SIEMENS

LR SUPER COMPACT RESINA BUSBBAR SYSTEM

LR环氧树脂浇注母线

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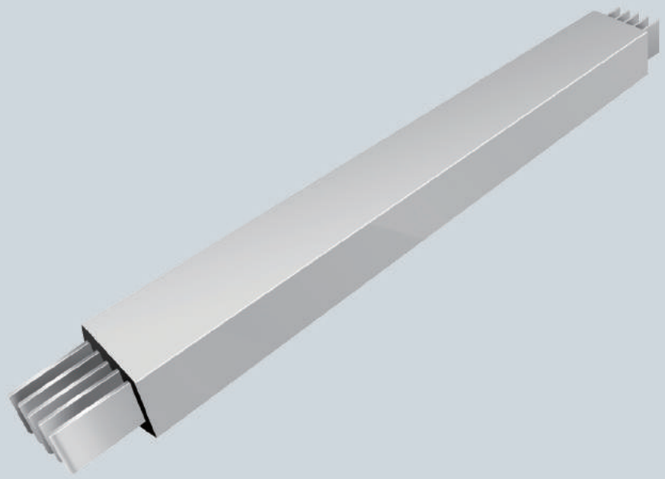
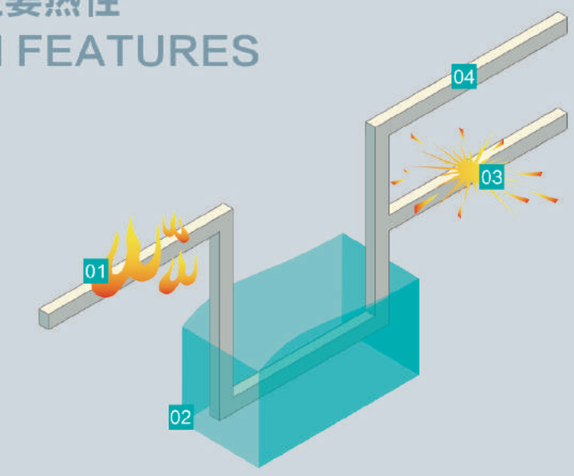
目 录



产品主要热性
MAIN FEATURES



LR全封闭环氧树脂浇注母线系统
LR SUPER COMPACTRESINA BUSBAR SYSTEM

1KV低压母线系统 630A-6300A
3.6KV-17.5KV中压母线系统 1250A-5000A

1KV low-voltage busbar system 630A-6300A
3.6KV-17.5KV high-voltage busbar system 1250A-5000A

LR环氧树脂全封闭浇注母线系设计有1KV电压系统，额定电流从630A-6300A，防护等级高达IP68，是低压配电领域的新一代输配电系统。LR全封闭浇注母线能适用于各种恶劣与高洁环境，被广泛应用于造船、电厂、石油化工、钢铁冶金、机械电子和大型建筑等各种场所。

LR super compact resina busbar from1KV voltage system with rated surrent ranger from 630A-6300A have a degree of protection IP68, is developed as a new transmiission and distributiion system in low voltage installations and widely used in shipbuilding, electrical factory, petrochemical, steel merallurgy,mechianical electronic and large buildings, etc.

01 **防火**
Fireproof
防火极限时间长，性能可靠稳定，可应用于消防安全要求的场合。

02 **防水**
Waterproof
IP68的高防护等级可在户外、电缆沟等恶劣环境中使用。

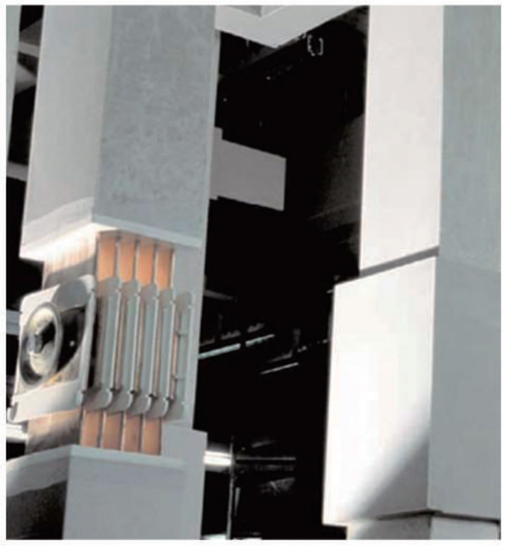
防爆
03 **Explosive resistant**
环氧树脂浇注外壳能适用于各种危险环境。

防腐
04 **Anticorrosive**
可有效防止电、化学腐蚀，能在高腐蚀环境中长期适用。

其他优势
环氧树脂混合物配方独特
功能单元可定制
机械强度高
短路强度大
过载能力强
适用性强
安装简便
终身免维护

Unique epoxy-resin mixture
Tailor made functional
Element
High mechanical strength
High over-load capability
Strong adaptability
Simple installation
Maintenance free

特征优势
Characteristic Advantage



瑞士进口Respecta VacuCast真空搅拌铸件工艺

LR浇注母线系统引进拥有世界尖端连续铸造及工艺设计流程的VacuCast技术对环氧树脂进行连续计量，均匀混合并脱气，工艺流程精确可靠，控制简单方便。

Respecta VacuCast Technics imported from Switzerland

LR-busbar system imported vacucast techninque which is possessed with top contonuous cast and craftwork design process in the word. Measure epoxy resin continuously and mix equally. The process is accurate and credible and can be con-trolled simply and conveniently.

环氧树脂外壳配方
Epoxy-resin enclosure

环氧树脂具有极大的配方设计灵活性和多样性，能按不同的使用性能和工艺性能要求，设计出针对性很强的最佳配方，这是其应用的一大特点和优点。同时不同配方的环氧树脂固化体系的固化原理不完全相同，即固化工艺条件对环氧固化物的结构和性能影响极大。所以如何正确地做出最佳材料配方设计和工艺设计才是环氧树脂应用技术的关键，也是核心技术所在。

西门子结合市场需求与世界最大的化学公司CIBA在浇注母线应用领域共同研制开发环氧树脂已有二十多年的历史，到目前为止，这是研制开发的LR浇注母线环氧树脂第三代产品，配方设计及工艺设计独特，可适用于对母线使性能要求高的场合，尤其是对综合性能要求高的领域。

LR母线系统外壳由环氧树脂和多种惰性矿物材质经过严格配制后整体浇注成型，并且该材料具有优越的电气绝缘性能及良好的散热性能。

One of the application advantages is epoxy-resin with its flexbility abd multiformity, can be designed for the best solution according to requirements of different usage capa-bilities and craftwork performances. Meanwhile different epoxy-resin is with different solidify theory. The structure and capability of epoxy condensate is strongly influenced by solidify conditions. So the crycial and important applica-tion technique is how to make the best material solution and craftwork design correctly.

Siemens combining marker requirements with CIBA the biggest chemical company in the world has an over20 years history in developing epoxy-resin in LR-busbar application fields. Till now, it is the third generation product of LR-bus-bar epoxy-resin with the advantage of unique design and craftwork, applied for the fields required high usage capa-bility especially high integration capability.

Theenclosure of LR busbar system is made from various inert minerals such as epoxy resin, quartz etc. The material is provided with good electric insulation and heat disper-sion.

镇江西门子LR合成树脂主要优势
Main advantages of Siemens LR resin

电性能优

固化后的合成树脂是一种具有高介电性能、耐表面漏电、耐电弧的优良绝缘材料。

机械强度高

固化后的合成树脂具有极高的硬度，耐磨、耐冲压且不会变形。

化学稳定性

固化后的合成树脂具有优良的耐碱性、耐酸性和耐溶剂性。

耐霉菌

固化后的合成树脂耐大多数霉菌，可以在苛刻的条件下使用。

散热快

合成树脂耐高温，且其独特配方及工艺设计使得母线散热性能得到最大提升。

环保

合成树脂为不然性材料，不含卤化物，亦不会对环境和人体造成危害。

Good electrical performance

Solidified resin a kind of good insulated material which is arc resistan and can prevent surface creepage.

