CCP Contact Probes Process Flow Charts

Process Relation Diagram
Quality Control
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Document Ref. List

C.C.P. CONTACT PROBES

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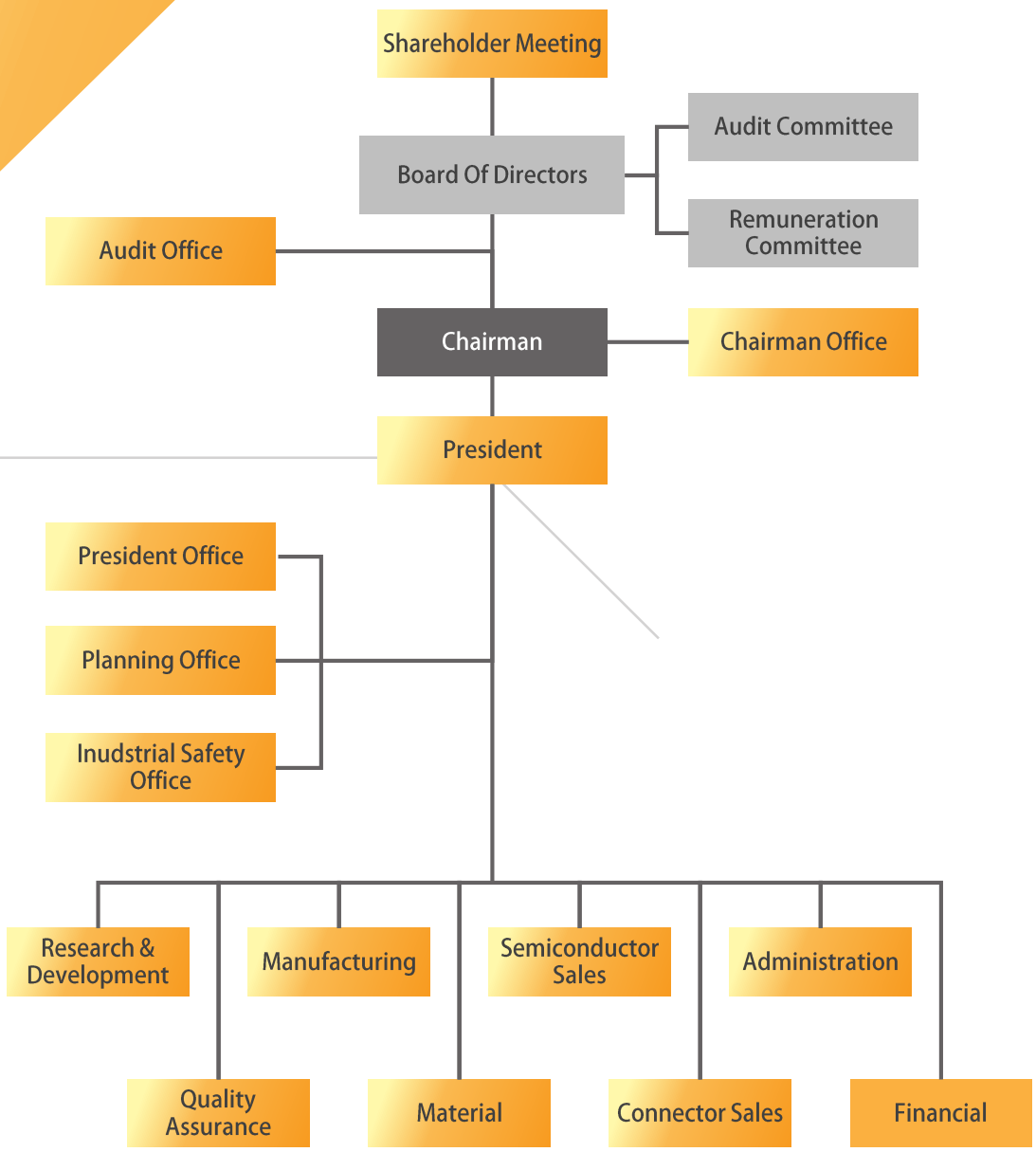
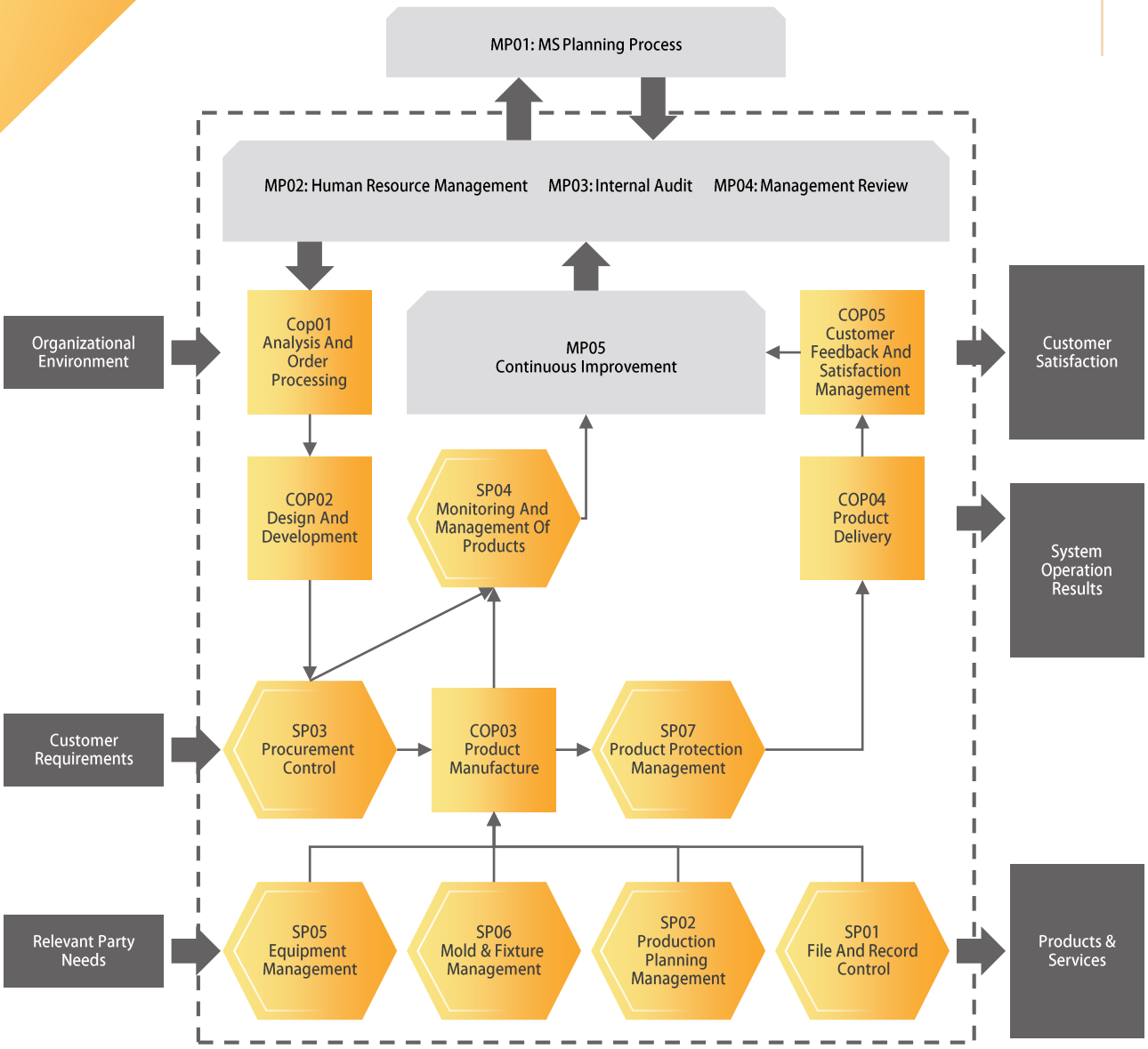
CCP Organization

