

## Sine wave Filters



### Descriptions

Sine wave filters have been specially designed to improve the wave form and avoid overvoltages in the motors of VSD system. These low-pass filters are installed in inverters with PWM output, between the frequency inverter and the motor. Switching IGBT (isolated gate bipolar transistor) to high frequency causes an output voltage with peaks that can reach 1300 V (or more) in terminals and coils of the motor.

These constant voltage values age the motor and decrease the performance of the coils, also wearing and pitting bearings, causing overheating and unnecessary noises and the transmission of interferences through cables. This effect becomes more obvious the greater the distance between the inverter and the motor.

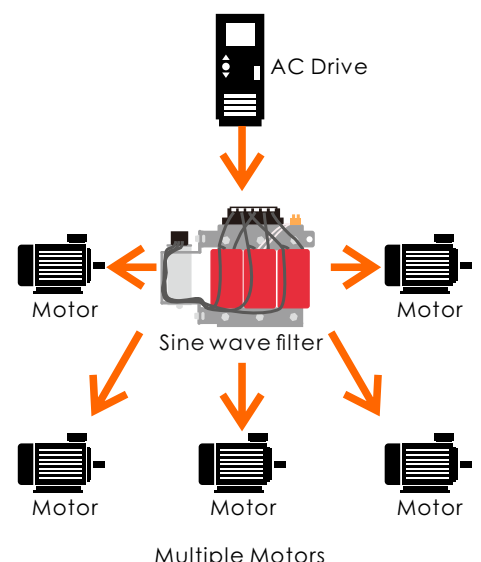
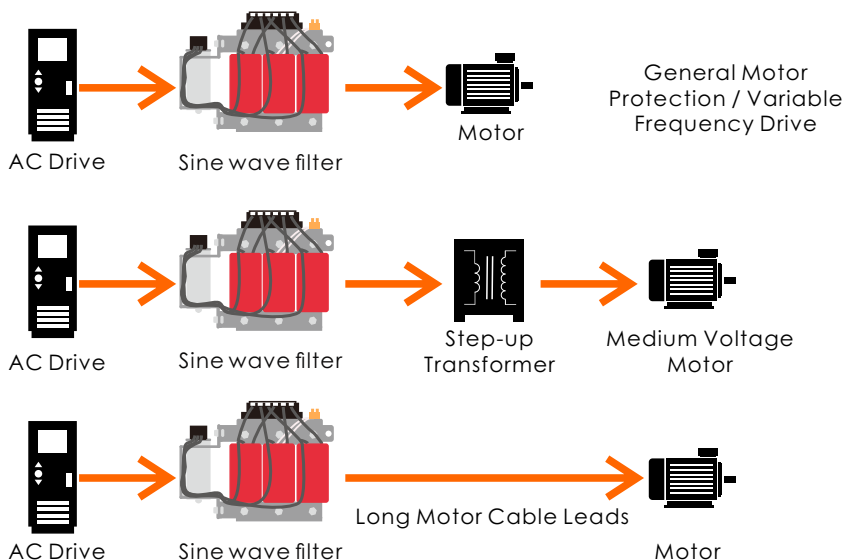
### Functions

- Reduction of the overvoltage peaks caused by PWM and, therefore, a lower wear of motor insulation systems and bearings;
- Reduction of motor noise and improves motor efficiency;
- Improves the quality of the output wave of the PWM (pulse width modulator), reduces discharge currents driven by pulse frequency, especially in long lines connected to the motor. Recommended for up to 500m motor cable lengths with filter.
- Attenuation of the interference emissions radiated by the conductors between the modulator and motor and improves the entire EMC load on the equipment.

### Technical Standards

- Capacitors: CEI EN 60831-1/2, IEC 831-1/2
- Equipment: CEI EN 60439-1, IEC 439-1, ICE 60939
- Industrial network affected by harmonics: CEI EN 61642
- Systems: EN 60439, EN 60831, EN 50081-1, EN 50081-2, class A

