电缆桥架安装说明书

Cable tray installation instruction book



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电缆桥架安装说明

Cable tray installation instruction

电缆桥架系指电缆梯架、电缆托盘及金属线槽。

The cable tray is refers to the electric cable ladder frame, the electric cable tray and the metal raceway.

电缆桥架主要有钢制、铝合金制及玻璃钢制等。钢制桥架表面处理分为喷漆、喷塑、电镀锌、热镀锌、粉末静电喷涂等工艺。

The cable tray mainly has the steeliness, the aluminum alloy system and the glass steeliness and so on. The steeliness bridge surface treatment divides into the painting, to spurt models, crafts and so on electricity galvanization, pot galvanize, powder static electricity spraying.

电缆桥架的安装主要有沿顶板安装、沿墙水平和垂直安装、沿竖井安装、沿地面安装、沿 电缆沟及管道支架安装等。安装所用支(吊)架可选用成品或自制。支(吊)架的固定方式主要 有预埋铁件上焊接、膨胀螺栓固定等。

The cable tray's installment mainly has along the roof installment, along the wall horizontal and the vertical installment, along the shaft installment, along the ground installment, along the cable trench and the pipe support installment and so on. The installment uses (to hang) the frame to be possible to select the end product or the self-restraint. (Hangs) a fixed way mainly to have buries on the iron stock to weld, the plug bolt fixedly in advance and so on.

吊装金属线槽主要用于室内灯具安装时使用。

The hoisting metal raceway mainly uses in the indoor lamps and lanterns installing time uses.

施工时要按已批准的设计进行,一般要求如下。

when construction must according to the design which authorizes carry on, generally the request is as follows.

- 1. 金属线槽布线
- metal raceway wiring
- (1) 金属线槽布线一般适用于正常环境的室内干燥和不易受机械损伤的场所明敷,但对金属线槽有严重腐蚀的场所不应采用。
- (1) The metal raceway wiring is suitable generally for the normal dry environment indoor and clearly is spread not easily to the mechanical damage place, but has the serious corrosion place to the metal raceway not to use.
- (2) 同一回路的所有相线和中性线,应敷设在同一金属线槽内。同一路径无防干扰要求的 线路,可敷设于同一金属线槽内。线槽内电线或电缆的总截面(包括外护层)不应超过线槽

内截面的 20%, 载流导线不宜超过 30 根。控制、信号或与其相类似的线路, 电线或电缆的 总截面不应超过线槽内截面的 50%, 电线或电缆根数不限。

- (2) identical return route's all phase lines and the neutral axis, should lay in the identical metal raceway. The identical way does not have against disturbance request the line, may lay in the identical metal raceway. In the trunking the electric wire or electric cable's total cross-section (including the outside armor coat) should not surpass in the trunking the section 20%, carries the class wire not to be suitable surpasses 30. The control, the signal either with its similar line, the electric wire or electric cable's total cross-section should not surpass in the trunking the section 50%, the electric wire or the electric cable radical do not limit.
- (3) 金属线槽垂直或倾斜安装时,应采取措施防止电线或电缆在线槽内移动。
- (3) when metal raceway vertical or the incline installs, should take the measure to prevent the electric wire or the electric cable moves in the trunking.
- (4) 由金属线槽引出的线路,可采用金属管、硬质塑料管、半硬塑料管、金属软管或电缆等布线方式。电线或电缆在引出部分不得遭受损伤。
- (4) the line which draws out by the metal raceway, may select wiring methods and so on metallic pipe, flinty plastic tube, half hard plastic tube, metal vlexible hose or electric cable. The electric wire or the electric cable are drawing out the part not to suffer the damage.
- (5) 线槽应平整、无扭曲变形,内壁应光滑、无毛刺。
- (5) trunking should level, the non-distortion to distort, the endophragm should smooth, the burr-free.
- (6) 金属线槽应可靠接地或接零,但不应作为设备的接地导体。
- (6) metal raceway should earth reliably or meet zero, but should not take equipment's earth conductor.
- 2. 电缆桥架布线
- 2. cable tray wiring
- (1) 在室内采用电缆桥架布线时, 其电缆不应有黄麻或其他易延燃材料外护层。
- when indoor uses the cable tray wiring, its electric cable should not have the jute or other Yi
 Yanran outside the material the armor coat.
- (2) 在有腐蚀或特别潮湿的场所采用电缆桥架布线时,应根据腐蚀介质的不同采取相应的防护措施,并宜选用塑料护套电缆。
- (2) when has the corrosion or the specially moist place uses the cable tray wiring, should according to the corrosive medium differently take the corresponding protective measure, and selects the plastic protective covering electric cable suitably.

