

我们存在的价值源自责任,卓越源自不懈的管理创新和技术创新
While the value of our existence derives from responsibility,
excellence is rooted from persistent management and technical innovation.

关于鸿康 About Howcore

HOWCORE是国内领先的电子元件制造商。公司的产品组合包括电抗器和电阻器、滤波器、加热器、电容器等。HOWCORE重点关注增长迅速的尖端技术市场，范围包括工业自动化、无功补偿、电能质量及新能源等领域。公司可为客户提供标准元件以及特殊应用解决方案。公司可在项目的早期阶段为客户提供专业技术和支持。

HOWCORE不断提高工艺水平，从而提高其产品和服务质量。公司通过了ISO9001/CE认证。

电子技术的发展对电能质量的要求越来越高，电能质量越来越被重视，而电力电子设备的增加导致电网电能质量日益恶化，造成电压波动、谐波、三相不平衡、谐振等电网污染。优化电网质量功率因数校正（PFC）技术也将得到大规模的应用，HOWCORE产品可降低用电消耗，减轻电网污染，提升输电效率，不仅节约能源，净化电网，也是回报率极高的投资。



HOWCORE的电能质量产品目前应用领域有石油、化工、煤炭、冶金、钢铁、能源、生物、交通、纺织、造纸、造船、烟草、建筑、水泥等行业。各行业都有突出的业绩。

HOWCORE is a domestically leading manufacturer of electric components. The product portfolio of the company include reactor, resistor, filter, heater, capacitor and so on. HOWCORE takes as its priority the fast-growing market of cutting-edge technology, ranging among the areas of industrial automation, reactive compensation, power quality and new energies. Standard components and special application solutions are both available for clients, as well as professional technical support in the early stage of your projects.

HOWCORE keeps improving its process level, thus to perfect its products and service quality. The company has passed the certification of ISO9001/CE.

On the one hand, with a higher requirement imposed upon power quality by the development of electric technology, the power quality issue increasingly attracts more attentions; on the other hand, the increasing of power and electric equipment leads to a deteriorative power quality of power grid, generating the power grid pollutions like voltage fluctuation, harmonic wave, three-phase imbalance and resonance. The power factor correction (PFC) technology for power grid quality optimization will also be applied in a large scale. The products of HOWCORE can reduce the electricity consumption, mitigate the pollution of power grid and improve the power transmission efficiency; as a result, they are not only energy savers and power grid purifiers, but also an investment of high returns.

The power quality products of HOWCORE currently are applied in areas like fossil oil, chemicals, coals, metallurgy, steel, energy, biology, transportation, textile, paper making, tobacco, architecture and cement. The company has created outstanding achievements in these areas.

鸿康理念 Howcore Philosophy

• 品牌内涵:

• 鸿康愿景:

• 鸿康使命:

• 品牌内涵:

• 鸿康精神:

• 人才理念:

• 质量方针

• 质量目标

• 产品理念

鸿--鸿鹄之志 凝聚智慧 开拓创新 追求卓越 永攀高峰

康--民康物阜 诚信为本 永续经营 为客户、员工、股东创造最大价值

引领中国被动元器件行业 成为行业中的楷模

通过提供创新的产品, 解决方案及服务来提高客户价值

以人才和技术为基础, 创造出最高品质的产品和服务

Honesty 诚信

Openness 正直

Working-hard 勤劳

Create 创新

Operation 行动

Responsible 责任

Excellence 卓越

人是核心资本

我们存在的价值源自责任

卓越源自不懈的管理创新和技术创新

产品零缺陷是我们追求的目标

品质为根, 不断创新

How to Create Products of Quality and Happiness is Our Core Value

To lead the passive component industry in China as a business model

To improve client value by providing creative products, solutions and service

Honesty

Openness

Working-hard

Creation

Operation

Responsibility

Excellence

Talented people is our core capital

While the value of our existence derives from responsibility, excellence is rooted from persistent management and technical innovation.

Zero product defect is the objective we pursue after.

We take quality as the root while ceaseless innovation as the drive.

Core Value

Our Vision

Our Mission

Our Spirit

Talent Concept

Quality Policy

Quality Objective

Product Concept



应用领域

Applications



可再生能源 Renewable Energy

- 太阳能 • Solar
- 风能 • Wind
- 燃料电池 • Fuel cell
- 水力发电 • Tidal power
- 潮汐发电 • Tidal power



轨道交通及电动汽车类 Rail transport and electric automobile

- 城市轨道交通 • City track traffic
- 高铁 • High-speed rail
- 电动汽车 • Electric vehicle



电力及电能质量类 Electric power and electric energy quality

- 谐波抑制 • Harmonic suppression
- 功率补偿 • Reactive power compensation
- SVG • SVG
- APF • APF
- UPS • UPS



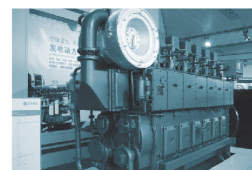
工业控制 Industrial Control

- 造纸和纸浆 • Paper and pulp
- 能源 • Mine
- 起重机械 • Energy
- 金属 • Rotating machine
- 电梯/升降机 • Crane
- 化工 • Manufacturing / production
- 港机 • Metal
- 纺机 • Fan pump
- 矿用 • Elevator / lift
- 旋转机 • Transportation
- 制造/生产 • Chemical
- 风机水泵 • Water treatment
- 运输 • Port
- 水处理 • Oil drilling platform
- 石油钻井平台 • Textile machinery
- 冶金 • Metallurgy



船舶类 Shipping

- 游轮 • Cruise
- 集装箱船 • Icebreaker
- 供应船 • Container ship
- 铺管船 • Ferry
- 破冰船 • Supply ship
- 渡轮 • Fishing boat
- 渔船 • Pipe laying ship
- 军舰 • Warships
- 特种船舶 • Special ship



负载类 Load

- 柴油发电机组
- UPS电源、电动机、汽轮发电机
- 电动机
- 变频器等电气设备负载性能的模拟检测
- Diesel generator set
- UPS power, motor
- Turbo generator
- Motor
- Simulation test, inverter and other electrical equipment load performance



生产检测设备

Production and testing equipment



HOWCORE的电能质量产品目前应用领域有石油、化工、煤炭、冶金、钢铁、能源、生物、交通、纺织、造纸、造船、烟草、建筑、水泥等行业。各行业都有突出的业绩。



直流电阻测试仪



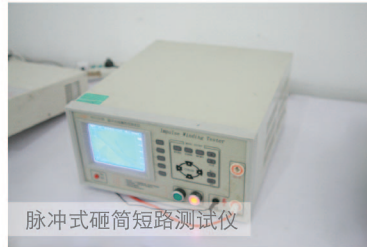
多路数据记录仪



噪音测试仪



谐波分析仪



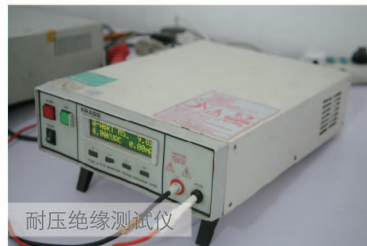
脉冲式砸筒短路测试仪



热成像仪



短时过载冲击继电器



耐压绝缘测试仪



电机驱动系统解决方案

Motor drive system solutions

输入滤波器 (RFI)

电压: 220V-1140V
电流: 3A-1600A



谐波滤波器 (HFR)

电压: 380V-690V
电流: 20A-660A
THDI<8%
-有效抑制谐波电流
-延长设备使用寿命, 提高系统可靠性
-提高电力系统容量使用效率



输出电抗器 (OCR)

电压: 220V-3300V
电流: 3A-1600A



dv/dt滤波器 (VTR)

电压: 380V-690V
电流: 20A-660A

-降低过大的dv/dt
-保护电动机绕组



正弦波滤波器 (SFR)

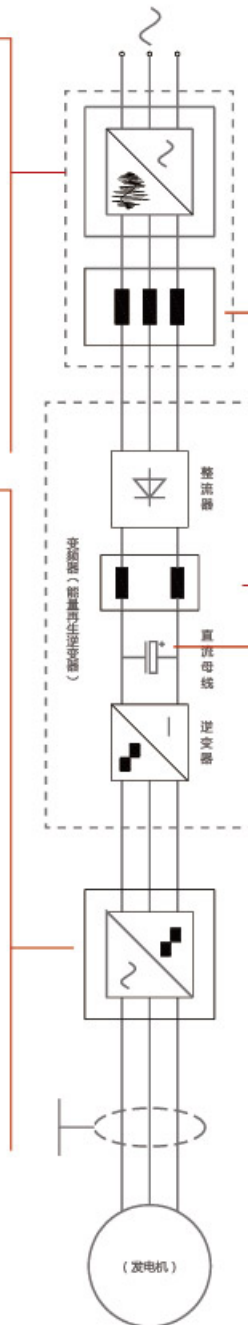
电压: 380V-690V
电流: 20A-660A

-延长电机使用寿命
-降低电机噪音
-降低逆变器负载端脉冲冲击



输出滤波器 (RFO)

电压: 220V-1140V
电流: 3A-1600A
-提高系统可靠性和效率
-确保EMC
-无需屏蔽电机电缆



进线电抗器 (ACR)

电压: 220V-3300V
电流: 3A-1600A
-抑制谐波
-限制浪涌和峰值电流
-提高功率因数



直流电抗器 (DCR)

电压: 220V-1140V
电流: 3A-1600A
-限制浪涌电流
-抑制谐波
-PFC回路用储能电源



通过能耗制动控制电路将再生能量消耗在电阻上, 转化为热能。

制动单元 (DBM)

电压: 220V-1140V
功率: 22KW-220KW



制动电阻

波纹电阻器(RXHG)
铝壳电阻器(RXLG)
波纹电阻箱(RA)
波纹电阻柜(HRA)
铝壳电阻箱(LRA)
不锈钢电阻(SRA)



目录 Contents

电抗器系列

交流输入电抗器 (ACR) AC Input Reactor	07
交流输出电抗器 (OCR) AC Output Reactor	10
直流电抗器 (DCR) DC reactor	13
调谐电抗器 (ATR) Tuning Reactor	15
能量回馈电抗器 (EFR) Energy Regenerated Reactor	17
矿用防爆电抗器 (BFR) Mine Explosion Reactor	17

滤波器系列

谐波滤波器 (HFR) Harmonic Filter	18
dv/dt滤波器 (VTR) dv/dt Filter	20
正弦波滤波器 (SFR) Sine Wave Filter	23
LCL滤波器 (LCR) LCL Filter	26
空心电抗器 (KCR) Core reactor	27
输入滤波器 (RFI) Input Filter	28
输出滤波器 (RFO) Output Filter	30

变压器系列

单/三相隔离变压器 (BKSC) Single/Three-phase Isolation transformer	32
自耦变压器 (BYSC) Autotransformer	35
整流变压器 (ZKSC) Rectifier transformer	37
逆变输出变压器(NKSC) Inverter transformer	37

制动单元系列

制动单元 (DBM) DC Braking Module	38
---------------------------------	----

电阻器系列

波纹电阻器 (RXHG) Wire Wound Resistor	39
铝壳电阻器 (RXLG) Aluminum Enclosure Resistor	41
波纹电阻箱/柜 (RA/HRA) Resistor Assemblies/High Power Resistor Assemblies	43
铝壳电阻箱 (LRA) Aluminum Enclosure Resistor Assemblies	44
加热管电阻箱 (JRA) Heating pipe Resistor Assemblies	45
不锈钢电阻柜 (SRA) SUS Resistor Assemblies	46
中性点接地电阻 (NRA) Neutral Grounding Resistor	47

负载系列

负载箱 (TRA) Load Testing	48
---------------------------	----

温控加热器系列

SFW系列温湿度控制器(单个型) SFW Temperature Controller	49
HDJR系列加热器 HDJR HEATER	50
HDJF系列加热器 HDJF HEATER	51
WHB系列风力发电机舱加热器 WHB WIND-POWER GENERATOR ENGINE ROOM HEATER	52



交流输入电抗器 (ACR) AC Input Reactor

■ 产品概述 (Product Introduction)

进线电抗器可被用于给线路电源提供改进的过载保护,并能减小变频器产生的电流谐波失真。提高输入电源的功率因素,减少高次谐波,抑制变频器在电源设备上的浪涌。

Input reactors offer overload to line power supply and reduce harmonic distortion arising from frequency inverters,also improve the input supply,reduce ultraharmonic and suppress the surge caused by frequency inverters to the power supply units.

■ 产品应用 (Product Application)

特别在下列环境下推荐使用进线电抗器:

- 1.几个变频器并联紧密连接
- 2.线路电源有来自其他设备的明显 扰动 (干扰, 过电压)
- 3.线路电源各相之间存在电压不平衡, 超过额定电压的1.8%
- 4.在同一线路上安装有大量的变频器
- 5.减小 $\cos \phi$ 校正电容器上的过载, 如果装置中含有一个功率系数校正设备

Particularly apply to the following cases:

1. Multiple frequency inverters in close parallel connection
2. Other devices produce interference to line power supply.(disturbance,, over voltage
3. Nonbalance among phases of line power supply.(1.8% over than of the rated voltage
4. Massive frequency inverters installed on the same line
5. Reduce $\cos \phi$ and correct the overload of capacitor,in case the power factor correction devices are installed in system

■ 技术规格 (Technical Specifications)

工作电压 Work Voltage:	220VAC-1140VAC
工作频率 Work Frequency:	50/60Hz.
工作电流 Work Current:	3A-1600A
绝缘等级. Insulation Class:	class F,H
防护等级. Protection class:	IP00-IP22
压降 Voltage drop:	< 4% 大于此范围会引起转矩损失
最大电流 Max Current:	1.5×额定电流, 持续60S
噪音 Noise:	≤65dB
温升 Temperature Rise:	≤85K
抗电强度 Dielectric strength:	铁芯-绕组 3000VAC/50Hz/5mA/10s无飞弧击穿(工厂测试)
绝缘电阻 Insulation Resistor:	1000VDC绝缘阻值≥100MΩ

使用环境: -10~+45 °C,额定值不会降低。最高可达+55°C, 在45°C以上,

每升高1°C, 额定电流降低2%, 海拔高度不超过2000米。

运行环境温度-25°C~+45°C, 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。

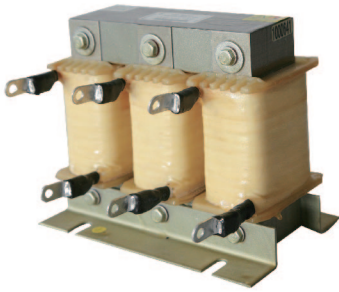
Operation Environment:-10~+45 °C ,rated value won't lower, when higer than 55°C,

and every 1°C, the current will step down 2%, Under seal level 2000m

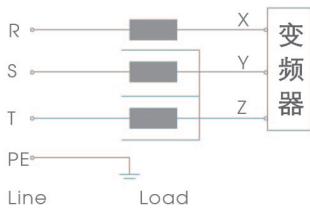
Running ambient temperature -25 °C ~ +45 °C, comparative moisture not over 90%.

No hazardous gas, no inflammables and explosives

With well-ventilated condition, ventilation devices shall be mounted if installation in panels



典型电路图



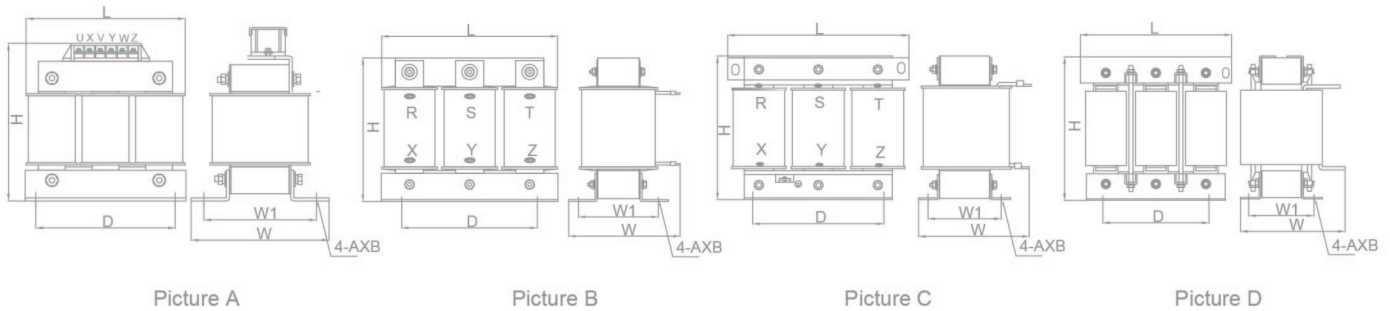
■ 执行标准 (Applicable Standards)

IEC289: 1987 Reactor

GB10229-88 Reactor (equiv IEC289: 1987)

JB9644-1999 Reactors used for semiconductor electrical driving

■ 产品尺寸图 (Product Size)



380V输入电抗器 380V AC Input Reactor

电抗器型号 Reactor Type	图号 Picture NO.	适配功率 Power (kw)	额定电流 Rated Current(A)	电感量 Inductance Value(mH)	压降 Voltage Drop	绝缘等级 Insulation rank	尺寸 Dimension (±5mm)					
							L	D	W	W1	H	A×B
ACR-0005-2M80-0.4SC	图 A Picture A	1.5	5	2.8	2%	F、H	115	90	95	68	135	6X11
ACR-0007-2M00-0.4SC		2.2	7	2	2%	F、H	115	90	95	68	135	6X11
ACR-0010-1M40-0.4SC		3.7	10	1.4	2%	F、H	115	90	95	68	135	6X11
ACR-0015-0M94-0.4SC		5.5	15	0.94	2%	F、H	115	90	95	68	135	6X11
ACR-0020-0M70-0.4SC	图 B Picture B	7.5	20	0.7	2%	F、H	155	95	80	61	170	6×15
ACR-0030-0M47-0.4SC		11	30	0.47	2%	F、H	155	95	130	63	135	6×15
ACR-0040-0M36-0.4SC		15	40	0.36	2%	F、H	155	95	140	76	135	6×15
ACR-0050-0M28-0.4SC		18.5	50	0.28	2%	F、H	155	95	140	76	135	6×15
ACR-0060-0M24-0.4SC		22	60	0.24	2%	F、H	195	120	150	72	165	8.5×20
ACR-0080-0M18-0.4SC		30	80	0.18	2%	F、H	195	120	150	92	165	8.5×20
ACR-0090-0M16-0.4SC	图 C Picture C	37	90	0.156	2%	F、H	195	120	150	92	165	8.5×20
ACR-0120-0M12-0.4SA		45	120	0.117	2%	F、H	230	150	170	83	220	11×18
ACR-0150-094U-0.4SA		55	150	0.094	2%	F、H	230	150	170	88	220	11×18
ACR-0200-070U-0.4SA		75	200	0.07	2%	F、H	250	182	175	98	230	11×18
ACR-0250-056U-0.4SA		110	250	0.056	2%	F、H	250	182	175	98	230	11×18
ACR-0290-048U-0.4SA		132	290	0.048	2%	F、H	290	214	200	102	250	11×18
ACR-0330-042U-0.4SA		160	330	0.042	2%	F、H	290	214	200	102	250	11×18
ACR-0390-036U-0.4SA		185	390	0.036	2%	F、H	290	214	205	107	250	11×18
ACR-0490-028U-0.4SA	图 D Picture D	220	490	0.028	2%	F、H	320	243	230	125	320	12×20
ACR-0600-024U-0.4SA		280	600	0.024	2%	F、H	320	243	250	140	320	12×20
ACR-0660-022U-0.4SA		300	660	0.022	2%	F、H	320	243	250	140	320	12×20
ACR-0800-17U5-0.4SA		380	800	0.0175	2%	F、H	365	260	280	135	390	15×25
ACR-1000-014U-0.4SA	图 D Picture D	450	1000	0.014	2%	F、H	365	260	280	135	390	15×25
ACR-1200-11U7-0.4SA		550	1200	0.0117	2%	F、H	395	275	340	160	390	15×25
ACR-1600-08U6-0.4SA		630	1600	0.0086	2%	F、H	395	275	340	160	435	15×25

