CKSG/CKDG

Series Low Voltage Series Reactor

I. Scope of Application

When compensating capacitive reactive power, the capacitor is often affected by the harmonic current, closing inrush current and operating overvoltage, resulting in capacitor damage and power factor reduction. Therefore, the series reactor needs to be installed in series at the front end of the capacitor to suppress and absorb harmonic waves to protect the capacitor so as to avoid the influence of harmonic voltage and current as well as impulse voltage and current, improve the power quality, improve the system's power factor, prolong the capacitor life, and ensure the safe operation of the power grid.

II. Model Description

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- Rated reactance rate XL/Xc (%)
- Equipped capacitor rated line voltage (kV)
- Reactor three-phase capacity (Kvar)
- G: Dry type air cooling; C: Epoxy cast
- S: Three-phase; D: Single-phase
- Filter reactor

III. Main Technical Parameters

1. Available capacitor voltages: 0.4 kV, 0.45 kV, 0.48 kV, 0.525 kV, 0.66 kV and 0.69 kV.
2. Reactance rates: 1%, 4.5%%, 5%, 5.67%, 6%, 7%, 12%, 13.8% and 14%.
3. With the dielectric strength level of 5 kV/min, the insulation classes of Class B, Class F and Class H, the noise ≤ 30 dB and the overload capacity ≤ 1.35 times, continuous work is done.
4. After installing the series reactor, the system voltage will rise. The calculation formula: Ug = $(\frac{n}{n^2-1})$ × Un
   (Capacitor bank working voltage: Ug; System rated working voltage: Un; Reactor tuning times: n)
5. The conversion formula among the reactor capacity, capacitance capacity, reactance rate and inductance value: UL = Uc phase * $\frac{XL}{Xc}$ L = $\frac{UL}{1\times0.314}$
   (Capacitor capacity: Qc; Reactor capacity: Qw; Reactor terminal voltage: UL)
   Inductance value: L; Reactor current: I; Capacitor phase voltage: Uc phase Qw = Qc phase * $\frac{XL}{Xc}$
   Reactance rate =$\frac{XL}{Xc}$

IV. Structural Features

1. The product is divided into the three-phase type and the single-phase type, both are gapped iron core reactors.
2. The iron core is made of high-quality cold-rolled silicon steel sheets, which are punched and sheared by a high-speed punching machine. It is characterized by small burrs, uniform rules and neat and beautiful laminations to ensure the properties of low temperature rise and low noise of reactor operation.
3. The coil is made of high-quality insulated wires and is wound by a special machine, thus characterized by good flatness and beautiful appearance.
4. During the assembly process of the reactor, all the clips are subjected to anti-corrosion treatment, and the key clips are made of non-magnetic materials and subjected to the process of pre-baking, vacuum paint dipping and heat-baking curing, which makes the coils and iron cores of the reactor firmly integrated, greatly reducing the temperature rise and noise during the operation, effectively improving the quality factor of the reactor and reducing the effect of harmonics.
5. The outline dimension of the reactor is designed with reference to the standard cabinet size. It is small in size and convenient in wiring, greatly saving the cost and investment of cabinets for users.

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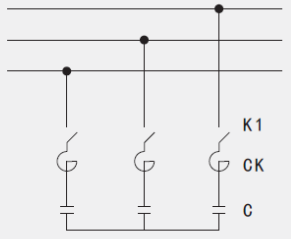
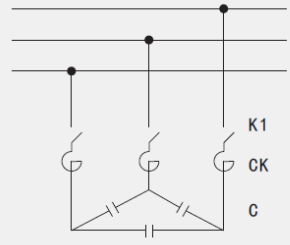
V. Operating Conditions

1. The altitude shall not exceed 2,000 meters.
2. The operating ambient temperature shall be -25–45°C, and the relative humidity shall not exceed 90.
3. There is no harmful gas around and no flammable and explosive materials.
4. The surrounding environment shall have good ventilation conditions. If the product is installed in the cabinet, the ventilation equipment shall be installed.