High mechanical strength

Solidified resin wearable, punch resistant, ametabolic and with strong rigidity.

Steady chemical performance

Solidified resin is alkali-resistant, acid--resistantand impregnant--resistant.

Corrosive resistance

Most solidified resin is corrosive resistant and can be used in adverse atmosphere.

Quick heat dispersion

Solidified resin is high temperature resistant, and its unique design makes the busbar with quick heat dispersion.

Environment protection

Solidifird resin is halogenfree, inflammable and emits no toxic gases.

产品特征
Product Features

为石油精炼提供现代化的输配电系统

要求

满足现在与未来的安全标准，石化行业的输配电在室内和室外都要应要求高等级防护。

解决方案

LR系统防护等级IP68实现户外输配电——连接户外变压器和室内配电屏，可提供经济式试验的标准连接单元与XL系统相连，实现由户外到户内的输配电转换。

成效

标准连接部件均通过型式试验确保安全性，防护等级高。安装母线槽系统之间，以及与配电屏的连接采用标准连接部件，设计简单，安装快捷，高度节约成本，属于安全、紧凑的连接方案。

为地铁隧道提供安全配电系统

要求

地铁区间基础设施排风扇和用电设备对配电系统的安全性要求较高，特别是需要提供高等级人身保护，防止人为破坏。

解决方案

LR系统具备应用连贯性，对额外的措施具备持久的功能，IP68高等级防护。

成效

实现免维护；结构紧凑，节省空间；环氧树脂外壳抵抗力高；实现理想的系统和人身保护。

Modernized power transportation for oil refinery

Requirements

To meet current and future safety standards, the realization of the power supply for a petrochemical plant required high degrees of protection, both for the indoor and outdoor applications.

Solution

LR system with IP68 for outdoor power transportation–between outdoor transformers and internal power distribution boards Type–tested standard connection between the LR and XL systems for further power distribution inside the building with XL system

Result

Safety through type–tested components, connection pieces and high degree of protection Easy planning and mounting through standard connection components between the busbar trunking systems and power distribution boards Safe, compact and cost–effective solution

Safe power distribution in subway tunnel

Requirements

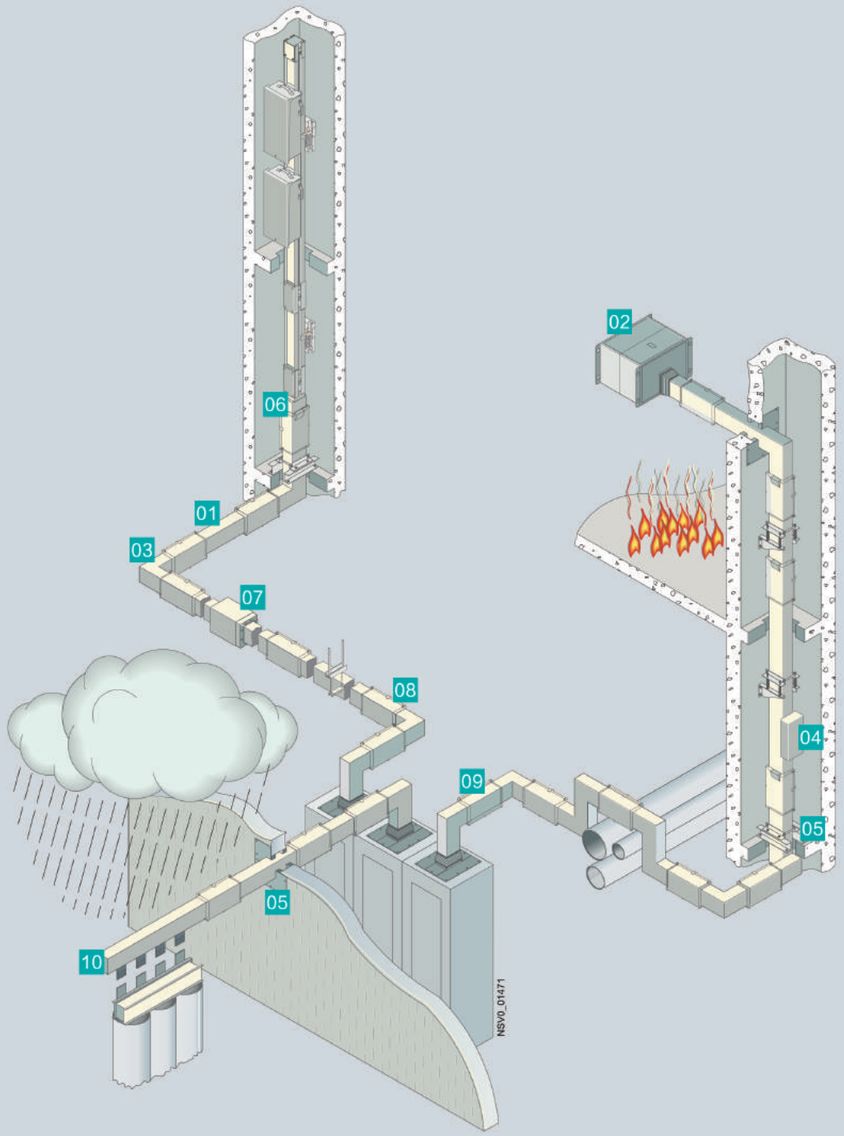
A safe power distribution solution was required for the smoke fans and consumers in the track section of a subway infrastructure. Important factors entailed a high personal protection and prevention of vandalism.

Solution

Consistent application of the LR system Functional endurance with additional measures High degree of protection IP68.

Result

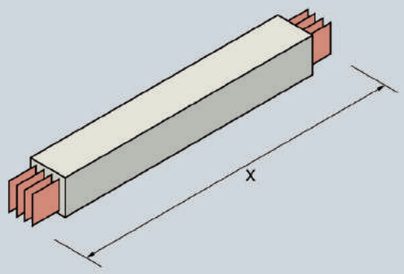
High availability through maintenance–free technology
Minimum space requirements through compact dimensions
High resistance through epoxy cast–resin enclosure Ideal personal and system protection.



LR低压浇注母线系统

01 直线段
02 进线单元\馈线段
03 换向单元
04 插接单元
05 附件
06 XL系统耦合单元
07 膨胀节
08 连接单元
09 低压柜连接单元
10 变压器连接单元

功能单元
Functional Unit

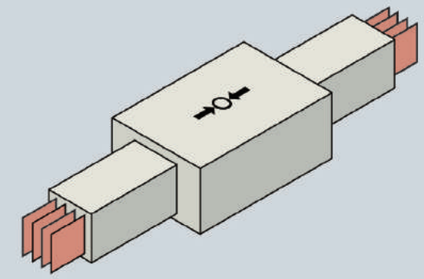


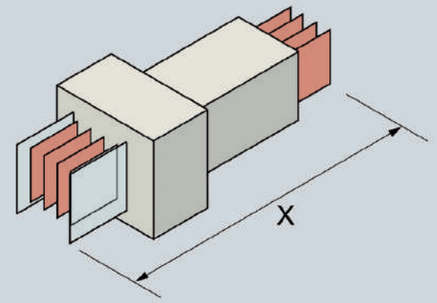
直线段

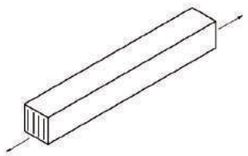
直线段设计标准长度为3m，可选范围为0.3m-3m同时独特的结构设计也保证了LR母线系统的承载电流不会受安装位置及安装方式的影响，我们会结合实际现场情况设计一条合适的母线走向。

Straight trunking unit

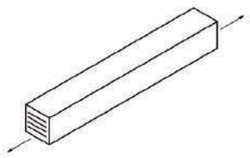
Standard straight trunking unit is 3m and optional length is from 0.3m? 3m.The unique structure design can ensure currents of LR busbar system will not be influenced by installation position and manner. We will design a suitable busbar direction according to the actual situation.







