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# 钢结构制造质量控制计划

## Steel Structure Manufacturing Quality Control Plan

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XXXX 年 XX 月

XXXX XXXX



# 钢结构制造质量控制计划

## Steel Structure Manufacturing Quality Control Plan

### 1.材料 Material

生产活动、描述 Production activities, description	执行标准及工作要求 Implementation standards and work requirements	文件、报表、记录 Documents, statements, records	活 动 单 位 Responsible Unit
1.1 材料购买 Material purchase	材料必须按照图纸和报料清单的要求进行购买 Materials must be purchased in accordance with the requirements of the drawings and the check list	<ul style="list-style-type: none"> <li>● 报料清单 Check list</li> <li>● 物资采购单 Material purchase order</li> </ul>	<ul style="list-style-type: none"> <li>★ 供应部 Supply Department</li> <li>▲ 技术部 Technical Department</li> </ul>
1.2 材料接受控制 Material acceptance control	对照进料清单，确认材料的尺寸、数量和标识，提交材质证书 Confirm the size, quantity and identification of the materials against the incoming material list, and submit the material certificate	<ul style="list-style-type: none"> <li>● 进料清单 Incoming material list</li> <li>● 材质证书 Material certificate</li> </ul>	<ul style="list-style-type: none"> <li>★ 物资部 Material Department</li> <li>▲ 供应部 Supply Department</li> </ul>
1.3 材料标识 Material identification	按照相关标准及要求对钢板进行分类，并做可识别的标识。 Classify steel plates according to relevant standards and requirements, and make identifiable marks.		<ul style="list-style-type: none"> <li>★ 物资部 Material Department</li> <li>▲ 生产部 Production Department</li> </ul>



<p>1.4 材料质量检测 Material quality inspection</p> <ul style="list-style-type: none"> <li>● 形状尺寸 Shape &amp; size</li> <li>● 化学成分 Chemical composition</li> <li>● 机械性能 Mechanical performance</li> <li>● 对厚度大于 30mm 以上的钢板进行超声检测 Ultrasonic testing for steel plates with thickness greater than 30mm</li> </ul>	<p>参照相关标准 References:</p> <ul style="list-style-type: none"> <li>● GB/T709-2006 热轧钢和钢带的尺寸、外形、重量及允许偏差 Dimension, shape, weight and tolerances for hot-rolled steel plates and sheets</li> <li>● GB/T702-2008 热轧钢棒尺寸、外形、重量及允许偏差 Dimension, shape, weight and tolerances for hot-rolled steel bars</li> <li>● GB/T706-2008 热轧型钢 Hot rolled section steel</li> <li>● GB/T8162-2008 结构用无缝管 Seamless steel tubes for structural purposes</li> <li>● GB/T2975-1998 钢及钢产品力学性能试验取样位置及试样制备 Steel and steel products--Location and preparation of test pieces for mechanical testing</li> <li>● GB/T6728-2002 结构用冷弯空心型钢尺寸、外形、重量及允许偏差 Cold-formed steel hollow sections for general structure--dimensions, shapes, weight and permissible deviations</li> <li>● 设计及合同相关要求 Design and contract-related requirements</li> </ul>	<ul style="list-style-type: none"> <li>● 外购件入厂检验通知单 Incoming inspection notice for purchased parts</li> <li>● 材质证书 Material certificate</li> <li>● 原材料进厂检验记录 Inspection records of incoming raw materials</li> <li>● 原材料复检报告 Re-inspection report of raw materials</li> </ul>	<ul style="list-style-type: none"> <li>★ 质管部 Quality Control Department</li> <li>▲ 供应部 Supply Department</li> </ul>
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## 2. 结构件零件下料 Blanking of structural parts