- (3) 电缆桥架(托盘)水平安装时的距地高度一般不宜低于 2.50m, 垂直安装时距地 1.80m 以下部分应加金属盖板保护, 但敷设在电气专用房间(如配电室、电气竖井、 技术层等)内时除外。
- (3) cable tray (tray) the level installs when the actual altitude is not generally suitable is lower than 2.50m, vertical installs below time curve 1.80m the part to add the metal lap protection, but lays in the electrical special-purpose room (for example transformer vault, electrical shaft, technical level and so on) in time is an exception.
- (4) 电缆桥架水平安装时,宜按荷载曲线选取最佳跨距进行支撑,跨距一般为 1.5~3m。垂直敷设时,其固定点间距不宜大于 2m。
- (4) when cable tray level installs, carries on the support according to the load curve selection best span, the span is 1.5~3m generally suitably. When vertical laying, its fixed point spacing is not suitable is bigger than 2m.
- (5) 几组电缆桥架在同一高度平行安装时,各相邻电缆桥架间应考虑维护、检修距离。
- (5) Several group of cable trays when identical highly parallel install, each neighboring Dianlanqiao bay should consider the maintenance, the overhaul distance.
- (6) 在电缆桥架上可以无间距敷设电缆,电缆在桥架内横断面的填充率:电力电缆不应大于 40%;控制电缆不应大于 50%。
- (6) on the cable tray may the non-spacing laying of cable, the electric cable in the bridge the cross section packing rate: The power cable should not be bigger than 40%; The control cable should not be bigger than 50%.
- (7) 下列不同电压、不同用途的电缆,不宜敷设在同一层桥架上:
- (7) following different voltage, the different use's electric cable, is not suitable lays on the identical level bridge:
- 1) 1KV 以上和 1KV 以下的电缆。
- (1) above 1KV and 1KV following electric cable.
- 2) 同一路径向一级负荷供电的双路电源电缆。
- (2) identical way to first-level load power supply two-circuit power cable.
- 3) 应急照明和其他照明的电缆。
- (3) emergency lighting and other illumination electric cable.
- 4) 强电和弱电电缆。
- (4) strong electricity and weak electricity electric cable.

如受条件限制需安装在同一层桥架上时,应用隔板隔开。

If install the condition limit on the identical level bridge time, must separates using the partition board.

- (8) 电缆桥架与各种管道平行或交叉时, 其最小净距应符合表 DQ4-1 的规定。
- (8) when cable tray with each kind of pipeline parallel or overlapping, its smallest clear distance should conform to the table DQ4-1 stipulation.
- (9) 电缆桥架不宜安装在腐蚀性气体管道和热力管道的上方及腐蚀性液体管道的下方,否则应采取防腐、隔热措施。
- (9) The cable tray is not suitable installs in the caustic gas pipeline and the thermal energy pipeline's place above and corrosive liquid pipeline's underneath, otherwise should adopt the anticorrosion, the heat insulation measure.
- (10) 电缆桥架内的电缆应在下列部位进行固定:
- (10) The cable in the cable tray's electric should carry on fixedly in the following spot:

垂直敷设时, 电缆的固定点间距, 不大于表 DQ4-2 的规定。 when vertical laying, electric cable's fixed point spacing, is not bigger than table DQ4-2 the stipulation.

水平敷设时,电缆的首、尾两端、转弯及每隔 5~10m 处。

When horizontal laying, electric cable's head, tail both sides, curve and every other 5~10m place.

- (11) 电缆桥架内的电缆应在首端、尾端、分支、转弯及每隔 50m 处,设有编号、型号及起、止点等标记。
- (11) The cable in the cable tray's should in the head end, end, the branch, the curve and every other 50m place, is equipped with the serial number, the model and, stops and so on marks.
- (12) 电缆桥架在穿过防火墙及防火楼板时,应按设计要求采取防火隔离措施。
- (12) The cable tray when passes through the firewall and the fire protection floor, should take the fire protection quarantine measures according to the design requirements.
- (13) 其他要求见本章电缆桥架安装要求示意图。
- (13) Other must seek an interview this chapter cable tray to install the request schematic drawing.

电缆桥架与各种管道的最小净距 表DQ4-1

管道	类别	平行净距 (m)	交叉净距 (m)
一般工艺管道		0.4	0.3
易燃易爆气体管道		0.5	0.5
th -b- 000 100	有保温层	0.5	0.3
热力管道	无保温层	1.0	0.5

电缆垂直敷设固定点的间距 表DQ4-2

电缆种类		固定间距(mm)	
alle ada alte date	全型性	1000	
电力电缆	除全塑性外的电缆	1500	
控制电缆		1000	

- 3.金属桥架安装时接地要求如下:
- 3. The metal bridge installs when earths the request to be as follows:

金属电缆桥架及其支架和引入或引出的金属电缆导管必须接地(PN)或接零(PEN)可靠,且必须符合下列规定:

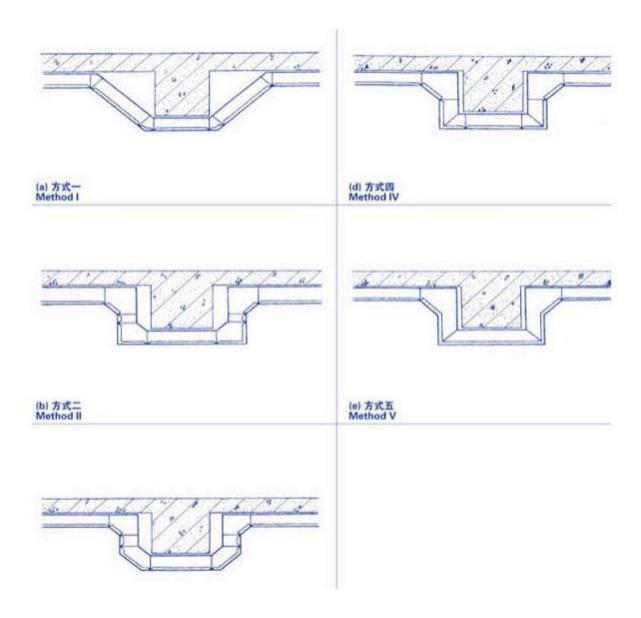
The metal cable tray and the support and the introduction either draw out the metal cable guide must earth (PN) or meets zero (PEN) to be reliable, and must tally following stipulated:

金属电缆桥架及其支架全长应不少于 2 处与接地(PE)或接零(PEN)干线相连接。

- (1) The metal cable tray and the support span should many with earth in 2 (PE) or meets zero (PEN) skeleton line to connect.
- (1) 非镀锌电缆桥架间连接板的两端跨接铜芯接地线,接地线最小允许截面积不小于 4mm2。
- (2) Must galvanizes the Dianlanqiao bay junction panel's both sides cross-over copper core to meet the grounding, meets the grounding smallest permission cross-sectional area is not smaller than 4mm2.
- (3) 镀锌电缆桥架间连接板的两端不跨接接地线,但连接板两端不少于 2 个有防松螺母或防松垫圈的连接固定螺栓。
- (3) Galvanizes the Dianlanqiao bay junction panel's both sides not to bridge meets the grounding, but the junction panel both sides many have the check nut in 2 or against loose gasket's connection set bolt.
- 4.本章相关规范
- 4. This chapter related standard
- (1) 《民用建筑电气设计规范》(JGJ/T16-92)。
- (1) "Civil construction Electrical design Standard" (JGJ/T16-92).
- (2)《电气装置安装工程电缆线路施工及验收规范》(GB50168-92)。
- (2) "Electric installation Installation work Cable line Construction And Approval Standard" (GB50168-92).
- (3) 《建筑电气工程施工质量验收规范》(GB50303-2002)。
- (3) "Construction Electrical engineering Construction Quality Approval Standard" (GB50303-2002).

金属线槽过梁安装方法

Installation Method For Metal Channel Installed Across The Beam



安装说明

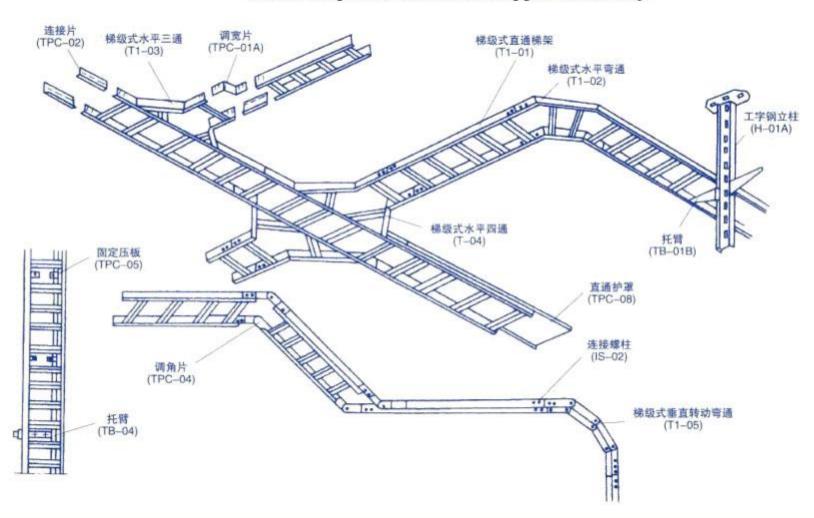
Installation Instructions

此安装方法适用于层高较低的场所。将线槽固定在顶棚及梁上,导线敷设时,应在线槽内适当位置使用衬板或防火木杆承托导线。

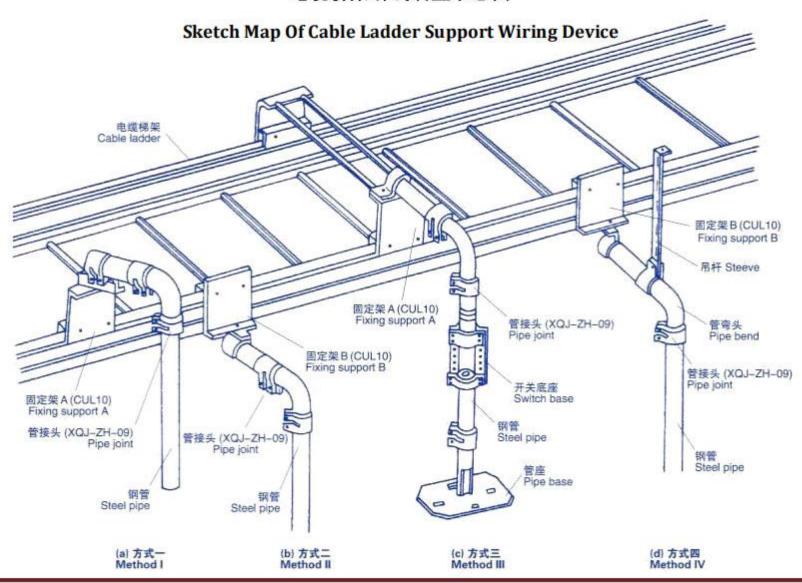
This installation method is used for the building with fewer floors. Cable channel shall be fixed on ceiling or beam, when laying guidelines there shall be liner board or fire-proof wood pole to hold guidelines.