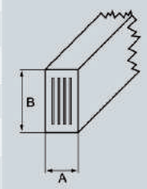
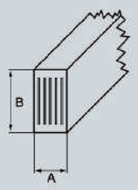
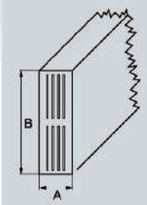
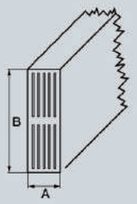
水平安装，立装



水平安装，侧装

垂直安装

外形尺寸

4-conductor system					5-conductor system				
IEp[A]		System	A	B		System	A	B
630		LRC0141	90	90		LRC0151	90	90
800		LRC0241	90	90		LRC0251	90	90
1000		LRC0341	90	90		LRC0351	90	90
1250		LRC0441	100	110		LRC0451	120	110
1600		LRC0541	100	130		LRC0551	120	130
2000		LRC0641	100	190		LRC0651	120	190
2500		LRC0741	100	230		LRC0751	120	230
3150		LRC0841	100	270		LRC0851	120	270
4000		LRC2641	100	380		LRC2651	120	380
5000		LRC2741	100	460		LRC2751	120	460
6300		LRC2841	100	540		LRC2851	120	540

膨胀节单元

为了调节系统的热胀冷缩，LR系统在线路较长时酌情添加膨胀单元。

水平方向直线段长度如果不超过40米铜母线，其中无任何换向单元，需要安装膨胀单元。

Expansion element

In order to adjust heat expanding and cold shrinking,the expansion element should be installed in a straight line of LR system.

In horizontal direction, the compensation for expansion unit will be applied in the length of copper straight trunking units continuously without any junction unit every 40 meters.

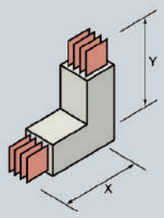
LR与XL系统耦合单元

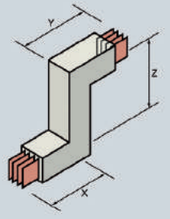
LR浇注母线系统凭借其超高防护等级被广应用于户外配电，在进行户外与户内转接时，该耦合单元可与户内XL密集母线系统实现完美结合，使得整个配电系统更经济、更理想。

XL system coupling unit

LR busbar system is widely used outdoors due to the high degree of protection. During the connection with indoor busbar, such coupling unit can realize a perfect combination with XL compact busbar to make the whole distribution system more economic and ideal.

功能单元
Functional Unit

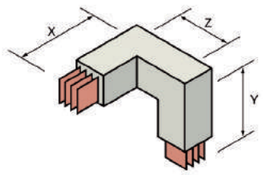


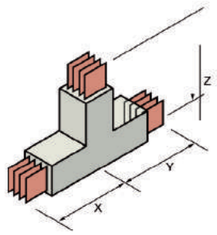


换向单元
LR系统配备完整的水平、垂直及T型弯头等，可方便的更改母线槽系统的走向，同时为了满足现场的特殊需求，我们还可以进行非标设计。

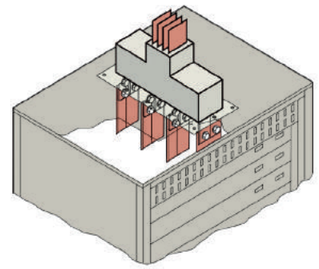
Junction unit
LR busbar system has a set of complete horizontal, vertical and T elbows which can change busbar direction conveniently. Meanwhile we can make special designs in order to satisfy the special requirements on site.

Length	System	Type
X/Y=0.3...1.20m	LRC01 to LRC08	LRC...-K(-1.0/-1.5)
X/Y=0.5...1.00m	LRC26,LRC27,LRC28	
X/Y=min.0.3m Z=max.0.7m (X+Y+Z≤1.8m)	LRC01 to LRC08	LRC...-ZK
X/Y=min.0.5m Z=max.1.0m (X+Y+Z≤2.0m)	LRC26,LRC27,LRC28	





Length	System	Type
X/Y=min.0.3m Z=max.0.7m (X+Y+X≤2.0m)	LRC01 to LRC08	LRC...-XR
X=min.0.3m Y=min.0.5m Z=max.1.0m (X+Y+Z≤2.0m)	LRC26,LRC27,LRC28	
X/Y=0.30...1.00m Z=0.30...0.70m (X+Y+Z≤2.0m)	LRC01 TO LRC08	LRC...-TV(-2.0)
X/Y=0.50...1.00m Z=0.30...0.70m (X+Y+Z≤2.0m)	LRC26,LRC27,LRC28	



与西门子低压柜连接
LR系统可以通过XL耦合单元与西门子低压柜直接相连。

Connected with LV distribution board
We support special entry unit to connect with distribution board. The connection tags can be adjusted according to requirements

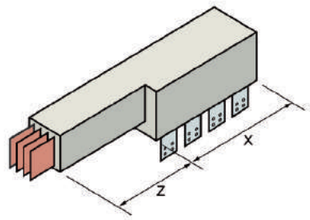
与其他低压柜型连接
我们提供专门的始端进线单元与配电柜链接，
始端连接头地方的相间距可根据要求进行调整。

Connected with other LV distribution board
We support special entry unit to connect with distribution board.The connection tags can be adjusted according to requirements.

与变压器的连接
LR系统配备独特的变压器连接单元，也可根据要求进行非标设计，最大电流6300A，工厂配备软连接单元，可避免变压器的震动影响到整个配电系统，并且可以按照变压器具体出线方式进行调整设计。

Connected with transformer
The unique transformer connection unit can also be designed specially with the current up to 6300A. The factory equips flexible connection unit to avoid vibration in the whole distribution system and can adjust designs according to the actual outlet manner of transformer.

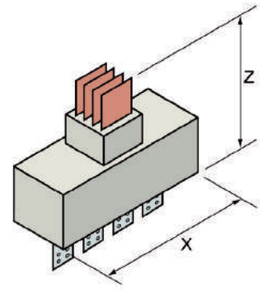
侧出线



Length	System
X≤1.20m Z=0.30...0.50m	LRC01 to LRC08
X≤1.20m Z=0.30...0.70m	LRC26 to LRC28

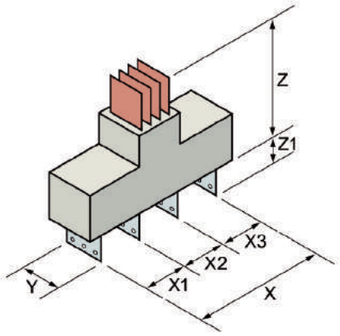
上出线
相间距最大为750mm
相间距最小为：接头宽+25mm
连接头L1、L2、L3、PEN和PE的顺序可以自由选择具体尺寸依据根据现场测量，可进行非标设计

Busbar connection on the top
Maximum phase clearance is up to 750mm.
Minimum phase clearance: tag width+25mm
The sequence of the connection tags from conductors L1, L2, L3, PEN and PE can be freely selected.
The detailed dimension will be based on the actual measurement and can be designed specially.



Length	System
X≤1.20m Z=0.50m	LRC01 to LRC08
X≤1.20m Z=0.70m	LRC26 to LRC28

功能单元
Functional Unit



电缆进线单元

如果母线系统需要通过电缆输电，可配备LRC...-KE电缆进线单元。

电缆进线单元额定电流为800A-3150A

Cable connection unit

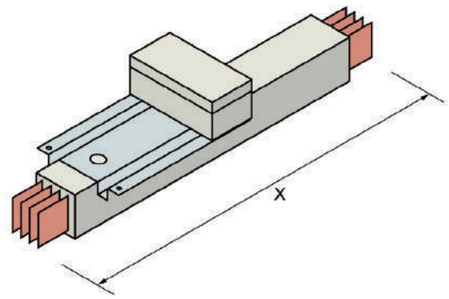
If power needs to be supplied to the bus bar trunking system via cables, you should use an LRC⋯-KE incoming cable connection unit.