备注：其他规格尺寸，可根据用户要求制造。Remark: Dimension can be customization

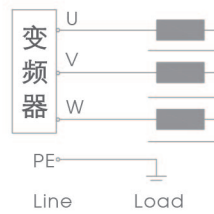
680V输出电抗器 680V AC Output Reactor

电抗器型号 Reactor Type	图号 Picture NO.	适配功率 Power (kw)	额定电流 Rated Current(A)	电感量 Inductance Value(mH)	压降 Voltage Drop	绝缘等级 Insulation rank	尺寸 Dimension(±5mm)					
							L	D	W	W1	H	A×B
ACR-0005-5M60-0.7SC	图 A Picture A	3.7	5	5.6	2%	F、H	155	80	180	95	61	6X15
ACR-0007-4M00-0.7SC		5.5	7	4	2%	F、H	155	80	180	95	61	6X15
ACR-0010-2M80-0.7SC		7.5	10	2.8	2%	F、H	155	80	200	95	63	6X15
ACR-0015-1M87-0.7SC		11	15	1.87	2%	F、H	155	80	200	95	63	6X15
ACR-0020-1M40-0.7SC	图 B Picture B	15/18.5	20	1.4	2%	F、H	155	130	135	95	76	6X15
ACR-0030-0M93-0.7SC		22	30	0.93	2%	F、H	195	130	165	120	72	8.5X20
ACR-0040-0M70-0.7SC		30	40	0.7	2%	F、H	195	130	165	120	72	8.5X20
ACR-0050-0M56-0.7SA		37/45	50	0.56	2%	F、H	195	150	165	120	92	8.5X20
ACR-0060-0M47-0.7SA	图 C Picture C	55	60	0.47	2%	F、H	195	150	165	120	92	8.5X20
ACR-0080-0M35-0.7SA		75	80	0.35	2%	F、H	195	170	165	120	112	8.5X20
ACR-0120-0M23-0.7SA		110	120	0.23	2%	F、H	250	190	230	182	113	11X18
ACR-0150-0M19-0.7SA		132	150	0.19	2%	F、H	290	210	250	214	107	11X18
ACR-0200-0M14-0.7SA	图 D Picture D	160/185	200	0.14	2%	F、H	290	220	250	214	117	11X18
ACR-0250-0M11-0.7SA		220	250	0.11	2%	F、H	320	240	280	243	130	12X20
ACR-0290-096U-0.7SA		240	290	0.096	2%	F、H	320	250	280	243	140	12X20
ACR-0330-085U-0.7SA		280/300	330	0.085	2%	F、H	320	250	280	243	150	12X20
ACR-0390-072U-0.7SA	图 D Picture D	380	390	0.072	2%	F、H	320	260	320	243	150	12X20
ACR-0490-057U-0.7SA		450	490	0.057	2%	F、H	365	285	340	260	155	15X25
ACR-0600-047U-0.7SA		550	600	0.047	2%	F、H	365	320	340	260	185	15X25
ACR-0660-042U-0.7SA		630	660	0.042	2%	F、H	365	320	340	260	185	15X25

备注：其他规格尺寸，可根据用户要求制造。Remark: Dimension can be customization



典型电路图



■ 成品识别码 (Product Identification Code)

ACR	-	0060	-	0M24	-	0.4SC
输入电抗器 AC Input Reactor		额定电流 Rated Current 3A-1600A		电感量 Resistance Value M:mH U:uH		0.4:Working Voltage 0.2=220V,0.4=380V,0.7=690V,1.1=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium

交流输出电抗器 (OCR) AC Output Reactor

■ 产品概述 (Product Introduction)

安装在变频器输出端，用于限制变频器与电机连接电缆的容性充电电流，钝化变频器输出的PWM波的电压上升率。电机电缆长度超过一定值时，建议在变频器与电机之间插入一个电机电抗器。用于补偿在长导线时的电容再充电电流。此最大长度决定于变频器的额定值以及电机电缆的类型。

The input reactor is mounted at the output of the frequency inverter. It is used for limiting the capacitive charging current of the connection cable between the frequency inverter and the motor, and passivating the voltage buildup rate of PWM form the frequency inveter and the motor.

■ 产品应用 (Product Application)

- 1.将dv/dt限制到500V/us
- 2.将电机端子上的过电压限制到：1000V至400V~ (rms值) 1150V至460V~ (rms值)
- 3.打开滤波器与电机之间的接触器所引起的滤波器干扰
- 4.减小电机接地泄漏电流

- 1.Limit dv / dt to 500V/us
- 2.Limit the overvoltage of motor terminal to: 1000V to 400V ~ (rms)
- 3.The interference occurred form the contalled between the motor and the filter
- 4.Reduce the earth leakage current of motor

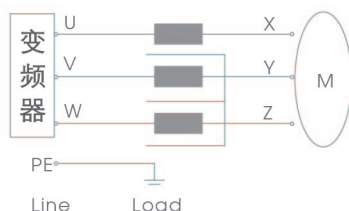
■ 技术规格 (Technical Specifications)

1. 工作电压：220VAC-1140VAC
2. 工作频率：50/60Hz.
3. 额定电流：3A-1600A
4. 载波频率：2-8KHz.
5. 绝缘等级：class F,H
6. 使用环境：-10~+45℃,额定值不会降低。最高可达+55℃，在45℃以上，每升高1℃，额定电流降低2%
7. 防护等级：IP00-IP22
8. 压降：< 4% 大于此范围会引起转矩损失
9. 最大电流：1.5×额定电流，持续60S
10. 噪音：≤65dB
11. 温升：≤85K
12. 抗电强度：铁芯-绕组 3000VAC/50Hz/5mA/10s无飞弧击穿(工厂测试)
13. 绝缘电阻：1000VDC绝缘阻值≥100MΩ
14. 海拔高度不超过2000米。
15. 运行环境温度-25℃~+45℃，相对湿度不超过90%。
16. 周围无有害气体，无易燃易爆物品。
17. 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。

- 1.Work voltage: 220VAC-1140VAC
- 2.Work frequency: 50/60Hz.
- 3.Work current: 3A-1600A
- 4.Carrier frequency :2-8KHz
- 5.Insulation class: class F, H
- 6.Operation Environment:-10℃+45℃,rated value wont ↓ lower,when higer than 45℃,and every 1℃,the current will step down 2%
- 7.Protection class: IP00-IP22
- 8.Voltage drop: <4% higher than the range will cause the loss of torque
- 9.Max Current: 1.5 × Rated current,continuous 60S
- 10:Noise: ≤ 65dB
- 11.Temperature Rise: ≤ 85K
- 12 Dielectric strength: Core Coil 3000VAC/50Hz/5mA/10s no electric arcing puncture (factory test)
- 13.Insulation Resistor: 1000VDC insulation resistance value ≥ 100MΩ
- 14.Under seal level 2000m
- 15.Running ambient temperature -25℃ ~ +45℃, comparative moisture not over 90%.
- 16.No hazardous gas,no inflammables and explosives
- 17.With well-ventilated condition,ventilation devices shall be mounted if installatoin in panels



典型电路图



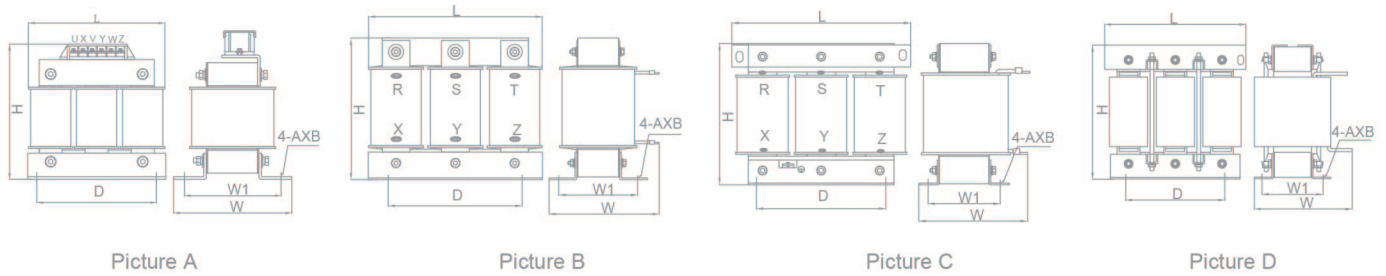
■ 执行标准 (Applicable Standards)

IEC289: 1987 Reactor

GB10229-88 Reactor (eqvIEC289: 1987)

JB9644-1999 Reactors used for semiconductor electrical driving

■ 产品尺寸图 (Product Size)



380V输出电抗器 380V AC Output Reactor

电抗器型号 Reactor Type	图号 Picture NO.	适配功率 Power (kw)	额定电流 Rated Current(A)	电感量 Inductance Value(mH)	压降 Voltage Drop	绝缘等级 Insulation rank	尺寸 Dimension(±5mm)					
							L	D	W	W1	H	A×B
OCR-0005-1M40-0.4SC	图 A Picture A	1.5	5	1.4	1%	F、H	115	90	95	68	135	6X11
OCR-0007-1M00-0.4SC		2.2	7	1	1%	F、H	115	90	95	68	135	6X11
OCR-0010-0M70-0.4SC		3.7	10	0.7	1%	F、H	115	90	95	68	135	6X11
OCR-0015-0M47-0.4SC		5.5	15	0.47	1%	F、H	115	90	95	68	135	6X11
OCR-0020-0M35-0.4SC	图 B Picture B	7.5	20	0.35	1%	F、H	115	90	95	68	135	6X11
OCR-0030-0M23-0.4SC		11	30	0.23	1%	F、H	155	95	80	63	180	6×15
OCR-0040-0M18-0.4SC		15	40	0.18	1%	F、H	155	95	140	76	135	6×15
OCR-0050-0M14-0.4SC		18.5	50	0.14	1%	F、H	155	95	140	76	135	6×15
OCR-0060-0M12-0.4SC	图 C Picture C	22	60	0.12	1%	F、H	195	120	135	72	165	8.5×20
OCR-0080-087U-0.4SC		30	80	0.087	1%	F、H	195	120	135	72	165	8.5×20
OCR-0090-078U-0.4SC		37	90	0.078	1%	F、H	195	120	135	72	165	8.5×20
OCR-0120-058U-0.4SA		45	120	0.058	1%	F、H	230	150	170	83	220	11×18
OCR-0150-047U-0.4SA	图 D Picture D	55	150	0.047	1%	F、H	230	150	170	88	220	11×18
OCR-0200-035U-0.4SA		75	200	0.035	1%	F、H	230	150	180	98	220	11×18
OCR-0250-028U-0.4SA		110	250	0.028	1%	F、H	250	182	175	98	230	11×18
OCR-0290-024U-0.4SA		132	290	0.024	1%	F、H	290	214	200	107	250	11×18
OCR-0330-021U-0.4SA	图 D Picture D	160	330	0.021	1%	F、H	290	214	200	107	250	11×18
OCR-0390-018U-0.4SA		185	390	0.018	1%	F、H	290	214	200	107	250	11×18
OCR-0490-014U-0.4SA		220	490	0.014	1%	F、H	320	243	230	125	320	12×20
OCR-0600-012U-0.4SA		280	600	0.012	1%	F、H	320	243	250	140	320	12×20
OCR-0660-011U-0.4SA	图 D Picture D	300	660	0.011	1%	F、H	320	243	250	140	320	12×20
OCR-0800-08U7-0.4SA		380	800	0.0087	1%	F、H	365	260	280	135	380	15×25
OCR-1000-07U0-0.4SA		450	1000	0.007	1%	F、H	365	260	280	135	380	15×25
OCR-1200-05U8-0.4SA		550	1200	0.0058	1%	F、H	395	275	325	150	390	15×25
OCR-1600-04U3-0.4SA		630	1600	0.0043	1%	F、H	395	275	325	150	435	15×25

备注：其他规格尺寸，可根据用户要求制造。Remark: Dimension can be customization

680V输出电抗器 680V AC Output Reactor

电抗器型号 Reactor Type	图号 Picture NO.	适配功率 Power (kw)	额定电流 Rated Current(A)	电感量 Inductance Value(mH)	压降 Voltage Drop	绝缘等级 Insulation rank	尺寸 Dimension(±5mm)					
							L	D	W	W1	H	A×B
OCR-0005-2M80-0.7SC	图 A Picture A	3.7	5	2.8	1%	F、H	155	80	180	95	61	6X15
OCR-0007-2M00-0.7SC		5.5	7	2	1%	F、H	155	80	180	95	61	6X15
OCR-0010-1M40-0.7SC		7.5	10	1.4	1%	F、H	155	80	200	95	63	6X15
OCR-0015-0M93-0.7SC		11	15	0.93	1%	F、H	155	80	200	95	63	6X15
OCR-0020-0M70-0.7SC	图 B Picture B	15/18.5	20	0.7	1%	F、H	155	80	200	95	63	6X15
OCR-0030-0M47-0.7SC		22	30	0.47	1%	F、H	195	130	165	120	72	8.5X20
OCR-0040-0M35-0.7SC		30	40	0.35	1%	F、H	195	130	165	120	72	8.5X20
OCR-0050-0M28-0.7SA		37/45	50	0.28	1%	F、H	195	150	165	120	92	8.5X20
OCR-0060-0M23-0.7SA	图 C Picture C	55	60	0.23	1%	F、H	195	150	165	120	92	8.5X20
OCR-0080-0M18-0.7SA		75	80	0.18	1%	F、H	195	170	165	120	112	8.5X20
OCR-0120-0M12-0.7SA		110	120	0.12	1%	F、H	250	190	230	182	103	11X18
OCR-0150-094U-0.7SA		132	150	0.094	1%	F、H	250	200	230	182	113	11X18
OCR-0200-070U-0.7SA	图 D Picture D	160/185	200	0.07	1%	F、H	290	220	250	214	117	11X18
OCR-0250-055U-0.7SA		220	250	0.055	1%	F、H	290	220	250	214	117	11X18
OCR-0290-048U-0.7SA		240	290	0.048	1%	F、H	320	250	320	243	135	12X20
OCR-0330-042U-0.7SA		280/300	330	0.042	1%	F、H	320	250	320	243	135	12X20
OCR-0390-036U-0.7SA	图 D Picture D	380	390	0.036	1%	F、H	320	250	320	243	135	12X20
OCR-0490-028U-0.7SA		450	490	0.028	1%	F、H	320	270	320	243	160	12X20
OCR-0600-023U-0.7SA	图 D Picture D	550	600	0.023	1%	F、H	365	285	340	260	165	15X25
OCR-0660-021U-0.7SA		630	660	0.021	1%	F、H	365	285	340	260	165	15X25

备注：其他规格尺寸，可根据用户要求制造。Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

OCR	-	0060	-	0M24	-	0.4SC
输出电抗器 AC Output Reactor		额定电流 Rated Current 3A-1600A		电感量 Resistance Value M:mH U:uH		0.4:Working Voltage 0.2=220V,0.4=380V,0.7=690V,1.1=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium

直流感抗器 (DCR) DC reactor

■ 产品概述 (Product Introduction)

直流感抗器用于整流回路之中，抑制整流后的波纹脉动分量，并使整流后的电流连续不断，改善输出的支流波形，保证直流设备的正常运行。

DC smoothing reactor rectifier circuit being used to suppress ripple rectified pulsating component and make rectified current continuously Improve the output waveform tributaries, to ensure the normal operation of the DC devices.

■ 产品应用 (Product Application)

1. 改善电容滤波造成的输入电流波形畸变。
2. 减少和防止因冲击电流造成整流桥损坏和电容过热。
3. 提高功率因素，降低直流母线交流脉冲。
4. 限制电网电压的瞬变。
5. 与并联连接的电容一起共同抑制或滤掉直流中的纹波，以排除对负载的不利影响。

1. Suppress the waveform distortion of input current caused by capacitive filtering
2. Reduce and avoid overheat of capacity and rectifier bridge damage both of which arise form surge current
3. Improve power factor and reduce the DC busbar AC pulse.
4. Limit the instant change of the grid voltage
5. Work with capacitor to suppress or filter the current ripple for eliminating .negative influence onload

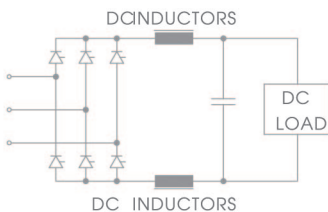
■ 技术规格 (Technical Specifications)

1. 工作电压: 220VAC-1140VAC
2. 工作频率: 50/60Hz.
3. 工作电流: 3A-1600A
4. 绝缘等级: class F,H
5. 使用环境: -10...+45 °C,额定值不会降低。最高可达+55°C,在45°C以上,每升高1°C,额定电流降低2%
6. 防护等级: IP00-IP22
7. 最大电流: 1.5×额定电流,持续60S
8. 噪音: ≤65dB
9. 温升: ≤85K
10. 抗电强度: 铁芯-绕组 3000VAC/50Hz/5mA/10s无飞弧击穿(工厂测试)
11. 绝缘电阻: 1000VDC绝缘阻值≥100MΩ
12. 海拔高度不超过2000米。
13. 运行环境温度-25°C~+45°C,相对湿度不超过90%。
14. 周围无有害气体,无易燃易爆物品。
15. 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。

1. Work voltage: 220VAC-1140VAC
2. Work frequency: 50/60Hz.
3. Work current: 3A-1600A
4. Insulation class: class F, H
5. Operation Environment:-10~...+45 °C ,rated value won't lower,when higer than 45 °C ,and every 1 °C ,the current will step down 2%
6. Protection class: IP00-IP22
7. Max Current: 1.5 × Rated current,continuous 60S
8. Noise: ≤ 65dB
9. Temperature Rise: ≤ 85K
10. Dielectric strength: Core Coil 3000VAC/50Hz/5mA/10s no electric arcing puncture (factory test)
11. Insulation Resistor: 1000VDC insulation resistance value ≥ 100MΩ
12. Under seal level 2000m
15. Running ambient temperature -25 °C ~ +45 °C , comparative moisture not over 90%.
16. No hazardous gas,no inflammables and explosives
17. With well-ventilated condition,ventilation devices shall be mounted if installatioh in panels



典型电路图



■ 执行标准 (Applicable Standards)

IEC289: 1987 Reactor

GB10229-88 Reactor (eqvIEC289: 1987)

JB9644-1999 Reactors used for semiconductor electrical driving

■ 产品尺寸图 (Product Size)



Picture A

Picture B

电抗器型号 Reactor Type	图号 Picture NO.	适配功率 Power (kw)	额定电流 Rated Current(A)	电感量 Inductance Value(mH)	绝缘等级 Insulation rank	尺寸 Dimension(±5mm)					
						L	D	W	W1	H	A×B
DCR-0010-6M30-0.4DC	图 A Picture A	4	10	6.3	F、H	100	80	100	70	125	6X11
DCR-0015-3M60-0.4DC		5.5	15	3.6	F、H	110	87	120	70	135	6X11
DCR-0020-3M60-0.4DC		7.5	20	3.6	F、H	110	87	120	70	135	6X11
DCR-0030-2M00-0.4DC		11	30	2	F、H	110	87	120	70	135	6X11
DCR-0040-2M00-0.4DC		15	40	2	F、H	110	87	120	70	135	6X11
DCR-0040-1M30-0.4DC		18.5	40	1.3	F、H	110	87	120	70	135	6X11
DCR-0050-1M08-0.4DC		22	50	1.08	F、H	120	95	135	85	145	8.4×13
DCR-0065-0M80-0.4DC		30	65	0.8	F、H	138	111	150	85	170	8.4×13
DCR-0080-0M70-0.4DC		37	80	0.7	F、H	138	111	150	85	170	8.4×13
DCR-0100-0M54-0.4DA		45	100	0.54	F、H	138	111	150	85	170	8.4×13
DCR-0120-0M45-0.4DA	图 B Picture B	55	120	0.45	F、H	155	125	160	90	195	9×18
DCR-0160-0M36-0.4DA		75	160	0.36	F、H	165	100	130	98	215	9×18
DCR-0200-0M33-0.4DA		90	200	0.33	F、H	165	100	130	98	215	9×18
DCR-0250-0M26-0.4DA		110	250	0.26	F、H	210	176	150	115	255	11×18
DCR-0300-0M26-0.4DA		132	300	0.26	F、H	210	176	150	115	255	11×18
DCR-0350-0M17-0.4DA		160	350	0.17	F、H	210	176	150	115	255	11×18
DCR-0450-090U-0.4DA		185	450	0.09	F、H	220	191	150	115	280	11×18
DCR-0500-060U-0.4DA		220	500	0.06	F、H	220	191	150	115	280	11×18
DCR-0650-050U-0.4DA		300	650	0.05	F、H	230	208	160	125	280	11×18
DCR-0800-050U-0.4DA		380/400	800	0.05	F、H	250	200	245	144	320	11×18
DCR-1000-050U-0.4DA	450	1000	0.05	F、H	250	200	280	146	360	11×18	
DCR-1200-050U-0.4DA	500	1200	0.04	F、H	250	200	280	164	390	11×18	

■ 成品识别码 (Product Identification Code)

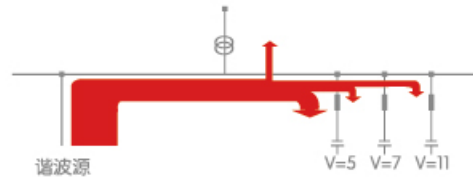
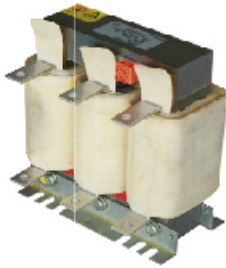
DCR	-	0060	-	0M24	-	0.4SC
直流电抗器 DC Reactor		额定电流 Rated Current 3A-1600A		电感量 Resistance Value M:mH U:uH		0.4:Working Voltage 0.2=220V,0.4=380V,0.7=690V,1.1=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium

调谐电抗器 (ATR) Tuning Reactor

■ 产品概述 (Product Introduction)

现代电力电子设备的大量使用产生的非线性电流正以谐波方式影响电网并加重电网污染，并导致电容器，变压器及传输设备过载并故障，对测量，传动，计算等设备产生的严重干扰，谐振及电压畸变还造成供电事故。串联电抗器得以改善与避免。电容器串联电抗器后谐振频率低于系统最低（一般为5次及7次），使其在工频下呈容性，以改善功率因数，而在谐振并无放大谐波之虑，良好的阻抗匹配后，电容器组可吸收谐波电流（如5次）30%-60%。

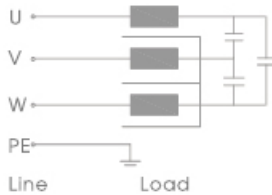
The nonlinear currents generated by the massive use of modern power and electric equipment are impacting the power grid and aggravate its pollution in the harmonic form, cause overload failures to capacitors, transformers and transmission devices and generate serious interference to measuring, transmitting and calculating devices; in addition, resonance and voltage distortions may also result in power supply accidents. Series reactors could effectively improve or avoid such problems. After installing the capacitor and reactor in series, the resonance frequency is lower than the minimum of the system (usually 5th and 7th waves), so that compatibility is showed under power frequency and power factor is improved; meanwhile, there is no need to worry about the amplification of harmonic wave. With satisfactory impedance matching, the capacitor bank could absorb 30% to 60% of the harmonic currents (5th harmonic wave, for example).



