

水冷电抗器（WCR） Water-cooled reactor

■ 产品概述 (Product Introduction)

水冷电抗器主要用于高温系统中，它不仅能够达到普通电抗器的各项性能指标，而且水冷电抗器采用水冷循环，提高耐热温度材料效率从而来适应高温环境要求。

Water-cooled reactor is mainly used in high-temperature system, it can not only achieve the performance of ordinary reactor, and water-cooled reactor using water-cooled cycle, improve the efficiency of heat-resistant materials to adapt to high temperature environment requirements.

■ 产品应用 (Product Application)

水冷电抗器主要用于高温系统中，它不仅能够达到普通电抗器的各项性能指标，而且水冷电抗器采用水冷循环，提高耐热温度材料效率从而来适应高温环境要求。尤其在高原风电系统中，要求电抗器散热能力，和多层防尘、防湿防雾措施，这样才能适应整体设备在恶劣的环境要求，因此在高原风电系统中多采用水冷电抗器。

Water-cooled reactor is mainly used in high-temperature system, it can not only achieve the performance of ordinary reactor, and water-cooled reactor using water-cooled cycle, improve the efficiency of heat-resistant materials to adapt to high temperature environment requirements. Especially in the plateau wind power system, the requirements of reactor cooling capacity, and multi-layer dust, moisture and fog prevention measures, so as to adapt to the overall equipment in the harsh environmental requirements, therefore, water-cooled reactor is often used in plateau wind power system.

■ 产品性能 (Product performance)

水路：水路使用材料为不锈钢材质，强度高，耐腐蚀，使用寿命长；水管和连接方式采用强力紧锁结构，保证冷却介质不剩漏。

Waterways: waterways use stainless steel material, high strength, corrosion resistance, long service life; water pipes and connections using strong locking structure to ensure no leakage of cooling medium.

水冷散热板安置在板式水冷电抗器线包中，电抗器产生的热量通过散热板导热后由水介质将热量导出以达到降低温升的目的，水冷电抗器水电分离，无漏电流产生。广泛使用在风力发电的变频器中及电力设备中。

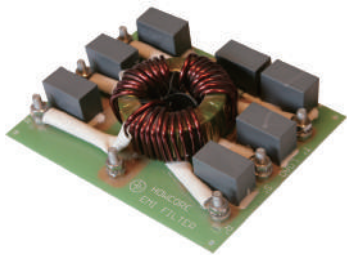
The water-cooled heat sink is arranged in the wire package of the plate-type water-cooled reactor, and the heat generated by the reactor is exported by the water medium after the heat conduction through the heat sink, so as to reduce the temperature rise, no leakage current generated. Widely used in wind power inverter and electrical equipment.

电流范围 Current Range: 100-1500A
电压范围 Voltage Range: 220V-1140V

■ 成品识别码 (Product Identification Code)



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变频器专用滤波器 Special Filter For Inverter

产品概述 (Product Introduction)

- 1.降低变频器对电网的传导干扰
- 2.在150kHz~30MHz范围内拥有优越的插入衰减表现
- 3.端子系列采用紧凑超薄设计
- 4.提高整个系统可靠性
- 5.N99为使用铜排接头，其他为端子
- 6.端子为铜排以及后缀P系列的滤波器为高泄漏电流，适合过证测试使用，但不适用于有漏电保护器场合。
- 7.铜排以及后缀P系列的滤波器在电网电压不平衡及电容精度造成最大漏电流为33mA（400VAC/50Hz）

- 1.Reducing the conducted emission from inverter to power network.
- 2.Exceptional attenuation performance from 150kHz~30MHz.
- 3.Terminal series filter with most compact and slim design.
- 4.Improve the reliability of the whole system.
- 5.N99 uses copper bar connectors, while others are terminals
- 6.Terminals for copper and suffix P series of filter for high leakage currents, suitable for testing use, but does not apply to leakage protector occasions
- 7.Copper bar and filter the suffix P Series in non symmetrical and capacitance tolerance caused maximum leakage current is 33mA（400VAC/50Hz）