The incoming cable connection units are designed for rated current from 800A-3150A.

	Design	Size	
Tags	4-conductor	X=0.30m	
		Z=0.30m	
		Z1=0.11m	
	5-conductor	X=0.40m	
		Z=0.30m	
		Z1=0.11m	
	Clearance	Width	Type
	$X_1=X_2=X_3=0.10m$	Y=0.06m	LRC01 to LRC03
		Y=0.08m	LRC04
		Y=0.10m	LRC05
		Y=0.16m	LRC06
		Y=0.20m	LRC07
		Y=0.24m	LRC08

无论是多芯和单芯电线都可以在电缆进线箱中使用，只要电缆横截面不超过300mm²都可以直接安装在电缆进线箱中使用。电缆连接之后，即用配置好的环氧树脂混合物对连接头处做现场浇注处理，防护等级仍高达IP68。

No matter multi-core or single-core cables can be used in incoming cable connection unit, as long as the cable cross section is less than 300mm². The cable connections are moulded to the tags on site once the cables have been connected. The degree of protection is up to IP68.

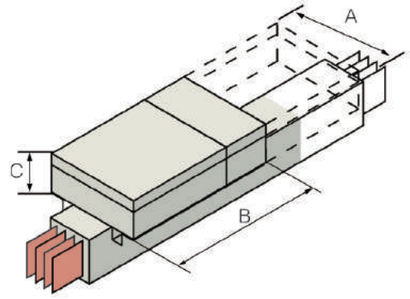


插接单元

我们能在LR母线系统任何位置提供插接输出单元，便于为负载设备供电。

LR系统采用全透明聚碳酸酯绝缘箱体，最大电流为250A，钢制箱体最大电流可达800A，其内部带有设备隔室，可根据用户要求配置断路器。

我们会根据现场具体情况对插接箱的外形尺寸进行非标设计，以满足现场需求。



Tap-off unit

We can support tap-off units at any position of LR busbar system for power distribution.

LR system adopts glass-mat reinforced polyester box with the current up to 250A while steel box with the current up to 800A, equipped inner cabinet to install MCCB according to requirements.

LR聚酯插接箱

高强度

抗恶劣气候环境

抗紫外线

耐火

LR polyester tap-off box

High impact strength

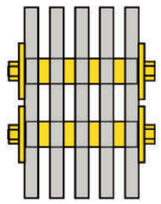
Resistant to adverse climatic conditions

Resistant to UV radiation

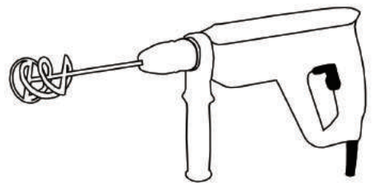
Flam retardant

Rating	125A	250A
A[mm]	270	270
B[mm]	720	720
C[mm]	180	180

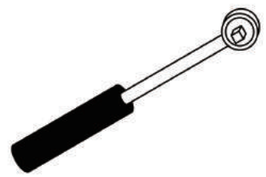
系统附件
System Accessories



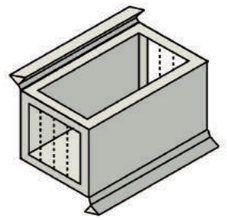
monobloc连接器
Joint unit



搅拌机
Mixer

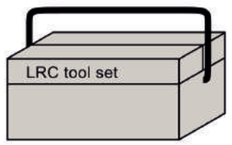


力矩扳手
Torque wrench



模具
Casting mould

环氧树脂混合物
Cast resin mix



工具箱
Tool set

连接器
LR母线系统的连接是采用力矩螺栓一体化连接装置，当力矩扳手的扭矩达到84N.M时最外力矩螺栓头会自动脱落，当扭矩小于84N.M时螺栓头不会脱落，安装人员无法安装浇注模具，这样就保证了导体间可靠的电气接触，避免了人为因素而导致的不良安装。

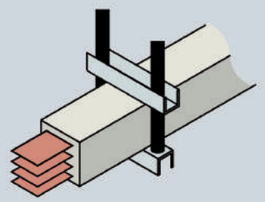
Joint block
The electrical and mechanical jointing of the trunking units is achieved by a special monobloc-system. The correct torque setting is achieved when the outer head shears at a pre-set torque level 84N.m.If the correct torque level on the monobloc is not reached 84N.m, then it will not be possible to encase the joint with the mould which will ensure the credible electrical contacts through conductors to prevent bad installation due to human behaviour.

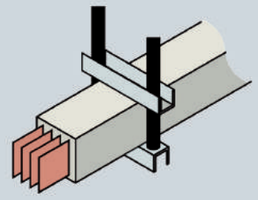
连接附件
母线连接时，需用配制好的环氧树脂混合物进行现场浇注，为此我们提供用以配合完成浇注过程的各种工具。

Connection accessories
During busbar connection, we support a set of tools to achieve the cast resin mixture.

安装支架
根据不同的安装环境，我们提供相应的安装附件。

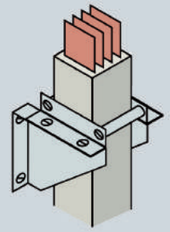
Installation bracket
According to different installation environments, we support different installation accessories.

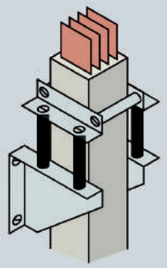




水平安装支架
多种支架用于水平安装
标准支架：
水平立装：LR...-BHH
水平侧装：LR...-BHF

Horizontal installation bracket
Various brackets can be used when horizontal installation
Standard brackets:
horizontal edgewise installation: LR…-BHH
horizontal flat installation: LR…-BHF





垂直安装支架
多种支架用于安装垂直母线：
弹簧支撑器承担母线重量LR...-BV
滑动托架将母线导向规定的位置LR...-BG
固定件将母线固定于建筑结构中LR...-BF

Vertical installation bracket
Various brackets can be used when vertical installation:
Spring supports afford busbar weight LR…-BV
Slide supports guide busbar to regulated position LR…-BG
Fixed supports fix busbar in the construction

技术数据
Technical Data

系统通用参数

系统通用标准	IEC、DIN EN、GB
额定绝缘电压 Ui	AC1000
额定工作电压 Ue	AC1000
频率 Hz	50...60
额定工作电流 Ie	630A-6300A（铜导体） 400A-5000A（铝导体）
防护等级 IP	
母线本体 busbar	IP68
连接部件 joint pack	IP68
导体 conductor	铜排或铝排 Copper or Aluminium
外壳 enclosure	环氧树脂与无机矿石混合物 Resina with inorganic mineral mixture
安装方式 mounting position	水平、垂直、高架安装 Edgewise,flat,sideways
颜色 color	石灰色，近似RAL7032

LRC母线系统技术数据

Type 型号	Ie 电流A	Icw(1 sec) 额定短时耐受电流KA	Ipk 额定峰值电流KA	R20 电阻mΩ/m	X20 电抗mΩ/m	Z20 阻抗mΩ/m	U 电压降V/m	Kg重量 4线制	Kg重量 5线制
LRC01	630	23	48	0.099	0.068	0.12	0.11	19	20
LRC02	800	23	48	0.074	0.058	0.094	0.11	21	23
LRC03	1000	50	105	0.049	0.057	0.075	0.1	24	27
LRC04	1250	50	105	0.036	0.042	0.055	0.1	32	39
LRC05	1600	65	140	0.03	0.037	0.048	0.1	38	47
LRC06	2000	65	140	0.022	0.03	0.037	0.1	58	71
LRC07	2500	80	176	0.017	0.024	0.03	0.1	72	88
LRC08	3150	80	176	0.015	0.018	0.023	0.11	85	104
LRC26	4000	100	220	0.011	0.014	0.018	0.12	116	142
LRC27	5000	100	220	0.009	0.012	0.015	0.13	143	174
LRC28	6300	100	220	0.007	0.012	0.014	0.15	169	207