VI. Wiring Mode





VII. Parameters and Outline Dimensions

Model & Specification	Matching capacitor capacity (Kvar)	Reactor capacity (Kvar)	Inductance value (mH)	Outline dimension Length*width*height (mm)	Installation dimension (mm)
CKDG-0.6 / 0.23 - 12 %	5	0.6	6.0	155 x 160 x 160	105 x 115.4 -Φ8
CKDG-0.9 / 0.23 - 12 %	7.5	0.9	4.013	155 x 165 x 175	105 x 115.4 -Φ8
CKDG-1.2 / 0.23 - 12 %	10	1.2	2.996	170 x 180 x 180	120 x 125.4 -Φ8
CKDG-1.44 / 0.23 - 12 %	12	1.44	2.484	170 x 185 x 195	120 x 125.4 -Φ8
CKDG-1.68 / 0.23 - 12 %	14	1.68	2.140	170 x 195 x 185	120 x 135.4 -Φ8
CKDG-1.8 / 0.23 - 12 %	15	1.8	1.987	170 x 195 x 185	120 x 135.4 -Φ8
CKDG-1.9 / 0.23 - 12 %	16	1.92	1.873	170 x 210 x 185	120 x 145.4 -Φ8
CKDG-2.4 / 0.23 - 12 %	20	2.4	1.498	170 x 215 x 200	120 x 145.4 -Φ8
CKDG-2.88 / 0.23 - 12 %	24	2.88	1.261	190 x 210 x 240	140 x 155.4 -Φ8
CKDG-3.0 / 0.23 - 12 %	25	3.0	1.185	190 x 210 x 240	140 x 155.4 -Φ8
CKDG-3.36 / 0.23 - 12 %	28	3.36	1.070	190 x 210 x 260	140 x 155.4 -Φ8
CKDG-3.6 / 0.23 - 12 %	30	3.6	0.994	190 x 215 x 280	140 x 155.4 -Φ8
CKDG-3.84 / 0.23 - 12 %	2	3.84	0.936	190 x 215 x 295	140 x 155.4 -Φ8
CKDG-4.32 / 0.23 - 12 %	36	4.32	0.841	190 x 235 x 290	140 x 165.4 -Φ8
CKDG-4.8 / 0.23 - 12 %	40	4.8	0.749	190 x 235 x 310	140 x 165.4 -Φ8
CKDG-5.4 / 0.23 - 12 %	45	5.4	0.650	190 x 240 x 320	140 x 165.4 -Φ8
CKDG-6.0 / 0.23 - 12 %	50	6.0	0.611	210 x 250 x 330	140 x 165.4 -Φ8

Note: Reactors with other voltage grades, different capacities and different reactance rates can be manufactured according to user requirements. CDDG type, 230 V single lintel, XL/XC = 12%; matching capacitor voltage: 280 V. Reactors with other capacities can be manufactured according to user requirements.

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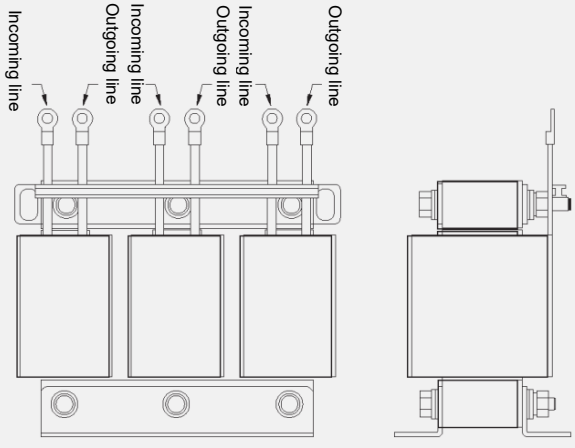
Model & Specification	System voltage (KW)	Rated reactance rate	Outline dimension (mm＜±2 mm)	Installation dimension (mm＜±2 mm)	Caliber (mm)
CKSG-0.6 / 0.4 - 6	0.4 0.45 0.48 0.525 0.66 0.69	1 % 5.67 % 6 % 7 % 12 % 13.8 % 14 %	210 x 120 x 190	110 x 95	8
CKSG-0.9 / 0.4 - 6			210 x 120 x 190	110 x 95	8
CKSG-1.2 / 0.4 - 6			210 x 125 x 190	110 x 95	8
CKSG-1.5 / 0.4 - 6			240 x 140 x 220	133 x 120	10
CKSG-1.8 / 0.4 - 6			240 x 140 x 225	133 x 120	10
CKSG-2.1 / 0.4 - 6			240 x 145 x 230	133 x 120	10
CKSG-2.4 / 0.4 - 6			240 x 145 x 230	133 x 120	10
CKSG-3.0 / 0.4 - 6			310 x 170 x 260	190 x 130	10
CKSG-3.6 / 0.4 - 6			320 x 170 x 265	190 x 130	10
CKSG-4.8 / 0.4 - 6			340 x 175 x 270	210 x 130	10
CKSG-5.4 / 0.4 - 6			340 x 180 x 270	210 x 130	10
CKSG-6.0 / 0.4 - 6			350 x 190 x 290	210 x 135	10
CKSG-7.2 / 0.4 - 6			350 x 200 x 290	210 x 135	10
CKSG-9.0 / 0.4 - 6			350 x 220 x 290	210 x 140	10