去波示意图

To the wave schematic diagram

典型电路图



■ 产品应用 (Product Application)

工作频率 Operating frequency	50Hz-60Hz
额定电流 Rated operating current	5A-2000A
工作电压 Rated operating voltage	220V-10KV
温升 Temperature rise	≤95K
噪音 Noise	≤65dB
三相平衡度 Three-phase equilibrium degree	-5%...+5%
抗电强度 Reactive Strength	Core-Winding 3000VAC/50Hz/5mA/10S Free of arcing breakage (fitted in factory)
绝缘电阻 Insulation Resistance	1000VDC, insulation resistance ≥ 100MΩ
防护等级 Degree of protection	IP00-IP20
失调系数 Reduction factor	5, 6, 7, 14 %
性能范围 Pn Performance range Pn	5 kvar ... 100 kvar
监控 Monitoring	Temperature switch is integrated, contacts are fitted on terminals.
环境温度/热绝缘等级 Temperature classes	ta 40 ° C/F,H
安装海拔高度 Installation altitude	≤2000 m above sea level
存储温度 Storage temperature	-25 ° C ... +55 ° C
运输温度 Transport temperature	-25 ° C ... +70 ° C
允许的额定湿度 Permissible humidity rating	Humidity 5 % ... 95 % occasional condensation permissible

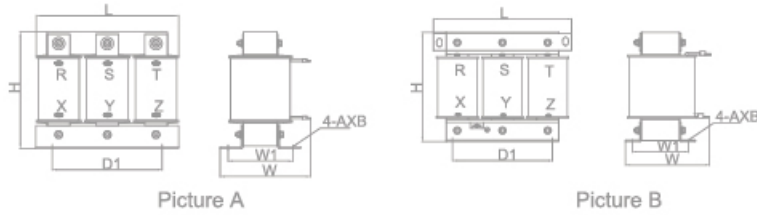
■ 执行标准 (Applicable Standards)

IEC289: 1987 Reactor
 GB10229-88 Reactor (eqvIEC289: 1987)
 JB9644-1999 Reactors used for semiconductor electrical driving

■ 成品识别码 (Product Identification Code)

ATR	-	02100	-	0400SA7X
调谐电抗器 Tuning Reactor		Reactor capacity		0400: 400V Working Voltage S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium

■ 产品尺寸图 (Product Size)



产品型号 Order No.	图号 Picture NO.	补偿容量 Filter bank capacity Q_c kvar	电感系数 Inductance	外形尺寸 Dimensions (MAX) $L*W*H$	安装尺寸 Mounting dimensions $D1*W1$	额定电流 Rated Current(A) I_n A	连接 K=端子 F=母排 Connections K = Terminal F = Flat termination	单台的近似总重 Total weight per PU approx. kg
$p=5.67\%$, $L = \text{恒定}$, 不超过 $1.82 \cdot I_{thmax}$, $f_{RES} = 210 \text{ Hz}$ Choking factor $p = 5.67\%$, $L = \text{constant to } 1.82 \cdot I_{thmax}$, $f_{RES} = 210 \text{ Hz}$								
ATRO02800400SA05.67X	A	5.00	6.12	195*100*210	120*72	8.0	K	3.70
ATRO04300400SA05.67X	A	7.50	4.081	195*100*210	120*92	12.0	K	5.00
ATRO05700400SA05.67X	A	10.0	3.06	195*150*165	120*92	16.0	K	6.40
ATRO07100400SA05.67X	A	12.5	2.45	195*165*165	120*112	20.0	K	9.10
ATRO085000400SA05.67X	A	15.0	2.04	195*165*165	120*112	24.0	K	9.30
ATRO11300400SA05.67X	A	20.0	1.53	230*160*185	150*95	32.0	K	13.0
ATRO14200400SA05.67B	A	25.0	1.22	250*165*200	182*95	40.0	K	18.3
ATRO17000400SA05.67B	A	30.0	1.02	250*170*200	182*105	50.0	K	18.0
ATRO22700400SA05.67B	B	40.0	0.77	250**180*200	182*115	65.0	F	25.3
ATRO28400400SA05.67B	B	50.0	0.61	290*185*220	214*118	80.0	F	34.1
ATRO34000400SA05.67B	B	60.0	0.51	290*200*220	214*128	95.0	F	35.6
ATRO45400400SA05.67B	B	80.0	0.38	320*205*285	243*130	130.0	F	42
ATRO51000400SA05.67B	B	90.0	0.34	320*210*310	243*135	145.0	F	47
ATRO56700400SA05.67B	B	100.0	0.31	320*220*310	243*140	160.0	F	51.9
$p=7\%$, $L = \text{恒定}$, 不超过 $1.66 \cdot I_{thmax}$, $f_{RES} = 189 \text{ Hz}$ Choking factor $p = 7\%$, $L = \text{constant to } 1.66 \cdot I_{thmax}$, $f_{RES} = 189 \text{ Hz}$								
ATRO03500400SA07X	A	5.00	7.2	195*100*210	120*72	7.5	K	3.30
ATRO05300400SA07X	A	7.50	5	195*100*210	120*92	11.0	K	4.80
ATRO07000400SA07X	A	10.0	3.8	195*150*165	120*92	15.0	K	5.90
ATRO08800400SA07X	A	12.5	3	195*165*165	120*112	19.0	K	8.60
ATRO10500400SA07X	A	15.0	2.5	195*165*165	120*112	23.0	K	8.80
ATRO14000400SA07X	A	20.0	1.8	230*160*185	150*95	30.0	K	12.8
ATRO17500400SA07B	A	25.0	1.4	250*165*200	182*95	38.0	K	19.1
ATRO21000400SA07B	A	30.0	1.2	250*170*200	182*105	45.0	F	19.6
ATRO28000400SA07B	B	40.0	0.95	250**180*200	182*115	60.0	F	24.7
ATRO35000400SA07B	B	50.0	0.75	290*185*220	214*118	75.0	F	26.5
ATRO42000400SA07B	B	60.0	0.62	290*200*220	214*128	90.0	F	34.1
ATRO56000400SA07B	B	80.0	0.46	320*205*285	243*130	122.0	F	40.0
ATRO63000400SA07B	B	90.0	0.43	320*210*310	243*135	130.0	F	45.0
ATRO70000400SA07B	B	100.0	0.37	320*220*310	243*140	150.0	F	50.0
$p=14\%$, $L = \text{恒定}$, 不超过 $1.4 \cdot I_{thmax}$, $f_{RES} = 134 \text{ Hz}$ Choking factor $p = 14\%$, $L = \text{constant to } 1.4 \cdot I_{thmax}$, $f_{RES} = 134 \text{ Hz}$								
ATRO07000400SA14X	A	5.00	16.6	195*120*210	120*92	7.0	K	5.10
ATRO10500400SA14X	A	7.50	11.1	195*120*210	120*112	10.0	K	8.10
ATRO14000400SA14X	A	10.0	8.29	195*120*210	120*112	14.0	K	9.40
ATRO17500400SA14X	A	12.5	6.63	195*120*210	120*112	18.0	K	12.0
ATRO21000400SA14X	A	15.0	5.53	250*165*200	182*95	21.0	K	16.0
ATRO28000400SA14X	A	20.0	4.14	250*185*200	182*115	30.0	K	18.0
ATRO35000400SA14B	A	25.0	3.32	290*180*210	214*113	35.0	K	28.0
ATRO42000400SA14B	A	30.0	2.76	290*185*220	214*118	42.0	K	26.0
ATRO56000400SA14B	B	40.0	2.07	290*215*280	214*118	56.0	F	35.2
ATRO70000400SA14B	B	50.0	1.66	320*230*275	243*135	70.0	F	37.2
ATRO84000400SA14B	B	60.0	1.38	320*230*310	243*135	85.0	F	51.1
ATR112000400SA14B	B	80.0	1.04	375*250*320	260*165	110.0	F	54.0
ATR126000400SA14B	B	90.0	0.92	375*250*320	260*165	125.0	F	58.0
ATR140000400SA14B	B	100	0.829	375*265*360	260*175	140.0	F	62.0

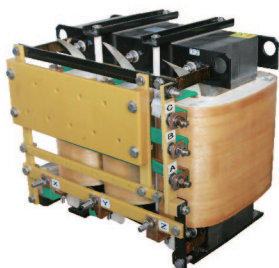
能量回馈电抗器 (EFR) Energy Regenerated Reactor

■ 产品概述 (Product Introduction)

变频器制动时所产生的再生能量回馈到电网，并加以利用，但是整流单元是IGBT，会产生较多的高次谐波电流，进而会对电网污染。所以在变频器的前端加上能量回馈电抗器和滤波器组合以改善电能质量。

Brief description: Filter high harmonic, when regenerative energy feedback to the power grid by converter braking action. Filter high harmonics, clean power grid. customized design on the basis of different applications.

电流范围 Current Range: 10-1000A
电压范围 Voltage Range: 220-1140V



■ 成品识别码 (Product Identification Code)

EFR	-	0080	-	0M54	-	0.4SC
能量回馈电抗器 Energy Regenerated Reactor		额定电流 Rated Current 30A-1600A		电感量 Resistance Value M:mH U:uH		0.4:Working Voltage 0.2=220V, 0.4=380V, 0.7=690V, 1.1=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium

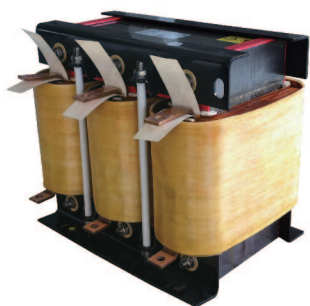
矿用防爆电抗器 (BFR) Mine Explosion Reactor

■ 产品概述 (Product Introduction)

矿用防爆变频器为封闭金属外壳，变频器及其外围器件都安装在封闭的空间内，由于结构的特殊性，变频器的主要发热器件即功率模块IGBT采用真空热管或者水冷散热方式，但是电抗器等器件也是系统内较大的发热源，像一个电炉在持续发热，如何减小电抗器的发热量，关系到变频器的运行可靠性及机器寿命。我们通过磁芯和导体发热的合理选择，处理以及反复验算，保证了电抗器在密闭条件下的高性能运行。

Mine explosion-proof inverter has a closed metal housing, and the inverter and peripheral devices are installed in a closed space. Because of the special structure, the main heating device of the inverter, i.e., the power module IGBT, uses vacuum heat pipe cooling or water cooling method. However, the reactors and other devices are also large heat source within the system, just like a continuously heating furnace. The method to reduce the reactor's heat is related to the operational reliability of the inverter and the life of the machine. Through processing and repeated checking based on a reasonable choice of magnetic core and conductor heating, ensuring the high-performance operation in confined conditions.

电流范围 Current Range: 10-1000A
电压范围 Voltage Range: 220-1140V



■ 成品识别码 (Product Identification Code)

BFR	-	0080	-	0M54	-	0.4SC
防爆四象限电抗器 Explosion four quadrant reactor		额定电流 Rated Current 30A-1600A		电感量 Resistance Value M:mH U:uH		0.4:Working Voltage 0.2=220V, 0.4=380V, 0.7=690V, 1.1=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium

谐波滤波器 (HFR) Harmonic Filter

产品概述 (Product Introduction)

利用电磁感应及电抗器原理，专业开发，选用高性能的滤波电容器串联高线性度的滤波装置，组合成滤波补偿系统，在吸收系统中主要的谐波分量的同时，补偿无功功率。将动态无功补偿，滤波功能融为一体，可以快速跟随负荷变化，具有抑制电流波动，吸收电网谐波和提高电能利用效率。

Using the principles of electromagnetic induction and reactor in professional development and selection of filters of high linearity of filter capacitor series to combine into a filter compensation system which compensates the main harmonic components of the system while compensating the reactive power.

产品应用 (Product Application)

谐波滤波器是设计用于实质性地消除由脉冲整流器引起的谐波电流畸变，Howcore系列谐波滤波器是一个无源系列的连接低通滤波的电感电容系统，用于消除由三相全波变频负载产生的特有的5、7、11、13次等的低频谐波，它不需要单个调节或按不同的谐波源进行移相。谐波含量最高可控制在8%以内。

谐波滤波器通常应用于三相电子设备诸如可调速的交直流电机驱动器、焊机、电池充电器、不间断电源(UPS)、感应加热设备、伺服驱动器和其他电子设备。与其他的谐波滤波器技术不同，Howcore谐波滤波器对滤波结果是有保证的。在交流变频和变扭矩驱动应用（风机和水泵）中，Howcore谐波滤波器肯定满足满载时的最大THID（总的谐波电流畸变）不高于保证的百分数。此外，Howcore谐波滤波器既不会引起电力系统的共振，也不会吸收来自其他非线性负载的谐波。

The harmonic filters are designed to substantially eliminate the harmonic current distortion caused by pulse rectifiers. The Howcore series harmonic filters are a passive inseries inductor-capacitor system connected to the low-pass filter, which is used for eliminating the peculiar 5,7,11 and 13-level low-frequency harmonics generated by the three-phase full-wave inverter load, and does not require a single adjustment or phase shift according to different harmonic sources. Highest harmonic content can be controlled within 8%.

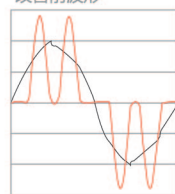
技术规格 (Technical Specifications)

工作电压 Work Voltage:	220VAC-1140VAC
工作频率 Work Frequency:	50/60Hz
工作电流 Work Current:	3A-1600A
绝缘等级 Insulation Class:	class F,H
防护等级 Protection class:	IP00-IP22
压降 Voltage drop:	< 4% 大于此范围会引起转矩损失
最大电流 Max Current:	1.5× 额定电流, 持续60S
噪音 Noise:	≤65dB
温升 Temperature Rise:	≤85K
抗电强度 Dielectric strength:	铁芯-绕组 3000VAC/50Hz/5mA/10s无飞弧击穿(工厂测试)
绝缘电阻 Insulation Resistor:	1000VDC绝缘阻值≥100MΩ

执行标准 (Applicable Standards)

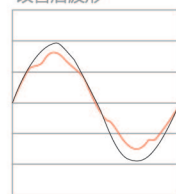
IEC289: 1987 Reactor
GB10229-88 Reactor (equiv IEC289: 1987)
JB9644-1999 Reactors used for semiconductor electrical driving

改善前波形



— 电压 (相-中性线) — 电流

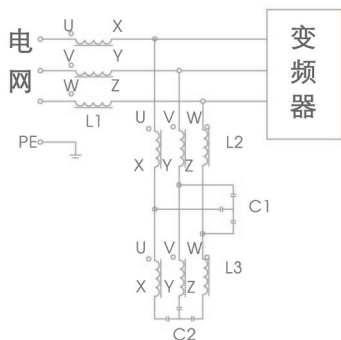
改善后波形



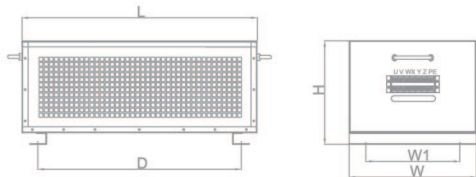
— 电压 (相-中性线) — 电流



典型电路图



产品尺寸图 (Product Size)



电压380V~440V THDI=10%

谐波滤波器型号 TYPE	适配功率 Power(KW)	额定电流 (A) Rated Current	绝缘等级 Insulation Class	尺寸 Dimension(±5mm)					
				L(max)	W(max)	H(max)	W1±2	D±2	A*B
HFR10X4SC003	0.75	7	F,H	400	220	250	200	300	12*20
HFR10X4SC003	1.5	7	F,H	450	250	280	200	350	12*20
HFR10X4SC003	2.2	7	F,H	450	250	280	200	350	12*20
HFR10X4SC003	3	7	F,H	450	250	280	200	350	12*20
HFR10X4SC004	4	10	F,H	450	250	280	200	350	12*20
HFR10X4SC005	5.5	15	F,H	700	320	300	250	550	12*20
HFR10X4SC007	7.5	20	F,H	700	320	300	250	550	12*20
HFR10X4SC011	11	30	F,H	700	320	300	250	550	12*20
HFR10X4SC015	15	40	F,H	900	400	340	300	750	12*20
HFR10X4SC018	18.5	50	F,H	900	400	340	300	750	12*20
HFR10X4SC022	22	60	F,H	900	400	340	300	750	12*20
HFR10X4SC030	30	80	F,H	900	400	340	300	750	12*20
HFR10X4SA037	37	90	F,H	1000	450	420	300	950	15*25
HFR10X4SA045	45	120	F,H	1000	450	420	300	950	15*25
HFR10X4SA055	55	150	F,H	1000	450	420	300	950	15*25
HFR10X4SA075	75	200	F,H	1200	550	500	350	1100	15*25
HFR10X4SA90	90	250	F,H	1200	550	500	350	1100	15*25
HFR10X4SA110	110	250	F,H	1200	550	500	350	1100	15*25
HFR10X4SA132	132	290	F,H	1200	550	500	350	1100	15*25
HFR10X4SA160	160	330	F,H	1500	650	550	400	1200	15*25
HFR10X4SA200	200	490	F,H	1500	650	550	400	1200	15*25
HFR10X4SA220	220	490	F,H	1500	650	550	400	1200	15*25
HFR10X4SA250	250	600	F,H	1500	650	600	400	1200	15*25
HFR10X4SA280	280	600	F,H	1500	650	600	400	1200	15*25
HFR16X4SA315	315	660	F,H	1500	650	600	400	1200	15*25

备注：其他规格尺寸，可根据用户要求制造。 Remark: Dimension can be customization

电压380V~440V THDI=16%

谐波滤波器型号 TYPE	适配功率 Power(KW)	额定电流 (A) Rated Current	绝缘等级 Insulation Class	尺寸 Dimension(±5mm)					
				L(max)	W(max)	H(max)	W1±2	D±2	A*B
HFR16X4SC003	0.75	7	F,H	360	200	250	350	150	12*20
HFR16X4SC003	1.5	7	F,H	400	220	250	380	160	12*20
HFR16X4SC003	2.2	7	F,H	400	220	250	380	160	12*20
HFR16X4SC003	3	7	F,H	400	220	250	380	160	12*20
HFR16X4SC004	4	10	F,H	550	390	350	580	250	12*20
HFR16X4SC005	5.5	15	F,H	550	390	350	580	250	12*20
HFR16X4SC007	7.5	20	F,H	550	390	350	580	250	12*20
HFR16X4SC011	11	30	F,H	550	390	350	580	250	12*20
HFR16X4SC015	15	40	F,H	660	390	380	640	250	12*20
HFR16X4SC018	18.5	50	F,H	660	390	380	640	250	12*20
HFR16X4SC022	22	60	F,H	660	390	380	640	250	12*20
HFR16X4SC030	30	80	F,H	660	390	380	640	250	12*20
HFR16X4SA037	37	90	F,H	660	390	380	640	250	12*20
HFR16X4SA045	45	120	F,H	700	420	400	680	260	15*25
HFR16X4SA055	55	150	F,H	700	420	400	680	260	15*25
HFR16X4SA075	75	200	F,H	700	420	400	680	260	15*25
HFR16X4SA090	90	250	F,H	700	420	400	680	260	15*25
HFR16X4SA110	110	250	F,H	800	450	420	760	300	15*25
HFR16X4SA132	132	290	F,H	800	450	420	760	300	15*25
HFR16X4SA160	160	330	F,H	1000	450	420	950	300	15*25
HFR16X4SA200	200	490	F,H	1000	450	420	950	300	15*25
HFR16X4SA220	220	490	F,H	1200	550	500	1100	350	15*25
HFR16X4SA250	250	600	F,H	1200	550	500	1100	350	15*25
HFR16X4SA280	280	600	F,H	1200	550	500	1100	350	15*25
HFR16X4SA315	315	660	F,H	1200	550	500	1100	350	15*25

备注：其他规格尺寸，可根据用户要求制造。 Remark: Dimension can be customization

成品识别码 (Product Identification Code)

HFR	-	16X	-	4SC132
谐波滤波器 Harmonic Filter		THDI 16=16%		4:Working Voltage 2=220V,4=380V,7=690V,11=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium 132:Power

dv/dt滤波器 (VTR) dv/dt Filter

■ 产品概述 (Product Introduction)

PWM逆变器直接驱动电机时会产生较高dv/dt的共模电压,并由此产生轴承电流和共模漏电流以及严重的电磁干扰(EMI),特别是当逆变器通过长线电缆与电机连接时,由于电缆中分布参数的影响,会在电机端产生电压反射现象,从而在电机端会产生2倍以上的过电压,导致线圈绝缘失败.HOWCORE的dv/dt滤波器降低电机电缆传输线效应电压的增大而衰减率,并最大限度地减少在电机端子上所发生的峰值电压。

When the PWM inverter will produce high common-mode voltage of dv/dt when directly driving the motor, resulting in bearing current and common-mode leakage current as well as severe electromagnetic interference (EMI). Especially when the inverter is connected to the motor with a long cable, the influence of the distribution parameters of the cable will result in voltage reflection, which will produce over-voltage of over two times at the motor terminal, causing failure of the coil insulation. However, HOWCORE dv/dt filters can reduce the rate of decay due to increase of the effect voltage during transmission of the motor cable, and minimize the peak voltage generated at the motor terminal.