Organization Chart



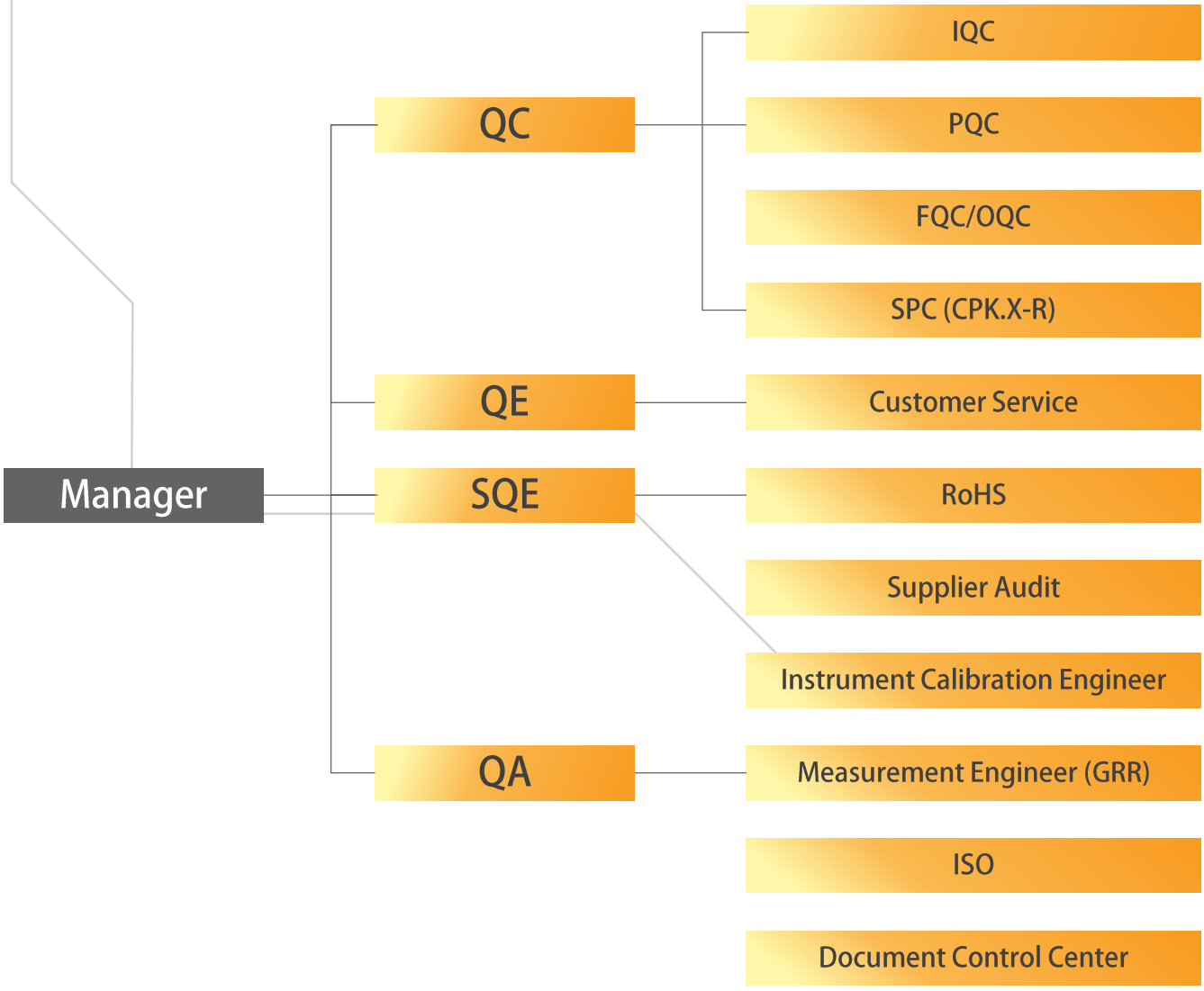
CCP Processes

Process Relation Diagram



Quality Control

Quality Department Structure



Legend:

IQC	Incoming Quality Control
PQC	Process Quality Control
FQC	Final Quality Control
OQC	Outgoing Quality Control
SQE	Supplier Quality Engineer
QE	Quality Engineer
CCM	Customer Complaint Management
SPC	Statistical Process Control
RoHS	Restriction of Hazardous Substances