### Applications



## Features

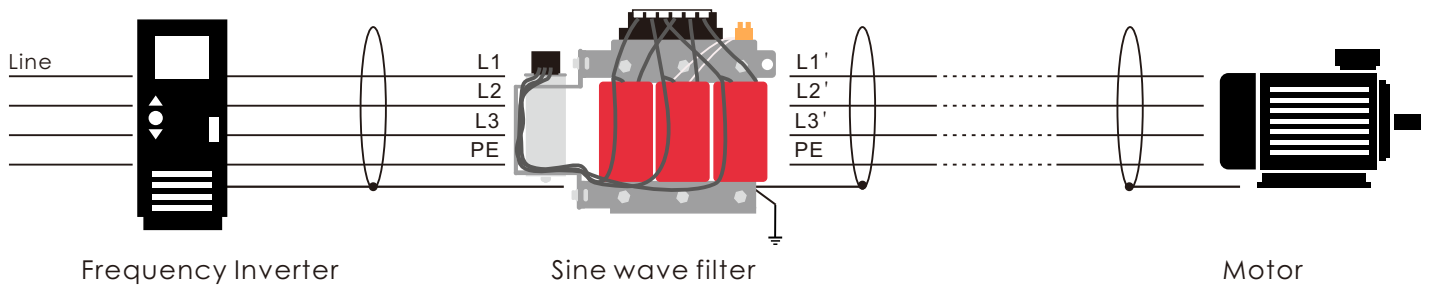
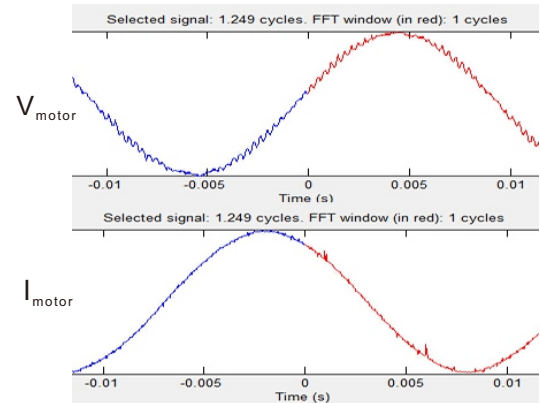
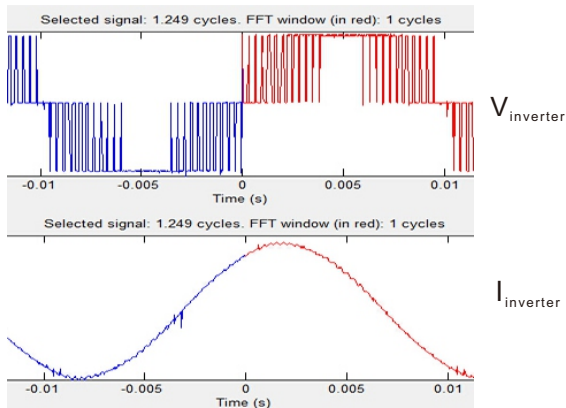
### Main Characteristics

Nominal system voltage (ph-ph)	3x 380±10% (Others on request)
Operating frequency	5-120Hz standard (200Hz -1000Hz on request.)
Switching frequency	2k to 16kHz
Rated load power (P)	1,5 to 630kW
Nominal current (I)	3.3A to 1209A
Residual ripple voltage THD	<5%
Standard voltage drop at rated current	4% (50Hz)
Maximum permanent overload	1,2 times rated current
Maximum transient overload	2,0 times rated current

### Design features

Cabinet	On request
Degree of protection	IP 00 (other on request)
Construction and connection	Terminals or Copper bar
Ventilation	Natural
Mounting	On the floor
Installation	Indoor standards
Operating temperature	Ambient : -25°C to +40°C
Relative humidity	80 %