生产活动、描述 Production activities, description	执行标准及工作要求 Implementation standards and work requirements	文件、报表、记录 Documents, statements, records	活动单位 Responsible Unit
2.1 零件下料 Part blanking	依照图纸工艺要求，根据相应材料切割下料。 According to the technical requirements of the drawings, cut the materials according to the corresponding materials.	● 零件图纸及工艺 Part drawings and process	★ 下料车间 Cutting workshop ▲ 技术部 Technical Department
2.2 零件标识 Part identification	对零件做可识别的标识，并记录零件使用材料的信息。 Make identifiable marks on the parts and record the information of the materials used for the parts.	● 零件现场下料原材料使用记录 Use records of raw	★ 下料车间 Cutting workshop



						materials for on-site blanking of parts	▲ 生产部 Production Department
2.3 零件检验 Part inspection	项目 Item	允许偏差 Tolerance				<ul style="list-style-type: none"> <li>零件图纸及工艺 Part drawings and process</li> <li>钢结构零件加工检验记录 Steel structure parts processing inspection records</li> <li>生产作业单 Production work sheet</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲下料车间 Cutting workshop</li> </ul>
	零件长度、宽度 Part length and width	±3					
	零件长宽对角线 Part length, width and diagonal	3					
	切割面平面度 Flatness of cutting surface	0.05t, 且不应大于 2 0.05t, and should not be greater than 2					
	局部缺口深度 Local notch depth	1					
	t 为板厚, 单位: mm; 坡口位置、尺寸、粗糙度符合图纸要求 t is the thickness of the plate, unit: mm; the position, size and roughness of the groove shall meet the requirements of the drawings						
2.4 零件制孔及检验要求 Part hole making and inspection requirements	螺栓孔孔距范围 Bolt hole pitch range	≤500	501~1200	1201~3000	> 3000	<ul style="list-style-type: none"> <li>零件图纸及工艺 Part drawings and process</li> <li>钢结构零件加工检验记录 Steel structure parts processing inspection records</li> <li>生产作业单 Production work sheet</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲下料车间 Cutting workshop</li> </ul>
	同组内任意两端孔间距离 Distance between any two holes in the same group	±1	±1.5	—	—		
	相邻两组的端孔件距离 Distance between holes in two adjacent groups	±1.5	±2	±2.5	±3		
	孔径偏差、粗糙度符合图纸工艺要求, 孔缘无损伤, 无毛刺飞边 The hole diameter deviation and roughness shall meet the technical requirements of the drawings, the hole edge is not damaged, and there is no burr and flash.						

### 3. 结构件焊接 Structural welding



生产活动、描述 Production activities, description		执行标准及工作要求 Implementation standards and work requirements	文件、报表、记录 Documents, statements, records	活动单位 Responsible Unit
3.1 作业准备 Work preparation	3.1.1 焊接工艺评定 Welding procedure qualification	制定一个与项目相符合的焊接工艺的清单并予以执行。该清单必须说明每一个焊接工艺基本参数的限定。包括：焊接工艺编号、板厚范围、坡口形式、焊接方法、焊接位置，每一层焊接参数等 Develop and implement a list of welding procedures that are in line with the project. The list must state the limits of the basic parameters of each welding process, including: welding process number, plate thickness range, groove form, welding method, welding position, welding parameters of each layer, etc.	<ul style="list-style-type: none"> <li>●焊接工艺指导书 Welding process instruction</li> <li>●焊接工艺评定报告 Welding procedure qualification report</li> </ul>	<ul style="list-style-type: none"> <li>★ 技术部 Technical Department</li> <li>▲ 生产部 Production Department</li> <li>▲ 质管部 Quality Control Department</li> </ul>
	3.1.2 焊工资质 Welder qualification	安排有焊工资质的焊工进行作业，并做好备案 Arrange qualified welders to perform the work, and make a record	<ul style="list-style-type: none"> <li>●焊工清单 Welder List</li> <li>●焊工证 Welder Certificate</li> </ul>	▲ 生产部 Production Department
3.2 拼组作业 Assembling works		<ul style="list-style-type: none"> <li>●拼组应根据图纸及工艺要求进行，保证尺寸精度 Assembling should be carried out according to drawings and process requirements to ensure dimensional accuracy</li> <li>●拼组间隙应符合图样及有关标准的要求 Assembling gap should meet the requirements of drawings and related standards</li> <li>●定位焊应符合工艺及有关要求 Position welding should meet the process and related requirements</li> <li>●割渣、杂物的清理及焊道打磨 Cleaning of cutting slag and debris and welding bead grinding</li> <li>●拼组完成后构件的标识 Identification of the components after the assembling is completed</li> <li>●构件未注尺寸与形位公差符合相关标准及要求 The unmarked size and shape tolerances of the components shall meet the relevant standards and</li> </ul>	<ul style="list-style-type: none"> <li>● 图纸及工艺 Drawings and process</li> <li>● 作业指导书 Operation Instruction</li> </ul>	<ul style="list-style-type: none"> <li>★ 铆焊车间 Riveting workshop</li> <li>▲ 技术部 Technical Department</li> </ul>