QA	Quality Assurance

QA Overview

ISO And QA Steps

Quality System

ISO 9001:2015
Quality Management Systems
Certificate No: N° 2014/60930.2
Expiration Date: 2020.11.18

ISO 14001: 2015
Environmental Management System
Certificate No: N°60931 N°IATF:0279449
Expiration Date: 2020.11.18

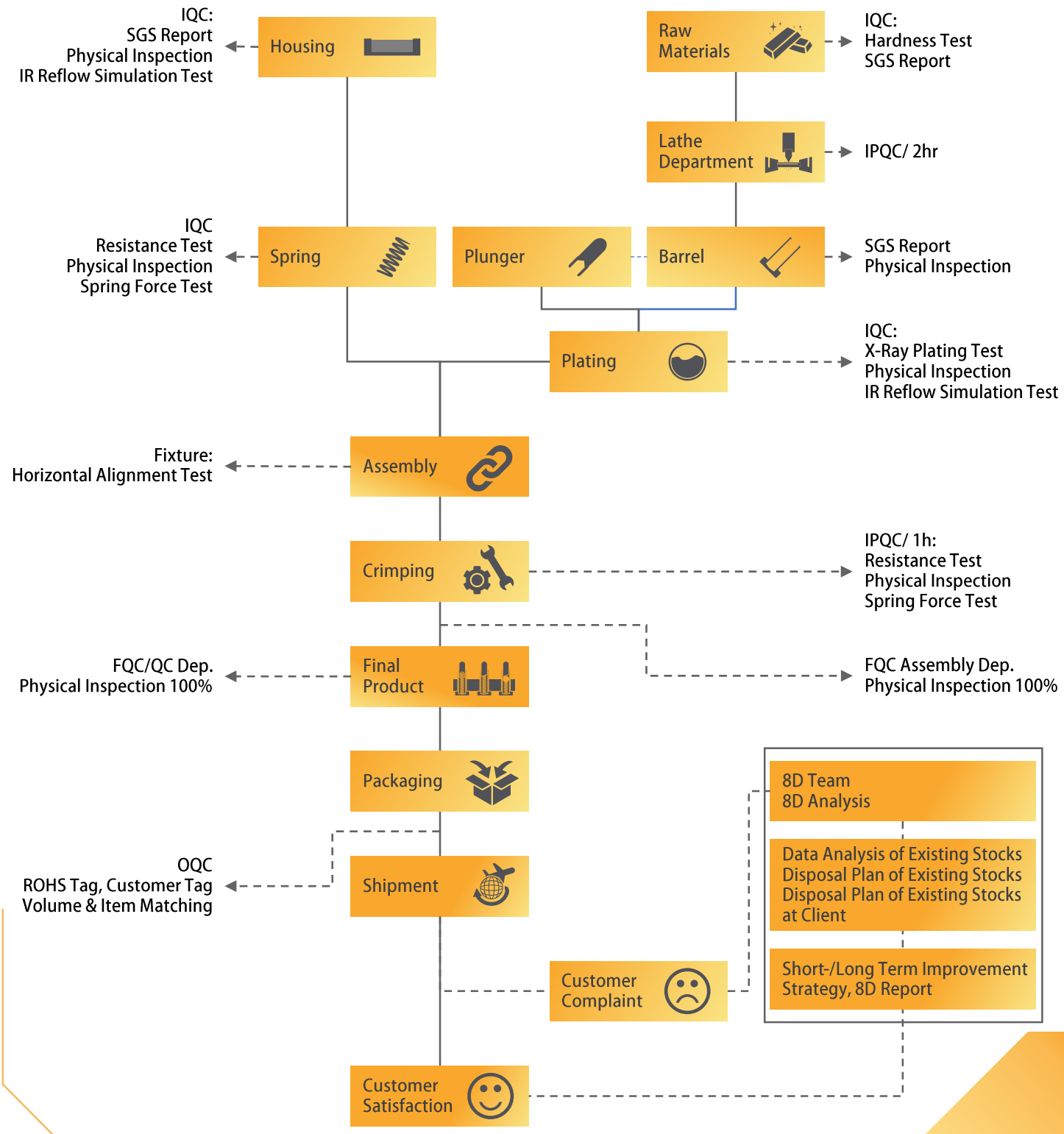
IATF 16959: 2016
Automotive Quality Management System
Certificate No: GTE101000-04
Expiration Date: 2019.09.26