## Block schematic



## Selection Table

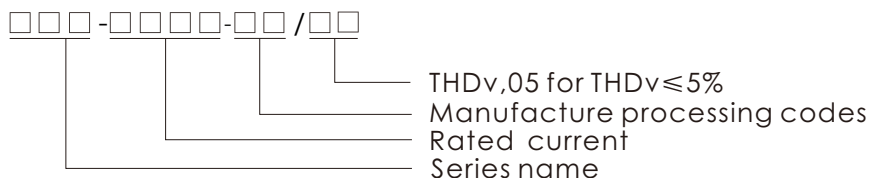
Filter Model	Picture NO.	System Voltage(±10%)	Motor drive rating @50Hz (kw)	Rated Current (A)	Switching frequency (kHz)	Connections		Weight (kg)	Dimension (±5mm)						
						Terminal	Copper Bar		D	D1	W	W1	W2	H	A*B
SF-0003-4A/05	1	3×380VAC	1.5	3.3	≥6	√		7.0	150	72	205	150	/	200	7*12
SF-0006-4A/05	1	3×380VAC	2.2	6	≥6	√		9.7	165	92	205	150	/	200	7*12
SF-0008-4A/05	1	3×380VAC	3.7	8	≥6	√		10.4	185	92	205	150	/	200	7*12
SF-0013-4A/05	2	3×380VAC	5.5	13	≥5	√		9.7	185	92	205	150	/	200	7*12
SF-0017-4A/05	3	3×380VAC	7.5	17	≥5	√		16.2	200	100	245	180	/	260	10*16
SF-0024-4A/05	3	3×380VAC	11	24	≥4	√		16.6	220	100	245	180	/	260	10*16
SF-0032-4A/05	3	3×380VAC	15	32	≥4	√		21.5	240	122	245	180	/	260	10*16
SF-0038-4A/05	3	3×380VAC	18.5	38	≥4	√		25.5	240	121	275	200	/	270	10*16
SF-0048-4A/05	4	3×380VAC	22	48	≥4	√		28.2	170	131	420	100	200	270	10*16
SF-0063-4A/05	4	3×380VAC	30	63	≥3	√		38.3	190	125	460	100	225	325	12*20
SF-0076-4A/05	4	3×380VAC	37	76	≥3	√		42	200	134	460	100	225	325	12*20
SF-0091-4A/05	4	3×380VAC	45	91	≥3	√		49.7	220	154	460	100	225	325	12*20
SF-0116-4A/05	5	3×380VAC	55	116	≥3		√	78	260	190	600	150	/	430	12*20
SF-0148-4A/05	5	3×380VAC	75	148	≥3		√	75	260	190	600	150	/	430	12*20
SF-0181-4A/05	6	3×380VAC	90	181	≥3		√	88.5	390	190	460	150	/	480	12*20
SF-0214-4A/05	6	3×380VAC	110	214	≥3		√	87.7	390	190	460	150	/	480	12*20
SF-0262-4A/05	7	3×380VAC	132	262	≥3		√	100.6	410	280	460	150	/	525	12*20
SF-0317-4A/05	6	3×380VAC	160	317	≥3		√	111	420	200	460	150	/	540	12*20
SF-0352-4A/05	8	3×380VAC	185	352	≥3		√	120	430	300	470	150	/	540	12*20
SF-0413-4A/05	9	3×380VAC	200	413	≥2		√	150	460	300	500	160	/	550	12*20
SF-0419-4A/05	9	3×380VAC	220	419	≥2		√	150	460	300	500	160	/	550	12*20
SF-0484-4A/05	10	3×380VAC	250	484	≥2		√	164	550	300	500	160	/	580	12*20
SF-0531-4A/05	9	3×380VAC	280	531	≥2		√	178	480	300	500	160	/	580	12*20
SF-0605-4A/05	11	3×380VAC	315	605	≥2		√	256	530	300	570	190	/	620	12*20
SF-0666-4A/05	11	3×380VAC	350	666	≥2		√	274	540	300	570	190	/	620	12*20
SF-0721-4A/05	12	3×380VAC	400	721	≥2		√	292	550	280	640	440	/	700	12*20
SF-0807-4A/05	12	3×380VAC	450	807	≥2		√	310	580	280	640	440	/	710	12*20
SF-0888-4A/05	13	3×380VAC	500	888	≥2		√	328	670	320	630	210	/	710	12*20
SF-0999-4A/05	13	3×380VAC	560	999	≥2		√	383	690	320	630	210	/	740	12*20
SF-1209-4A/05	14	3×380VAC	630	1209	≥2		√	473	720	350	690	230	/	760	12*20

**Selection Recommendation:** It's compulsory to collect all network conditions

- Rated values and service type of the load to the filter
- Rated values of other non-line loads
- Indication of the point where the filter has to be installed
- Presence and type of the power factor equipment in the network
- Motor frequency, Switching frequency and fundamental operating frequency