■ 产品应用 (Product Application)

dV/dt滤波器是设计用于保护电机的滤波器,由于变频器与电机之间运行电缆过长会引起对电机产生毁灭性影响峰值电压。电缆的长度取决于用在变频器中的电力半导体的开关次数和电机的大小,如果电缆短到2.5米则会导致电机承受的峰值电压超过电机绝缘系统的额定值。然而,如果电缆太长则问题更大,在这种情况下就需要用dV/dt滤波器来保护电机不受峰值电压的毁灭性影响。

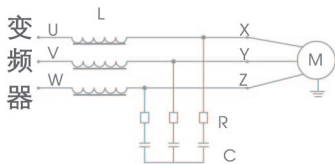
The dV/dt filters are designed to protect the motor filter as peak voltage disastrous to the motor will be generated if the cable between the inverter and the motor is too long. The cable length depends on the switching times of the power semiconductor in the inverter and the size of the motor. A cable as short as 2.5m will result in peak voltage of the motor exceeding the rated value of the motor insulation system. However, the problem is even greater if the cable is too long, in which case you need to use a dV/dt filter to protect the motor from the devastating impact of the peak voltage.

■ 技术规格 (Technical Specifications)

- 1.最大工作电压: 400V AC-1140V AC
- 2.额定电流: 5~500A
- 3.频率: 50-60Hz
- 4.开关频率: 2~8KHz
- 5.防护等级: IP00-IP20
- 6.绝缘等级: class F,H
- 7.使用环境: -10~+45 °C,额定值不会降低。最高可达+55°C,在45°C以上,每升高1°C,额定电流降低2%
- 8.最大电缆长度: 1000m
- 9.最大电流: 1.5×额定电流,持续60S
- 10.噪音: ≤65dB
- 11.温升: ≤70K
- 12.抗电强度: 铁芯-绕组 3000VAC/50Hz/5mA/10s无飞弧击穿(工厂测试)
- 13.绝缘电阻: 1000VDC绝缘阻值≥100MΩ
- 14.海拔高度不超过2000米。
- 15.运行环境温度-25°C~+45°C,相对湿度不超过90%。
- 16.周围无有害气体,无易燃易爆物品。
- 17.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。



典型电路图

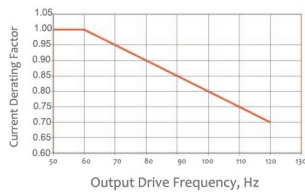


1. Work Voltage: 220VAC-1140VAC
2. Work Current: 5A-500A
3. Work Frequency: 50/60Hz
4. Switching frequency: 2~8KHz
5. Protection class: IP00-IP22
6. Insulation Class: class F, H
7. Operation Environment: -10~+45 °C, rated value won't lower, when higher than 55 °C, and every 1 °C, the current will step down 2%
8. Maximum cable length: 1000m
9. Max Current: 1.5 × Rated current, continuous 60S
10. Noise: ≤ 65dB
11. Temperature Rise: ≤ 70K
12. Dielectric strength: Core Coil 3000VAC/50Hz/5mA/10s no electric arcing puncture (factory test)
13. Insulation Resistor: 1000VDC insulation resistance value ≥ 100MΩ
14. Under seal level 2000m
15. Running ambient temperature -25 °C ~ +45 °C, comparative moisture not over 90%.
16. No hazardous gas, no inflammables and explosives
17. With well-ventilated condition, ventilation devices shall be mounted if installation in panels

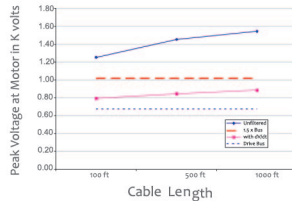
■ 执行标准 (Applicable Standards)

- IEC289: 1987 Reactor
- GB10229-88 Reactor (equiv IEC289: 1987)
- JB9644-1999 Reactors used for semiconductor electrical driving

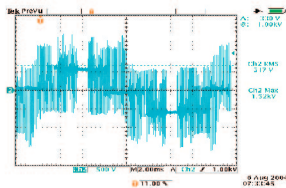
dV/dt Filter Current Derating for Drive Output Frequency



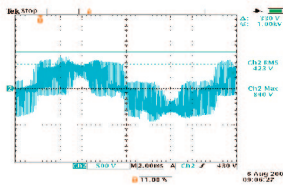
22 Amp dV/dt Overall Performance 30hp 480 Vac Motor



1000 ft Full Load, 8kHz Switching, Unfiltered Shielded Cable



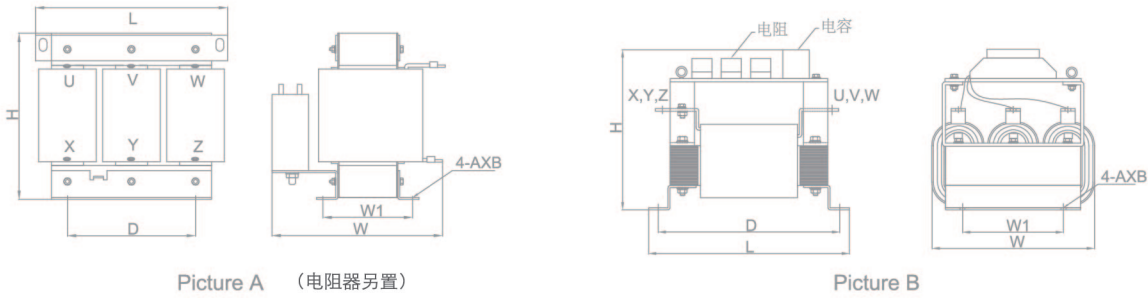
1000 ft Full Load, 8kHz Switching with Howcore dV/dt Filter



■ 成品识别码 (Product Identification Code)

VTR	-	0330	-	0.4SC
dv/dt滤波器 dv/dt Filter		额定电流 Rated Current		0.4: Working Voltage 0.2=220V, 0.4=380V, 0.7=690V, 1.1=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A: Aluminium

■ 产品尺寸图 (Product Size)



Picture A (电阻器另置)

Picture B

380V滤波器型号 TYPE	适配功率 Power(kw)	图号 Picture NO.	额定电流 Rated Current (A)	绝缘等级 Insulation Class	尺寸 Dimension(±5mm)					
					L(max)	W(max)	H(max)	W1±2	D±2	A*B
VTR-0015-0.4SC	5.5	图 A Picture A (电阻器 另置)	15	H	200	240	200	72	120	11*18
VTR-0020-0.4SC	7.5		20	H	200	240	200	72	120	11*18
VTR-0030-0.4SC	11		30	H	200	240	200	92	120	11*18
VTR-0040-0.4SC	15		40	H	200	240	200	92	120	11*18
VTR-0050-0.4SC	18.5		50	H	245	250	200	96	182	11*18
VTR-0060-0.4SC	22		60	H	245	250	200	96	182	11*18
VTR-0080-0.4SC	30		80	H	245	250	200	96	182	11*18
VTR-0090-0.4SC	37		90	H	245	250	200	96	182	11*18
VTR-0120-0.4SA	45		120	H	245	250	200	108	182	11*18
VTR-0150-0.4SA	55		150	H	245	250	200	120	182	11*18
VTR-0200-0.4SA	75	图 B Picture B	200	H	330	310	420	220	270	11*18
VTR-0250-0.4SA	90		250	H	330	310	430	220	272	11*18
VTR-0260-0.4SA	110		260	H	380	330	420	250	335	11*18
VTR-0290-0.4SA	132		290	H	380	340	420	250	335	12*20
VTR-0330-0.4SA	160		330	H	380	340	420	250	335	12*20
VTR-0390-0.4SA	185		390	H	380	350	420	250	335	12*20
VTR-0490-0.4SA	250		490	H	350	390	420	250	278	12*20
VTR-0600-0.4SA	280		600	H	350	370	430	250	278	12*20
VTR-0840-0.4SA	315		840	H	385	400	500	250	320	12*20
VTR-1000-0.4SA	450		1000	H	460	400	500	250	395	12*20
VTR-1400-0.4SA	560	1400	H	500	460	540	265	420	12*20	

备注: 其他规格尺寸, 可根据用户要求制造。Remark: Dimension can be customization

690V滤波器型号 TYPE	适配功率 Power(kw)	图号 Picture NO.	额定电流 Rated Current (A)	绝缘等级 Insulation Class	尺寸 Dimension(±5mm)					
					L(max)	W(max)	H(max)	W1±2	D±2	A*B
VTR-0080-0.7SC	75	图 B Picture B	80	H	330	290	410	200	280	11*18
VTR-0120-0.7SA	110		120	H	380	340	400	250	330	11*18
VTR-0150-0.7SA	132		150	H	340	390	420	250	265	12*20
VTR-0215-0.7SA	160-200		215	H	340	390	450	250	265	12*20
VTR-0250-0.7SA	220		250	H	350	390	460	250	280	12*20
VTR-0330-0.7SA	250-300		330	H	350	400	500	250	280	12*20
VTR-0390-0.7SA	315-380		390	H	370	390	480	250	300	12*20
VTR-0410-0.7SA	400		410	H	420	445	520	320	350	15*25
VTR-0490-0.7SA	450		575	H	460	445	520	320	390	15*25
VTR-0575-0.7SA	560		575	H	460	445	550	320	390	15*25
VTR-0810-0.7SA	710-800	810	H	510	485	560	320	430	15*25	

备注: 其他规格尺寸, 可根据用户要求制造。Remark: Dimension can be customization

正弦波滤波器 (SFR) Sine Wave Filter

■ 产品概述 (Product Introduction)

正弦波滤波器是在PWM变频器驱动下，其开关频率范围在2 - 8kHz之间仍提供正弦波输出电压。在变频器驱动应用中，这种滤波器可以消除电机绝缘失效问题并通过消除与变频器输出波形相关的高dV/dT来减少电磁干扰，改善电机的性能和寿命，延长变频器输出距离，最长可达3KM。为保护电线电缆，使用正弦波滤波器可防止长引线驱动电机的过电压问题。在其他能源应用下，比如风力发电机，逆变器将电力通过升压变压器还原到实用的配电系统，这种滤波器可以允许使用标准变压器。满载并在60Hz时给变压器输入的谐波电压畸变最大值是5%的话，那么满载时给电机输入的谐波电压畸变一般就是5%。

Driven by the PWM inverter, the sine filter still provides sine wave output voltage when the switching frequency range is within the range of 2-8kHz. In the applications of inverter drives, such a filter can eliminate the problem of motor insulation failure and decrease electromagnetic interference by eliminating the high dV/dT related to inverter output waveform, so as to extend the life and improve the performance of the motor, and extend the output length of the inverter to up to 3KM. For the protection of wires and cables, the sine filter can avoid over-voltage of the drive motor with a long lead. In the application of other energy resources, wind generator, for example, the inverter restores the power to the utility power system through a step-up transformer. And such filters allow the use of a standard transformer. If the maximum value of the harmonic voltage distortion input to the transformer at full load and 60Hz is 5%, the harmonic voltage distortion input to the motor at full load is generally 5%.

■ 产品应用 (Product Application)

1. 将变频器输出的PWM波转换为正弦波
2. 降低电机的涡流损耗以及电机噪声
3. 减少输出电缆上和电机中的脉冲电流，延长电机寿命
4. 可在变频器与电机间使用更长的电缆连线
5. 减小对外的辐射，在一定场合可以使用非屏蔽电缆，降低了对现场布线的要求
6. 有效防止高DV/DT、过电压、电机过热和涡流损耗造成的电机提前损坏。

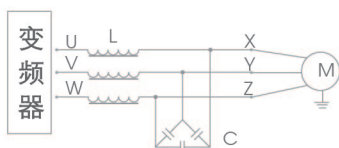
1. Convert the PWM waves output by the inverter sine waves
2. Reduce the eddy current losses of the motor and the motor noise
3. Reduce the pulse current of the output cable and motor, extending the life of the motor"
4. A longer cable wire can be used between the inverter and motor
5. Reduce the external radiation, by using unshielded cable in certain situations, lowering the requirements for on-site wiring requirements
6. Effectively prevent fatigue damage of the motor caused by high DV/DT, over voltage, motor overheating and eddy current loss.

■ 技术规格 (Technical Specifications)

1. 工作电压：220VAC-690VAC
2. 工作电流：15A-1500A
3. 工作频率：50/60Hz.
4. 载波频率：2K-8K
5. 绝缘等级：class F,H
6. 压降：8%-12%
7. 电压谐波畸变失真THD \leq 5%
8. 空载电流 \leq 8%
9. 使用环境：-10...+45 °C,额定值不会降低。最高可达+55°C,在45°C以上，每升高1°C，额定电流降低2%
10. 防护等级：IP00-IP22



典型电路图



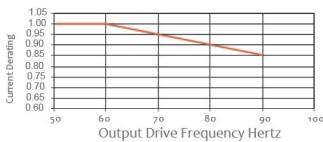
11. 最大电流: 1.5×额定电流, 持续60S
12. 噪 音: ≤65dB
13. 温 升: ≤70K
14. 抗电强度: 铁芯-绕组 3000VAC/50Hz/5mA/10s无飞弧击穿(工厂测试)
15. 绝缘电阻: 1000VDC绝缘阻值≥100MΩ
16. 海拔高度不超过2000米。
17. 运行环境温度-25℃~+45℃, 相对湿度不超过90%。
18. 周围无有害气体, 无易燃易爆物品。
19. 周围环境应有良好的通风条件, 如装在柜内, 应加装通风设备。

1. Work Voltage: 220VAC-690VAC
2. Work Current: 15A-1500A
3. Work Frequency: 50/60Hz
4. Switching frequency: 2~8KHz
5. Insulation Class: class F, H
6. Rated voltage drop: 8~12%
7. Voltage harmonic distortion: THD≤5%
8. Load Current≤8%
9. Operation Environment:-10~+45 ℃, rated value won't lower, when higher than 55 ℃, and every 1 ℃, the current will step down 2%
10. Protection class: IP00-IP22
11. Max Current: 1.5 × Rated current, continuous 60S
12. Noise: ≤ 65dB
13. Temperature Rise: ≤ 70K
14. Dielectric strength: Core Coil 3000VAC/50Hz/5mA/10s no electric arcing puncture (factory test)
15. Insulation Resistor: 1000VDC insulation resistance value ≥ 100MΩ
16. Under seal level 2000m
17. Running ambient temperature -25 ℃ ~ +45 ℃, comparative moisture not over 90%.
18. No hazardous gas, no inflammables and explosives
19. With well-ventilated condition, ventilation devices shall be mounted if installation in panels

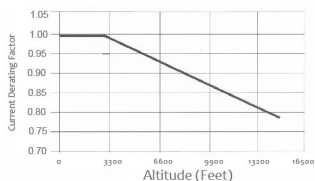
■ 执行标准 (Applicable Standards)

- IEC289: 1987 Reactor
- GB10229-88 Reactor (equiv IEC289: 1987)
- JB9644-1999 Reactors used for semiconductor electrical driving

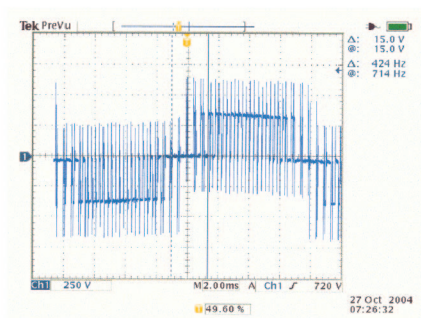
Sine Wave Filter Current Derating for Drive Output Frequency



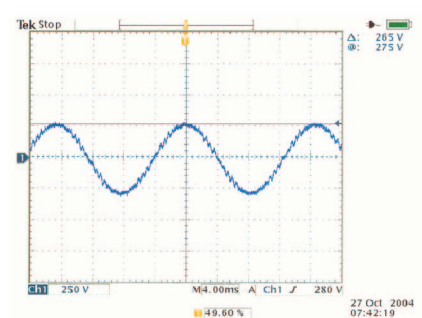
Altitude Derating Curve



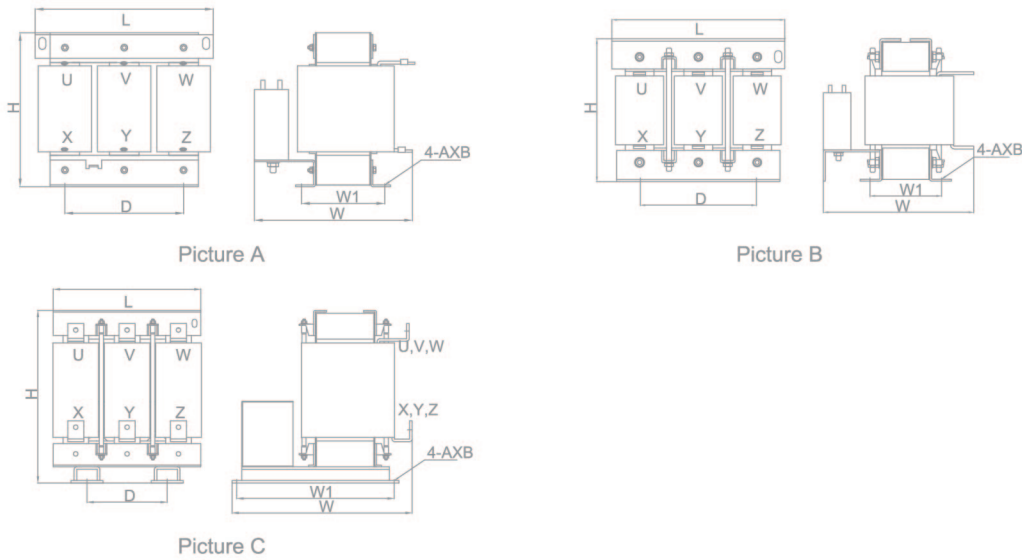
Raw output voltage waveform



Output Voltage after Sine Wave Filter



产品尺寸图 (Product Size)