QC 080000
Hazardous Substance Process Management
Certificate No: IECQ-H AFNOR 16.0041
Expiration Date: 2019.09.28

Quality Assurance

Quality Control

Pogo Pins QC Process

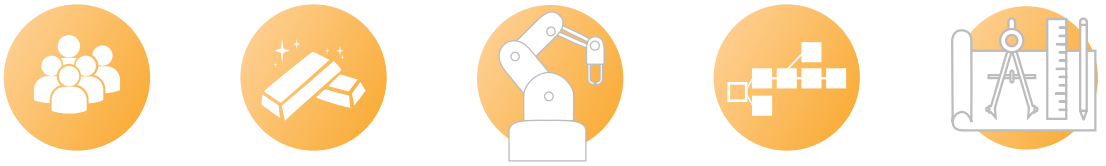


*If not otherwise specified, the number of inspected Items per inspection interval is 5 pieces.
This chart applies to a typical semi-automated manufacturing process. Fully automated manufacturing process may have up to 100% inspection rate. Customers may require additional inspection routines.

Quality Control

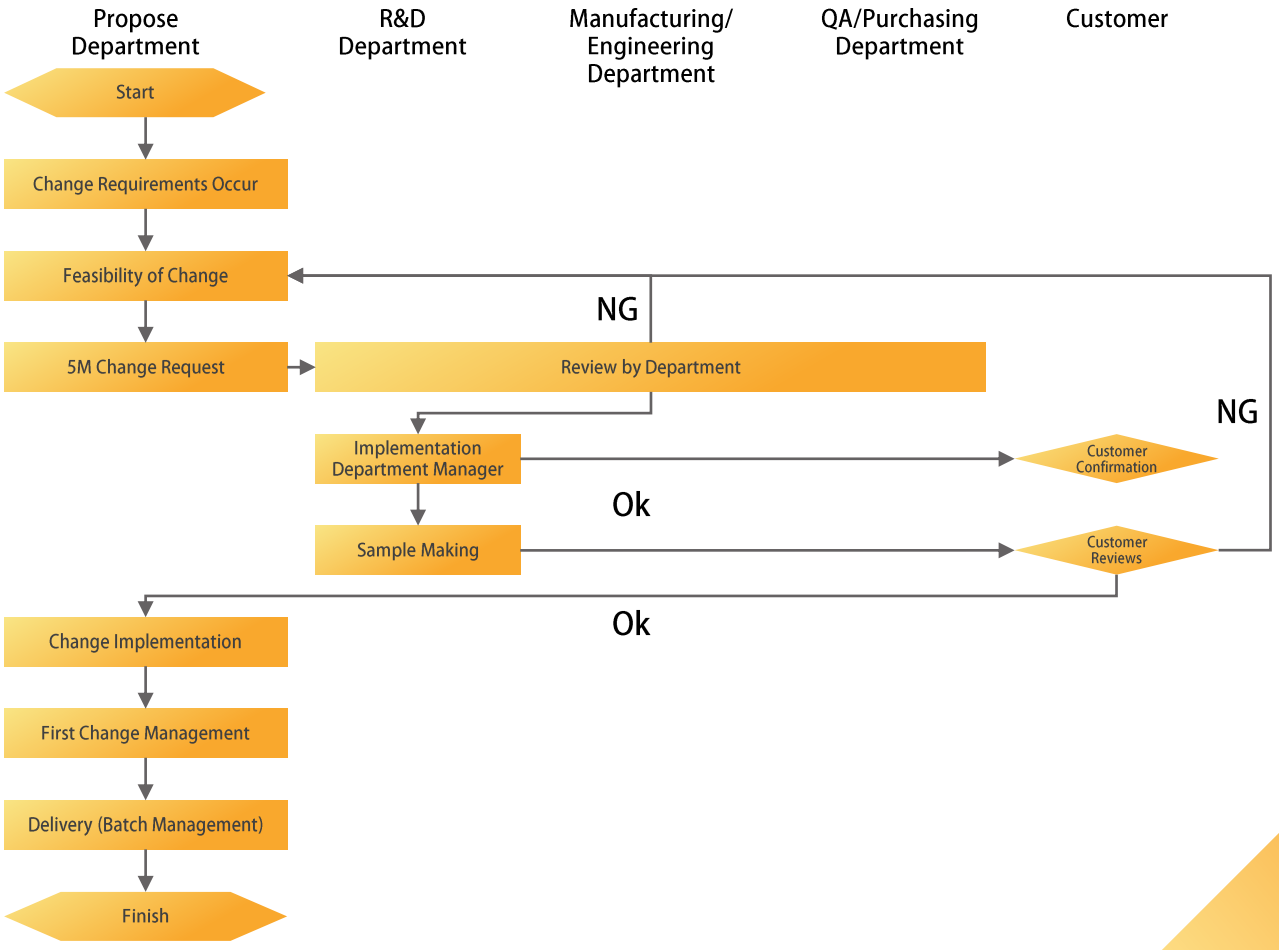
5M Lean Management

CCP Follows the 5M principle to evaluate each production process. Incase a problem occurs, CCP will determine the root cause and resolves the problem by changing the production process.



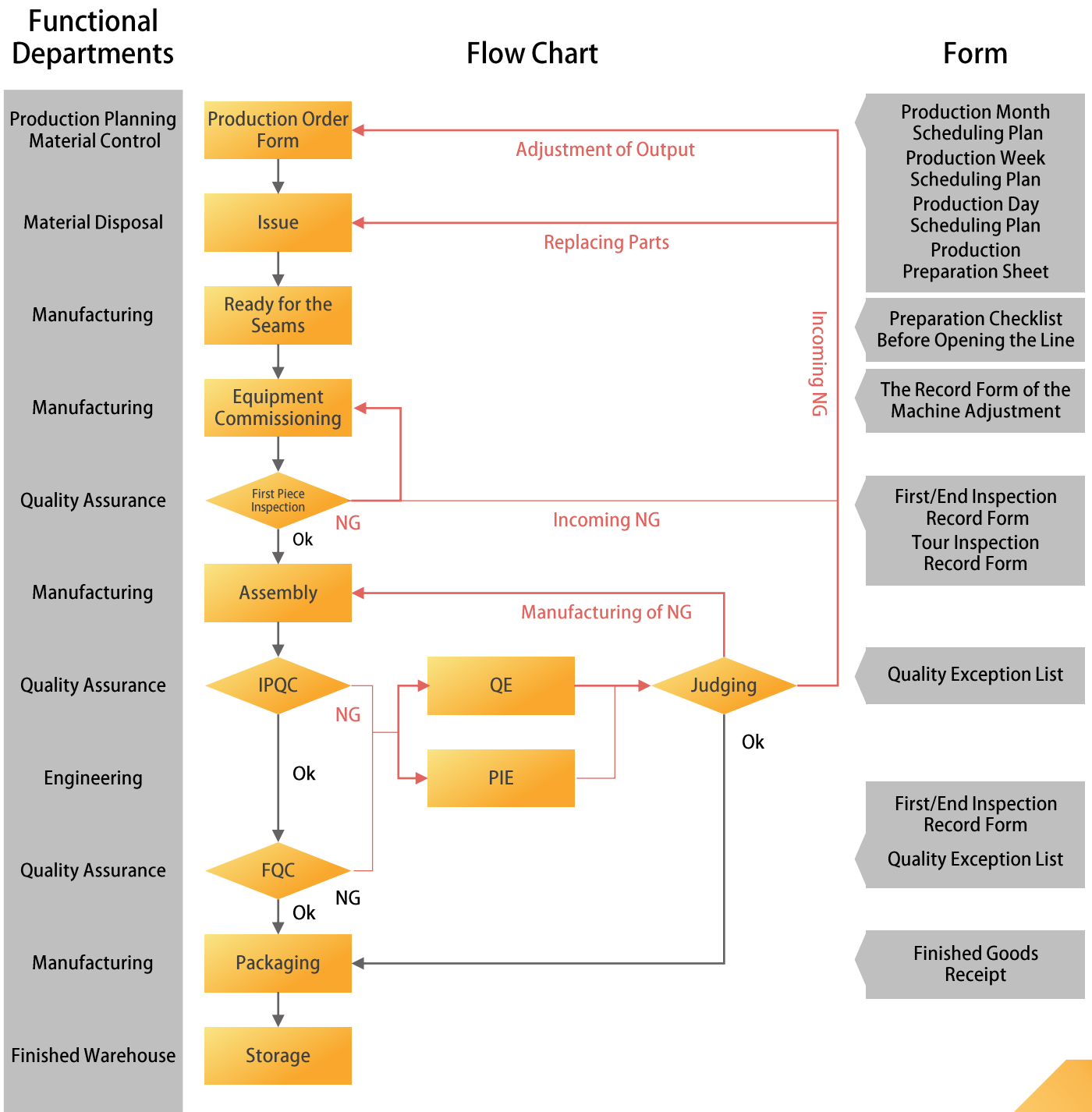
Manpower Materials Machines Methods Measure