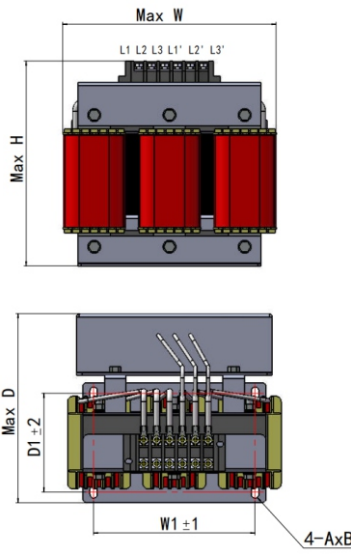
■ For more technical details, please contact our sales representatives

**Model Rules:**

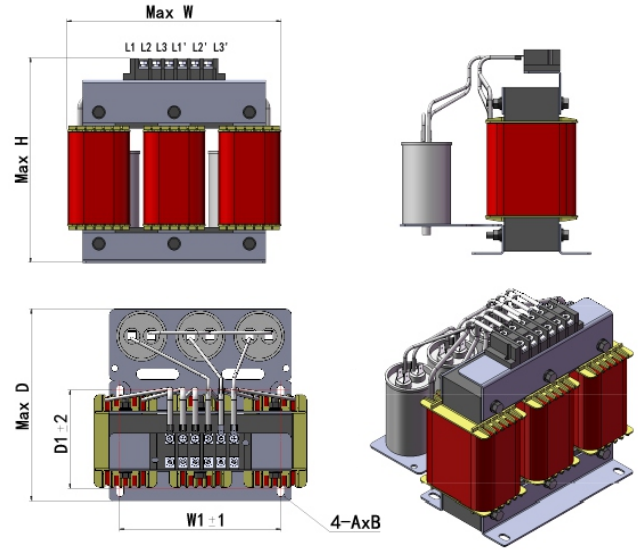


## Mechanical data

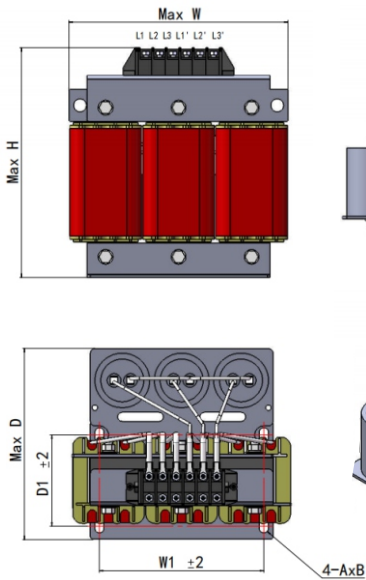
All dimensions in mm; 1 inch = 25,4 mm



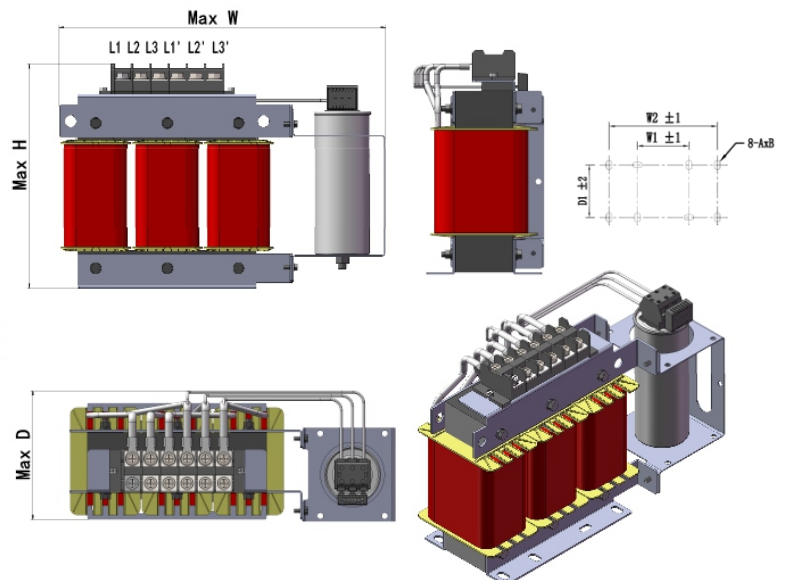
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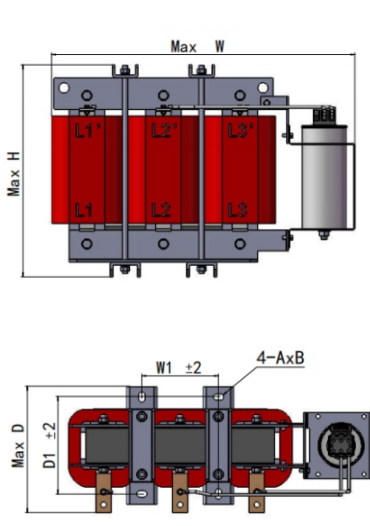
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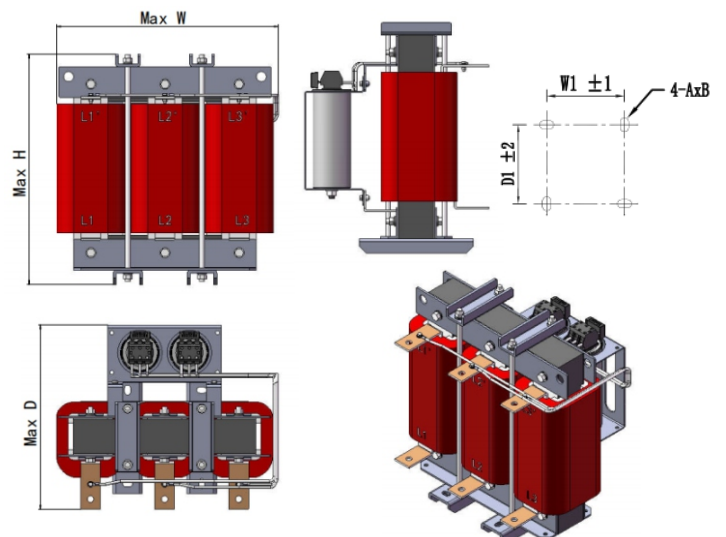
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Picture NO. 4