电缆桥架组装示意图

Sketch Map Of Cable Ladder Support Assembly

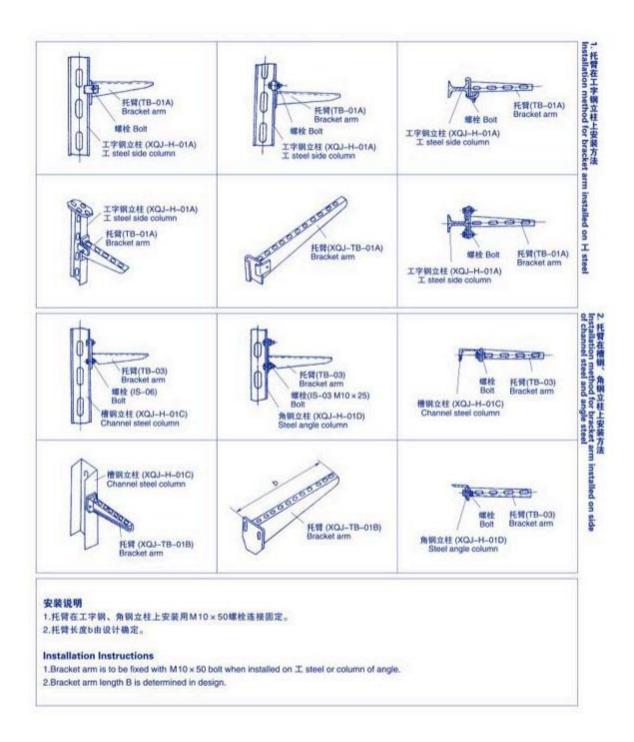


电缆桥架引线装置示意图



电缆桥架托臂安装方法

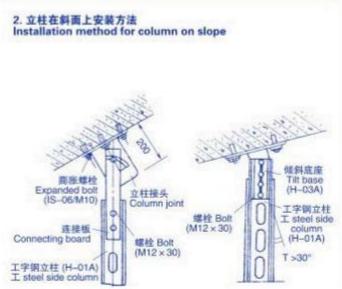
Installation Method Of Cable Bridge Bracket Arm



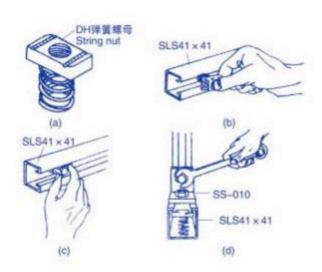
电缆桥架吊装方法 (一)

Suspending Installation Method Of Cable Bridge (1)





3.T形弹簧螺栓安装方法 Installation Method for T-type String bolt



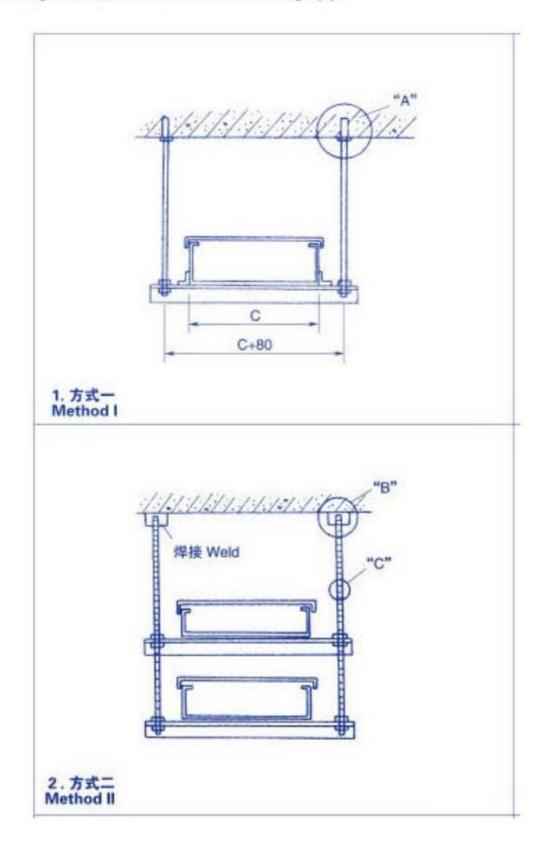
安装说明

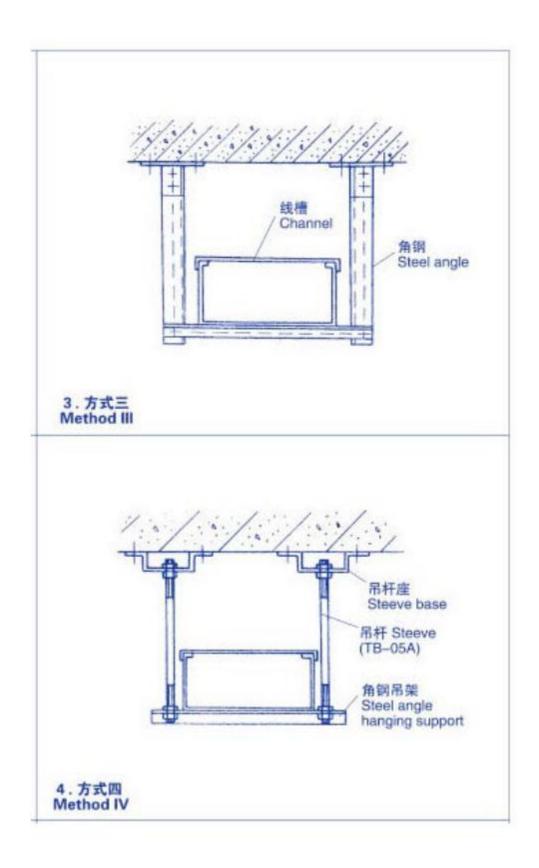
- 电缆桥架不宜敷设在腐蚀性气体管道和热力管道的上方及腐 蚀性液体管道的下方。否则应采取防腐、隔热措施。
- 2.电缆桥架水平敷设时,宜按荷载曲线选取最佳跨距进行支撑, 跨距一般为1.50~3m。垂直敷设时,其固定点间距不宜大于 2m。
- 3.电缆桥架(梯架、托盘)水平敷设时的距地高度一般不宜低于 2.50m,垂直敷设时距地 1.80m 以下部分应加金属盖板保护, 但敷设在电气专用房间(如配电室、电气竖井、技术层等)内 时除外。
- 4.托臂长度b由设计确定。