LRA母线系统技术数据

Type 型号	Ie 电流A	Icw(1 sec) 额定短时耐受电流KA	Ipk 额定峰值电流KA	R20 电阻mΩ/m	X20 电抗mΩ/m	Z20 阻抗mΩ/m	U 电压降V/m	Kg重量 4线制	Kg重量 5线制
LRA01	400	20	40	0..222	0.043	0.227	0.14	13.9	14.1
LRA02	630	23	48	0.167	0.045	0.173	0.17	14.2	14.4
LRA03	800	23	48	0.111	0.047	0.121	0.16	14.6	15
LRA04	1000	50	105	0.083	0.051	0.098	0.17	19.9	23.9
LRA05	1250	50	105	0.067	0.045	0.081	0.17	23.6	28.4
LRA06	1600	65	143	0.042	0.035	0.054	0.15	34.8	42
LRA07	2000	65	143	0.033	0.031	0.045	0.16	42.3	51
LRA08	2500	75	165	0.028	0.027	0.039	0.17	49.8	60
LRA26	3150	75	165	0.021	0.022	0.031	0.17	69.6	84
LRA27	4000	100	220	0.017	0.019	0.025	0.17	84.6	102
LRA28	5000	100	220	0.014	0.016	0.021	0.18	99.5	120

产品编号

LR全封闭浇注母线对一些基本的部件进行了编号，包括额定电流\导体配置\导体材料等，下面的图示就反映了这一产品代码系统，用户可以根据此系统进行产品的订货选择。

Type code

The basic components of the LR system are determined using a type code. The type is specified and selected on the basis of rated current, conductor material and system type or conductor configuration.

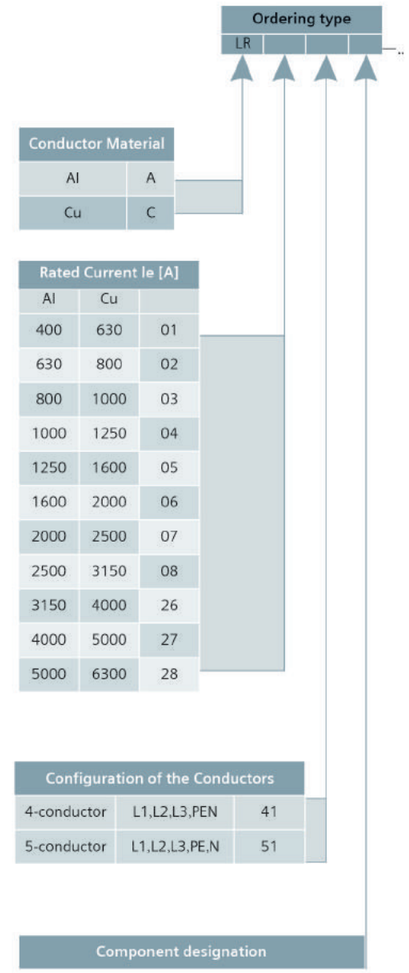
The resulting type code enables the product to be ordered to be precisely defined.

选型示例

一项工程需要额定电流为2500A，采用导体材质为铜，指定采用4线制系统，借助图标，决定采用下列类型：LRC0741。

Selection example

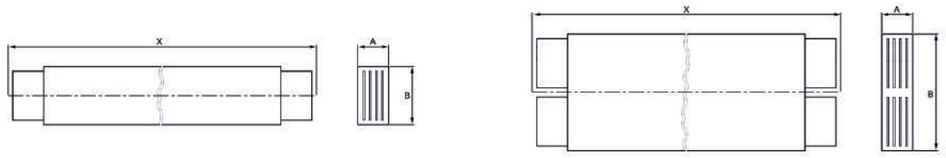
A rated current of 2500A is calculated for a project. A 4-pole system, copper conduction has to be used. This result in type is LRC0741.



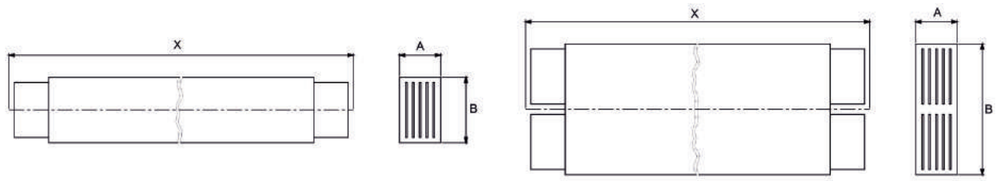
物理数据

Physical Data

直线段尺寸

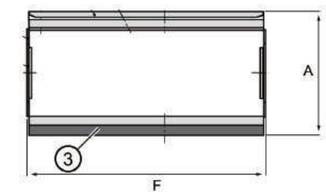


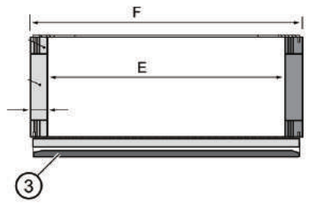
System	A[mm]	B[mm]	x[mm]
LRC0141	90	90	300...3000
LRC0241			
LRC0341			
LRC0441	100	110	
LRC0541		130	
LRC0641		190	
LRC0741		230	
LRC0841		270	
LRC2641		380	
LRC2741		460	
LRC2841		540	

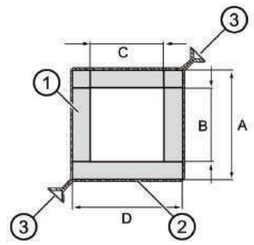


System	A[mm]	B[mm]	x[mm]
LRC0151	90	90	300...3000
LRC0251			
LRC0351			
LRC0451	120	110	
LRC0551		130	
LRC0651		190	
LRC0751		230	
LRC0851		270	
LRC2651		380	
LRC2751		460	
LRC2851		540	

模具





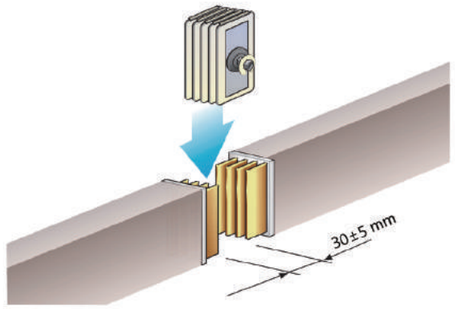


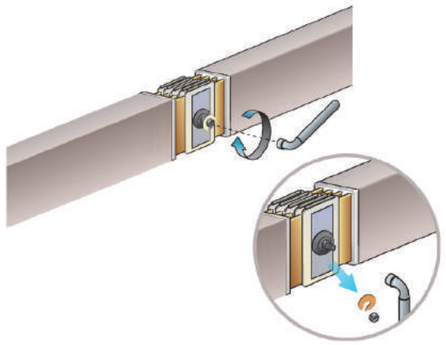
尺寸图

序号	标识
1	垫片
2	模具
3	连接法兰
A	系统高度+40mm
B	系统高度
C	系统宽度
D	系统宽度+40mm
E	286mm
F	330mm

Item	Designation
1	Gasket
2	Casting mould
3	Connection flange
A	System height+40mm
B	System height
C	System width
D	System width +40mm
E	286mm
F	330mm

