Standard types

(other voltages, power and 60 Hz on request)

Features

- I_{max} = 2,5 x I_N
- Lifetime Expectancy: > 180 000 h
- Temperature Class: -40/D (60 °C)
- Semi Dry type: semi-dry resin

440 V / 50 Hz

Q _c (kvar)	Type	C _N (Δ) (μF)	I _N (A)	Ø D x H (mm)	m (kg)	Terminal
6,25	CSADG-0,44/6,25-UHD	3 x 34,3	8,2	85 x 175	1,1	A
7,5	CSADG-0,44/7,5-UHD	3 x 41,1	9,9	85 x 175	1,2	A
10	CSADG-0,44/10-UHD	3 x 54,8	13,1	85 x 245	1,4	A
12,5	CSADG-0,44/12,5-UHD	3 x 68,5	16,4	85 x 245	1,5	A
15	CSADG-0,44/15-UHD	3 x 82,2	19,7	85 x 245	1,6	A
20	CSADG-0,44/20-UHD	3 x 110	26,2	100 x 245	2,5	A
25	CSADG-0,44/25-UHD	3 x 137	32,8	116 x 245	3,2	B
28,1	CSADG-0,44/28,1-UHD	3 x 154	36,8	116 x 245	3,3	B
30	CSADG-0,44/30-UHD	3 x 164	39,4	116 x 245	3,3	B
40	CSADG-0,44/40-UHD	3 x 219	52,5	136 x 261	4,0	B
50	CSADG-0,44/50-UHD	3 x 274	65,6	136 x 355	5,0	C