A change in the production process will be implemented in the following steps:



Production Line

Manufacturing Production Control Process



Staff Training

Quality Assurance Team

Serial number	Department	Training Course	Internal/ External Training	Training Time (month)												Training Location	Number of Hours	Lecturer	Training Object	Test Method	Note
				1	2	3	4	5	6	7	8	9	10	11	12						
1	QA Office	The five core tool	Internal training (external lecturer)				★									6F Training Room	Pending	Pending	Engineers	Written&Practical Exercise	Arrangement of heads of departments
2	QA Office	IECQ QC080000:2017 New environmental System guidance training	Internal training (external lecturer)			★										6F Training Room	Pending	Pending	Heads of departments/ internal auditors	Written	Arrangement of heads of departments
3	QA Office	Environmental knowledge	Internal training (in-house lecturer)					★								6F Training Room	2	毛店芳	Head of various departments	Written	Head of various departments (including internal auditor)
4	QA Office	ISO9001：2015/ISO14001:2015 IATF16949:2016基础知识	Internal training (in-house lecturer)				★									6F Training Room	2	张薇	Heads of departments/ internal auditors	None	Heads of departments, internal auditors
5	QA Office	Confirm the material before the production and prevention from abnormal product.	Internal training			★										4F Training Room	2	黄彬	QC ALL personnel	Written	Training is still required after new training
6	QA Office	The basic training on SPC	External training				★									4F Training Room	2	张老师	QE&SQE	Oral	Training is still required after new training
7	QA Office	The ability on dealing with abnormal production	Internal training						★							4F Training Room	2	FOX	QE&SQE	Oral	Training is still required after new training
8	QA Office	The awareness and design on PPT	Internal training								★					4F Training Room	2	FOX	QE&SQE	Practical Exercise	Training is still required after new training
9	QA Office	Training for 8D report	Internal training										★			4F Training Room	2	FOX	QE&SQE	8D报告	Training is still required after new training
10	QA Office	Process flow on molding and the highlight of quality control	Internal training											★		4F Training Room	2	邹泉	QE&SQE	Written	Training is still required after new training
11	QA Office	The regulations on equipment use	Internal training												★	4F Training Room	2	黄彬	QC&QE All personnel	Practical	Training is still required after new training
12	QA Office	System documentation and process training	Internal training (in-house lecturer)				★									6F Training Room	2	张薇	SQE & IQC	Oral	
13	QA Office	Electroplating process training and quality control focus	Internal training (in-house lecturer)						★				★			6F Training Room	2	张冬华	QE&SQE	Oral	
15	QA Office	Turning Process Quality Control Training	Internal training (in-house lecturer)					★					★			6F Training Room	2	Winter	QE&SQE	Oral	
17	QA Office	Supply Chain Management (External training)	External training						★							6F Training Room	2	Pending	SQE	Written	
18	QA Office	FQC Inbound Inspection process (flowchart SAP)	Internal training	★												4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
19	QA Office	OQC Inbound Inspection process (flowchart SAP)	Internal training	★												4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
20	QA Office	DQ0205 Inspection Control Program C.1	Internal training					★						★		4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
21	QA Office	SAP-QM Module Operation Basics	Internal training			★						★				4F Training Room	1	邓叶华	FQC	Written	Training is still required after new training
22	QA Office	DQ03302 FQC, OQC General Content Training	Internal training							★						4F Training Room	1	邓叶华	FQC	Written	Training is still required after new training
23	QA Office	DQ03081 The guideline on Sampling test	Internal training			★										4F Training Room	1	邓叶华	FQC	Written	Training is still required after new training
24	QA Office	DQ03084 The guideline on harmful material test	Internal training				★									4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
25	QA Office	OQC training（including stamp and tag)	Internal training					★								4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
26	QA Office	DQ0224 The control plan on abnormal product	Internal training							★						4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
27	QA Office	The regulation of inspection on Project (or certain product)	Internal training								★					4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
28	QA Office	The regulation of filling the abnormal product sheet	Internal training		★							★				4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
29	QA Office	The explanation on drawing, main dimension.	Internal training										★			4F Training Room	1	邓叶华	FQC	Oral	Training is still required after new training
30	QA Office	The recognition between NG/ok from picture example	Internal training											★		4F Training Room	1	邓叶华	FQC	Written	Training is still required after new training
31	QA Office	The operation of equipment	Internal training					★								3F Lab	2	廖国富	FQC	Written	Training is still required after new training
32	QA Office	Monthly abnormal summary on product line/customer complaint Summary monthly abnormal bad training/customer complaint	Internal training		★		★		★		★		★		★	4F Training Room	1	邓叶华	FQC	Oral	Timely notification, still need to take the whole test
33	QA Office	DQ03288 IPQC The regulation on production inspection	Internal training		★				★							4F Training Room	1	邓叶华	IPQC	Written	Training is still required after new training
34	QA Office	DQ03304 IPQC job clarification	Internal training			★						★				4F Training Room	1	邓叶华	IPQC	Verbal	Training is still required after new training
35	QA Office	AQL sample selecting plan/DQ03081 the guideline on sampling plan	Internal training								★					4F Training Room	1	邓叶华	IPQC	Written	Training is still required after new training
36	QA Office	Implement on inspection before production	Internal training	★						★					★	4F Training Room	1	邓叶华	IPQC	Written	Training is still required after new training
37	QA Office	inspection on product(with plating)	Internal training									★				4F Training Room	1	邓叶华	IPQC	Oral	Training is still required after new training
38	QA Office	DQ03081 The guideline on sampling selection plan	Internal training (in-house lecturer)			★				★				★		4F Meeting Room	0.5H	柏文平	IQC	Oral	Training is still required after new training
39	QA Office	SAP training program	Internal training (in-house lecturer)				★				★					IQC Inspection Room	0.5H	方昌文	IQC	Oral	Training is still required after new training
40	QA Office	Inspection on incoming Materials	Internal training (in-house lecturer)			★	★			★	★					4F Meeting Room	0.5H	柏文平	IQC	Oral	Training is still required after new training
41	QA Office	The Guideline on equipment use and measure	Internal training (in-house lecturer)				★				★			★		IQC Inspection Room	0.5H	方昌文	IQC	Oral	Training is still required after new training
42	QA Office	The description on drawing and main dimensions	Internal training (in-house lecturer)			★				★						4F Meeting Room	0.5H	方昌文	IQC	Oral	Training is still required after new training