Note: The above parameters are only typical values for reference, and can be customized according to customer requirements. The company reserves the right to change the data.



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Model & Specification	Matching capacitor capacity (Kvar)	Reactor capacity (Kvar)	Inductance value (mH)	Outline dimension Length*width*height (mm)	Installation dimension (mm)
CKDG-0.3 / 0.23 - 6 %	5	0.3	2.389	135 x 155 x 140	95 x 105.4 -Φ8
CKDG-0.45 / 0.23 - 6 %	7.5	0.45	1.592	135 x 165 x 155	95 x 105.4 -Φ8
CKDG-0.6 / 0.23 - 6 %	10	0.6	1.194	170 x 175 x 160	120 x 115.4 -Φ8
CKDG-0.72 / 0.23 - 6 %	12	0.72	0.987	170 x 180 x 170	120 x 115.4 -Φ8
CKDG-0.84 / 0.23 - 6 %	14	0.84	0.860	170 x 190 x 175	120 x 125.4 -Φ8
CKDG-0.9 / 0.23 - 6 %	15	0.9	0.796	170 x 195 x 180	120 x 125.4 -Φ8
CKDG-0.96 / 0.23 - 6 %	16	0.96	0.732	155 x 195 x 200	105 x 135.4 -Φ8
CKDG-1.2 / 0.23 - 6 %	20	1.2	0.592	155 x 195 x 200	105 x 135.4 -Φ8
CKDG-1.44 / 0.23 - 6 %	24	1.44	0.510	155 x 205 x 210	105 x 145.4 -Φ8
CKDG-1.5 / 0.23 - 6 %	25	1.5	0.478	155 x 205 x 210	105 x 145.4 -Φ8
CKDG-1.68 / 0.23 - 6 %	28	1.68	0.414	155 x 210 x 220	105 x 145.4 -Φ8
CKDG-1.8 / 0.23 - 6 %	30	1.8	0.398	155 x 210 x 220	105 x 145.4 -Φ8
CKDG-1.92 / 0.23 - 6 %	32	1.92	0.382	155 x 215 x 250	105 x 145.4 -Φ8
CKDG-2.16 / 0.23 - 6 %	36	2.16	0.325	190 x 225 x 260	140 x 155.4 -Φ10
CKDG-2.4 / 0.23 - 6 %	40	2.4	0.306	190 x 235 x 265	140 x 155.4 -Φ10
CKDG-2.7 / 0.23 - 6 %	45	2.7	0.268	190 x 255 x 275	140 x 175.4 -Φ10
CKDG-3.0 / 0.23 - 6 %	50	3.0	0.239	190 x 260 x 280	140 x 175.4 -Φ10

Note: Reactors with other voltage grades, different capacities and different reactance rates can be manufactured according to user requirements. CDDG type, 230 V single lintel, XL/XC = 6%; matching capacitor voltage: 250 V.