母线安装
Busbar Installation





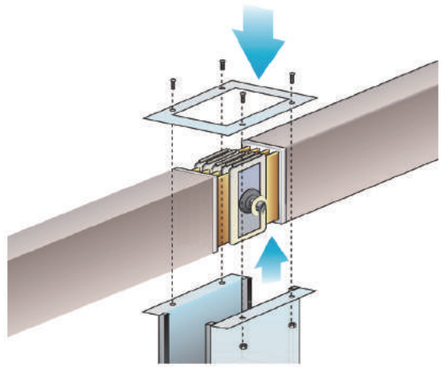
母线连接

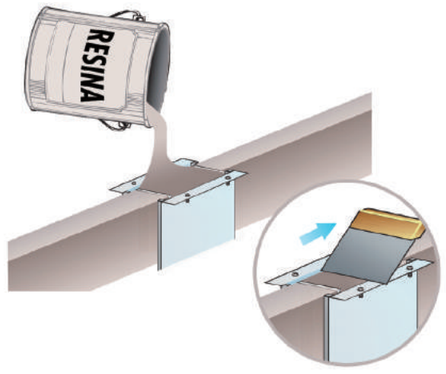
1.其他单元需与导体末端正确连接。导体间的距离可在30±5 mm间调整用以补偿土建公差。在导体两端间滑动连接块直接调整

1. Elements and conductor ends should line up correctly. The distance between the conductor ends may be adjusted between 30±5 mm,allowing compensation of building tolerances. Slide the monobloc between the conductor end and adjust accordingly.
The resulting type code enables the product to be ordered to be precisely defined.

2.紧固连接块螺栓直至外部一端脱落（80-84Nm）。

2.Tighten the monobloc bolt unit the shear of the outer head. (80-84Nm).





3.将脱膜镶嵌在连接块表面，调整至最佳位置，将树脂和硬化剂倒入空桶中，使其混合5分钟。

3. Apply demoulding agent thinly on inner mould surface, fit mould over junction. Pour resin and hardener in empty bucket and mix for 5 minutes.

4.将混合物灌入连接块中直至溢出表面，最后用油灰刀将表面整平，6-12小时后移走模具。

4. Pour mix immediately into mould until completely field up to rim. Smoothen top surface with putty knife. Remove mould after 6-12h.

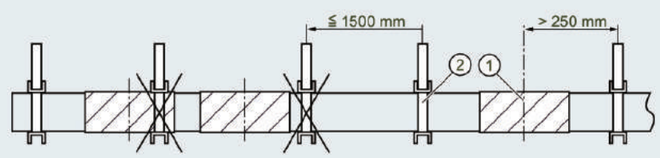
LR安装图解

结构

通常两个固定支撑件中心距须为1.5m。2-3m长直接段推荐配用2套支撑件。

Selection example

Generally a distance of 1.5 m between 2 fixing points should be observed. On busbar elements with a length of 2 m to 3 m the use of two fixing elements is recommended.

支撑件图解Configuring fixing points	序号	描述
	1	连接器中距
	2	支架中心

水平或垂直安装时，每隔1.5m安装一套固定安装件。由于单排系统和双排系统重量不等，须充分考虑安装件的选择。

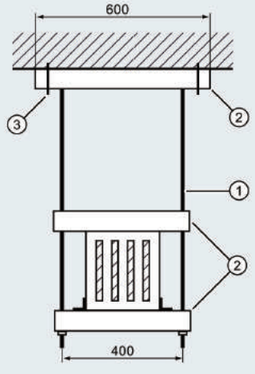
The fixing brackets should be placed vertically and horizontally every 1.5 m. The different weights of single and double systems should be considered when choosing the fixing brackets.
The fixing brackets feature different C-profiles due to the different system weights.

LR系统可依据现场安装需求，支持以下3种安装方式：
楼板：悬挂安装
墙面：支撑安装
地面：高架安装

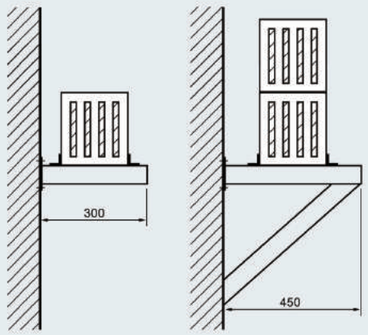
Minimum fixing methods for horizontal installation
Three possibilities are provided here:
- Ceiling: suspended installation
- Wall: supported installation
- Floor: elevated installation

母线安装
Busbar Installation

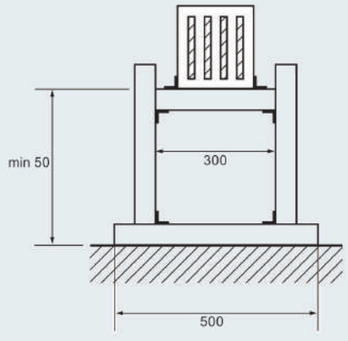
安装图解范例：悬挂安装

Ceiling fixing example: suspended installation	Description
	①Threaded rods 通丝 ②C-profiles C型架 ③Dowels 定位销钉 （悬挂距离楼板1m）属于安装吊架一部分。 （suspension up to 1.0 m under the ceiling）,part of the fixing sets LR...-BHH/LR..-BHF **吊架件注释** Note on the fixing sets LR...-BHH/LR..-BHF Components are: 部件有: 2 x M10 threaded rods 2xM10通丝 2 C-profiles 2C型架 4 lock nuts with spring washers 含弹簧垫片的锁紧螺帽

安装图解范例：支撑安装

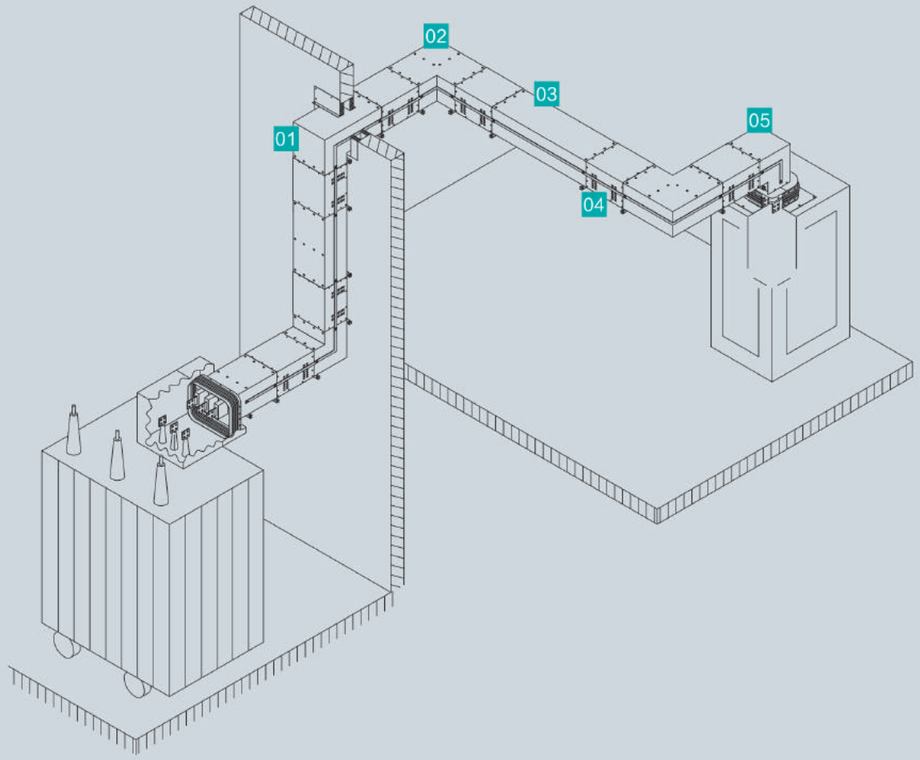
Wall fixing example: supported installation	Description
 LR-BHW1支撑 LR-BHW2支撑	4-conductor system: LR-BHW1(illustrated on left) Double system LR-BHW2 (illustrated on right) mounted on a support