Comment: The above training plan is an incomplete example for the QA Department. Each department has its own training plan and procedure.

Quality Control

General Remarks/ FAQ

How often do we inspect?

CCP generally inspects 5 items every 2 hours in each production step if not otherwise specified. Higher frequencies are possible, if needed. All items go through different inspection processes such as visual inspection or resistance tests. Which test is applied depends on the production step. This methodology applies to a semi-automated assembly process. Fully automated processes have up to 100% inspection rate after each step.

How do we store our items?

Our warehouses have a controlled environment with a humidity below 60% and temperature below 30° C. Seismic activities are also monitored.

How do we control our suppliers?

CCP puts a lot of emphasis on long lasting and stable relationships with its suppliers. Our main suppliers are located near our factory and representatives are visiting them for monthly inspections. CCP employs the same strict quality requirements to its suppliers as they are applied in our own facilities (IQC->IPQC->FQC, at least 5 items every 2 hours, etc.). We perform random inspections at all our suppliers and for most of our suppliers CCP is the main customer. CCP uses a scoring system for its suppliers that rates their quality, availability and overall performance. The on-time delivery is ≥97% and the incoming inspection yield is ≥98%. Relevant Documents are: Supplier Management Procedure (DG0202), Monthly Supplier Performance Assessment Sheet (DG04027), Supplier Quality System Audit Sheet (DG04018).

How do we train our operators?

Our operators go through a (at least) one week training. Operators have to pass several test (written, verbal and manual) before they can start working. Standard operating procedures (SOPs) are always available on each operators desk and experienced supervisors are always available to answer questions.

When do we inform our customers about changes in the production process?

Changes in the design or production process are regulated in DR0203.

How do we track our quality control?

CCP uses a customized SAP system to store all inspection results permanently. Production errors can be tracked to each individual operator or machine. Defective material that has not passed our IQC or IPQC is clearly marked to prevent it from getting into the production line. If a defect is found, a "Quality Deviation Notice" is issued to the operators.

What does the life-cycle number indicate?

All our products usually include a maximum life-cycle such as 10.000 touch-downs. This number is in fact the minimum that we guarantee to our customers. Most of our products usually withstand far beyond 100.000 touch-downs. Every product can be customized according to the needs of our customers. This also includes the use of better materials to increase the durability of the product.

Quality Control

General Remarks/ FAQ

Which QM-tools does CCP use?

CCP employs the following QM-tools:

- Advanced Product Quality Planning (APQP)
- Statistical process control (SPC)
- Measurement System Analysis (MSA)
- Failure Mode and Effects Analysis (FMEA)
- Production Part Approval Process (PPAP)、
- QC7 (Check Sheet, Control Chart, Stratification, Pareto Chart, Histogram, Cause-and-Effect Diagram, Scatter Diagram)

Does CCP uses a Computer Aided Quality System (CAQ)

Yes, CCP does use an SAP and an EIP System to store our inspection data permanently.