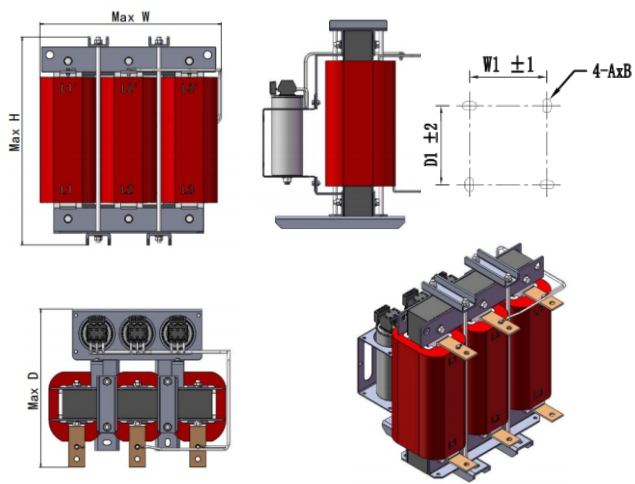
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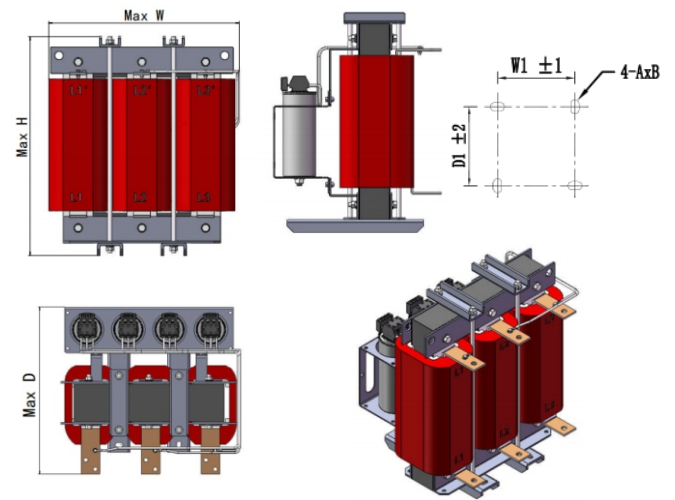
Picture NO. 6