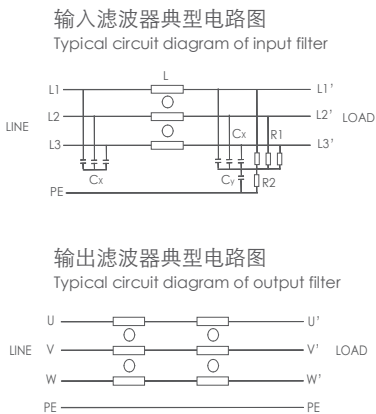
技术参数 (Technical Data)

- 1.额定电压：440/250 VAC
- 2.工作频率：50Hz
- 3.额定电流：10A~2500A
- 3.高压试验：P-E 2100VDC/2sec P-P 2100VDC/2sec
- 4.温度范围：-25℃~100℃（25/100/21）
- 5.设计依据：IEC/EN 60939、UL1283
- 6.典型滤波频率：150kHz~30MHz

- 1.Rated voltage：440/250 VAC
- 2.Operating frequency：50Hz
- 3.Rated current：10A~2500A
- 3.High potential test voltage：P-E 2100VDC/2sec P-P 2100VDC/2sec
- 4.Temperature range：-25 C~100 C（25/100/21）
- 5.Design corresponding to：IEC/EN 60939、UL1283
- 6.Typical work frequency：150kHz~30MHz

典型应用 (Typical Applications)

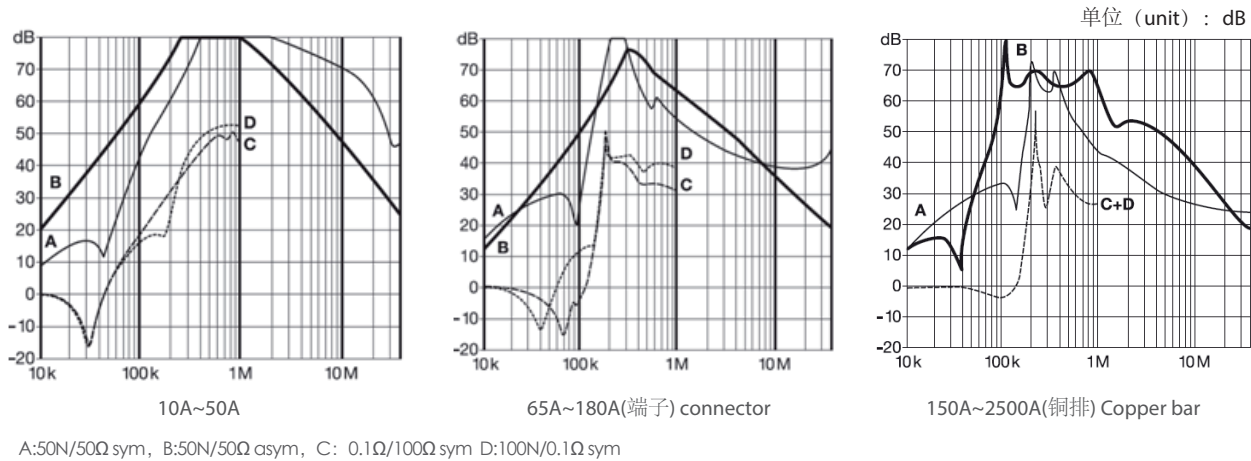
- 1.三相调速电机驱动、伺服驱动、变频器及逆变器
- 2.能量转换装置，如机器及自动化设备
- 3.空调设备，电梯，电力供应，UPS，注塑机
- 4.风能，太阳能等新能源逆变系统
- 1.Three-phase variable speed motor drives, servo drives, inverter and converters
- 2.Energy conversion devices, such as machines and automatic equipment
- 3.HVAC equipment, elevators, power suppliers, UPS, injection molding machine and further three-phase applies
- 4.Wind energy, solar energy and other new energy inverter system



滤波器选型表 (Filter Selection Table)

