



CHINA²WEST SERVICES™
Quality Manufacturing Solutions

Quality Inspection Services
(QIS)

General Services and Capabilities

- Pre Production Inspection
- First Article Inspection (FAI)
- Initial Production Check (IPC)
- During Production Inspection (DUPRO)
- In-Process Quality Control (IPQC)
- Packing Inspection
- Pre-Shipment Inspection (PSI)
- General Production Monitoring (PM)
- Container Loading Check (CLC)
- Customized Production Review/Troubleshooting

Introduction

C2W offer a range of inspection services to meet the needs of companies having goods manufactured in China. We understand the importance of ensuring goods are checked throughout the manufacturing process. You can call on us for a single inspection or for a complete end-to-end service. We undertake initial factory capability audits, pre-production, final random sampling and pre-shipment inspections.

We can also be on site to provide loading supervision. Whatever service you require, we will provide a written report with images if appropriate within 24 hours of completing the task. One of the most important factors in the success of your project is the capability of the supplier. At C2W we only work with reputable factories that have passed our verification process. We assess factories on a wide range of factors including: equipment and systems, management, and operating procedures.

We can call on a broad spectrum of industries to meet the needs of most projects, but if you have found your own supplier, we can provide local 'eyes and ears' to oversee any stage of your production. Our inspection teams have experience in just about every manufacturing sector and can conduct detailed inspections to your specification.

We will examine (and test if appropriate) raw materials, semi-finished or finished products. Reports can be as detailed as you require, a typical pre-shipment report will cover product safety, quality, quantity, workmanship, function, colour, size, labeling and packing. Where testing is required, C2W uses internationally respected third party testing facilities and we will send you originals of all reports to ensure your product meets all country, industry, or otherwise-specified requirements.

Pre Production Inspection

Before placing an order with a new manufacturer it is important to ensure that quality specifications are fully understood, that the supplier has adequate production capability, machinery, staff training, on job supervision, working conditions, management systems and quality control processes. Pictures from the supplier website or a glossy brochure are often a far cry from the reality of the daily workings of the factory.

This process is customer driven and C2W will inspect against any specified customer requirements. A generic starting point for the inspection process is as follows:

- **Supplier Verification**

Legitimacy is a major concern here in China; C2W complete our own standard SVCL (Supplier Verification Checklist) with all of our suppliers before commencing work as well as legally binding production contracts with penalty clauses for late delivery or failed QC for all stages. All documents will be authorized/signed by the factory owner and cross referenced against the owners ID, signature and official company chop (stamp). The stamp is binding in China but it must be the official company brand to hold any legal merit. Warning bells should go off if any factory is less than willing to provide any of this documentation.

- **Current Product Range**
- **Major Market and Major Clients**
- **Manpower**

An important requirement often over looked is the factories ability to draw in extra man power when urgent orders or rework are required and a tight deadline applies.

- **Production Capability**
- **Machinery and Equipment**
- **Management and Quality Procedures**
- **Manufacturing Processes**
- **In-house Quality Control, Testing and Inspection**
- **Raw Material Management**
- **Semi-finished and Finished Product Management** (Shop floor and general inventory handling processes)

The new supplier factory audit/SVCL procedure will only be required if utilizing a non C2W supply source. We have an extensive network of suppliers covering a wide range of engineering fields. We have staff in these partner factories almost daily overseeing our ongoing manufacturing projects. See C2W Supplier Audits (C2W-SA: 2010) for more details on our audit procedures, services and rates.

First Article Inspection (FAI)

First article inspection is conduction once all aspects of a manufacturing system for one particular item have settled and reached a point of optimum stability. The supplier must fill in an FAI report and personnel responsible for QA must stamp and sign the report before production may continue. The customer can request the FAI report at anytime and if it is not produced the supplier is entirely responsible for any defective goods produced without conformation.

FAI conformation is the QA 'green light' to start mass production.

Initial Production Check (IPC)

C2W can perform inspections throughout the production process. A critical step often over looked is the very early stages of production (not more than 5% produced). All raw materials and components will be inspected to ensure all components meet pre defined customer requirements.

The initial output from production line will be checked against the approved sample and specification. C2W works with the factory in order to improve production processes and provide technical advice in order to improve the product quality to ensure the products will pass all future inspections.

To detect any potential defect, C2W will randomly select a number of semi-produced products for checking and report our findings to the client for reference.

During Production Inspection (DUPRO)

As soon as the first products come off the production lines, designated C2W inspection staff member will be on the factory floor to check for any defects or deviation from pre defined quality parameters. If problems are identified practical and effective solutions will be offered.

During production inspection will be completed periodically at pre defined periods. If a project is of high complexity or of significantly substantial quantity full time C2W factory representation may be allocated with a daily reporting structure.

An example standard inspection procedure would be completed at the following key production stages:

< 5% Produced, 10-15% Produced, 40-50% Produced, 75% Produced and 90-100%.

If at any stage problems should occur, C2W identifies the deviation and provides advice on the corrective measures to get production back on track.

In-Process Quality Control (IPQC)

Understanding that machines and people cannot guarantee consistency of their performance and output is the point of in-process quality control. FAI is conducted after the manufacturing system reaches 'optimum stability', not 'perfect stability' so further checks need to be made in order to ensure that any changes are both recognized and recorded. It is important that standards are clearly specified from the beginning so that those conducting IPQC can know when production has reached a critical point and needs to be stopped and corrected.

If a problem is detected, all parts produced in the same batch must be quarantined and re-checked 100%.

Packing Inspection

Final product packaging is an important part of the production process. C2W reps will oversee the packaging process to ensure all products are safely packaged as per requirements.

Specific packaging integrity testing (drop tests, compression tests, vibration testing etc.) can be arranged with our partner testing facilities on request.