	requirements		
3.3 焊前检查 Inspection before welding	<ul style="list-style-type: none"> <li>● 检查构件的拼装尺寸是否符合要求 Check whether the assembled dimensions of the components meet the requirements</li> <li>● 检查坡口类型和根部间隙是否符合焊接工艺 Check whether the groove type and root gap are in line with the welding process</li> <li>● 检查焊道打磨情况 Check the grinding condition of the weld bead</li> <li>● 检查定位焊质量 Check the quality of tack welding</li> </ul>	<ul style="list-style-type: none"> <li>● 图纸及工艺 Drawings and process</li> <li>● 作业指导书 Operation Instructions</li> <li>● 结构件拼组检验记录 Assembly inspection records of structural parts</li> <li>◆ 生产作业单 Production work sheet</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲ 铆焊车间 Riveting workshop</li> </ul>
3.4 焊接作业及过程巡检 Welding operation and process inspection	<ul style="list-style-type: none"> <li>● 焊工资质要符合要求 Welder qualification must meet the requirements</li> <li>● 焊材的使用要于母材匹配 The use of welding material must match the base material</li> <li>● 按照焊接工艺检查焊接参数 Check the welding parameters according to the welding process</li> <li>● 评估焊接方法的稳定性和焊缝成型 Evaluate the stability of the welding method and weld formation</li> <li>● 检查焊前预热及层间保温 Check preheating before welding and insulation between layers</li> <li>● 检查焊接防变形措施 Check welding anti-deformation measures</li> </ul>	<ul style="list-style-type: none"> <li>● 焊接工艺指导书 Welding process instruction</li> <li>● 焊接过程巡检记录 Welding process inspection record</li> </ul>	<ul style="list-style-type: none"> <li>★ 铆焊车间 Riveting workshop</li> <li>▲ 质管部 Quality Control Department</li> </ul>
3.5 焊后检查 Inspection after welding	<ul style="list-style-type: none"> <li>● 依据 GB/T19418-2003 钢的弧焊接头缺陷质量分级指南检查焊缝是否有超出标准的缺陷。杜绝裂纹、弧坑、焊瘤、气孔等明显缺陷 According to the GB/T19418-2003 Arc-welded joints in steel-Guidance on quality levels for imperfections, check whether the weld has defects that exceed the standard.</li> </ul>	<ul style="list-style-type: none"> <li>● 焊缝外观检验记录 Welding appearance inspection record</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲ 铆焊车间 Riveting workshop</li> </ul>



	<p>Eliminate obvious defects such as cracks, arc craters, weld bumps, pores, etc.</p> <ul style="list-style-type: none"> <li>●焊缝大小是否与图纸相符及焊缝外观成型 Whether the size of the weld is consistent with the drawing and the appearance of the weld is formed.</li> <li>●飞溅清除 Splash removal</li> <li>●母材所有焊点焊后要切除打磨 All welding spots of the base metal should be cut and polished after welding.</li> <li>●所有棱边倒圆，最小半径 1mm All edges are rounded, the minimum radius is 1mm.</li> <li>●所有焊疤和伤疤要打磨过渡，打磨修补的深度不能超过板厚的 7% All craters and scars need to be polished, and the depth of polishing and repair should not exceed 7% of the plate thickness.</li> </ul>	<p>◆ 生产作业单 Production work sheet</p>	<p>Riveting workshop</p>
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#### 4.无损检测 Non-destructive testing

生产活动、描述 Production activities, description	执行标准及工作要求 Implementation standards and work requirements	文件、报表、记录 Documents, statements, records	活动单位 Responsible Unit
<p>4.1 无损检测 Non-destructive testing</p> <p>磁粉检测 Magnetic particle inspection</p> <p>超声检测 Ultrasonic testing</p> <p>射线检测 Radiographic inspection</p>	<ul style="list-style-type: none"> <li>●无损检测内容参见 4.3 Refer to 4.3 to find Non-destructive testing content</li> <li>●图纸中规定了每一条焊缝的质量等级 The quality level of each weld is specified in the drawing</li> </ul>	<ul style="list-style-type: none"> <li>●无损检测报告 Non-destructive test report</li> <li>●无损检测设备检定证书 Non-destructive testing equipment verification certificate</li> </ul>	<p>★ 质管部 Quality Control Department</p> <p>▲ 技术部 Technical Department</p>
<p>4.2 无损检测人员 Non-destructive testing personnel</p>		<ul style="list-style-type: none"> <li>●无损检测人员证书</li> </ul>	<p>★ 质管部 Quality Control</p>