适配变频器参数 Adapter inverter parameter		滤波器型号 Filter type		额定电流 Rated current	端子代码 Connector code
功率 Drive power rating	额定电压 Rated voltage	输入滤波器 Input filter		输出滤波器 Output filter	
5.5kW	440VAC	RFI4C10N6	RFI4C10N6P	RFO4C10N6	10A -N6
7.5kW	440VAC	RFI4C20N6	RFI4C20N6P	RFO4C20N6	20A -N6
15kW	440VAC	RFI4C30N10	RFI4C30N10P	RFO4C30N10	30A -N10
18.5kW	440VAC	RFI4C40N10	RFI4C40N10P	RFO4C40N10	40A -N10
22kW	440VAC	RFI4C50N16	RFI4C50N16P	RFO4C50N16	50A -N16
30kW	440VAC	RFI4C65N16	RFI4C65N16P	RFO4C65N16	65A -N16
37kW	440VAC	RFI4C80N35	RFI4C80N35P	RFO4C80N35	80A -N35
45kW	440VAC	RFI4C100N35	RFI4C100N35P	RFO4C100N35	100A -N35
55kW	440VAC	RFI4C130N50	RFI4C130N50P	RFO4C130N50	130A -N50
90kW	440VAC	RFI4C180N95	RFI4C180N95P	RFO4C180N95	180A -N95
75kW	440VAC	RFI4C150N99		RFO4C150N99	150A
110kW	440VAC	RFI4C200N99		RFO4C200N99	200A
132kW	440VAC	RFI4C250N99		RFO4C250N99	250A
160kW	440VAC	RFI4C320N99		RFO4C320N99	320A
220kW	440VAC	RFI4C400N99		RFO4C400N99	400A
315kW	440VAC	RFI4C600N99		RFO4C600N99	600A
400kW	440VAC	RFI4C800N99		RFO4C800N99	800A
560kW	440VAC	RFI4C1000N99		RFO4C1000N99	1000A
900kW	440VAC	RFI4C1600N99		RFO4C1600N99	1600A
1320kW	440VAC	RFI4C2500N99		RFO4C2500N99	2500A

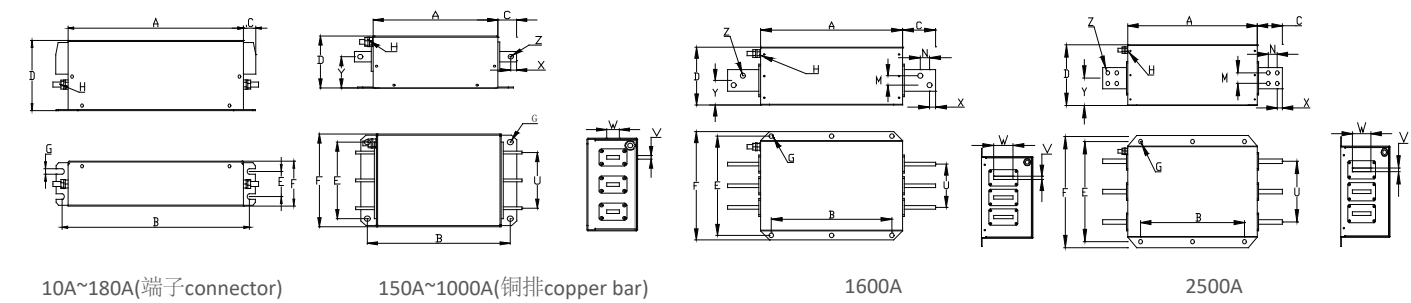
输入滤波器插入损耗 (Input Filter Attenuation)



滤波器输入输出端子接线范围及扭矩选择 (Filter Input/output Connector Cross Sections)

	-N6	-N10	-N35	-N35	-N50	-N95
多股软线/mm² Flex wire	0.5~6	0.5~10	1~16	10~35	16~50	25~95
美标线规 AWG number	AWG8-26	AWG6-24	AWG4-20	AWG2-8	AWG6-1/0	AWG4-4/0
推荐扭矩/N.m Recommended torque	1.36	1.36	2.71	4.41	4.41	19.2

产品尺寸图 (Product Size)