滤波器型号 TYPE	适配功率 Power(kw)	图号 Picture NO.	额定电流 Rated Current (A)	绝缘等级 Insulation Class	尺寸 Dimension(±5mm)					
					L(max)	W(max)	H(max)	W1±2	D±2	A*B
SFR-0015-0.4SA	5.5	图 A Picture A	15	H	245	245	220	96	182	11*18
SFR-0020-0.4SA	7.5		20	H	245	250	220	106	182	11*18
SFR-0030-0.4SA	11		30	H	245	260	220	116	182	11*18
SFR-0040-0.4SA	15		40	H	290	270	230	127	214	11*18
SFR-0050-0.4SA	18.5		50	H	290	270	260	127	214	11*18
SFR-0060-0.4SA	22		60	H	320	270	280	139	243	12*20
SFR-0080-0.4SA	30		80	H	320	270	280	139	243	12*20
SFR-0090-0.4SA	37		90	H	320	280	280	149	243	12*20
SFR-0120-0.4SA	45	图 B Picture B	120	H	375	330	315	164	260	15*25
SFR-0150-0.4SA	55		150	H	375	345	350	174	260	15*25
SFR-0200-0.4SA	75		200	H	405	375	350	194	260	15*25
SFR-0250-0.4SA	110		250	H	405	450	355	214	260	15*25
SFR-0290-0.4SA	132		300	H	435	450	385	205	350	15*25
SFR-0330-0.4SA	160		360	H	435	450	435	205	350	15*25
SFR-0390-0.4SA	185		450	H	435	460	430	215	350	15*25
SFR-0490-0.4SA	220		500	H	480	580	560	460	300	15*25
SFR-0600-0.4SA	280	图 C Picture C	600	H	480	600	560	480	300	15*25
SFR-0660-0.4SA	315		660	H	480	620	560	500	300	15*25
SFR-0800-0.4SA	380		800	H	680	510	585	315	360	15*25
SFR-1000-0.4SA	450		900	H	680	490	640	295	360	15*25
SFR-1200-0.4SA	500		1200	H	680	510	610	315	360	15*25
SFR-1500-0.4SA	630		1500	H	680	490	660	295	360	15*25

备注：其他规格尺寸，可根据用户要求制造。Remark: Dimension can be customization

成品识别码 (Product Identification Code)

SFR
正弦波滤波器
Sine Wave Filter

0330
额定电流
Rated Current

0.4SC
0.4: Working Voltage
0.2=220V, 0.4=380V, 0.7=690V, 1.1=1140V
S: D=Single Phase Reactor
S=Three Phase Reactor
C: C=Copper
A: Aluminium

LCL滤波器 (LCR) LCL Filter

■ 产品概述 (Product Introduction)

LCL 滤波器在现代的可再生能源行业十分普遍，可以有效、经济地确保和提高从能源到电网的馈电质量。滤波器用于过滤逆变器的开关频率。达到目标畸变水平时，滤波器将节约可观的成本。LCL 滤波器的典型特点是损失小、体积小、重量轻、电容大

LCL filters are very commonly used in the modern renewable energy industry, and can efficiently and economically ensure and improve the feed quality from energy sources to the grid. The filters are used for filtration of the switching frequency of the inverter. When reaching the target distortion level, the filters can save considerable costs. LCL filters are typically characterized by small loss, small size, light weight, and high capacitance.

■ 产品特点 (Product Features)

功率半导体开关器件技术的进步，促进了电力电子变流装置技术的迅速发展，出现了以脉宽调制(PWM)控制为基础的各类变流装置，比如逆变电源，变频器等各类变流器，并且这些变流器已经在全国的各个领域中得到了广泛的应用。三相电压型PWM整流器具有着电能双向传输，较快的动态控制响应。当前的PWM整流器采用的功率开关器件多是IGBT，就可以实现很高的开关频率，一般开关频率为2kHz~15kHz。然而功率开关器件的高开通断频率却会产生高次谐波，注入到电网中，产生谐波污染。为了解决LCL滤波器所碰到的难题，我们一般选择LCL滤波器。LCL滤波器可以选取较小的电感电容值，在千瓦至上百千瓦间实现满意的滤波效果。

The advancement of the technology of the high power semiconductor switching device promotes the rapid development of the technology of power electronic converters, giving birth to various types of converters, such as inverter power supplies, frequency converters, etc. And these converters have been widely used in various fields all over the country. Three-phase voltage-type PWM rectifiers have the functions of bidirectional power transmission and fast dynamic control response. Most PWM rectifiers currently adopt IGBT as the power switch device, which can achieve very high switching frequency compared to the general switching frequency of 2kHz-15kHz. However, the high on/off frequency of power switch device will generate high order harmonics to be injected into the grid, thus causing harmonic pollution. In order to solve the problems encountered by LCL filters, we generally choose LCL filters. Smaller inductance and capacitance values can be selected for the LCL filters to achieve satisfactory filtering effects between one kilowatt to hundreds of kilowatts.

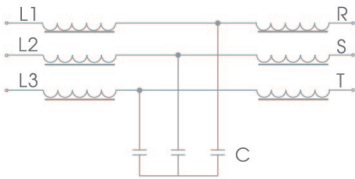
电流范围 Current Range: 10-1600A
电压范围 Voltage Range: 220-1140V

■ 成品识别码 (Product Identification Code)

LCR	-	250	-	0.4SC
LCL滤波器 LCL Filter		额定电流 Rated Current		0.4:Working Voltage 0.2=220V,0.4=380V,0.7=690V,1.1=1140V S: D=Single Phase Reactor S=Three Phase Reactor C: C=Copper A:Aluminium



典型电路图



空心电抗器 (KCR) Core reactor

■ 产品概述 (Product Introduction)

采用高品质的环氧树脂真空浸渍，并高温固化。该产品具有节能、电感线性度好，电抗值精确、线圈温升分布均匀、动热稳定性能高。抗短路、过载能力强。绝缘强度高，电磁场均匀性好。损耗低，温升低。使用寿命长，基本免维护。噪声低。阻燃、无污染体积小、重量轻和安装运用使用方便等特点。



It applies the high quality epoxy resin vacuum impregnation, solidification through high temperature. The product has the features of energy-saving, good inductive line performance, accurate resistance value, uniform distribution of coil temperature rise, high dynamic thermal stability, anti-short circuit, strong overload ability, good insulation intensity, good uniform distribution of electromagnetic field, low loss, low temperature rise, long service life, maintenance-free, low noise, flame-retardant, pollution-free, small size, light weight, and easy to installation and use and son on.

■ 产品应用 (Product Application)

一般用于配电路。从同一母线引出的分支馈线上往往串有空心限流电抗器，以限制馈线的短路电流，并维持母线电压，不致因馈线短路而致过低。并在其表面进行耐候涂层处理：喷涂具有高绝缘电阻和憎水性的室温硫化硅橡胶(RTV)，利用RTV胶的优良绝缘性能，使电抗器沿面电阻保持较好的绝缘性能，对电抗器产品表面树枝状放电现象具有很好的抑制作用。从而保证空心限流电抗器在户外环境下安全运行。该产品应用计算机进行电磁优化计算和空间三维结构设计，采用环氧玻纤增强的多包封并联结构、使用先进的工艺技术和微机控制的生产设备及引进的检验设备进行生产和检验。该产品具有电感线性好、损耗低、温度分布均匀、绝缘强度高、机械强度高、局放小、噪音低、体积小、重量轻、防潮、阻燃、过载能力强、可靠性高、无污染、免维护、环境效果好等优点。

Current-limiting reactors are usually used in the distribution line. The branches derives from the same Bus are usually series with current-limiting reactors to limit the short circuit of the feeder line and maintain Bus voltage. On its surface do the resistance coating: to spray with the RTV of high insulation resistance and hydrophobic, make the surface of the reactor has good insulation performance and thus has good effect to limit the tree-technology discharge of the reactors products' surface. And thus ensure the reactors to run safely in the outdoors. The product applies computer to do the electromagnetic optimization and space three-dimensional design structure, it applies the epoxy glass fiber multi-encapsulation of parallel structure, uses the advanced technology and computer controlling production equipment and the introduction of testing equipment. The product has the features of good inductive line performance, low loss, uniform temperature distribution, good insulation intensity, high mechanical strength, low partial discharge, low noise, small size, light weight, moisture-proof, flame-retardant, strong overload ability, high reliability, pollution-free, maintenance-free, environment-protection.

电流范围 Current Range: 30-1600A
电压范围 Voltage Range: 220V-10KV

■ 成品识别码 (Product Identification Code)

KCR	—	0080	—	0M54	—	0.4 SC
空心电抗器 Core reactor		额定电流 Rated Current 30A-1000A		电感量 Resistance Value M:mH U:uH		0.4:工作电压 0.4 380V 0.7 690V
						D 单相电抗器 S 三相电抗器 C 铜材 A 铝材

输入滤波器 (RFI) Input Filter

■ 产品概述 (Product Introduction)

防止设备本身产生的电磁干扰进入电源线,同时防止电源线上的干扰进入设备.能有效抑制音频设备的无线电干扰。适用波长范围100K至30MHz。

Input filter could prevent EMI or radio interfer form input cable.Output filter will terminate the EMI frequency inverter itself.Wave range :100k~30Mhz

■ 产品应用 (Product Application)

能够产生较强干扰的设备和对外界干扰敏感的的设备都要使用电源线滤波器:含有脉冲电路(微处理器)的设备、使用开关电源设备、使用可控硅设备、变频调速设备、含有马达的设备等

The equipments make EMI or equipments sensitive to EMI.The equipments impulse circuit or micro processor .SCR Silicon Controlled Rectifier equipments.Variable frequipments,Variable speed ,variable frequency equipments,motor equipments

■ 技术规格 (Technical Specifications)

变频器工作频率 Working frequency:	50-60Hz
保护等级 Protection class:	IP00-IP20
工作电压 Operating voltage:	220~1140V
额定电流 Rated current::	3~1200A
泄漏电流 Leakage current (440VAC/50Hz) :	
	≤36A <2mA
	≤80A <3mA
	≤200A <6mA
	≤1200A <35mA
绝缘电阻 Isolation resistance:	to earth(<300A) : ≥1500MΩ
试验电压 (1分钟) Test voltage (1 minute):	线至线 Line to Line 1500VDC
	线至地 Line to ground 1500VAC/2500VDC
最大相对湿度 Maximum relative humidity :	无冷凝或滴水0%
抗冲击性 Impact resistance:	15gn持续11ms

最大工作高度: 1000m, 额定值不会降低在1000~3000之间, 每升高100m, 额定电流降低1%
设备周围的环境温度: 运行: -25~+45℃ 储存: -25~+60℃
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。

Maximum working height: 1000m, without derating 1000 to 3000, for every increase of 100m, the rated current is decreased 1%

Ambient temperature around the device: Run: -25 ~ +45 ℃ Storage: -25 ~ +60 ℃

Under seal level 2000m

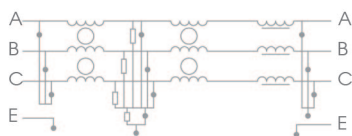
Running ambient temperature -25 ℃ ~ +45 ℃, comparative moisture not over 90%.

No hazardous gas, no inflammables and explosives

With well-ventilated condition, ventilation devices shall be mounted if installation in panels



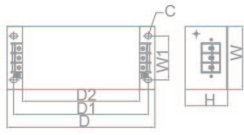
典型电路图



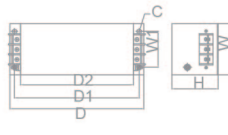
■ 执行标准 (Applicable Standards)

GB/715287/8

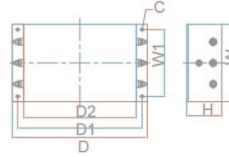
■ 产品尺寸图 (Product Size)



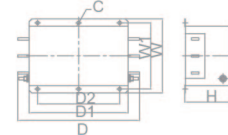
Picture A



Picture B



Picture C



Picture D

谐波滤波器型号 TYPE	图号 Picture NO.	适配功率 Power(kw)	额定电流 Rated Current	尺寸 Dimension(±5mm)						
				D	D1	D2	W	W1	H	C
RFI4C5	图 A Picture A	0.75~1.5	5A	202	184	160	86	60	58	6.9*9.4
RFI4C10		2.2~4	10A	202	184	160	86	60	58	6.9*9.4
RFI4C20		5.5~7.5	20A	202	184	160	86	60	58	6.9*9.4
RFI4C36		11~15	36A	202	184	160	86	60	58	6.9*9.4
RFI4C50		18.5~22	50A	202	184	160	86	60	58	6.9*9.4
RFI4C65	图 B Picture B	30	65A	202	184	160	86	60	58	6.9*9.4
RFI4C80		37	80A	384	354	320	185	155	90	6.9*9.4
RFI4C100		45	100A	384	354	320	185	155	90	6.9*9.4
RFI4C150	图 C Picture C	55~75	150A	384	354	320	185	155	90	6.9*9.4
RFI4C200		90	200A	384	354	320	220	190	100	6.9*9.4
RFI4C250		110~132	250A	384	354	320	220	190	100	6.9*9.4
RFI4C300	图 D Picture D	160	300A	445	350	290	262	234	160	6*12
RFI4C400		200	400A	445	350	290	262	234	160	6*12
RFI4C600		215~250	600A	445	350	290	262	234	160	6*12
RFI4C900		400	900A	445	350	290	262	234	160	6*12

备注：其他规格尺寸，可根据用户要求制造。

Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

RFI	-	4	-	C	-	20
输入滤波器 Input Filter		工作电压 Rated Voltage 2:220V 4:380V 7:690V 12:1140V		滤波级数 Filtration Grade A:single B:double C:triple		额定电流 Rated Current

输出滤波器 (RFO) Output Filter

■ 产品概述 (Product Introduction)

防止设备本身产生的电磁干扰进入电源线，同时防止电源线上的干扰进入设备。能有效抑制音频设备的无线电干扰。适用波长范围100K至30MHz。

Input filter could prevent EMI or radio interference from input cable. Output filter will terminate the EMI frequency inverter itself. Wave range: 100k~30Mhz

■ 产品应用 (Product Application)

能够产生较强干扰的设备和对外界干扰敏感的设备都要使用电源线滤波器：含有脉冲电路（微处理器）的设备、使用开关电源设备、使用可控硅设备、变频调速设备、含有马达的设备等

The equipments make EMI or equipments sensitive to EMI. The equipments impulse circuit or micro processor, SCR Silicon Controlled Rectifier equipments, Variable frequency equipments, Variable speed, variable frequency equipments, motor equipments

■ 技术规格 (Technical Specifications)

变频器工作频率 Working frequency:	50-60Hz
保护等级 Protection class:	IP00-IP20
工作电压 Operating voltage:	220~1140V
额定电流 Rated current:	3~1200A
泄漏电流 Leakage current (440VAC/50Hz) :	
	≤36A <2mA
	≤80A <3mA
	≤200A <6mA
	≤1200A <35mA
绝缘电阻 Isolation resistance:	to earth (<300A) : ≥1500MΩ
试验电压 (1分钟) :	线至线 Line to Line 1500VDC 线至地 Line to ground 1500VAC/2500VDC
最大相对湿度 Maximum relative humidity:	无冷凝或滴水 0%
抗冲击性 Impact resistance:	15gn持续11ms

最大工作高度：1000m，额定值不会降低在1000~3000之间，每升高100m，额定电流降低1%
设备周围的环境温度：运行：-25~+45℃ 储存：-25~+60℃
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。

Maximum working height: 1000m, without derating 1000 to 3000, for every increase of 100m, the rated current is decreased 1%

Ambient temperature around the device: Run: -25 ~ +45 °C Storage: -25 ~ +60 °C

Under seal level 2000m

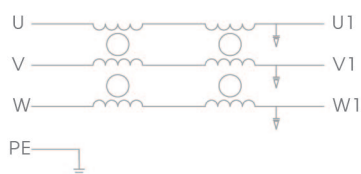
Running ambient temperature -25 °C ~ +45 °C, comparative moisture not over 90%.

No hazardous gas, no inflammables and explosives

With well-ventilated condition, ventilation devices shall be mounted if installation in panels



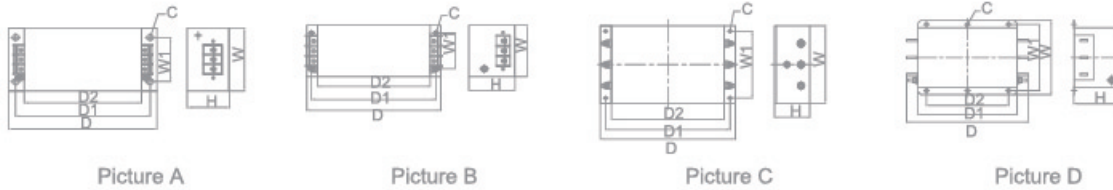
典型电路图



■ 执行标准 (Applicable Standards)

GB/715287/8

■ 产品尺寸图 (Product Size)



滤波器型号 TYPE	图号 Picture NO.	适配功率 Power(kw)	额定电流 Rated Current	尺寸 Dimension(±5mm)						
				D	D1	D2	W	W1	H	C
RFO4B5	图 A Picture A	0.75~1.5	5A	202	184	160	86	60	58	6.9*9.4
RFO4B10		2.2~4	10A	202	184	160	86	60	58	6.9*9.4
RFO4B20		5.5~7.5	20A	202	184	160	86	60	58	6.9*9.4
RFO4B36		11~15	36A	202	184	160	86	60	58	6.9*9.4
RFO4B50		18.5~22	50A	202	184	160	86	60	58	6.9*9.4
RFO4B65	图 B Picture B	30	65A	202	184	160	86	60	58	6.9*9.4
RFO4B80		37	80A	384	354	320	185	155	90	6.9*9.4
RFO4B100		45	100A	384	354	320	185	155	90	6.9*9.4
RFO4B150	图 C Picture C	55~75	150A	384	354	320	185	155	90	6.9*9.4
RFO4B200		90	200A	384	354	320	220	190	100	6.9*9.4
RFO4B250	图 D Picture D	110~132	250A	384	354	320	220	190	100	6.9*9.4
RFO4B300		160	300A	445	350	290	262	234	160	6*12
RFO4B400		200	400A	445	350	290	262	234	160	6*12
RFO4B600		215~250	600A	445	350	290	262	234	160	6*12
RFO4B900		400	900A	445	350	290	262	234	160	6*12

备注：其他规格尺寸，可根据用户要求制造。

Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

RFO	-	4	-	C	-	20
输出滤波器 Output Filter		工作电压 Rated Voltage 2:220V 4:380V 7:690V 12:1140V		滤波级数 Filtration Grade A:single B:double C:triple		额定电流 Rated Current

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。

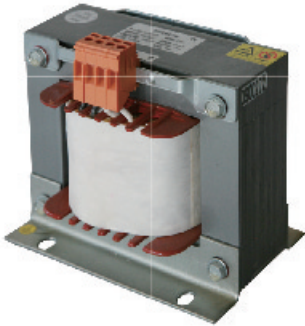
Our company has been dedicated in production of three-phase dry type Isolation transformers from 160VA to 800KVA with high-quality materials and advanced technology for the past many years. This series of isolation transformers are widely used in transmission and distribution of such equipment or occasions as subways, high-rise buildings, locomotives, elevators, stations, printers, machine tools, ports, industrial and mining enterprises, tunnels, etc., as well as in imported equipment and so on.