## Mechanical data

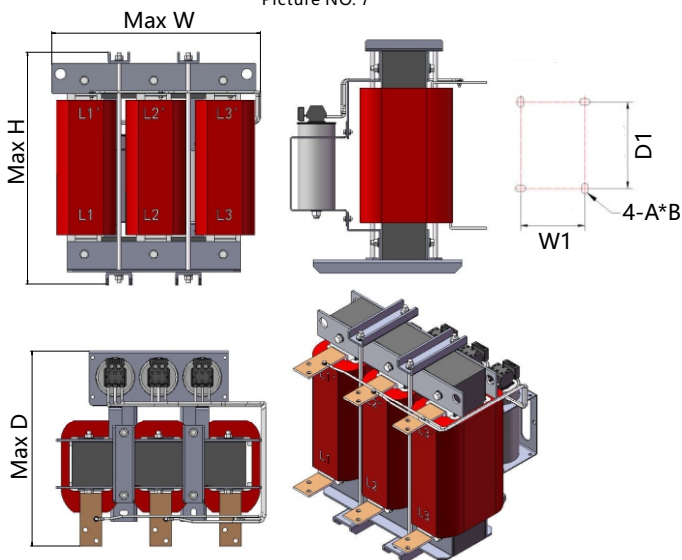
All dimensions in mm; 1 inch = 25,4 mm



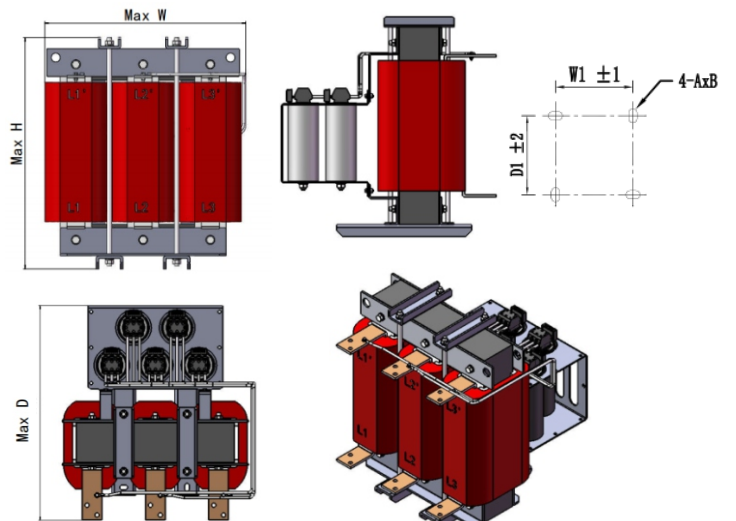
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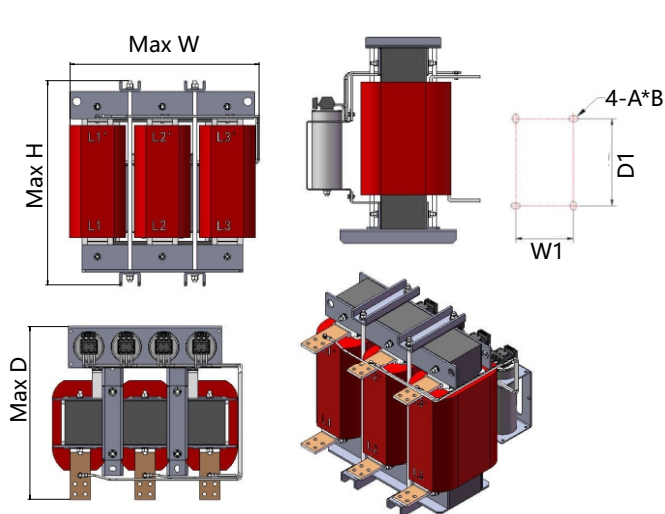
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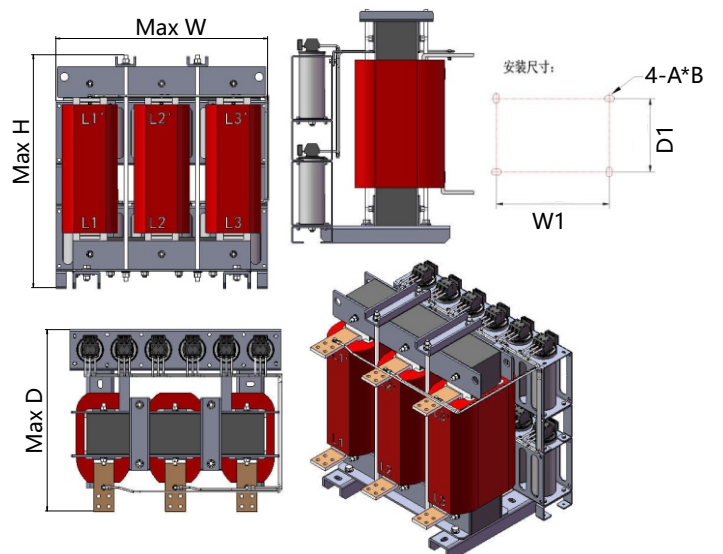
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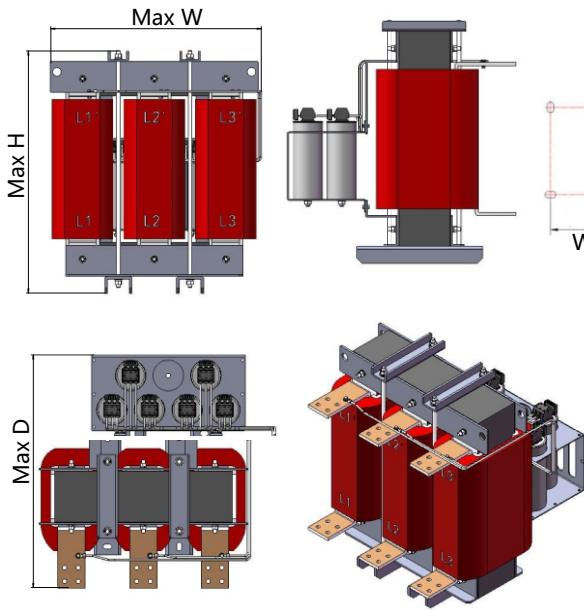
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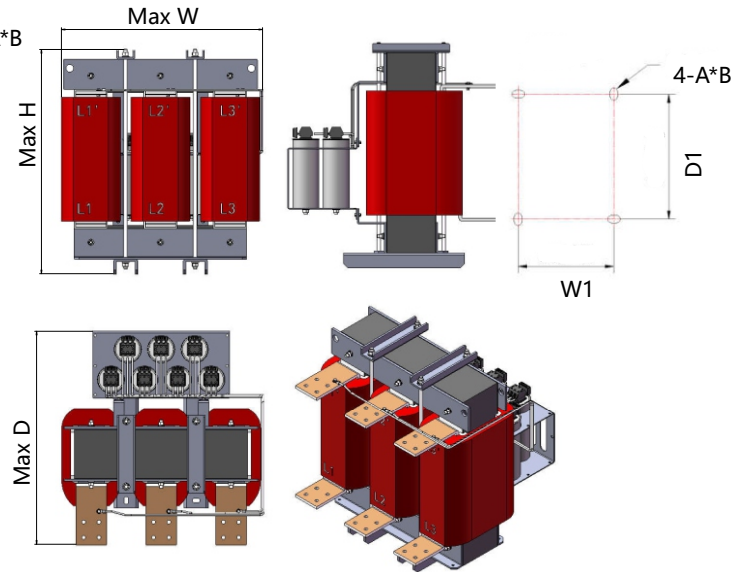
Picture NO. 11