代号 电流 Code Current	A	B	C	D	E	F	G	H	M	N	U	V	W	X	Y	Z
10A	168	180	15.5	75	20	40	4.5	M5								
20A	220	235	15.5	75	25	45	5.5	M5								
30A~40A	240	255	35	85	30	50	5.5	M5								
50A~65A	220	235	35	90	60	85	5.5	M6								
80A~100A	240	255	38.5	140	60	85	6.5	M8								
130A	240	255	43	150	65	95	6.5	M8								
180A	350	365	50	170	102	120	6.5	M8								
150A~250A	240	275	40	100	165	205	11.5	M10			120	3	20	10	51.5	9
320A								M10			120	4	25	12.5	51.5	11
400A								M10			120	6	25	12.5	51.5	11
600A								M10			120	8	25	12.5	51.5	11
800A	310	345	50	130	155	205	11.5	M10			120	6	40	20	68.5	13.5
1000A								M10			120	8	40	20	68.5	13.5
1600A	400	340	93	160	275	300	12.5	M12	26	26	120	10	60	17	68	14
2500A	600	500	98	200	330	370	14.5	M12	35	35	200	15	70	20	90	14

(单位 unit: mm)

成品识别码 (Product Identification Code)

RFI	4NC	250	N99
变频器专用滤波器 Special Filter For Inverter RFI: Input filter RFO: Output filter	4:Working Voltage 4=380V,7=690V N:N=Three-phase four-wire 无=Three-phase three-wire C: C=Three-stage filtering B:Second-order filtering	额定电流 Rated Current 10A-2500A	接线方式 Connection mode

三相四线滤波器 3-phase + Neutral Line Filters

产品概述 (Product Introduction)

- 1.降低整个系统对电网的传导干扰

2.在150kHz~30MHz范围内拥有优越的插入衰减表现

3.设计紧凑, 优化工业设计

4.系统进线安装该系列的滤波器, 可以提高整个系统可靠性

5.N99为使用铜排接头, 其他为端子
- 1.Reducing the conducted emission from inverter to power network.

2.Exception attenuation performance from 150kHz~30MHz

3.Compact, space-saving design, optimized for industrial machinery

4.Increases also the immunity if operated directly on the mains input

5.N99 uses copper bar connectors, while others are terminals



技术参数 (Technical Data)

- 1.额定电压: 440/250 VAC

2.工作频率: 50Hz

3.额定电流: 10A~600A (@50℃)

3.高压试验: P-E 2100VDC/2sec P-P 2100VDC/2sec

4.温度范围: -25℃~100℃ (25/100/21)

5.设计依据: IEC/EN 60939、UL1283

6.典型滤波频率: 150kHz~30MHz
- 1.Rated voltage: 440/250 VAC

2.Operating frequency: 50Hz

3.Rated current: 10A~600A (@50℃)

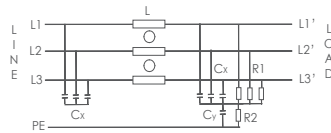
3.High potential test voltage: P-E 2100VDC/2sec P-P 2100VDC/2sec

4.Temperature range: -25℃~100℃ (25/100/21)

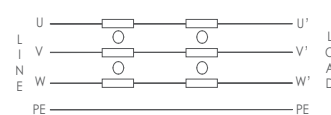
5.Design corresponding to: IEC/EN 60939、UL1283

6.Typical work frequency: 150kHz~30MHz

输入滤波器典型电路图
Typical circuit diagram of input filter



输出滤波器典型电路图
Typical circuit diagram of output filter

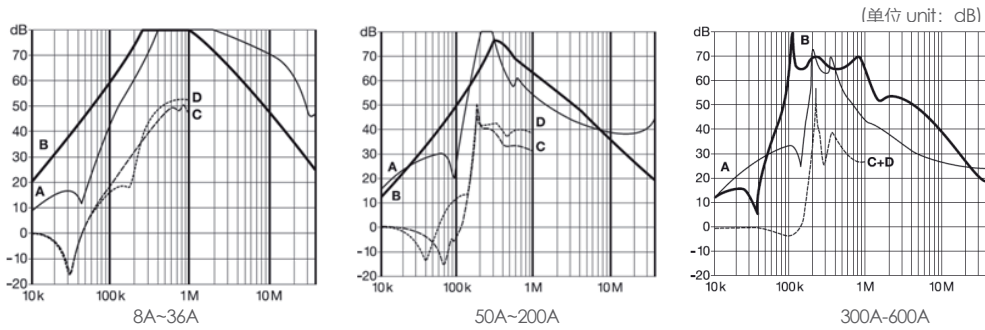


典型应用 (Typical Applications)