安装图解范例：高架安装

Floor fixing example: elevated installation	Description
	Double system elevated on the floor (available on request) 双排系统在地面上高架安装（根据现场需求）

中压浇注母线系统

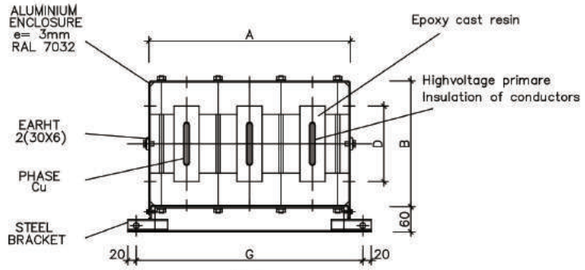
Medium Voltage Busbar System



MR中压浇注母线系统

MR Medium Voltage Busbar System

01 穿墙单元 Straight Element
02 水平弯头 Dihedral Elbow
03 直通单元 Straight Element
04 连接器 Joint
05 带垂直弯头的始端单元 Terminal Element with flat Elbo



MR
for rated voltage levels
3,6 – 7,2 – 12 – 17,5kV

系统概述

镇江西门子MR环氧树脂绝缘中压母线槽系统为厂用回路、变电站、水电发电机与变压器之间的连接提供全套配电方案。其设计紧凑，超高防护等级及优良的电气绝缘性能，可确保安全适用于户外、高温、盐雾、腐蚀及各种危险环境中，终身免维护。

Generalfeatures

The ZSB MR epoxi resin insulated busbar trunking system forms an Medium voltage electric energy transport system which providers complementary solution.
It is highly resistant to fire and has an IP 68 degree of protection, which makes it the ideal solution for use in outside installation or in tropical, saline and corrosive environments.

主要优势

符合国际标准
电流：1250A-5000A，电压：3.6-17.5kV
合面树脂完全绝缘，防护等级IP68
具有防火、防水、防腐、防爆等优势
短路强度大、机械强度高
电磁兼容
功能单元可定制
外形体积小
安装简便、可靠
终身免维护

Mayor Advantages

According to international standards
Wide range from 1250A- 5000A 3,6- 17,5kV
Full insulated with cast resin
Fireproof Waterproof Anticorrosive Explosive resistant
High short- circuit with stand
Electromagentic compatibility
Tailor made terminal- elements
Very small dimensions
Simple erection
Maintenance free

中压浇注母线系统
Medium Voltage Busbar System

MR中压母线槽技术参数
MR Medium Voltage Busbar Technical Data

Type	Rating	Resist 20℃	Resist 75℃	Outer Dimension (axb)mm		
				3.6/7.2kV	12 kV	17.5 kV
MV-R 060-01	1250	30.05	36.19	480×314	600×374	740×434
MV-R 080-01	1600	22.32	27.14	480×314	600×374	740×434
MV-R 120-01	2000	14.88	18.09	480×354	600×414	740×474
MV-R 080-02	2500	11.16	13.57	540×314	660×374	800×434
MV-R 100-02	3150	8.93	10.86	540×354	660×414	800×474
MV-R 100-03	4000	5.95	7.24	600×354	720×414	860×474
MV-R 120-03	5000	4.96	6.03	600×354	720×414	860×474
Voltage supported at industrial freq(kV) 工频电压(kV)				32	42	57
Voltage supported with shock wave(kV) 冲击电压(kV)				60	75	105
Minimum distance to air between phase faces (mm) 最小相间距离（毫米）				90	120	160
Distance between phase axles for 1250 A and 2000 A 1250 A- 2000 A相线中心距（毫米）				150	180	220
Distance between phase axles for 2500 A and 3500 A 2500 A- 3150A相线中心距（毫米）				170	200	240
Distance between phase axles for 4500 A and 5000 A 4000 A- 5000 A相线中心距（毫米）				190	220	260

导体

导体采用高纯度电解铜，连接处均做镀银处理，环氧树脂混合物整体浇注，具备LR低压系统所有特性。

Conductor

The conductor is made from electrolysed copper with high purity, silver-plated at connection part. The whole length is cased with epoxy resin mixture to achieve all LR system features.

母线壳体

冲孔铝壳体表面采用环氧树脂粉末喷塑处理，散热和耐腐蚀性能优秀，机械强度高，作为护套能有效消除残余磁场。

Enclosure

The enclosure is static spray painted with epoxy resin which enjoys good heat dispersion, anti-corrosion and high rigidity, and can remove rest magnetic field efficiently.

双层绝缘

系统采用双重绝缘:
第一层绝缘：固化后的环氧树脂具有优越的电气绝缘性能及良好的散热性能等，避免了相间短路。
第二层绝缘：经过环氧树脂喷塑处理的冲孔铝外壳环绕导体，消除局部漏电隐患，机械强度高、耐化学腐蚀、防火等级高。

Double insulation

The first insulation:
Solidified resin is possessed with good electrical insulated capability and perfect heat dispersion and avoid short circuit between phases.
The second insulation: The conductor is enclosed with aluminium enclosure which is painted with epoxy resin can remove partial creepage and with high mechanical strength, anti chemical corrosion and high fireproofing.

接头防护

两条直线段之间的连接在施工现场完成，采用环氧树脂混合物浇注成型，可确保接头部位防护等级仍然高达IP68。售后服务工程师会在现场安装指导，确保正确施工。

Protection degree of joints

The connection between two straight feeders is completed on site and moulded with epoxy resin which can ensure IP68 protection degree. After-sales engineer will guide the installation on site.

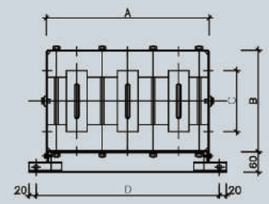
设计灵活、合理

MR系统部件齐全，结构紧凑，功能单元可定制，在工程设计时中压连接与设计低压解决方案同样简单易行。即使电压低于规定值，该中压系统也同样适用。

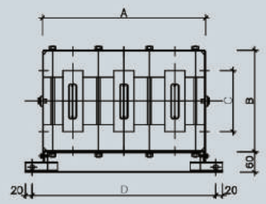
Flexible and reasonable design

MR system with a complete elements, compact structure and tailor made elements can be designed as simple as LV connection. Even though the voltage is less than regulated value, such MV system is also suitable.

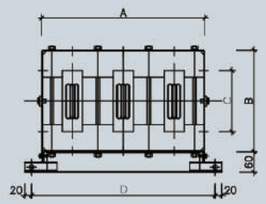
尺寸
Dimensions



01



02



03

中压浇注母线系统

Medium Voltage Busbar System

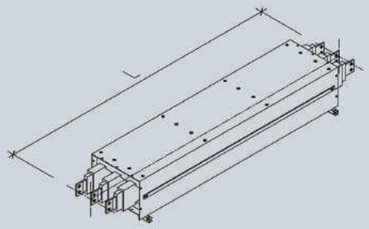
3.6-7.2KV 50HZ						
Type	Rating	Voltage kV	A/mm	B/mm	C/mm	D/mm
MV-R 060-01	1250	3.6/7.2	480	314	140	540
MV-R 080-01	1600	3.6/7.2	480	314	140	540
MV-R 120-01	2000	3.6/7.2	480	354	180	540
MV-R 080-02	2500	3.6/7.2	540	314	140	600
MV-R 100-02	3150	3.6/7.2	540	354	180	600
MV-R 100-03	4000	3.6/7.2	600	354	180	660
MV-R 120-03	5000	3.6/7.2	600	354	180	660

12KV 50HZ						
Type	Rating	Voltage kV	A/mm	B/mm	C/mm	D/mm
MV-R 060-01	1250	12	600	374	140	660
MV-R 080-01	1600	12	600	374	140	660
MV-R 120-01	2000	12	600	414	180	660
MV-R 080-02	2500	12	660	374	140	720
MV-R 100-02	3150	12	660	414	180	720
MV-R 100-03	4000	12	720	414	180	780
MV-R 120-03	5000	12	720	414	180	780