4.3 无损检测内容 Non-destructive testing content	质量等级 Quality level	焊缝类型 Weld type	外观 Appearance	射线 Ray 4)	超声 Ultrasound	磁粉 Magnetic powder
	D	所有其他类型 All other types	100%	-	-	10%
	C	全熔透对接焊缝 Full penetration butt weld	100%	10%1) 2)	25%3)	50%
		焊缝 Weld	100%			50%
		T 型全熔透 T type full penetration	100%		25%	50%
		部分熔透 Partially penetrated	100%		25%	50%
	B	对接全熔透 Butt full penetration	100%	20%1)2)	100%3)	100%
		角焊缝 Fillet weld	100%			100%
		T 型全熔透 T type full penetration	100%		100%	100%
	部分熔透 Partially penetrated	100%		100%	100%	

1) 每一条十字焊缝一张片子 One film for each cross weld  
 2) 管对接片子必须包含起始点。如果起点和终点不能识别, 则管对接进行 100% 拍片 The tube butt film must include the starting point. If the start and end





	<p>points cannot be identified, then the tube will be connected for 100% filming</p> <p>3) 如果产生检测不能确定该缺陷, 那么必须进行射线探伤 If the defect cannot be determined by the inspection, then radiographic inspection must be carried out</p> <p>4) 除非超声检测无法判定该缺陷, 否则无需进行射线探伤 Unless the defect cannot be determined by ultrasonic inspection, radiographic inspection is not required</p>		
<p>4.4 焊缝返修 Weld repair</p>	<ul style="list-style-type: none"> <li>●所有焊缝必须在技术人员的指导下按照可行的返修焊接工艺返修, 在全熔透焊缝处理缺陷后要进行磁粉检测以确保缺陷已被除去 All welds must be repaired in accordance with the feasible rework welding process under the guidance of technicians. After the defects are treated in the full penetration welds, magnetic particle inspection must be carried out to ensure that the defects have been removed.</li> <li>●在返修期间, 预热必须增加 50 摄氏度 During rework, the preheating must be increased by 50 degrees Celsius</li> <li>●返修区域的无损检测范围增加到 100%, 而且增加返修端头 200mm。如果延伸检测发现了另外的缺陷, 那么必须检测整条焊缝 The non-destructive testing range of the rework area is increased to 100%, and the rework tip is increased by 200mm. If the extension test finds additional defects, then the entire weld must be inspected</li> <li>●没有技术部或业主同意, 在同一地方的返修不得超过 2 次 Without the consent of the technical department or the owner, no more than 2 repairs in the same place are allowed.</li> </ul>	<ul style="list-style-type: none"> <li>●焊缝返修工艺 Welding repair process</li> <li>●焊缝返修记录 Welding repair record</li> </ul>	<ul style="list-style-type: none"> <li>★技术部 Technical Department</li> <li>▲质管部 Quality Control Department</li> </ul>