主要应用于工业设备, 机械, 机床及其他自动化控制的三相四线电力系统。由于出色的性能衰减, 该系列滤波器也是嘈杂的电源的首选, 应用于可再生能源、大功率的办公设备和其他三相四线的设备。因为相对较低的漏电流, 该系列滤波器甚至可以用于一些医疗设备。

Mainly industrial equipment, machinery, machinetools and diverse process auto- mation systems withthree-phase and neutral electricity supply. Due to theoutstanding attenuation performance, The series is alsothe first choice for noisy power supplies, renewableenergy applications, highpower office equipment andfurther three-phase and neutral devices. Because ofthe relatively low leakage current, The series may evenbe used for some medical devices.

输入滤波器插入损耗 (input filter attenuation)

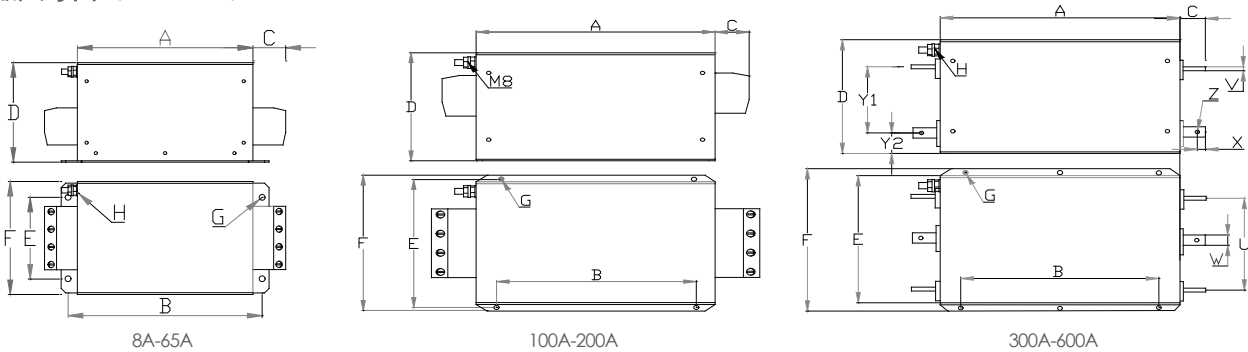


A:50N/50Ω sym, B:50N/50Ω asym, C: 0.1Ω/100Ω sym D:100N/0.1Ω sym

■ 滤波器选型表 (Filter Selection Table)

滤波器型号 Filter type	额定电流 Rated current @40℃ [A]	漏电流 Leakage current* @230VAC/50Hz [mA]	能量损耗 Power loss @25℃/50Hz [W]	端子类型 Connector type
RFI4NC8N06	8	<1	3.2	端子 solid safety connector
RFI4NC16N06	16	<1	6.5	端子 solid safety connector
RFI4NC25N10	25	<1	11.8	端子 solid safety connector
RFI4NC36N10	36	<1	15.3	端子 solid safety connector
RFI4NC50N16	50	<1	17.4	端子 solid safety connector
RFI4NC65N16	65	<1	18.9	端子 solid safety connector
RFI4NC100N35	100	<1	23.6	端子 solid safety connector
RFI4NC130N50	130	<1	28.5	端子 solid safety connector
RFI4NC160N95	160	<1	31	端子 solid safety connector
RFI4NC200N95	200	<1	47.4	端子 solid safety connector
RFI4NC300N99	300	<1	20.3	铜排 copper bar
RFI4NC400N99	400	<1	36	铜排 copper bar
RFI4NC600N99	600	<1	64.8	铜排 copper bar

■ 产品尺寸图 (Product Size)