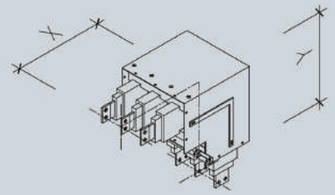
17.5KV 50HZ						
Type	Rating	Voltage kV	A/mm	B/mm	C/mm	D/mm
MV-R 060-01	1250	17.5	740	434	140	800
MV-R 080-01	1600	17.5	740	434	140	800
MV-R 120-01	2000	17.5	740	474	180	800
MV-R 080-02	2500	17.5	800	434	140	860
MV-R 100-02	3150	17.5	800	474	180	860
MV-R 100-03	4000	17.5	860	474	180	920
MV-R 120-03	5000	17.5	860	474	180	920

功能单元

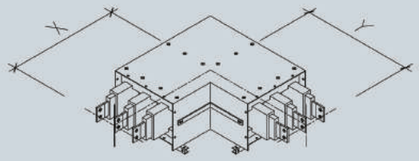
Standard Elements MR



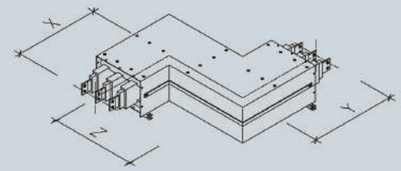
Straight Element



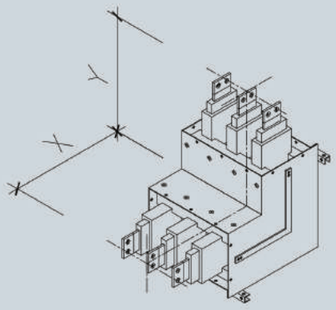
Flat Elbow Typ B



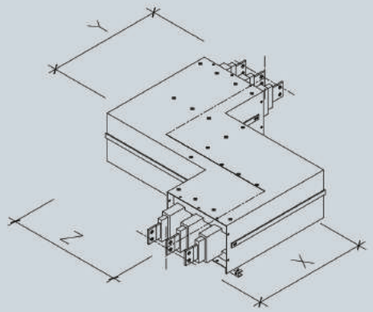
Dihedral Elbow



Dihedral Zed Element



Flat Elbow



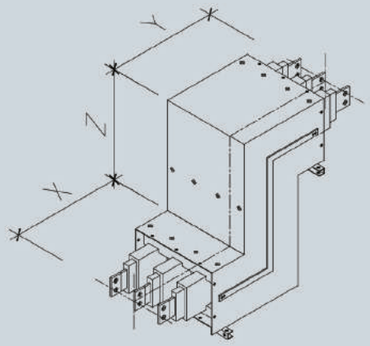
Dihedral Element Typ B

中压浇注母线系统

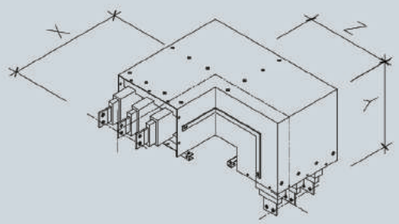
Medium Voltage Busbar System

功能单元

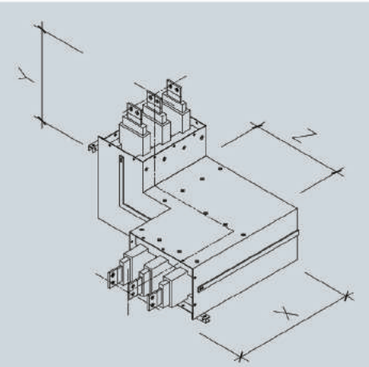
Standard Elements MR



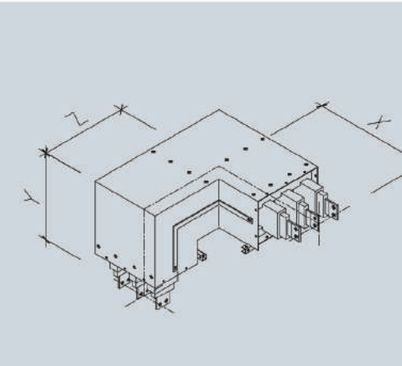
Flat Zed Element



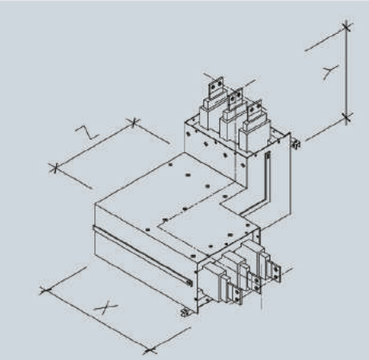
Double Elbow Flat - dihedral Typ A



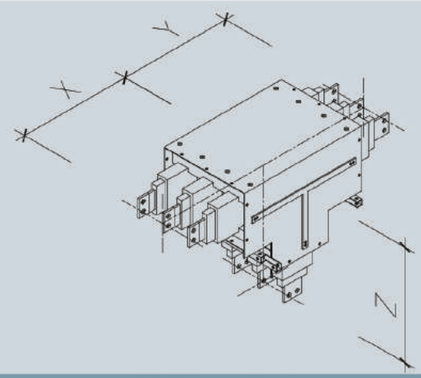
Double Elbow dihedral Flat Typ A



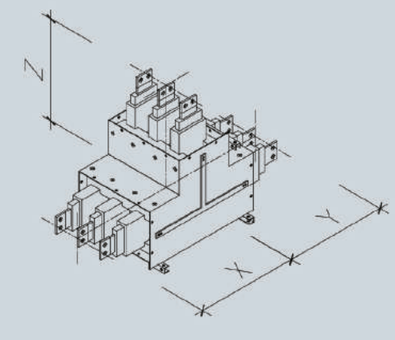
Double Elbow Flat -dihedral Typ B



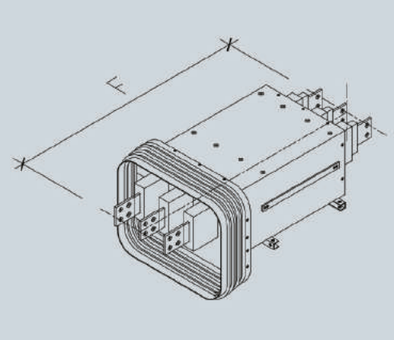
Double Elbow dihedral Flat Typ B



TE-Element Typ A



TE-Element Typ B



Terminal Element

综上，整条母线系统运行时防护等级可达IP 68并且完全免维护。

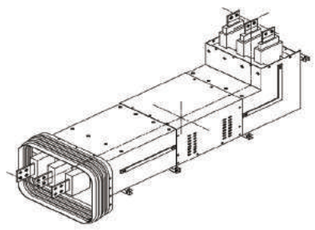
In this way the total busbar run becomes an degree of protective from IP 68 and will be totally maintenance free.
The resulting type code enables the product to be ordered to be precisely defined.

母线连接

每个连接器可调节尺寸范围为+/-8mm，保证换向连接处与终端部位绝缘体等级相同。

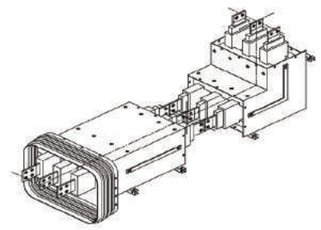
Straight joint

Each joint allowing on adjustment of +/- 8 mm. The junctions and the element ends are overcast with the same insulation mix as used for the 2 elements.



接头处浇注完毕固化后加盖铝壳体护套。

After hardening the casting joint will be covered with the aluminium protection.



MR系统的制造和型式试验符合GB&IEC相关标准

The MR busbar system is build and Type Tested according GB & IEC Normatives.