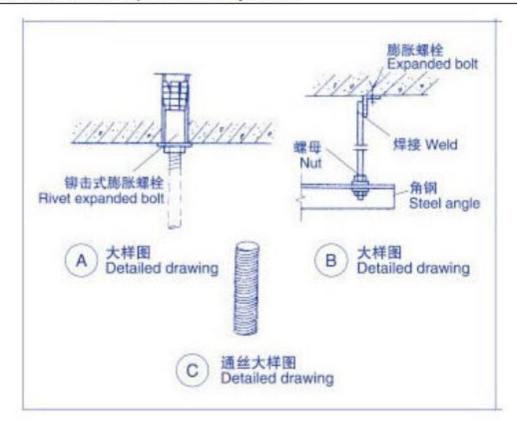
- 1.Cable bridge should not be laid on top of pipelines of corrosive gas or thermal-power, and should not be laid below pipelines for corrosive liquid, otherwise there should be anti-corrosion and heat-proof methods.
- 2.When cable bridge is installed horizontally, the support shall be decided according to the best span based on loading curve, the span is usually 1.5~3m. When cable bridge is installed vertically, the fixed distance shall be no more than 2m.
- 3.Cable bridge (tray) horizontal installation shall be no less than 2.50m from the ground, parts under 1.80m from the ground shall be protected by metal cover during vertical installation, but except laying in electrical room (such as electricity distribution room, electric shaftl or technical layers, etc)
- 4.Bracket arm length B is determined in design.

电缆桥架吊装方法(二)

Suspending Installation Method Of Cable Bridge (2)







安装说明

电缆桥架多层敷设时, 其层间距离一般为:

控制电缆间不应小于0.20m; 电力电缆间不应小于0.30m; 弱电电缆与电力电缆间不应小于0.50m, 如有屏蔽盖板可减少到0.30m; 桥架上部距顶棚或其他障碍物不应小于0.30m。

Installation Instructions

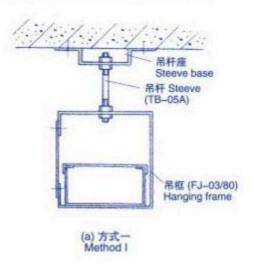
When cable bridge is laying out in multi-levels, the distance shall be:

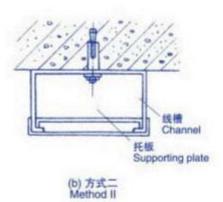
Control cable shall be no less than 0.20m; power cable shall be no less than 0.30m; distance between LV cable and power cable shall be no less than 0.50m, it can be reduced to 0.30m if equipped with screen cover; distance between bridge top and ceiling or other obstacle shall be no less than 0.30m.

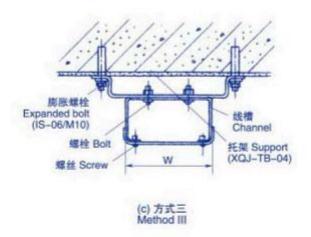
电缆桥架吊装方法 (三)

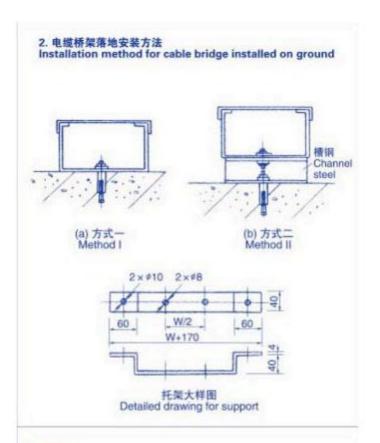
Suspending Installation Method Of Cable Bridge (3)

