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Three-phase universal 3% chokes for currents to 60A

Description:

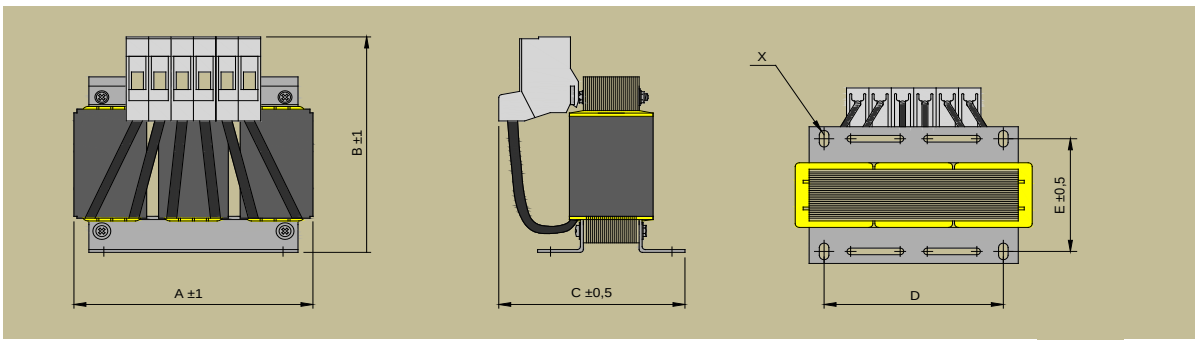
The choke consists of a conductor which is wound on the core. Magnetic circuit is formed by magnetic material and air gap.

TECHNICAL PARAMETERS:

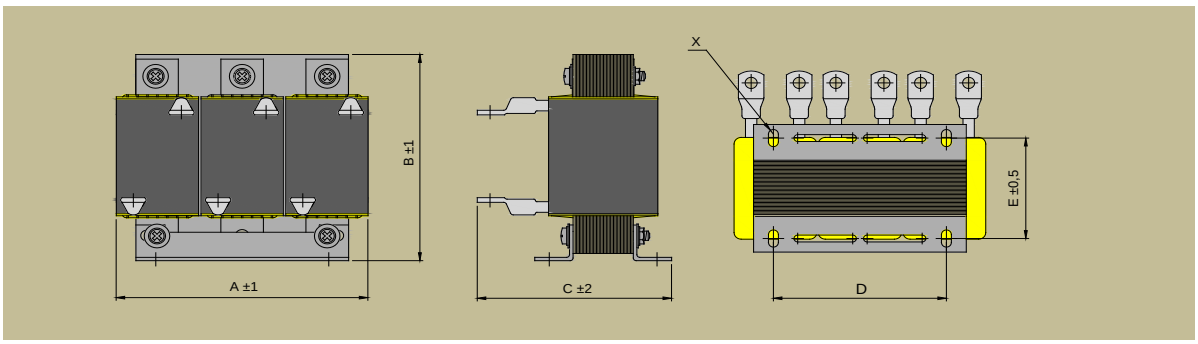
Nominal operating voltage	**Un: 500 Vac**
Extent of operating frequencies fn (for In)	**Fn: 50-60 Hz**
Extent of operating currents	**In: 3-60A**
Switching frequency of the inverter	**SFr to 3kHz**
Short-term overcurrent capacity : 50% In	
Thermal class : B	
Protection class : IP00	
Extent of operating temperature : -10°C + 40°C	

Type	Nominal current [A]	Inductance ±20% [mH]	Power loss [W]	Weight [kg]	Conductor cross section [mm 2]	basic dimensions [mm]					
						A	B	C	D	E	X
						length	height	width	pitch	pitch	mounting
SKY3TLT3-7	3x3	7	13,2	0,5	terminal 4mm²	77	83,5	52	50	30	4,8x9
SKY3TLT6-3,5	3x6	3,5	15,9	0,9	terminal 4mm²	95	100	61	63	41	5,8x11
SKY3TLT10-2,2	3x10	2,2	28,8	1,4	terminal 4mm²	95	99	70	62,5	50	5,8x11
SKY3TLT16-1,3	3x16	1,3	44,1	1,8	terminal 4mm²	119	120	73	73	55	5,8x11
SKY3TLT25-0,9	3x25	0,9	78	2,6	terminal 4mm²	149	138	63	90	44	5,8x11
SKY3TLT32-0,7	3x32	0,7	78	3,9	terminal 16mm²	149	150	97	90	55	5,8x11
SKY3TLT40-0,6	3x40	0,6	66	5,3	terminal 16mm²	149	149	112	90	70	5,8x11
SKY3TLT60-0,35	3x60	0,35	66	6,3	lug 8-25	178	159	121	122	65	7x13

Dimensional drawing : SKY3TLT3-7 to SKY3TLT40-0,6



Dimensional drawing : SKY3TLT60-0,35



Use:

They are designed so that they can operate both in line side - between the converter and LV line, and in motor side - between the motor and converter.

Functions of the universal choke:

If it is connected in line side, it has got the same function as the line choke reduced by amount of 1 % of voltage drop:

- it restricts size of commutation current when rectifier diodes are being switched-over
- it decreases size of radio-frequency interference from the device to LV line and vice versa
- it increases interference resistance of the device from LV line
- it restricts size of current and voltage harmonic components from 3rd harmonic and up
- it increases resistance to overvoltage which is caused by switching actions
- it decreases constant overvoltage by amount of its drop

As well as a motor choke it restricts size of rate of voltage rise between the choke and motor and it has an effect on:

- reducing of overvoltage in the motor
- reducing of radiated electromagnetic field by a motor cable
- reducing of total leakage current of the converter
- reducing of terminal radio-frequency interference from the device to LV line

Dimensioning :

Wiring between a converter and motor
Output current of the converter flowing through the choke must not exceed the label value. Through the chokes besides the nominal current there also flows radio-frequency additional current which has the same frequency as set pulse-width modulation of the converter. The higher is the frequency value the bigger are additional radio-frequency losses in the choke.

If we want to decrease warming of the choke, we must decrease the modulation frequency of the converter so that the value is as low as possible.

Regarding the 3% voltage drop the chokes are used to the certain length of a cable. The length of the shielded cable is max. to 50m with switching frequency of the converter to 3kHz and the length of the unshielded cable is max. to 100m with switching frequency of the converter to 3kHz.

As well as the other 2% and line 4% chokes, when installing into switchboards there is necessary to count with power loss of the chokes and provide for sufficient heat removal. Maximum operating temperature is to 120ºC, class B. It is important to realise that with increasing temperature the dielectric strenght of individual parts of the choke is being decreased.

Wiring between a converter and LV line
Short-circuit protection of the chokes must not exceed the label value. Through the chokes besides the nominal current there also flows harmonic components of the current, their size depends on impedance of LV line and it can be changed in large extent. Therefore it is important to dimension the chokes sufficiently and count with current reserve. For example in the course of 30% size of the 5th harmonic of current there are losses in magnetic circuit almost as large as in the course of size of nominal current!!! In practice there are causes where size of 5th harmonic reaches 50 up to 70 % from In. Therefore when installing into switchboards it is necessary to count with power loss of the chokes and provide for sufficient heat removal.