代号 Code 电流 Current	A	B	C	D	E	F	G	H	U	V	W	X	Y1	Y2	Z
8A~16A	160	180	15.5	80	65	100	5.5	M5							
25A~36A	160	180	35	100	75	115	5.5	M5							
50A~65A	190	210	35	110	90	125	6.4	M6							
100A	230	120	38.5	125	150	163	6.4	M8							
130A	250	200	43	140	157	170	6.4	M8							
160A~200A	280	220	52	170	166	180	6.4	M8							
300A	325	240	58	150	195	220	11	M10	120	4	25	12.5	72	43	11
400A	325	240	58	150	195	220	11	M10	120	6	25	12.5	72	43	11
600A	325	240	58	150	195	220	11	M10	120	8	25	12.5	72	43	11

(单位 unit: mm)

■ 滤波器输入输出端子接线范围及扭矩选择 (Filter Input/output Connector Cross Sections)

	-N6	-N10	-N16	-N35	-N50	-N95
多股软线/mm² Flex wire	0.5~6	0.5~10	1~16	10~35	16~50	25~95
美标线规 AWG number	AWG8-26	AWG6-24	AWG4-20	AWG2-8	AWG6-1/0	AWG4-4/0
推荐扭矩/N.m Recommended torque	1.36	1.36	2.71	4.41	4.41	19.2

单相滤波器 1-phase filter

■ 产品概述 (Product Introduction)

- 1.具有高衰减性能的通用滤波器
- 2.具有良好的共模差模滤波性能
- 3.广泛应用于开关电源，UPS，变频逆变等场合
- 4.超过50A一定要确保接地良好，否则有电击危险
- 5.医用型的滤波器后缀为A

- 1.General purpose EMI filter with high attenuation performance
- 2.High common-modeand differential-mode attenuation
- 3.Widely used in switching power , UPS, inverter, etc.
- 4.Exceed 50A must ensure that the ground is good, otherwise there is a risk of electric shock
- 5.Medical type filter suffix for A

■ 技术参数 (Technical Data)

额定电压：250 VAC
工作频率：0~60Hz
额定电流：3A~200A
高压试验：P/N-E 2000VAC/2sec θP-N 1100VDC/2sec
温度范围：-25℃~85℃ (25/85/21)
设计依据：IEC/EN 60939
典型滤波频率：150kHz~30MHz

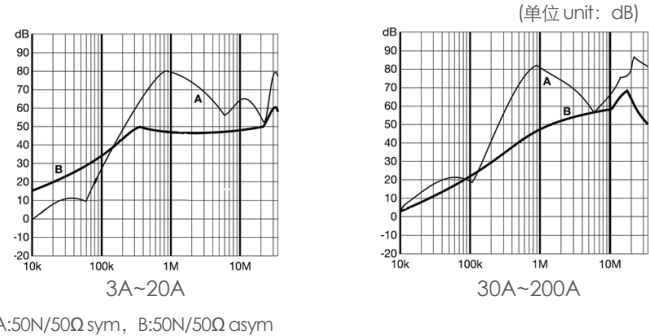
Rated voltage: 250 VAC
Operating frequency: 0~60Hz
Rated current: 3A~200A
High potential test voltage: OP/N-E 2000VAC/2sec OP-N 1100VDC/2sec
Temperature range: -25 C~85 C (25/85/21)
Design corresponding to: IEC/EN 60939
Typical work frequency: 150kHz~30MHz

■ 典型应用 (Typical Applications)

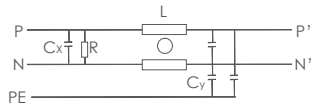
- 1.电气和电子设备
- 2.消费品
- 3.家庭设备
- 4.电子数据处理设备
- 5.办公自动化和数据通信设备
- 6.电磁环境恶劣且需要高性能滤波滤波器

Electrical and electronic equipment
Consumer goods
Household equipment
Electronic data processing equipment
Office automation and datacom equipment
Various noisy applications requiring high filter performance

■ 输入滤波器插入损耗 (Input Filter Attenuation)