1. 电缆桥架吊装方法 Installation method for suspending cable bridge









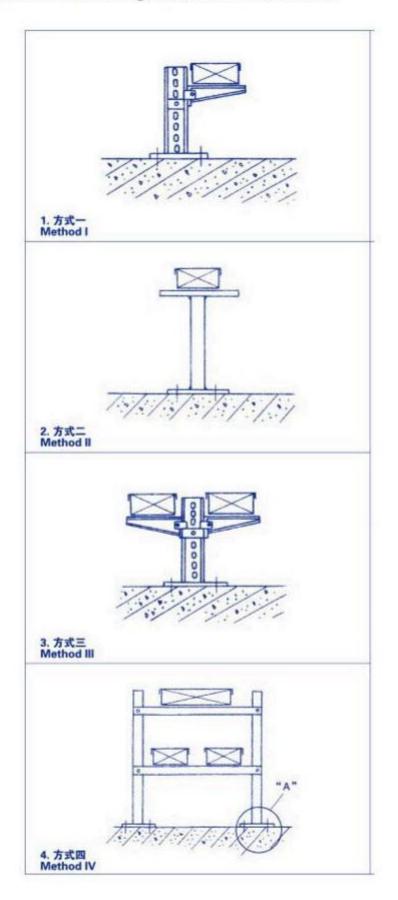
安装说明

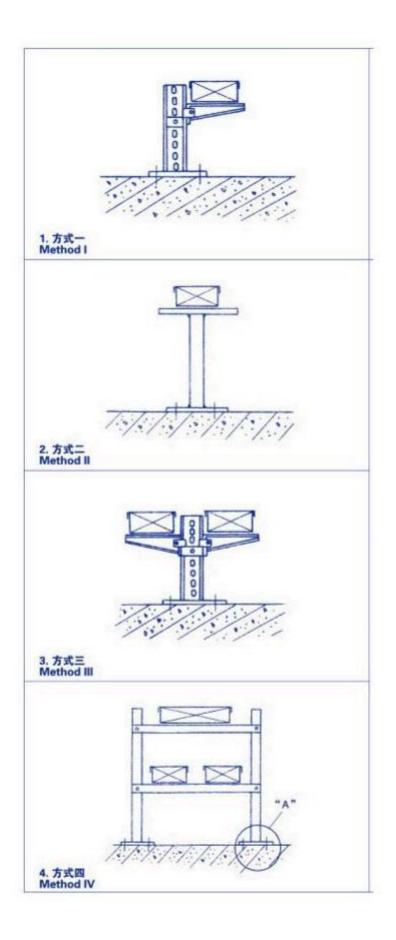
- 1. 电缆桥架内的电缆应在下列部位进行固定:
 - (1)垂直敷设时, 电缆的上端及每隔 1.50-2m 处;
 - (2)水平敷设时,电缆的首、尾两端、转弯及每隔 5~10m 处。
- 2.电缆桥架内的电缆应首端、尾端、分支、转弯及每隔 50m 处, 设有编号、型号及起、止点等标记。
- 3.电缆桥架在穿过防火墙及防火楼板时,应采取防火隔离措施。

- 1. Cables inside cable bridge shall be fixed in the following points:
- (1) Vertical laying, fixed in each 1.50~2m on top of cable;
- (2)Horizontal laying, fixed in each 5~10m on two ends and corner of cable.
- 2.Each 50m on two ends, branch and corner of cable inside cable bridge shall be signed with number, type, start and end points.
- 3.When cable bridge is crossing fire-proof wall and fire-proof board, fire-proof measures shall be taken, when wire channel height is 150mm or higher, connection plate shall have 12 boltholes.
- Different steel board thickness may be different for different suppliers, which should be confirmed when make order.

电缆桥架落地安装方法

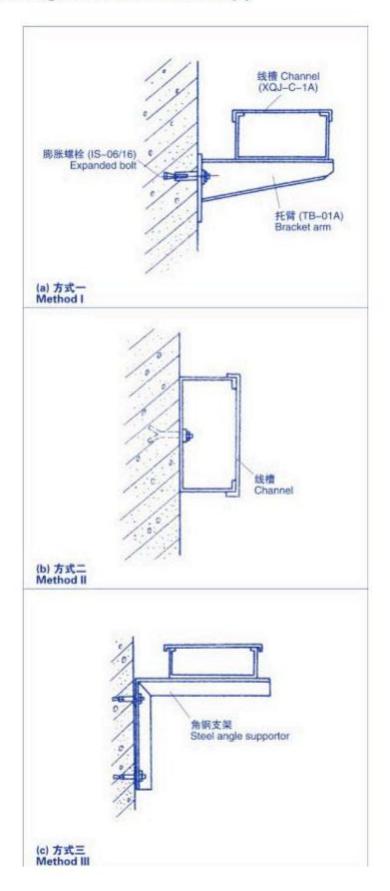
Installation Method For Cable Bridge Installed On The Ground

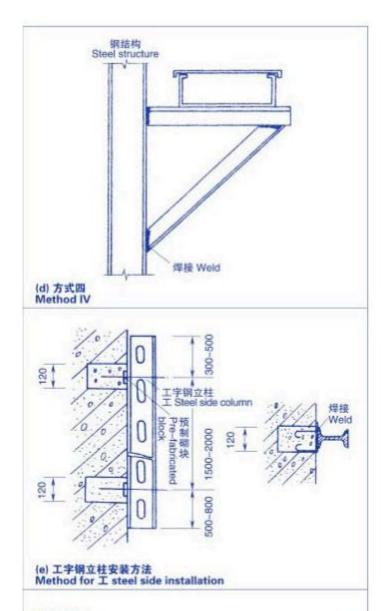




电缆桥架壁装方法(一)

Method For Cable Bridge Installed On The Wall (1)





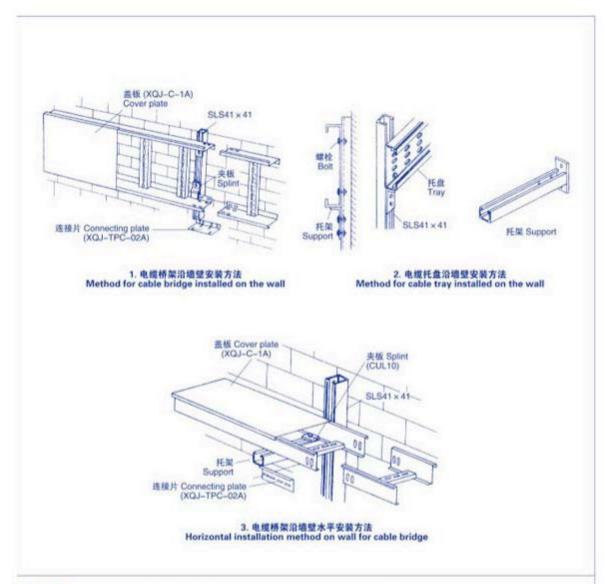
安装说明

- 1.线槽固定点间距。线槽宽100mm以下时为1500mm。线槽宽 150mm以上时由工程设计确定。
- 2.线槽沿楼板或沿墙敷设。线槽宽为150mm 以上时,应采用双 螺栓固定。

- 1.Space between fix points: 1500mm when cable channel width is less than 100mm, when cable channel width is more than 150mm the space distance will be determined according to construction design.
- 2.When cable channel is laid alongside floorboard or wall and if cable channel width is more than 150mm, it should be fixed by two bolts.