■ 技术规格 (Technical Specifications)

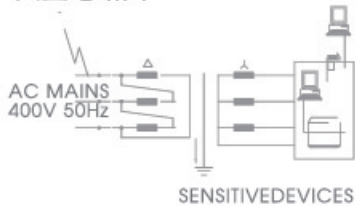
功率范围 Power Range:	160-800KVA
输入电压 Input Voltage	Rated voltage $\leq 1000V \pm 10\% \Delta/Y$
输出电压 Output Voltage	Rated voltage $\leq 1000V + 5\% (\text{No Load}) \Delta/Y$
效率 Efficiency	$\geq 95\%$
波形失真 Waveform distortion	No additional waveform distortion
功能 Function	With input voltage, output voltage, current indication
保护 protect	Overcurrent protection
绝缘电阻 Insulation resistance	1000VDC insulation resistance value $\geq 100M\Omega$
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 x 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 °C ~ +45 °C, comparative moisture not over 90%.
 hazardous gas, no inflammables and explosives
 With well-ventilated condition, ventilation devices shall be mounted if installation in panels



典型电路图

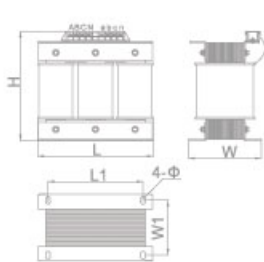


■ 执行标准 (Applicable Standards)

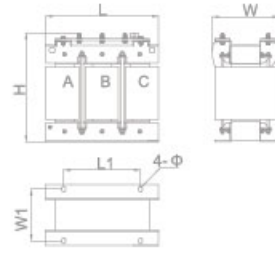
VDE0550、IEC439、JB5555、GB5226

■ 产品尺寸图 (Product Size)

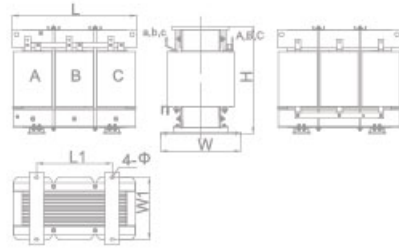
三相隔离变压器 (Three-phase Isolation transformer)



Picture A



Picture B

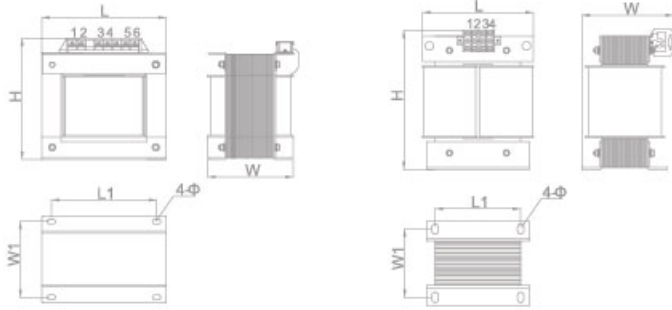


Picture C

型号规格 TYPE	容量(kVA) Capacity	图号 Picture NO.	绝缘等级 Insulation rank	外形尺寸(mm) Dimension	安装孔(mm) Mounting holes
				L*W*H	4-Φ
BKSC-0.5K	0.5	图 A Picture A	F, H	185*135*205	8
BKSC-0.8K	0.8		F, H	185*135*205	8
BKSC-1.0K	1		F, H	185*155*205	8
BKSC-1.5K	1.5		F, H	250*155*260	9
BKSC-2.0K	2		F, H	250*155*260	9
BKSC-3.0K	3		F, H	250*165*260	9
BKSC-4.0K	4		F, H	300*190*305	11
BKSC-5.0K	5		F, H	300*190*305	11
BKSC-6.0K	6		F, H	300*190*305	11
BKSC-8.0K	8		F, H	360*220*360	15
BKSA-10K	10	图 B Picture B	F, H	440*250*390	15
BKSA-12K	12		F, H	440*265*390	15
BKSA-15K	15		F, H	470*285*460	15
BKSA-20K	20		F, H	485*320*485	15
BKSA-25K	25		F, H	485*330*485	15
BKSA-30K	30	图 C Picture C	F, H	485*340*485	15
BKSA-40K	40		F, H	540*400*570	15
BKSA-50K	50		F, H	540*400*570	15
BKSA-80K	50		F,H	660*450*640	15

备注：其他规格尺寸，可根据用户要求制造。 Remark: Dimension can be customization

单相隔离变压器 (Single-phase Isolation transformer)



Picture A

Picture B

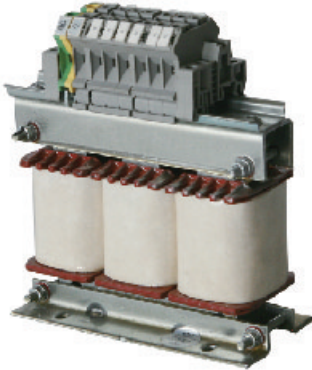
型号规格 TYPE	容量(kVA) Capacity	图号 Picture NO.	绝缘等级 Insulation rank	外形尺寸(mm) Dimension	安装孔(mm) Mounting holes	安装孔(mm) Mounting holes
				L*W*H	4-Φ	4-Φ
BKDC-0.1K-380-12	0.1	图 A Picture A	F, H	96*88*100	82*60	6*10
BKDC-0.15K-380-12	0.15		F, H	96*88*100	82*60	6*10
BKDC-0.2K-380-24	0.2		F, H	105*110*108	82*86	6*10
BKDC-0.3K-380-24	0.3		F, H	114*115*130	76*80	8*14
BKDC-0.5K-380-24	0.5		F, H	133.2*120*150	111*85	8*14
BKDC-0.8K-380-24	0.8		F, H	150*135*170	125*100	8*12
BKDC-1.0K-380-24	1		F, H	150*145*170	125*110	8*12
BKDC-1.5K-380-24	1.5		F, H	200*170*285	150*110	11*18
BKDC-2.0K-380-24	2		F, H	200*170*285	150*110	11*18
BKDC-3.0K-380-24	3		图 B Picture B	F, H	200*170*285	150*110
BKDC-5.0K-380-24	5	F, H		240*190*360	180*120	11*18
BKDC-8.0K-380-24	8	F, H		280*230*410	200*150	11*18
BKDC-10K-380-24	10	F, H		280*230*410	200*150	11*18

备注：其他规格尺寸，可根据用户要求制造。 Remark: Dimension can be customization

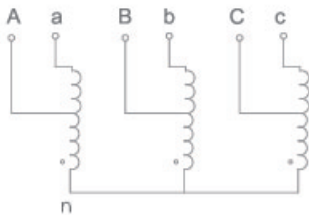
■ 成品识别码 (Product Identification Code)

BKSA	-	10K	-	660	-	380
BK:隔离变压器 Isolation transformer S: D=Single Phase S=Three Phase C: C=Copper A:Aluminium		容量 Capacity		初级电压 Input Voltage		次级电压 Output Voltage

自耦变压器 (BYSC) Autotransformer



典型电路图



■ 产品概述 (Product Introduction)

自耦变压器用于交流50HZ额定电压308V。功率11~315(KW)三相鼠笼感应电动机的不频繁降压启动，以改善电动机启动时对输电网络的影响。

The autotransformers are used for AC 50HZ at rated voltage 308V. The infrequent partial voltage starting of the three-phase squirrel-cage induction motor of power of between 11 and 315 (KW) is to minimize the impact of the motor on the transmission network at the time of startup.

■ 产品特点 (Product Features)

采用F, H级为基础的绝缘系统, 在自耦变压器的整个使用寿命期都保持极佳的电气性能和机械性能, F, H级材料不易老化, 耐收缩和抗压缩, 加上弹力特强, 因此可以确保变压器使用数年后任保持结构紧密, 但却能够承受短路的压力, 自耦变压器整体由H级浸渍漆在真空压力下浸渍(VPI), 然后再烘箱里高温固化。

It adopts F and H-grade insulation system, and maintains splendid electrical and mechanical performance throughout the life of the autotransformer. The F and H-grade materials are anti-aging, anti-shrinkage and anti-compression with particularly strong elasticity, thus ensuring the compact structure of the transformer after several years of use and the capability to the pressure of short-circuit. The entire autotransformer is macerated in Class H maceration paint under vacuum pressure (VPI), and is cured at high temperature in oven.

■ 技术规格 (Technical Specifications)

功率范围 Power Range:	160-800KVA
输入电压 Input Voltage	Rated voltage $\leq 1000V \pm 10\% \Delta/Y$
输出电压 Output Voltage	Rated voltage $\leq 1000V + 5\%$ (No Load) Δ/Y
效率 Efficiency	$\geq 95\%$
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 $\geq 100M\Omega$
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 x Rated current, continuous 60S

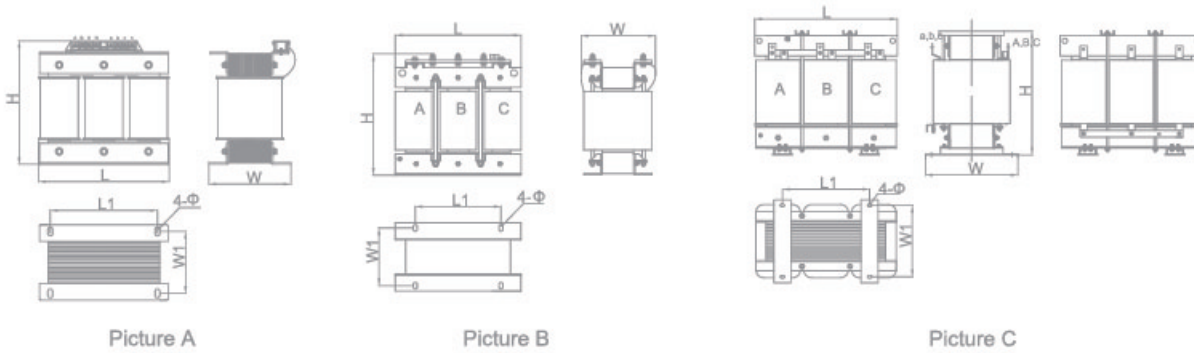
海拔高度不超过2000米。
运行环境温度-25℃~+45℃, 相对湿度不超过90%。
周围无有害气体, 无易燃易爆物品。
周围环境应有良好的通风条件, 如装在柜内, 应加装通风设备。

Under seal level 2000m
Running ambient temperature -25 °C ~ +45 °C, comparative moisture not over 90%.
hazardous gas, no inflammables and explosives
With well-ventilated condition, ventilation devices shall be mounted if installation in panels

■ 执行标准 (Applicable Standards)

VDE0550、IEC439、JB5555、GB5226

■ 产品尺寸图 (Product Size)



型号规格 TYPE	容量(kVA) Capacity	图号 Picture NO.	绝缘等级 Insulation rank	外形尺寸(mm) Dimension	安装孔(mm) Mounting holes	安装孔(mm) Mounting holes
				L*W*H	4-Φ L1*W1	4-Φ
BYSC-3K-1140-380	3	图 A Picture A	F, H	245*155*255	200*110	11*18
BYSC-5K-1140-380	5		F, H	275*160*280	200*110	11*18
BYSA-6K-230-380	6		F, H	270*150*230	225*110	7*14
BYSC-7K-220-380	7		F, H	300*150*260	250*110	7*14
BYSA-10K-220-380	10	图 B Picture B	F, H	430*210*370	300*120	12*20
BYSA-15K-230-380	15		F, H	430*210*370	300*120	11*18
BYSA-20K-380-220	20		F, H	430*230*370	300*140	11*18
BYSA-25K-230-380	25		F, H	430*230*370	300*140	11*18
BYSA-30K-460-380	30	图 C Picture C	F, H	430*230*370	300*140	15*25
BYSA-40K-460-380	40		F, H	430*250*370	300*160	15*25
BYSA-50K-460-380	50		F, H	430*250*370	300*160	15*25
BYSA-110K-690-828	110		F, H	475*255*430	330*190	15*25
BYSA-132K-690-828	132		F, H	475*270*430	330*210	15*25
BYSA-160K-690-828	160		F, H	475*330*430	330*235	15*25
BYSA-200K-690-828	200		F, H	540*265*530	340*285	15*25
BYSA-285K-690-828	285		F, H	630*320*550	400*320	15*25
BYSA-308K-690-828	308		F, H	630*320*550	400*320	15*25
BYSA-350K-660-828	350		F, H	630*330*660	400*320	15*25
BYSA-385K-690-828	385	F, H	630*330*660	400*320	15*25	

备注：其他规格尺寸，可根据用户要求制造。 Remark: Dimension can be customization

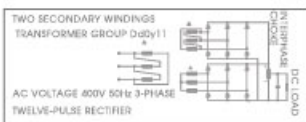
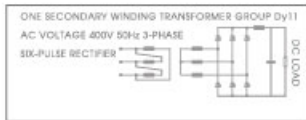
■ 成品识别码 (Product Identification Code)

BYDA	—	10K	—	660	—	380
BY:自耦变压器 Autotransformer S: D=Single Phase S=Three Phase C: Copper A:Aluminium		容量 Capacity		初级电压 Input Voltage		次级电压 Output Voltage

整流变压器 (ZKSC) Rectifier transformer



典型电路图



产品概述 (Product Introduction)

整流变压器的作用是连接到AC/DC电源转换器上将电源侧电压转换为负载所需要的电压并却提供负载和电源侧之间的电隔离。

TO operate with the AC/DC power converters connected to them, to adapt the power line voltage required by the load and to provide galvanic separation between load and power line.

功率范围 (Power Range)

10-800KVA

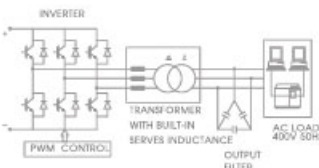
成品识别码 (Product Identification Code)

ZKSC	-	10K	-	660	-	380
ZK:整流变压器 Rectifier transformer		容量 Capacity		初级电压 Input Voltage		次级电压 Output Voltage
S: D=Single Phase S=Three Phase						
C: C=Copper A:Aluminium						

逆变输出变压器(NKSC) Inverter transformer



典型电路图



产品概述 (Product Introduction)

逆变输出变压器把UPS逆变输出电压转换成所需要的负载电压，并提供负载和UPS之间的电隔离。带电感变压器连接在脉宽调制电源逆变器输出端，整合的电感与输出端的电容联合，起到滤波的作用，并恢复输出电压的正弦波形。

To adapt the UPS converter output voltage to the line voltage required by the load and to provide galvanic separation between UPS and the load.

The transformer with built-in inductance is applied for inverter transformer usually. The integrated transformers are connected at the output of a PWM converter, with a built-in inductance. The integrated inductance, in combination with the output capacitors, operates as a filter and restores the sinusoidal waveshape of output voltage.

功率范围 (Power Range)

10-800KVA

成品识别码 (Product Identification Code)

NKSC	-	10K	-	660	-	380
NK:逆变变压器 Rectifier transformers		容量 Capacity		初级电压 Input Voltage		次级电压 Output Voltage
S: D=Single Phase S=Three Phase						
C: C=Copper A:Aluminium						

制动单元 (DBM) DC Braking Module

■ 产品概述 (Product Introduction)

采用在变频器直流侧设置制动单元组件，将再生电能消耗在功率电阻上来实现制动。通过专门的能耗制动控制电路将再生能量消耗在电阻上，转化为热能。

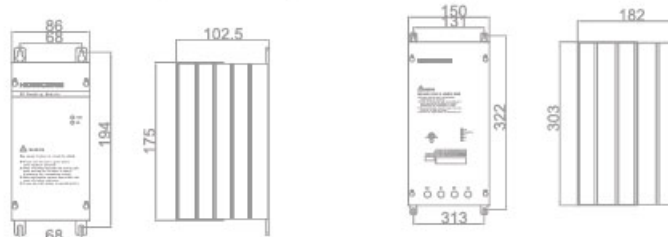
The function of the braking unit is to divert into a brake resistor the regenerative energy produced in the process of decelerating the motor, converting that energy into heat. Regenerative energy flows from the motor into the inverter DC bus, manifested as increased bus voltage.

■ 产品应用 (Product Application)

主要用在变频器拖动系统需要急剧减速，刹车，定位等场合。变频器在减速时，由于拖动系统的惯性较大，此时电动机处于发电状态，机械能快速回馈到直流母线上，使直流母线电压迅速上升，从而危及变频器的安全，因此必须将该回馈能量迅速消耗掉，保持直流母线电压在某一安全范围以下，否则变频器将会过压保护或故障。一般惯性较大，或需急剧减速，刹车的场合可使用本制动单元。例如：离心机，电梯，起重机，拉丝机，港口机械等均可使用。

The equipments make EMI or equipments sensitive to EMI. The equipments impulse circuit or micro processor, SCR Silicon Controlled Rectifier equipments, Variable frequency equipments, Variable speed, variable frequency equipments, motor equipments

■ 产品尺寸图 (Product Size)



Picture A

Picture B

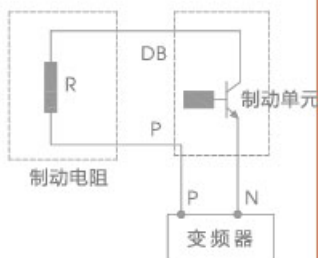
电压等级 Voltage	规格型号 TYPE	尺寸 Dimension L*W*H	安装尺寸 Mounting Dimensions	峰值电流(A) Peak current	额定电流(A) Rated Current	最小阻值 Ω Minimum resistance
AC200V~AC300V	DBM-2015	200*86*102.5	194*68	50	15	10
	DBM-2030	200*86*102.5	194*68	90	30	6.5
	DBM-4030	200*86*102.5	194*68	50	15	20
AC380V~AC460V	DBM-4045	200*86*102.5	194*68	75	25	16.3
	DBM-4110	350*150*182	322*131	200	70	6
	DBM-4220	350*150*182	322*131	300	85	3
	DBM-4300	350*150*182	322*131	500	120	2.5
AC690	DBM-6220	350*150*182	322*131	300	85	6

■ 成品识别码 (Product Identification Code)

DBM - 4030
 制动单元
 DC Braking Module
 4: Rated Voltage 2:220V 4:380V 6:690V
 11:1140V 030: Power 030=30KW



典型电路图



波纹电阻器 (RXHG) Wire Wound Resistor

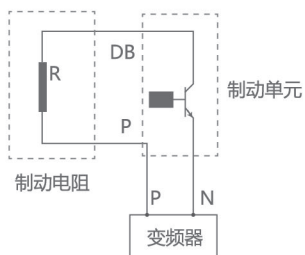
■ 产品概述 (Product Introduction)

RXHG型涂料绕线电阻器是一种功率型绕线电阻器,该产品采用波状电阻合金带以侧立形式缠绕在陶瓷骨架上,表面被覆绝缘耐高温涂料,有利于散热,并配有安装支架,电阻器具有功率大,耐过载能力强,安装方便等特点。

RXHG coatings type winding resistor is a kind of power mode, the product use the wave resistance alloy in the form of side winding on the ceramic matrix The surface coating insulation resistance to high temperature coating, is conducive to heat dissipation, and is equipped with a mounting bracket, a resistor has large power, strong overload capacity resistance, convenient installation and other feature



典型电路图



■ 产品应用 (Product Application)

1. 做为制动电阻保护变频器、伺服等不受电机再生电能的危害
2. 电力电子负载测试中做为阻性负载
3. 在电力电子设备中做为取样电阻、限流电阻、起动电阻、保护电阻

1. As a braking resistor to protect the inverters, servos, etc., from damage by regenerative energy of the motor;
2. As a resistive load in power electronic load tests;
3. As a sampling resistor, limiting resistor, starting resistor, or protective resistor in power electronic equipment."