### 5.表面处理 Surface treatment

<p>生产活动、描述 Production activities, description</p>	<p>执行标准及工作要求 Implementation standards and work requirements</p>	<p>文件、报表、记录 Documents, statements, records</p>	<p>活动单位 Responsible Unit</p>
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<p>5.1 表面保护/表面处理 Surface protection/surface treatment</p>	<p>每个工程或者合同中的底漆、喷漆工艺、面漆颜色必须经业主同意，如果合同中没有其他申明，应按下面要求进行：The primer, spray paint process, and topcoat color in each project or contract must be approved by the owner. If there is no other statement in the contract, the following requirements should be followed:</p> <ul style="list-style-type: none"> <li>● 喷砂达到 Sa2.5 Sand blasting reaches Sa2.5</li> <li>● 45μm 富锌硅酸乙酯车间底漆 45 μ m zinc-rich ethyl silicate workshop primer</li> <li>● 40μm 环氧树脂或环氧底漆 40 μ m epoxy resin or epoxy primer</li> <li>● 40μm 环氧树脂或环氧面漆 40 μ m epoxy resin or epoxy topcoat</li> </ul> <p>a.如何合同中对上面处理没有额外要求除了箱体内部以外，表面需要 45μm 的环氧树脂或环氧底漆，这 45μm 不包括车间底漆的厚度。The contract have no additional requirements for the above treatment. Except for the inside of the box, the surface needs 45μm epoxy resin or epoxy primer. The said 45μm does not include the thickness of the shop primer.</p> <p>b.在切割和装配前要进行喷砂面和车间底漆喷涂。Before cutting and assembling, the sandblasting surface and workshop primer spraying should be carried out.</p> <p>c.油漆工艺在表面预处理前要得到业主批准 The paint process must be approved by the owner before the surface pretreatment.</p>	<ul style="list-style-type: none"> <li>● 油漆工艺 Painting process</li> </ul>	<p>★技术部 Technical Department</p>	
<p>5.2 控制和检验 Control and inspection</p>	<p>5.2.1 表面保护之前 Before surface protection</p>	<ul style="list-style-type: none"> <li>● 确保外观控制和无损检测，进行需要的修补工作已完成 Ensure appearance control and non-destructive testing, and the necessary repair work has been completed</li> <li>● 去除所有尖角，表面无飞溅 Remove all sharp corners, no splash on the surface</li> </ul>		<p>★质管部 Quality Control Department ▲ 铆焊车间 Riveting workshop</p>
	<p>5.2.2 抛丸前检查</p>	<ul style="list-style-type: none"> <li>● 检查零件标识 Check the part identification</li> </ul>		<p>★抛丸工段 Shot</p>



Inspection before shot blasting	<ul style="list-style-type: none"> <li>●检查表面是否有污迹 Check if there are stains on the surface</li> </ul>		blasting section ▲ 质管部 Quality Control Department
5.2.3 油漆之前 Before painting	<p>检查 Examination:</p> <ul style="list-style-type: none"> <li>●所有截面喷砂达到 Sa2.5 Sand blasting of all sections reaches Sa2.5</li> <li>●表面清洁状况, 是否有油污、杂物 Make sure the surface is clean, whether there are oil stains and sundries</li> <li>●不需要喷砂和油漆的地方是否被保护起来 Whether the areas that do not require sandblasting and painting are protected</li> <li>●有可供使用的数据表, 油漆工要熟悉数据表 A data sheet is available, and painters should be familiar with the data sheet</li> <li>●油漆配比要按照产品说明书进行 The paint ratio should be carried out in accordance with the product manual</li> <li>●设备功能正常 The equipment functions normally</li> <li>●钢板温度至少在露点 3 摄氏度以上 The temperature of the steel plate is at least 3 degrees Celsius above the dew point</li> <li>●环境温度在 5 摄氏度以上 Ambient temperature above 5 degrees Celsius</li> <li>●湿度低于 80% Humidity is lower than 80%</li> </ul> <p>记录准备喷涂零件或构件所使用油漆的制造企业、生产批次和颜色 Record the manufacturer, production batch and color of the paint used to prepare the painted parts or components</p>	<ul style="list-style-type: none"> <li>◆ 生产作业单 Production work sheet</li> <li>●表面处理检验记录 Surface treatment inspection record</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲ 喷漆工段 Painting section</li> </ul>
5.2.4 油漆喷涂检验 Paint spray inspection	<ul style="list-style-type: none"> <li>●构件表面漆膜外观不应误涂、漏涂, 涂层不应脱皮和返锈等。涂层应均匀、无明显皱皮、流坠、针眼和气泡等。The appearance of the paint film on the surface of the component should not be mis-coated or missed, and the coating should not peel off and return to rust. The coating should be uniform, without obvious wrinkles, dripping, pinholes and bubbles, etc.</li> <li>●按规范检查漆膜厚度 Check the thickness of the paint film according to the</li> </ul>	<ul style="list-style-type: none"> <li>●油漆喷涂检验记录 Paint spraying inspection record</li> <li>◆ 生产作业单 Production work sheet</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲ 喷漆工段 Painting section</li> </ul>