电缆桥架壁装方法 (二)

Method For Cable Bridge Installed On The Wall (2)



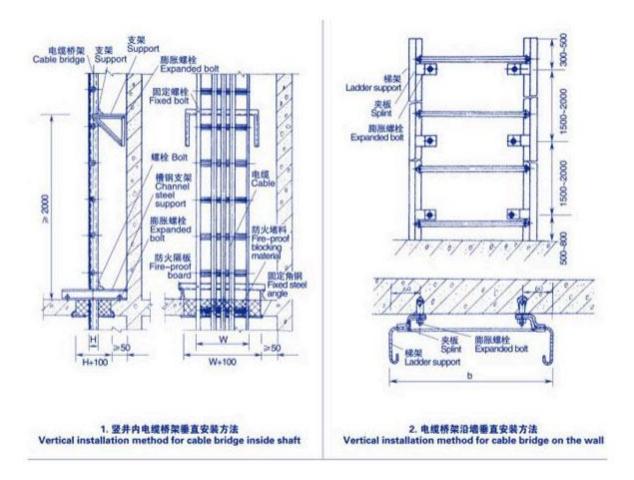
安装说明

- 1.电缆桥梁沿墙安装时, 先将U形槽钢用膨胀螺栓固定在墙上, 再用夹板或托架固定桥架。
- 2. 电缆桥架固定点间距为1.5-2m。
- 3.电缆应固定在桥架或托盘上,电缆侧装时固定点间距为1~1.5m。

- When cable bridge is installed alongside the wall, U-steel shall be firstly fixed on the wall with expand bolt, and then fix the bridge with slab or supporter.
- 2. Space between fix points of cable bridge shall be 1.5-2m.
- 3.Cable shall be fixed in bridge or tray, when cable is installed by side, space between fix points shall be 1-1.5m.

电缆桥架垂直安装方法(一)

Vertical Installation Method For Cable Bridge (1)

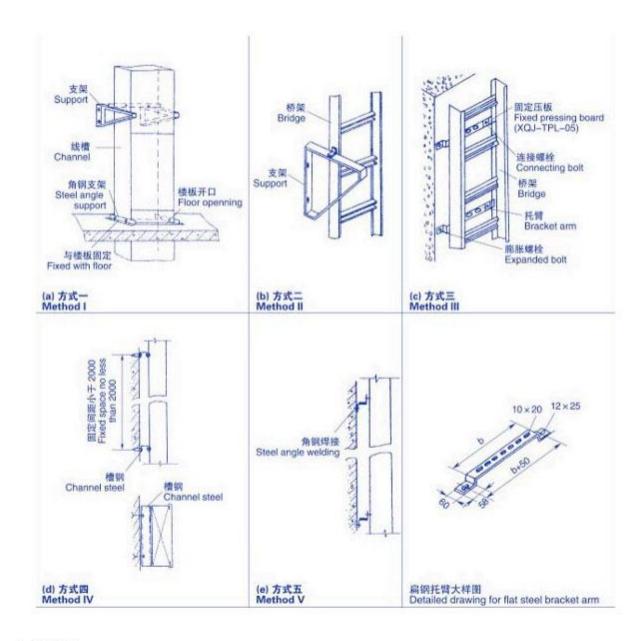


安装说明

- 1.竖井内高压、低压和应急电源的电气线路,相互之间应保持 0.30m 及以上距离或采取隔离措施,并且高压线路应设有明显标志。强电和弱电线路,有条件时宜分别设置在不同竖井内。如受条件限制必须合用时,强电与弱电线路应分别布置在竖井两侧或采取隔离措施以防止强电对弱电的干扰。
- 1.Electric lines of HV, LV and emergency power source inside the shaft shall keep 0.30m or more in distance between or adopt insulation measures, and HV lines shall have obvious sign. Strong power and weak power lines shall be kept in different shaft if there is enough space. If the condition is limited, the two lines must be kept on the two sides of the shaft or adopt insulation measures to avoid disturbance from strong power to weak power.
- 2.竖井内应敷有接地干线和接地端子。
- 2. Grounding trunk line and grounding terminal shall be laid inside the shaft.
- 3.竖井内不应有与其无关的管道等通过。
- Non-related pipelines can not pass through the shaft.

电缆桥架垂直安装方法 (二)

Vertical Installation Method For Cable Bridge (2)