Picture NO. 12



Picture NO. 13

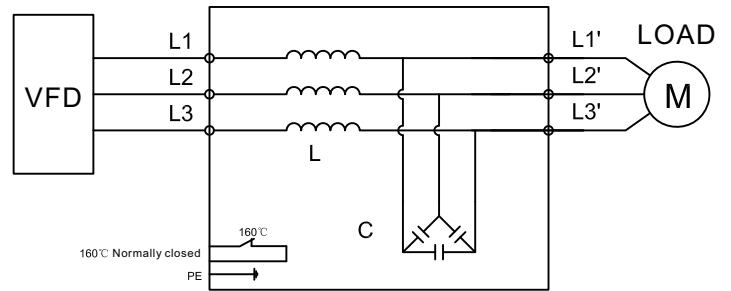


Picture NO. 14

## TERMINALS OR COPPER BAR

Input	[ L1, L2,L3]
Output	[ L1', L2',L3' ]

## CIRCUIT WIRING



## STANDARDS

TYPE

Capacitors: CEI EN 60831-1/2, IEC 831-1/2  
 Industrial network affected by harmonics: CEI EN 61642  
 Equipment: CEI EN 60439-1, IEC 439-1, IEC 60939  
 Systems: EN 60439, EN 60831, EN 50081-1, EN 50081-2, class A

SIGNS



Observe protection clause to ISO 16016

请遵守 ISO 16016 的保密条款

DATE: 29.09.2020