Pre-Shipment Inspection (PSI)

Pre-shipping inspection is critical for the final verification of a lot's quality status. As the manufacturing system already has several protective layers, PSI inspectors (ideally from a 3rd party) need only check the goods based on an agreed AQL (acceptable quality level). This determines the number of parts that should be checked and the number, and specific types of defects that are allowed within the lot.

If too many defective articles are found within the sample lot, the supplier must re-check or scrap all parts in stock and issue an 8D CAR within 4 days.

C2W Quality Inspectors use the recognized international Quality Control standard ISO 2859-1 (ANSI/ASQC Z1.4-2003), also known as the AQL Tables to measure acceptable levels of quality during their routine product inspections.

The AQL (acceptable quality level) can be set to an agreed figure for each type of defect that determines clearly the number of parts that are allowed to have certain types of defects before the entire lot is rejected and dealt with by the manufacturer.

Levels set are project dependant but in general defects will be judged (as an example) as follows:

1. Safety or Critical Defect (functional included) – the entire lot will be rejected if any safety defect is found. This could be a sharp edge, malfunction or anything that could cause physical injury.

AQL - 0

2. Major Defect – Determined as serious scratches or obvious deformations.

AQL - 1

3. Minor Defect – Dirt, light scratches, minor colour differences and small burrs fall into this category.

AQL - 4

Sampling Plan Tables

Acceptance Sampling Protocols for Normal Inspection.

Sample Size Code Letter	Sample size	Acceptable Quality Levels (Normal Inspection)																															
		0.010		0.015		0.025		0.040		0.065		0.100		0.150		0.250		0.400		0.650		1.000		1.500		2.500		4.000		6.500		10	
		Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re
A	2																																
B	3																																
C	5																																
D	8																																
E	13																																
F	20																																
G	32																																
H	50																																
J	80																																
K	125																																
L	200																																
M	315																																
N	500																																
P	800																																
Q	1250																																
R	2000																																

↓ Use first sampling plan below arrow. If sample size equals, or exceeds lot or batch size, do 100% inspection.

Ac Acceptance Number

↑ Use first sampling plan above arrow.

Re Rejection Number

Sampling Size Code Letters

Lot Size	General Inspection Levels			Special Inspection Levels			
	I	II	III	S1	S2	S3	S4
2 to 8	A	A	B	A	A	A	A
9 to 15	A	B	C	A	A	A	A
16 to 25	B	C	D	A	A	B	B
26 to 50	C	D	E	A	B	B	C
51 to 90	C	E	F	B	B	C	C
91 to 150	D	F	G	B	B	C	D
151 to 280	E	G	H	B	C	D	E
281 to 500	F	H	J	B	C	D	E
501 to 1 200	G	J	K	C	C	E	F
1 201 to 3 200	H	K	L	C	D	E	G
3 201 to 10 000	J	L	M	C	D	F	G
10 001 to 35 000	K	M	N	C	D	F	H
35 001 to 150 000	L	N	P	D	E	G	J
150 001 to 500 000	M	P	Q	D	E	G	J
500 000 and over	N	Q	R	D	E	H	K

8D CAR - Corrective Action Report

8D CAR is a popular and useful problem solving tool which was developed by Ford, GM and Chrysler. There are 8 sections to be completed (these may occur in different orders depending on the situation):

1. Prepare for the Project.
2. Define the Problem.
3. Develop Containment Actions.
4. Identify Root Cause.
5. Develop & Verify Solution.
6. Implement Corrective Actions.
7. Prevent Problem Recurrence.
8. Recognize Project team.

The 8D CAR is the responsibility of the supplier and must be typically be submitted to the customer for review within 4 days of problem detection.

General Production Monitoring (PM)

If improvement recommendations have been given during production checks general production monitoring will ensure these process modifications have been successfully followed. More generally the production monitoring process ensures that the quality is maintained throughout the entire production phase and helps monitor if the expected production capacity is reached to complete the orders on time.

Container Loading Check (CLC)

C2W will co-ordinate with the Manufacturer to observe that the proper environmental conditions, cleanliness and integrity of the containers are adequate for the transport of the shipment to its final destination.

For Loading Supervision, C2W will oversee the entire loading process to ensure the correct ordered merchandise is loaded into the container.

The following information will be checked and recorded:

- Loaded quantity against the submitted packing list
- Container ID number and sealing code
- Form of packing
- Weather condition
- Arrival/departure time of the container
- Photos of the inside and outside of the container
- The outer surface condition of the container and general condition of the truck for transportation purposes

Customized Production Review/Troubleshooting

C2W is ultimately flexible in its approach and we pride ourselves on our ability to customize our work to our specific customer requirements. Any and all of our internal documentation and processes can be adjusted to suit you, your product and the manufacturing facility in question.

When unforeseen issues occur we are always available for short notice factory troubleshooting reviews to get your production run back on track. On completion of a troubleshooting audit the C2W team will offer a full unbiased assessment along with detailed corrective action recommendations.

Our team can if required be at your facility in under 24 hours from point of contact or even same day if facility location permits. Short notice inspections will be charged at a premium rate dependant on location, requirements and general team workload. Contact us on the details below for a customized assessment and quotation.

C2W Quality Team

Our strength lies in the abilities of our highly qualified and well trained quality engineers. You will be introduced directly to your allocated project manager who will oversee all facets of your inspection. Repeat inspections will be conducted by the same member of the C2W quality team ensuring you slowly develop your own on the ground expert in your specific products and field.

Skill Set

1. Engineering/Factory based manufacturing/process background
2. QA/QC qualifications and real world experience
3. Excellent general English Ability
4. Adaptable and accustomed to a western work ethic

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