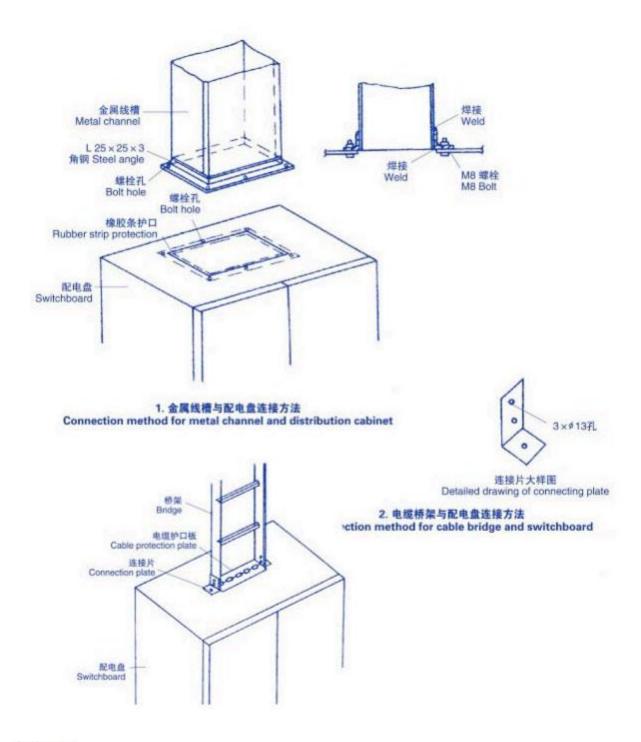


安装说明

- 1.在楼板处不应有桥架接头。
- 1. No bridge connector should on floorboard.
- 2. 穿防火楼板处, 应采取防火隔离措施。
- 2. When cables pass through fire-proof board there should be fire-proof insulation measures.
- 3.当直线段钢制电缆桥架超过 30m, 铝合金或玻璃钢制电缆桥架超过 15m 时, 应有伸缩缝, 其连接宜采用伸缩连接板; 电缆桥架跨越建筑物伸缩缝处应设置伸缩缝。
- 3. When straight steel made cable bridge is over 30m, aluminum alloy or glass made cable bridge is over 15m, there shall be expansion joint, and the connection shall be expanding connection board; cable bridge cross buildings there shall be expansion joint.

电缆桥架与配电盘连接方法

Connection Method For Cable Bridge And Switchboard



安装说明

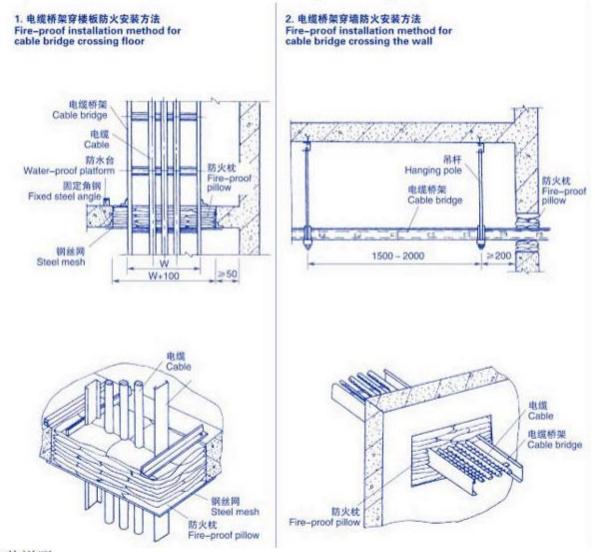
Installation Instructions

配电盘开口处要用橡胶条护口。

Opening of switchboard shall be protected by rubber stips.

电缆桥架穿楼板、穿墙防火安装方法

Fire-proof installation method for cable bridge crossing floor

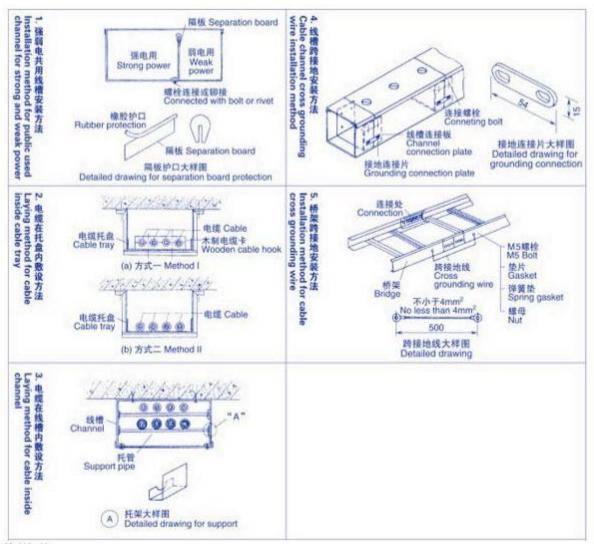


安装说明

- 1.施工前将要封堵部位清理干净。
- Sealing parts shall be cleaned before construction.
- 2.钢丝网应刷防火涂料。
- 2. Steel wire mesh shall be treated with fire-proof paint.
- 3.防火枕应按顺序依次摆放整齐,防火枕与电缆之间空隙不大于 1cm2。
- Fire-proof pillow shall be laid in order, space distance between fire-proof pillow and cable shall be no more than 1cm2.
- 4.防火枕摆放厚度不小于 24cm。
- 4. Fire-proof pillow laying thickness shall be no less than 24cm.
- 5.防火枕规格为三种(mm):
- 5. Three types of Fire-proof pillow (mm):
 - I 型-320×120×25
 - II 型-160×120×25
 - III 型-160×75×25

电缆在线槽内敷设及线槽跨接地安装方法

Installation Method For Cable Laid In Channel And Channel Installed Cross Grounding Wire



安装说明

- 1.电缆垂直敷设时, 电缆固定点间距为 1~1.5m。
- 1. When cable is laid vertically, space between fix points shall be 1~1.5m.
- 2.电缆水平敷设时,在电缆首末两端及转弯、电缆接头的两端处;及每隔 5~10m 处加以固定。
- 2. When cable is laid horizontally, it should be fixed on two ends, turning, two ends of connector and each 5~10m on it.
- 3.在线槽开口向下安装时, 托管的固定点间隔不应大于 1m。
- 3. When channel opening is downward, space between fix points of supporting pipe shall be no more than 1m.
- 4.电缆桥架全长均应有良好的接地。
- 4. Cable bridge shall have well grounding from top to end.
- 5.木质电缆卡要经过防火处理。
- 5. Wooden cable clip needs to be fire-proof treated.