■ 技术规格 (Technical Specifications)

- 1.阻值及阻值允许偏差: $1\Omega \leq R \pm 5\%$ (J), $1\Omega > R \pm 10\%$ (K) "
- 2.额定负荷: 表面最高温度: $50 \sim 200W \leq 275^\circ C$, $> 200W \leq 350^\circ C$
- 3.短时过负荷: 无可见损伤, $\Delta R \leq \pm (5\%R + 0.05\Omega)$ 10倍 5s
- 4.绝缘电阻: $R \geq 100M\Omega$ 1min DC 1000V
- 5.耐电压: 无可见损伤, 无飞弧击穿 $\Delta R \leq \pm (0.1\%R + 0.05)$ AC 3000V 5S
- 6.电阻温度特性: $\pm 260PPM/^\circ C$ (小于 5Ω 以不作检测)
- 7.端子强度: 无松动或机械损伤 45N 30S"
- 8.电阻体强度: 无可见损伤 200N 30S
- 9.耐振性: 无可见损伤, $\Delta R \leq \pm (0.1\%R + 0.05\Omega)$ f:5-200Hz a=1g X.Y.Z各2h
- 10.耐热性: 除端子外无明显变色和损伤, 标志清晰 $350^\circ C$ 2hours
- 11.热冲击: 无可见机械损伤 额定负载30分钟后- $55^\circ C$ 温度下15min
- 12.耐湿性: 无可见损伤, 标志清晰, $\Delta R \leq \pm (5\%R + 0.05\Omega)$
绝缘电阻 $\geq 10M\Omega$ DC 100 $40^\circ C$ 95%RH 500hours
- 13.耐久性(额定负载): 外观无可见损伤, 标志清晰, $\Delta R \leq \pm (5\%R \pm 0.05\Omega)$ 100%负荷

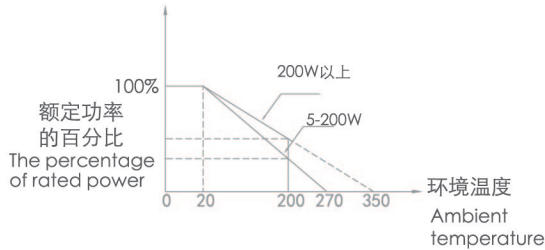
1. Resistance value and the change range : $1\Omega \leq R \pm 5\%$ (J) , $1\Omega > R \pm 10\%$ (K) "
2. Rated load: The maximum surface temperature, $50 \sim 200W \leq 275^\circ C$, $> 200W \leq 350^\circ C$
3. Short-time overload: No visible damage $\Delta R \leq \pm (5\%R + 0.05\Omega)$ 10 times 5s
4. Insulation resistance: $R \geq 100M\Omega$ 1min DC 1000V
5. Withstanding voltage: No visible damage, no arcing breakdown $\Delta R \leq \pm (0.1\%R + 0.05)$ AC 3000V 5S
6. Resistance-temperature characteristic: $\pm 260PPM/^\circ C$ ((less than 5Ω don' t test
7. Terminal strength No looseness or mechanical damage 45N 30s
8. Resistance strength No visible damage 200N 30S
9. Withstanding vibration: No visible damage $\Delta R \leq \pm (0.1\%R + 0.05\Omega)$ f:5-200Hz a=1g X.Y.Z/2h
10. Heat resistance: In addition to the terminal no obvious discoloration and damage, marked clearly $350^\circ C$ 2hours
11. Heat shock No visible mechanical damage, after 30minute rated overload
12. Waterlogging resistance: No visible mechanical damage, marked clearly $\Delta R \leq \pm (5\%R + 0.05\Omega)$
Insulation resistance $\geq 10M\Omega$ DC 100 $40^\circ C$ 95%RH 500hours
13. Durability (rated overload): No visible damage, marked clearly $\Delta R \leq \pm (5\%R \pm 0.05\Omega)$ load 100%
8. Withstanding vibration: No visible damage $\Delta R \leq \pm (0.1\%R + 0.05\Omega)$ f:5-200Hz a=1g X.Y.Z/2h
9. Resistance : In addition to the terminal no obvious discoloration and damage, marked clearly, $350 \pm 5^\circ C$, 120 ± 5

■ 执行标准 (Applicable Standards)

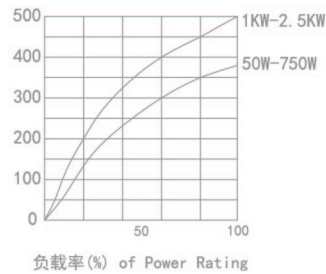
GB/T5729-1994 Fixed resistor used in electronic equipment

■ 降额曲线 (Rundown Curve)

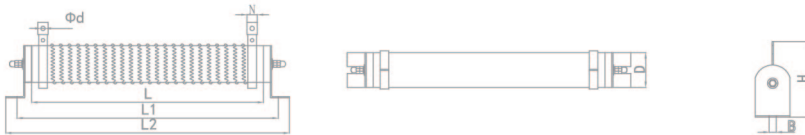
环境温度 Ambient temperature	0-20°C	>20°C
功率损耗 Power loss	100%	See figure



■ 表面温升 (Surface Temperature Rise)



■ 产品尺寸图 (Product Size)



规格 Type	额定功率(W) Rated Power	尺寸Dimension (±1mm)							
		L	L1	L2	D	B	H	N	∅d
RXHG	50	90	132	146	28	6.5	62	10	4.5
RXHG	60	90	132	146	28	6.5	62	10	4.5
RXHG	80	140	182	198	28	6.5	62	10	4.5
RXHG	100	170	212	198	28	6.5	62	10	4.5
RXHG	150	192	222	238	40	8	90	12	5.5
RXHG	200	192	222	238	40	8	90	12	5.5
RXHG	300	280	310	326	40	8	90	12	5.5
RXHG	400	280	310	326	40	8	90	12	5.5
RXHG	500	316	346	360	50	8	107	16	6
RXHG	600	316	346	360	50	8	107	16	6
RXHG	750	316	346	360	50	8	107	16	6
RXHG	1000	300	334	350	60	8.5	127	16	6
RXHG	1200	415	449	465	60	8.5	127	16	6
RXHG	1500	415	449	465	60	8.5	127	16	6
RXHG	2000	510	544	560	60	8.5	127	16	6
RXHG	2500	600	636	652	60	8.5	127	16	6

备注：其他规格尺寸，可根据用户要求制造。Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

RXHG	-	1500W	-	40R	-	J
波纹电阻器 Wire Wound Resistor		额定功率 Rated Power		电阻阻值 Resistance Value		阻值误差 Resistance Tolerance H=±3% J=±5% K=±10%

铝壳电阻器 (RXLG) Aluminum Enclosure Resistor

■ 产品概述 (Product Introduction)

RXLG系列铝壳绕线电阻器采用铝合金外壳,外形美观,该电阻具有耐气候性、耐振动、安全性优于传统瓷骨架电阻器。RXLG电阻器是用一种耐高温的有机硅树脂和硅粉作基本材料封装的功率型绕线电阻。易紧密安装,易附加散热器。

RXLG series aluminum shell winding resistor using alloy enclosure, beautiful shape, beautiful shape, the resistance have the weather resistance, vibration resistance security is superior to the traditional porcelain skeleton resistor resistor .

■ 产品应用 (Product Application)

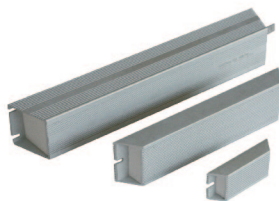
1. 做为制动电阻保护变频器、伺服等不受电机再生电能的危害
2. 电力电子负载测试中做为阻性负载
3. 在电力电子设备中做为取样电阻、限流电阻、起动电阻、保护电阻

1. As a braking resistor to protect the inverters, servos, etc., from damage by regenerative energy of the motor;
2. As a resistive load in power electronic load tests;
3. As a sampling resistor, limiting resistor, starting resistor, or protective resistor in power electronic equipment.

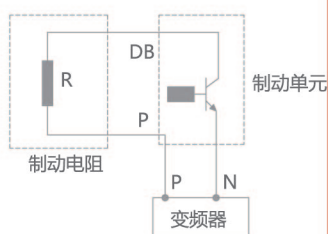
■ 技术规格 (Technical Specifications)

1. 电阻值以及变化范围: $1\Omega \leq R \pm 5\%$ (J), $1\Omega > R \pm 10\%$ (K)
2. 温度系数: $R > 20\Omega, \pm 260 \text{ ppm}/^\circ\text{C}$ $R \leq 20\Omega, \pm 400 \text{ ppm}/^\circ\text{C}$ 在 $-25 \sim 200^\circ\text{C}$ 温度下实验
3. 额定负荷: 表面温度 $\leq 375^\circ\text{C}$ 放在 $300 \times 300 \times 3\text{mm}$ 铝板上
4. 短时过载: $\Delta R \leq \pm (2\%R + 0.05\Omega)$ 无异常同样环境下 10倍额定电压, 5秒
5. 绝缘电阻: $R \geq 100\text{M}\Omega$ 1min 无异常 DC 1000V, 焊片和外壳之间的绝缘电阻要求大于或等于 $100\text{M}\Omega$
6. 耐电压: $\Delta R \leq \pm (0.1\%R + 0.05\Omega)$ 无异常 无破坏焊片与外壳之间加 AC 3000V 5S
7. 端子强度: 无松动无异常 100N力加在焊片引出方向, 30秒
8. 耐振性: 无可见损伤, $\Delta R \leq \pm (0.1\%R + 0.05\Omega)$ f: 10-55Hz $a=1.5g$ X.Y.Z各2h
9. 耐热性: 除端子外无明显变色和损伤, 标志清晰加热至 $350 \pm 5^\circ\text{C}$, 120 ± 5 分钟
10. 热冲击: $\Delta R \leq \pm (2\%R + 0.05\Omega)$ 无异常 额定电压30分钟, 常温, 8-12秒放到 $-40 \pm 2^\circ\text{C}$ 环境下, 15+5分钟。再在常温下放置2小时
11. 耐湿性: 无可见损伤, 标志清晰, $\Delta R \leq \pm (3\%R + 0.05\Omega)$, 绝缘电阻 $\geq R \geq 25\text{M}\Omega$ 直流电压100V, $40 \pm 2^\circ\text{C}$, 相对湿度90-95%, 60分钟开, 30分钟关, 持续500+24小时
12. 负载寿命: 外观无可见损伤, 标志清晰, $\Delta R \leq \pm (5\%R \pm 0.05\Omega)$ 放置在 $300 \times 300 \times 3\text{mm}$ 铝板上, $20 \pm 7^\circ\text{C}$, 额定直流电压, 90分钟开, 30分钟关, 循环500+24小时

1. Resistance value and the change range : $1\Omega \leq R \pm 5\%$ (J) , $1\Omega > R \pm 10\%$ (K)
2. Temperature coefficient: $R > 20\Omega, \pm 260 \text{ ppm}/^\circ\text{C}$ $R \leq 20\Omega, \pm 400 \text{ ppm}/^\circ\text{C}$ Test when the temperature is $-25 \sim 200^\circ\text{C}$
3. Rated load: The surface temperature $\leq 375^\circ\text{C}$ on the $300 \times 300 \times 3\text{mm}$ aluminum plate
4. Short-time overload: $\Delta R \leq \pm (2\%R + 0.05\Omega)$ No abnormal environment also 10 times the rated voltage, 5second
5. Insulation resistance: $R \geq 100\text{M}\Omega$ 1min Without abnormal DC 1000v, insulation resistance between welding plate and shell is no less than $100\text{M}\Omega$
6. Withstand voltage: $\Delta R \leq \pm (0.1\%R + 0.05\Omega)$ No abnormal damage welding piece between the shell and AC 3000V 5S
7. Terminal strength : Without loosing without exception 100n force on welding lead direction, 30second
10. Thermal: $\Delta R \leq \pm (2\%R + 0.05\Omega)$ No abnormal voltage rating for 30 minutes, room emperature, 8-12seconds into 2-40 environment, 15+5minutes, then place 2hours at room temperature
11. Wetresistance : No visible damage, marked clearly $\Delta R \leq \pm (3\%R + 0.05\Omega)$, Insulation resistance $\geq R \geq 25\text{M}\Omega$ DC voltage 100v, $40 \pm 2^\circ\text{C}$, Relative humidity 90-95% , 60minutes on 30 minutes off for 500+24
12. Overload: No visible damage, marked clearly $\Delta R \leq \pm (5\%R \pm 0.05\Omega)$ on the $300 \times 300 \times 3\text{mm}$ aluminum plate $\pm 7^\circ\text{C}$, Rated Dc voltage , 90 minutes on 30 minutes off for 500+24 hours



典型电路图



制动电阻

制动单元

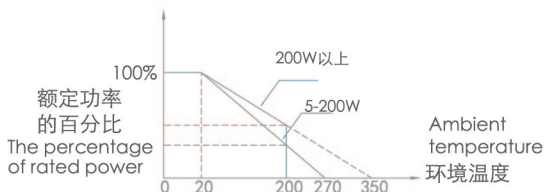
变频器

■ 执行标准 (Applicable Standards)

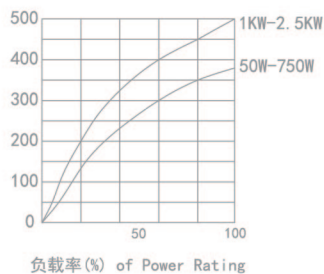
GB/T5729-1994 Fixed resistor used in electronic equipment

■ 降额曲线 (Rundown Curve)

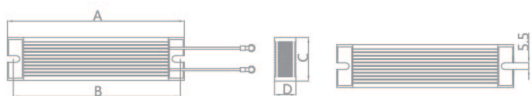
环境温度 Ambient temperature	0-20°C	>20°C
功率损耗 Power loss	100%	See figure



■ 表面温升 (Surface Temperature Rise)



■ 产品尺寸图 (Product Size)



Picture A



Picture B

规格 Type	图号 Product Picture	额定功率(W) Rated Power	尺寸Dimension (±1mm)				配线 (mm) Connecting Wire	引线长度 (mm) Lead Length	端子 Terminal
			A	B	C	D			
RXLG		60	115	102	40	20	1.5	250	2-5S
RXLG		80	140	127	40	20	1.5	250	2-5S
RXLG		100	165	152	40	20	1.5	250	2-5S
RXLG		120	190	177	40	20	1.5	250	2-5S
RXLG	图 A Picture A	150	215	202	40	20	2.5	250	2-5S
RXLG		200	165	152	60	30	2.5	250	2-5S
RXLG		300	215	202	60	30	2.5	250	2-5S
RXLG		400	265	252	60	30	2.5	250	2-5S
RXLG		500	335	322	60	30	2.5	250	2-5S
RXLG		800	400	41*387	60	59			M6
RXLG		1000	400	30*387	50	107			M6
RXLG	图 B Picture B	1200	450	30*437	50	107			M6
RXLG		1500	485	30*472	50	107			M6
RXLG		2000	550	30*537	50	107			M6
RXLG		2500	550	30*537	50	107			M6

备注：其他规格尺寸，可根据用户要求制造。Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

RXLG	-	2500W	-	40R	-	J
铝壳电阻器 Aluminum Enclosure Resistor		额定功率 Rated Power		电阻阻值 Resistance Value		阻值误差 Resistance Tolerance H=±3% J=±5% K=±10%

波纹电阻箱/柜 (RA/HRA)

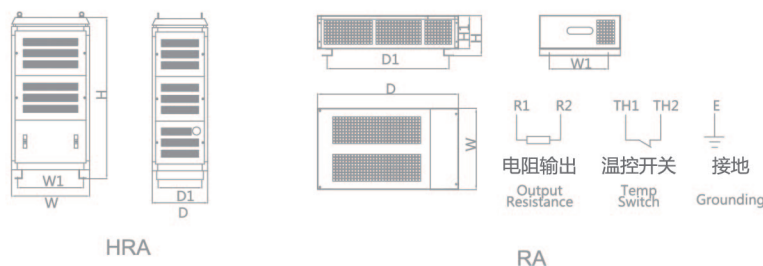
Resistor Assemblies/High Power Resistor Assemblies

产品概述 (Product Introduction)

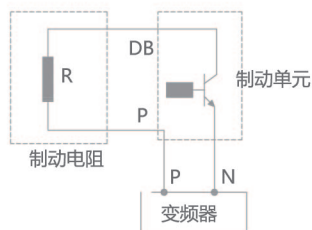
RA/HRA系列产品是由波纹电阻器组合而成的电阻箱
RA/HRA resistor assemblies was made by general resistor and settled in cabinet.

RA功率范围(RA Power range):0.5KW-12.5KW
HRA功率范围(HRA Power range): 20KW-200KW

产品尺寸图 (Product Size)



典型电路图



规格 Type	功率(W) Power	尺寸Dimension (±1mm)					端子台螺钉 Terminal	重量(Kg) Weight	配线(mm) Cable	组合 Combination
		W	D	H	W1	D1				
RA	1	242	500	140	150	470	M6	5.3	6	1KW*1
	2	242	500	140	150	470	M6	6.5	6	1KW*2
	3	242	500	140	150	470	M6	7.8	6	1.5KW*2
	4.5	345	600	170	325	530	M6	12	10	1.5KW*3
	6	345	600	170	325	530	M6	14	10	1.5KW*4
	8	415	690	170	395	665	M6	16.5	10	2KW*4
	10	415	690	170	395	665	M6	18.5	16	2KW*5
	12.5	415	690	170	395	665	M6	20	16	2.5KW*5
HRA	20	700	500	845	340	620	M6	50	16	2.5KW*8
	40	700	500	1245	340	620	M6	86	25	2.5KW*16
	50	700	500	1445	340	620	M7	100	25	2.5KW*20
	60	700	500	1645	340	620	M8	115	35	2.5KW*24
	80	700	500	2045	340	620	M8	140	50	2.5KW*32
	100	700	700	2045	540	620	M8	165	50	2.5KW*40
	120	700	800	1945	640	620	M8	190	75	2.5KW*48

供选配件: 散热轴流风机, 户外防雨百叶窗盖板, 底部轮子。
For Options: cooling axial fan, Outdoor rain shutters cover, The bottom of the wheel.

备注: 其他规格尺寸, 可根据用户要求制造。
Remark: Dimension can be customization

成品识别码 (Product Identification Code)

RA	-	6KW	-	20R	-	J
RA:Resistor Assemblies		额定功率 Rated Power		电阻阻值 Resistance Value		阻值误差 Resistance Tolerance H=±3% J=±5% K=±10%
HRA:High Power Resistor Assemblies						

铝壳电阻箱 (LRA)

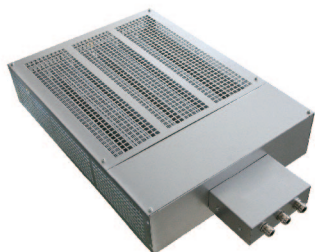
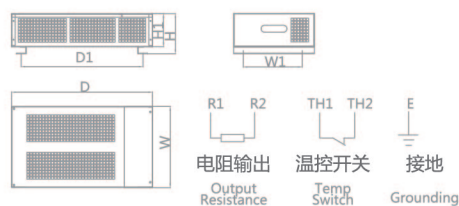
Aluminum Enclosure Resistor Assemblies

■ 产品概述 (Product Introduction)

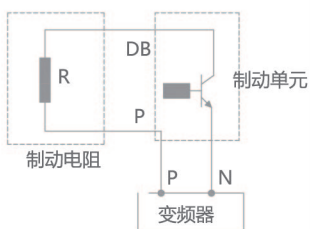
LRA系列铝壳电阻箱是由铝壳电阻器组合而成的
Resistor assemblies was made by Aluminum Enclosure resistor and settled in cabinet,

功率范围(Power range): 0.5KW-12.5KW

■ 产品尺寸图 (Product Size)



典型电路图



规格 Type	功率(KW) Power	尺寸Dimension (±1mm)					端子台螺钉 Terminal	配线(mm) Cable	组合 Combination
		W	D	H	W1	D1			
LRA	1	242	500	140	150	470	M6	6	1KW*1
LRA	2	242	500	140	150	470	M6	6	1KW*2
LRA	3	242	500	140	150	470	M6	6	1.5KW*2
LRA	4.5	345	600	170	325	530	M6	10	1.5KW*3
LRA	6	345	600	170	325	530	M6	10	1.5KW*4
LRA	8	415	690	170	395	665	M6	10	2KW*4
LRA	10	415	690	170	395	665	M6	16	2KW*5
LRA	12.5	415	690	170	395	665	M6	16	2.5KW*5

备注: 其他规格尺寸, 可根据用户要求制造。
Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

LRA	-	6KW	-	20R	-	J
铝壳电阻箱 Aluminum Enclosure Resistor Assemblies		额定功率 Rated Power		电阻阻值 Resistance Value		阻值误差 Resistance Tolerance H=±3% J=±5% K=±10%

加热管电阻箱 (JRA)

Heating pipe Resistor Assemblies

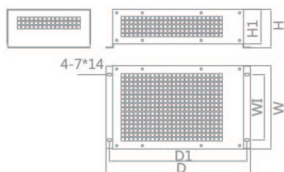
产品概述 (Product Introduction)

JRA 加热管电阻箱的绕线电阻器采用不锈钢管外包，外形美观，该电阻具有耐气候性、耐振动、散热快，防护等级高等特点，安全性优于传统瓷骨架电阻器。该电阻器是用一种耐高温的有机硅树脂和硅粉作基本材料封装的功率型绕线电阻。易紧密安装，易附加散热器。做为制动电阻保护变频器、伺服等不受电机再生电能的危害，电力电子负载测试中做为阻性负载。

The wire-wound resistor of the resistance box of the JRA heating pipe adopts stainless steel pipe as the wrap which has a good looking appearance. The resistor has the characteristics of weather resistance, vibration resistance, fast heat dissipation, high level of protection, etc. Its security is superior to traditional resistors of porcelain skeleton. The resistor is a power type wirewound resistor packaged with the basic materials of high temperature-resistant silicone resin and silica fume. Easy to install tightly and easy to attach heat sink. Usable as a braking resistor to protect the inverters, servos, etc., from damage by regenerative energy of the motor, and as a resistive load in power electronic load tests.