典型电路图
typical electrical schematic

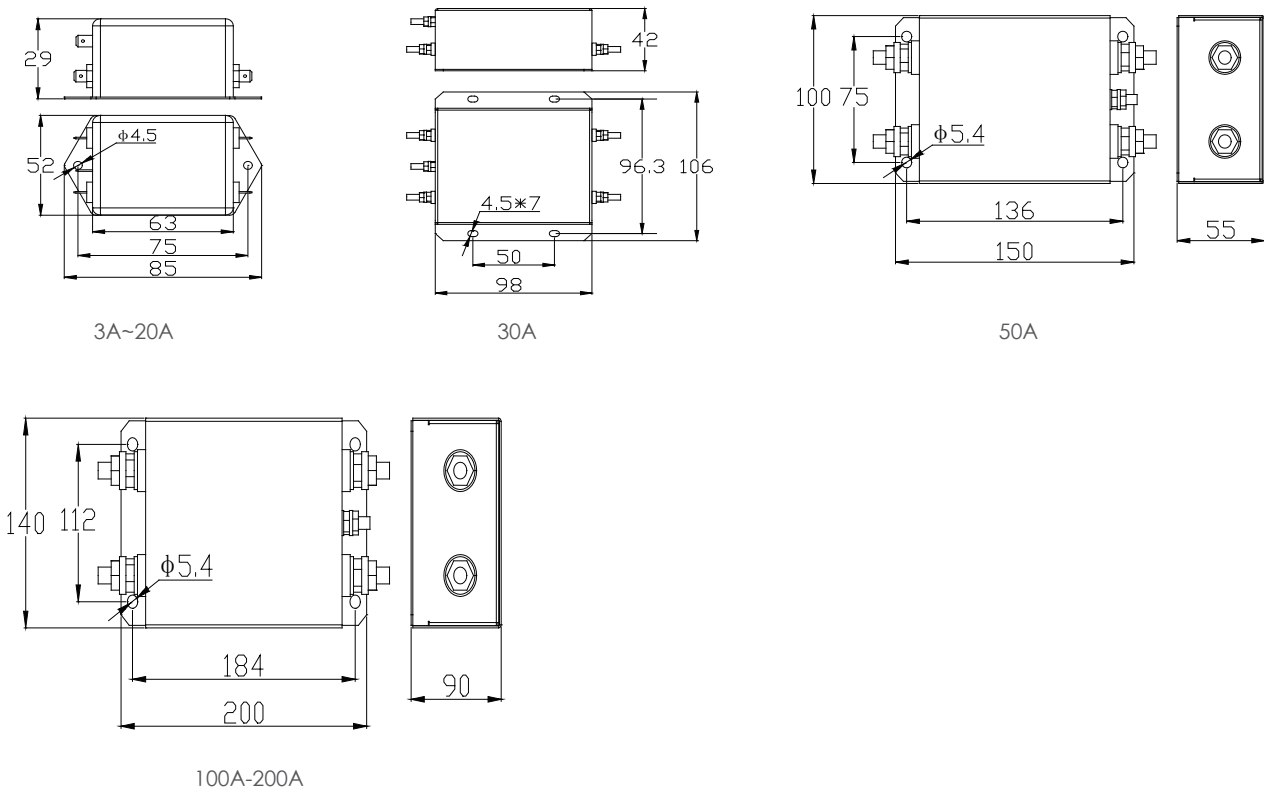


■ 滤波器选型表 (Filter Selection Table)

滤波器型号 Filter type		额定电流 Rated current @40℃ [A]	漏电流 Leakage current @230VAC/50Hz [mA]		能量损耗 Power loss @25℃/50Hz [W]	端子类型 Connector type
通用型 Universal filter	医用型 Medical filter		通用型 Universal filter	医用型 Medical filter		
RFD2B3N01	RFD2B3N01A	3	0.87	0.074	2.3	
RFD2B6N01	RFD2B6N01A	6	0.87	0.074	3.2	
RFD2B10N01	RFD2B10N01A	10	0.87	0.074	3.8	
RFD2B16N01	RFD2B16N01A	16	0.87	0.074	4.7	
RFD2B20N01	RFD2B20N01A	20	0.87	0.074	5.6	
RFD2B30N05	RFD2B30N05A	30	0.87	0.074	8.5	
RFD2B50N05	RFD2B50N05A	50	1.75	0.074	13.3	
RFD2B100N05	RFD2B100N05A	100	1.75	0.074	30.2	
RFD2B200N05	RFD2B200N05A	200	3.5	0.074	46.9	