Do we deliver new parts with an initial sample test?

Yes, every new part will be inspected and results are summarized in a quality inspection report that is being submitted to the customer. The inspection is done according to the FQC and OQC procedure. CCP can perform additional tests based on customer requests. A detailed summery of our test capabilities can be found in our "CCP Contact Probes Testing Equipment and QC Overview" document.

Which key figures do we use to determine the quality of our products?

The quality of our products is determined by its special characteristics that can vary from product to product. Typical characteristics are: Dimensions, resilience, resistance, holding force, environmental protection, temperature profile, oxidation test, appearance, surface roughness and many more.

How long do we keep reports such as SGS or inspection reports?

All hazardous substance related records are kept for 10 years after stopping the production. Automotive products at least 11 years. All other records are kept digitally permanently.

How do we manage our materials and finished products?

CCP uses First-In-First-Out (FIFO) principle. Materials and finished goods are tracked by our SAP system. Materials and products have lot numbers, product numbers and are color coded in order to ensure quality. Our SAP system automatically warns us, when goods approach their expire date.

How do we store hemical goods, such as inflammable, perishable and poisonous material?

CCP follows a dedicated "Chemical Product Storage and Management Procedure". Details can be found in the respective document (DME3006). CCP also has a special warehouse for chemical goods and has emergency procedures in case of an accident. We put a lot of emphasize on a transparent environmental management. CCP is QC080000:2012 ROHS certified.

How often do we calibrate our testing equipment?

Testing equipment is calibrated periodically based on an annual calibration plan following the "Measuring Instrument Management Procedure" (DQ0208).

Quality Control

General Remarks/ FAQ

Does CCP follows SOPs?

Yes, the whole production process is managed with SOPs. These include detailed instructions for equipment usage, materials, fixtures, etc.

What non-conformance procedure does CCP uses and how is it handled?

CCPs employs more than 79 quality control professionals. If a non-conformance occurs during the production process, the quality department will determine the root cause together with the production department and follow the Non-Conformance Handling and Preventive Procedure. Red labels will be put on each non-conformant material to ensure its safe disposal. The Material Review Board (MRB) ensures, the overall functionality of our quality department.

Does CCP monitor environmental factors?

Yes, the whole production line is constantly monitored for humidity, temperature and seismic activities. Records are stored permanently.

How does CCP handle ECN orders?

CCP has its own Design and ECN Management Procedure (DR0203).

How does CCP ensures that the design comply with all customers specifications?

CCP has two procedures in place to guarantee the quality of its designs: Design Development Management Procedure (DR0201) and APQP Control Procedure (DR0205). New products always go through an Engineering Validation Test (EVT), a Design Validation Test (DVT) and a Production Validation Test (PVT) to verify if they meet the customers requirements.

How does CCP handle a complaint?

In the event that a product doesn't perform as intended, CCP will follow a dedicated Customer Complaint Management Procedure (DS0203) to find the root cause of the issue. Within 2 hours CCP will perform a basic check, within 8 hours we will check the current inventory/WIP and within 24 hours we will find the preliminary root cause. After 3 working days CCP will submit a formal 8D report to the customer and evaluate the next steps.

How does CCP track the customer satisfaction?

CCP follows a "Customer Satisfaction Management Procedure" (DS0202). For this purpose we perform a yearly customer satisfaction investigation in which we perform a survey to collect feedback on our work. Results of this survey are used to improve our service level and our overall quality.

Documents

Documents Reference List

Ref. No	Name	Department
DD0201	File Control Procedure	File Control Center
DD0202	Record Control Procedure	File Control Center
DD0302	Technical Data Drawing Receiving and Using Regulations	File Control Center
DG0202	Supplier Management Procedure	Procurement Department
DG04018	Quality System Audit Sheet	QA Department
DG04027	Monthly Supplier Performance Assessment Sheet Supplier	QA Department
DH03028	Training Management Procedure	Management Department
DM0201	Human Resources Management Process	HR Department
DME3006	Chemical Product Storage and Management Procedure	Management Department
DP0202	Warehouse Management Procedure	Warehouse Department
DQ0205	Inspection Control Procedure	QA Department
DQ0206	Non-Conformance Handling and Preventive Procedure	QA Department
DQ0207	Product Labeling and Tracing Procedures	QA Department
DQ0208	Measuring Instrument Management Procedure	QA Department
DQ0209	Procedures for Corrective and Preventive Measures	QA Department
DQ03219	MRB Operation Procedure	QA Department
DR0201	Design Development Management Procedure	R&D Department
DR0203	Design And Engineering Change Management Procedures	R&D Department
DR0203	ECN Management Procedure	R&D Department
DR0205	APQP Control Procedure	R&D Department
DS0202	Customer Satisfaction Management Procedure	Marketing Department
DS0203	Customer Complaint Management Procedure	Marketing Department

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