功率范围(RA Power range):1KW-12KW

产品尺寸图 (Product Size)

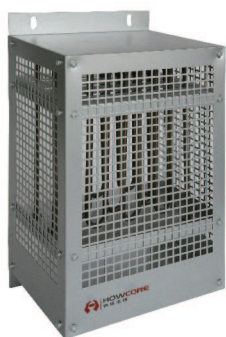


规格 Type	功率(KW) Power	尺寸Dimension (±1mm)						安装孔 Mounting holes
		D	D1	W	W1	H	H1	
JRA	1	440	420	255	200	117	105	7*14
JRA	2	440	420	255	200	117	105	7*14
JRA	3	440	420	255	200	117	105	7*14
JRA	4	440	420	255	200	177	165	7*14
JRA	6	440	420	255	200	195	183	7*14
JRA	8	440	420	255	200	255	243	7*14
JRA	10	440	420	255	200	357	345	7*14
JRA	12	440	420	255	200	357	345	7*14

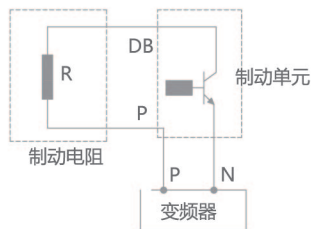
备注：其他规格尺寸，可根据用户要求制造。
Remark: Dimension can be customization

成品识别码 (Product Identification Code)

JRA	-	1000W	-	40R	-	J
加热管电阻箱 Heating pipe Resistor Assemblies		额定功率 Rated Power		电阻阻值 Resistance Value		阻值误差 Resistance Tolerance H=±3% J=±5% K=±10%



典型电路图



不锈钢电阻柜 (SRA)

SUS Resistor Assemblies



■ 产品概述 (Product Introduction)

可用在变频器控制电机减速和制动的电路中，通常外接电阻器可以将来自电动机和负载的多余能量消耗掉，以保护变频器的过压保护。在工业系统中，变频器制动电阻被广泛应用于电机启动制动调速、变频器制动、起吊行业大型机械制动、物料输送机构制动等领域。它们可以短时断续周期和持续的工作。

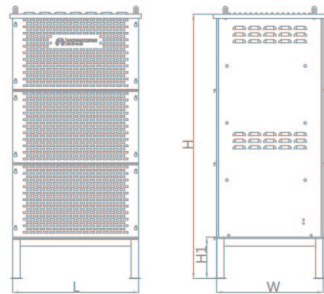
usable in a circuit of inverter to control the motor deceleration and braking. Usually an external resistor can consume the excess energy from the motor and load to protect the overvoltage crowbar of the inverter. In industrial systems, the inverter braking resistors are widely used in the fields of motor starting, braking and speed regulating, inverter braking, inverter braking, braking of large lifting machinery, braking of material handling mechanisms, etc. They can run both in short-term intermittent cycles and continuous cycles.

电流范围 Current Range: 10-1000A
电压范围 Voltage Range: 220-1140V

■ 执行标准 (Applicable Standards)

GB/T5729-1994 Fixed resistor used in electronic equipment

■ 产品尺寸图 (Product Size)



规格 Type	功率(KW) Power	尺寸Dimension (±1mm)			
		L	W	H	H1
SRA	20KW	600	500	750	150
SRA	30KW	600	500	1050	150
SRA	40KW	600	500	1350	150
SRA	50KW	600	500	1650	150
SRA	51-80KW	820	700	1630	250
SRA	81-104KW	820	700	1980	250

备注：其他规格尺寸，可根据用户要求制造。
Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

SRA
-
6KW
-
20R
-
J

不锈钢电阻箱 额定功率 电阻阻值 阻值误差
 SUS Resistor Assemblies Rated Power Resistance Value Resistance Tolerance
 H=±3% J=±5% K=±10%

中性点接地电阻 (NRA)

Neutral Grounding Resistor



■ 产品概述 (Product Introduction)

中性点接地电阻器连接于发电机、变压器的中性点与大地之间的一种限流电气保护设备，当电网线路出现故障时，电源中性点电压将产生偏移，尤其是在电缆供电的电网系统中，对地电容电流较大，当该电流大于规定值时会产生弧光接地过电压，从而使非故障相的对地电压极大地增加，使设备绝缘损坏形成两点或多点接地短路造成停电事故。采用中性点电阻接地方式的目的是给故障点注入阻性电流，使接地故障电流呈阻容性质，减小与电压的相位差，降低故障点电流过零熄弧后的重燃率，使过电压限制在一定水平以内，提高继电保护设备灵敏度以实现跳闸、快速寻找故障线路和备用切换，从而有效保护系统正常运行。

The neutral grounding resistor is a current limiting electrical protection device connected between the neutral points of the generator and transformer. In case of failure in the power network, the neutral voltage will produce an offset, especially in a grid system of cables whose capacitive earth current is high, arc grounding overvoltage will be produced when the current is greater than the specified value so that the non-fault phase-to-ground voltage will be greatly increased, the equipment insulation will be damaged, thus causing short circuit of earthing at two or more points and power outage.

■ 产品应用 (Product Application)

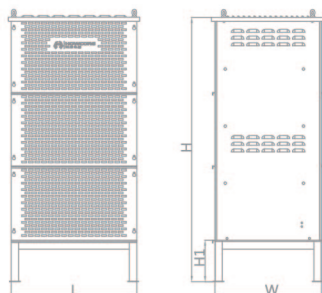
装置可适用于0.4~110kV电压等级配电网的中性点接地系统，在电力系统的变电所或发电厂也已经得到了广泛的应用，对提高系统供电可靠性及安全运行有明显的效果。

The device is suitable for use in the dead earthed neutral system of a distribution network of 0.4-110kV voltage level.

■ 执行标准 (Applicable Standards)

GB/T5729-1994 Fixed resistor used in electronic equipment

■ 产品尺寸图 (Product Size)



规格 Type	电压 (KV) Voltage	电流 Current	阻值范围R(20°C) Resistance Range	尺寸Dimension (±1mm)		
				L	W	H
NRA	6.3	50-1000A	50-1000A	850	1000	1500
NRA	10.5	50-2000A	50-2000A	1000	1000	2000
NRA	20	50-2000A	50-2000A	1500	2000	2200
NRA	35	50-2000A	50-2000A	1600	2500	2500

备注：其他规格尺寸，可根据用户要求制造。 Remark: Dimension can be customization

■ 成品识别码 (Product Identification Code)

NRA	-	6.3KV	-	100A	-	100R
中性点接地电阻 Neutral Grounding Resistor		电压 Voltage		电流 Current		阻值 Resistance



负载箱 (TRA) Load Testing

■ 产品概述 (Product Introduction)

负载电阻器是由干式电阻元件组成的纯阻性电阻柜，是一种大功率耗能装置。主要用于柴油发电机组UPS电源、汽轮发电机、电动机、变频器等电气设备负载性能的模拟检测，使用时将这些设备输出的电能以热能的形式消耗掉。

负载电抗器吸收电力线路的大量干扰，避免损坏您的变频器、变速控制器和其他敏感设备，或导致它们非正常停机，因而有助于延长设备寿命，它们是变频器和驱动器应用问题的现代技术解决方案。负载电抗器带有谐波补偿和IGBT保护，保证谐波存在时的最佳性能；非常有效的减少由变频器和驱动器产生的谐波。

The load resistor is a purely resistive resistor cabinet made up of dry-type resistance elements, and is a high-power energy-consuming device. It is mainly used in analog tests of the load performances of electrical equipment like diesel generator set, UPS power supply, steam turbo-generator, motor, inverter, etc., and consumes, in the form of heat, the electrical energy from such devices.

The load reactors absorb a large amount of interference of the power line to avoid damage to your inverter, gearbox speed controller and other sensitive equipment, and prevent disorderly closedown, thus helping to extend the life of equipment. They are modern technical solutions to the application problems of inverters and drives.

■ 产品应用 (Product Application)

在多个领域如船舶、电力、通信、铁路、石油、金融、交通、医院、军工、航天等都被广泛使用。

In a number of fields such as shipbuilding, electric power, telecommunications, railway, petroleum, finance, transportation, hospitals, military, aerospace, etc. are widely used.

■ 技术规格 (Technical Specifications)

- 种类齐全：交流、直流、交直流通用、低压、中压、高压等多个系列；
- 量身定制：专用、检验用、测量用，任意规格可定做；
- 电阻元件材料：低温度系数的合金材料，可保证稳定和准确的负载；
- 电压范围最大可达20kV；
- 功率范围最大可达数十兆瓦；
- 外箱形式：便携式/可移动式/固定式/集装箱式；
- 灵活多样的负载档位，可通过本地或远程控制调节负载档位；
- 散热方式：自然散热、强制风冷；

Complete range: multiple series of AC, DC, AC/DC common, and low, medium and high voltage, etc.

- Tailored: any specifications, including dedicated, for testing, for measurement, etc., can be customized;
- Materials of resistive elements: alloy materials with low temperature coefficient, ensuring stable and accurate load;
- Voltage range: up to 20kV;
- Power range: up to tens of megawatts;
- Carton types: portable/movable/fixed/container;
- Flexible and varied load gears, which may be adjusted locally or remotely;
- Cooling: natural cooling, forced air-cooling;

■ 成品识别码 (Product Identification Code)

TRA	-	200A	-	L	-	Y
TRA: 三相负载柜		电流 Current		L:感性负载 R: 阻性负载		Y:星型 J:角型
DRA: 单相负载柜						

SFW系列温湿度控制器(单个型)

SFW Temperature Controller

■ 产品概述 (Product Introduction)

SFW型温控器采用机械式双金属片温度变化，控制加热器或者过滤风扇的工作与停止，NCC型为常闭触点适用于控制加热器。NOC为常开触点适用于控制过滤风扇。还有双向控制的SFW型可供选择。

Double mechanical-type sheet metal is applied in SFW temperature controller to detect temperature change. This SEW controller can be used to control the working status of heating devices and coling devices.



Level of protection



suitable for both 50Hz and 60Hz

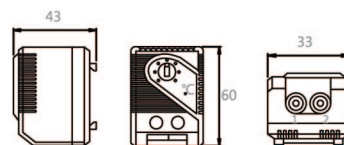


110V..230V

■ 产品特点 (Product Feature)

- 体积小 small vol
- 安装简易 Easy to install
- 故障率低 Lower failure possibility
- 温度调节范围大 Large adjust able range

■ 产品尺寸图 (Product Size)

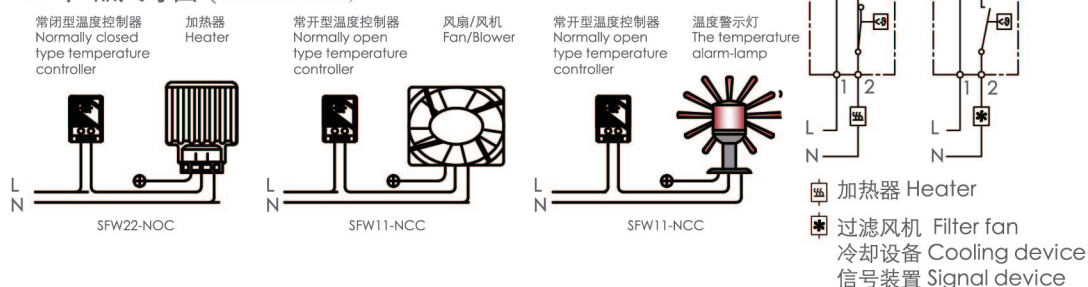


■ 技术参数 (Technical parameters)

技术参数	Technical parameters
切换温度公差 Switching Temperature Tolerances	7k (±4k)
传感器形式 Sensor	双金属片 Twin Metal Strip
接触方式 Contact	触点 contact
接触电阻 Contance Resistance	<10MΩ
寿命 Life	>100,000times
最大切换容量 The Maxium Switching Capcity	250VAC,10(2)A,120VAC,15(2)A DC 30W(24VDC,72VDC)
连接方式 Connection	2端子 (terminal) 2.5mm ² ,0.8Nm
安装方式 Installation	35mm DIN 导轨 (guide)
外壳 Shell	UL94-0塑料, 淡灰 UL94-0 Plastic, Grayish
尺寸 Size	60×33×43
重量 Weight	40g
安装位置 Installation location	根据需要 Optionally
工作/存储环境 Operating/Storage Temperature	-20~80℃/-45~80℃

型号 TYPE	设定范围 SET RANGE	状态 SATATE
SFW11-NCC	0~60℃	常开 Normally open
SFW22-NOC	0~60℃	常闭 Normally close

■ 产品尺寸图 (Product Size)



HDJR系列加热器 HDJR HEATER

■ 产品概述 (Product Introduction)

电气设备在低温状态下运行时，或在停止运行时，环境温度将对设备产生影响，此时就需要加热器来对空气进行加热，提高环境温度，去除设备表面的冷凝水。HDJR加热器采用PTC陶瓷加热，加热温度迅速稳定，适合使用于电气柜内、大型设备内，医疗设备等场合。每立方米空气温度升高一度建议选用25瓦功率。

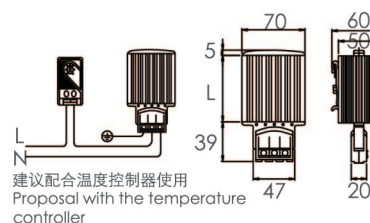
While electrical equipments running in low-temp environment, or stop working, the related environment will be returned to roomtemperature. In this condition, the condensation water is easily to be produced to heat the air to designed temperature. HDJR heater is made of chinaware components, so can fast output stable heated air. HDJR heater can be used in electrical enclosure, large equipment, medical apparatus and so on.



■ 产品特点 (Product Feature)

加热速度快	Fast heating process
安装简易	Easy to install
可选防护网罩	Protecting cover is optional
使用寿命长	Long life-time
热空气稳定持久	Stable heating process
控制简单	Easy to control

■ 产品尺寸图 (Product Size)



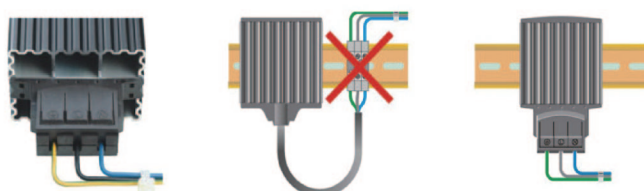
■ 技术参数 (Technical parameters)

操作电压 Working voltage	120-240 AC/DC(min.110;max.265V)
发热元件 Heating component	PTC
发热体 Heat	阳极处理挤压铝型材 (拉伸铝) Anodizing of aluminium extrusion (aluminium)
连接方式 Connection	3位压线端子, 标准线0.5-2.5mm The 3 line terminal, standard line 0.5-2.5mm
连接端子 Connection terminal	UL94-0, 黑塑料 UL94-0, black plastic
安装方式 Installation	35mm DIN 导轨安装 T35mm DIN rail mounting
安装位置 Installation location	垂直 (柜体底部, 热风口超上) Vertical (the, bottom of the cabinet a hot air port of super
操作/存储环境 Operating/Storage Temperature	-45~+70℃ (-49~+158° F)

规格型号 TYPE	发热功率 The heating power	最大电流 Maximum current	高度H The Height of H	表面温度 Temp
HDJR -15	15W	0.1A	65mm	65℃
HDJR -50	50W	0.2A	65mm	90℃
HDJR -100	100W	0.4A	120mm	120℃
HDJR -150	150W	0.6A	140mm	150℃

订购时请注明电压等级 Please define the voltage level when ordering

■ 安装方式示意图 (Installation diagram method)



HDJF系列加热器 HDJF HEATER

■ 产品概述 (Product Introduction)

电气设备在低温状态下运行时，或在停止运行时，环境温度将对设备产生影响，此时就需要加热器来对空气进行加热，提高环境温度，去除设备表面的冷凝水。HDJF加热器采用PTC陶瓷加热，由风扇吹出热空气，产生热空气流动，加热效果迅速提高。HDJF适用于大型电气控制房，控制柜内加热。

While electrical equipments stopped working, the related environment will be returned to room-temperature. In this condition, the condensation water is easily to be produced to cover the surface of the electrical equipment. HDJF heater can be applied to heat the air to designed temperature.

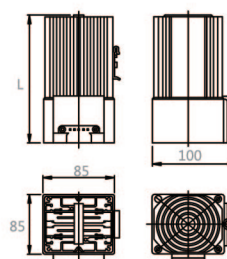
HDJF heater is made of chinaware components, so can output stable heated air. HDJF heater can be used in electrical enclosure, large equipment, industrial apparatus and so on.



■ 产品特点 (Product Feature)

加热速度快	Fast heating process
安装简易	Easy to install
可选防护网罩	Protecting cover is optional
使用寿命长	Long life-time
热空气稳定持久	Stable heating process
控制简单	Easy to control

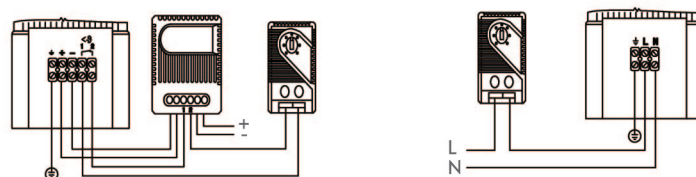
■ 产品尺寸图 (Product Size)



■ 技术参数 (Technical parameters)

操作电压 Working voltage	120-240 AC/DC (min.110;max.265V)
发热元件 Heating component	PTC
防护等级 Protecting level	P20
温度安全保护 Temperature safety protection	在风扇故障的情况下过热保护 In the case of fan failure over heating protection
发热体 Heat	阳极处理挤压铝型材 (拉伸铝) Anodizing of aluminium extrusion (aluminium)
轴流风机 Axial fan	45m ² /h(230VAC)
电气连接 Connection	R200: 3×0.75mm ² 电缆 标准0.5-2.5mm ² R200: 3×0.75mm ² cable standard line 0.5-2.5mm ²
连接端子 Electrical connection	UL94V-0, 黑塑料 UL94-0, black plastic
安装方式 Installation	35mm DIN 导轨安装 T35mm DIN rail mounting
安装位置 Installation location	垂直 Vertical
操作/存储环境 Operating/Storage Temperature	-45~+70°C (-49~+158° F)

■ 电气连接示意图 Schematic diagram of electrical connections



型号 TYPE	功率 power	最大电流 Maximum current	电压 Voltage	高度 Height	表面温度 Temp
HDJF -250	250W	1A	230VAC/50/60HZ	180	55°C
HDJF -400	400W	2A	230VAC/50/60HZ	180	70°C
HDJF -600	600W	2.7A	230VAC/50/60HZ	220	90°C

WHB系列风力发电机舱加热器

WHB WIND-POWER GENERATOR ENGINE ROOM HEATER

■ 产品概述 (Product Introduction)

风力发电系统通常工作在低温环境，极端温度可以达到零下40摄氏度，环境温度将对机舱内设备产生影响，此时就需要大功率的风扇型加热器对机舱内空气流进行加热，提高环境温度，并且快速去除设备表面的冷凝水，从此改善机舱内工作环境，延长设备的使用寿命，提高整个系统的安全性

Wind-power generator system usually works in low-tempenviroment, the extreme temperature can be minus 40 degree centigrade,as so to damsge the equipments installed in the engineroom. In this condition,we need high-power fan-mode heaters to heat the air-flow to designed temperature,as so to improve the environment an enlarge the lifetime of related equipments,to make whole system more safer.

■ 产品特点 (Product Feature)

加热效率高	Fast heating process
安装简易	Easy to install
防护等级高	High protecting level
发热温度迅速稳定	Stable heating process
使用寿命长	Long life-time
设计使用寿命为20年	designed working life at 20 years
控制简单	Easy to control

■ 技术参数 (Technical parameters)

加热器额定功率 Rated heater power	6KW/9KW/12KW
加热器额定电压 Rated heater voltage	690V/400V.50/60HZ
风机额定数据 Rated fan power	100W.950立方米/小时 100W.air flow at950m³/h
加热元件 Component	高阻电热合金 High-resistance electrical heating alloy
出风口温度 Temperature output	60-120摄氏度 60-120degcent
防护等级 Protecting level	IP44
工作方式 Working pattern	连续 Continuous
重量 Device weight	15KG保护、风扇过流保护
保护功能 Protection	Over-heat and fan-over-current protection

型号 TYPE	功率 power	电流 current	外形尺寸 Outline dimension
WHB-690-6	6KW	12A	420(L)*410(W)*435(H)
WHB-690-9	9KW	18A	420(L)*410(W)*435(H)
WHB-690-12	12KW	24A	420(L)*410(W)*435(H)



IP44



更多鸿康信息
请关注鸿康电器微信

HOWCORE

上海鸿康电器有限公司

地址：上海市松江区沈砖公路3129号13号楼

联系电话：021-37701209 37701219

传真：021-33734345

邮编：201615

邮箱：sales@howcore.com

网址：www.howcore.com

Shanghai Howcore Electric Co., Ltd.

Address: No. 3129 Shenzhuan Road, Songjiang District,
Shanghai, China

Tel: +86-21 -37701209, 37701219

Fax: +86-21 -33734345

E-mail: sales@howcore.com

Website: www.howcore.com