■ 产品尺寸图 (Product Size)

(单位 unit: mm)



■ 成品识别码 (Product Identification Code)

RFD	—	2B	—	10	—	N05
单相滤波器 1 phase Filter		2:Working Voltage 2=220V B:Second-order filtering		额定电流 Rated Current 10A-2500A		接线方式 Connection mode

单/三相隔离变压器 (BKSC) Single/Three-phase Isolation transformer

■ 产品概述 (Product Introduction)

该类隔离变压器的目的是提供负载和电源侧之间的电隔离，在IT配电系统中，防止电冲击，以保护所连接设备的绝缘损坏，还提供中性点连接形成隔离或接地。通过初次级间与连接的静电屏蔽及加强的绝缘，该类隔离变压器能提供敏感负载的隔离以防止电源系统遭受严峻的大气干扰。另外，利用其铁芯的高频损耗大的特点，从而抑制高频杂波传入控制回路。

The purpose of such isolation transformers is to provide electrical isolation between the load and the power supply, prevent electric shock in the IT distribution system so as to protect the insulation of the device connected from being damaged, and provide neutral point connection for isolation or grounding. Through the shielding between the primary and secondary levels and the static electricity connected as well as reinforced insulation.

■ 产品特点 (Product Features)

我公司多年来采用优质材料和先进的工艺技术专业生产 160VA--800KVA 之间，单/三相干式隔离变压器，产品参照国外同类产品最新研制开发进口设备用变压器，广泛适用于交流 50/60HZ，输入、输出电压不超过1000V 的各种供电场合。产品的各种输入、输出，电压高低，联接组别，调节抽头位置，绕组容量分配，次级绕组配备，是否要求带外壳等，均根据用户的要求进行精心的设计与制造。该系列隔离变压器广泛用于地铁、高层建筑、机车、电梯、车站、印刷、机床、码头、工矿企业及隧道的输配电及进口设备的使用等场所。

Our company has been using high-quality materials and advanced process technology to professionally produce single/three-phase dry-type isolation transformers between 160VA and 800KVA for many years. The products are based on the latest research and development of imported equipment transformers for similar foreign products, and are widely used in various power supply scenarios with AC 50/60HZ and input and output voltages not exceeding 1000V. The various inputs and outputs, voltage levels, connection groups, tap position adjustment, winding capacity allocation, secondary winding configuration, and whether to require a casing of the product are carefully designed and manufactured according to the user's requirements. This series of isolation transformers is widely used in places such as subways, high-rise buildings, locomotives, elevators, stations, printing, machine tools, docks, industrial and mining enterprises, and tunnels for power transmission and distribution, as well as the use of imported equipment.

■ 技术规格 (Technical Specifications)

功率范围 Power Range:	160-800KVA
输入电压 Input Voltage	Rated voltage ≤ 1000V ± 10% Δ/Y
输出电压 Output Voltage	Rated voltage ≤ 1000V+5%(No Load) Δ/Y
效率 Efficiency	≥ 95%
波形失真 Waveform distortion	No additional waveform distortion
功能 Function	With input voltage, output voltage, current indication
保护 protect	Overcurrent protection
绝缘电阻 Insulation resistance	1000VDC insulation resistance value ≥ 100MΩ
电气强度 Dielectric strength	Core Coil 3000VAC/50Hz/5mA/10s no electric arcing puncture (factory test)
过载能力 Max Current	2 × Rated current, continuous 60s

海拔高度不超过2000米。
运行环境温度-25℃~+45℃，相对湿度不超过90%。
周围无有害气体，无易燃易爆物品。
周围环境应有良好的通风条件，如装在柜内，应加装通风设备。

Under seal level 2000m
Running ambient temperature -25 ℃ ~ +45 ℃, comparative moisture not over 90%.
There are no harmful gases or flammable or explosive materials around.
With well-ventilated condition, ventilation devices shall be mounted if installatioh in panels



典型电路图

(Typical circuit diagram)