	<p>specification</p> <ul style="list-style-type: none"> <li>●按照现行国家标准《漆膜附着力测定法》GB1720或《色漆和清漆、漆膜的划格试验》GB9286执行检测漆膜附着力。Perform the detection of paint film adhesion according to the current national standard GB1720 "Determination of Adhesion of Paint Films" or GB9286 "Paints and varnishes-Cross cut test for films".</li> </ul>		
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## 6.试拼装和最终检查 Trial assembly and final inspection

生产活动、描述 Production activities, description	执行标准及工作要求 Implementation standards and work requirements	文件、报表、记录 Documents, statements, records	活动单位 Responsible Unit
6.1 试拼装 Trial assembly	<p>在试拼装期间，所有部件为了组装现场便于识别必须按照图纸进行标识，要绘制能识别所有构件的编号图。During the trial assembly, all components must be marked in accordance with the drawings for easy identification at the assembly site, and a numbered drawing that can identify all components must be prepared.</p> <p>在所有焊接完成，表面处理前所有螺栓、连接处都有按照图纸模仿实际操作状态进行试装，主要连接必须以照片的形式归档，照片显示偏差、转动、角度偏差等。重点做好如下几点控制：After all welding is completed, all bolts and joints are tested in accordance with the drawings to imitate the actual operating state before the surface treatment. The main connections must be filed in the form of photos, which show tolerance, rotations, angle deviations, etc. Focus on the following points of control:</p> <ul style="list-style-type: none"> <li>●整体拱度 Overall camber</li> <li>●上下层主梁以及连系梁法兰板之间贴紧率及穿孔率 The adhesion rate and perforation rate between the upper and lower main beams and the flange plates of the connecting beams</li> <li>●主梁的长、宽、高尺寸精度，截面对角线差。 Dimensional accuracy of</li> </ul>	<ul style="list-style-type: none"> <li>● 编号图 A numbered drawing</li> <li>●照片 Photos</li> <li>●预拼装检验记录 Pre-assembly inspection record</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲技术部 Technical Department</li> <li>▲生产部 Production Department</li> </ul>



	<p>length, width, and height of the main beam, and the diagonal difference of the section.</p> <ul style="list-style-type: none"> <li>●推进轨道轨距偏差及轨道中心与腹板中心偏差符合要求 Advance the track gauge deviation and the deviation of track center and web center to meet the requirements</li> <li>●主梁与导梁旋转铰同轴度及装配间隙 The coaxiality of the main beam and the guide beam rotation hinge and the assembly gap</li> </ul> <p>具体要求参见检验指导书 Please refer to the inspection guide for specific requirements</p>		
<p>6.2 最终检查 Final check</p>	<p>所有文档和生产图必须进行检查, 而且对文件或产品需要进行的整改的不合格项在单独的整改清单中。All documents and production drawings must be checked, and the unqualified items that need to be rectified on the documents or products are in a separate rectification list.</p> <p>所有技术、合同澄清、不一致项的批复必须做记录。在图纸相关位置要进行相关识别标注。All technical, contract clarification, and inconsistency approvals must be recorded. Relevant identification and marking shall be carried out in the relevant position of the drawing.</p>	<ul style="list-style-type: none"> <li>● 整改清单 Rectification list</li> <li>● 技术澄清 Technical clarification</li> <li>● 不一致报告 Inconsistency report</li> <li>● 生产总图和总说明 General production drawings and general description</li> </ul>	<ul style="list-style-type: none"> <li>★质管部 Quality Control Department</li> <li>▲技术部 Technical Department</li> <li>▲生产部 Production Department</li> </ul>
<p>★主办 Organizer    ▲协办 Co-organizer    ◆检验点 Checkpoint</p>			

## 7.竣工资料 Completion data

竣工资料包括以下内容 The completion data includes the following:

- 1.总则 General
- 2.材料 Material



- 3.焊接 Welding
- 4.焊接工艺 Welding process
- 5.无损检测 Non-destructive testing
- 6.焊缝返修 Weld repair
- 7.尺寸检测和试拼装 Size inspection and trial assembly
- 8.表面处理 Surface treatment
- 9.发运清单 Shipping list

各个部门根据质量控制计划编制“文件、报表、记录”栏里的各种资料，最后由质量管理部汇总整理，形成竣工资料。Each department prepares relevant data required in the "documents, statements, records" column according to the quality control plan, and finally the quality management department collects and summarizes all the data to form the completion data.