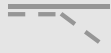
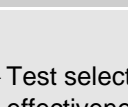
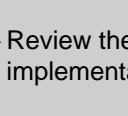


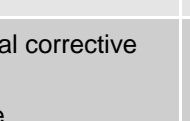
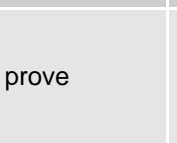



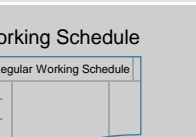


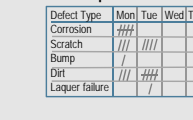


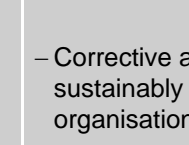
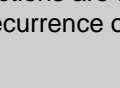


7STEP-Roadmap

Step	Main Tasks	Tools	Results																																													
Step 1: Describe the problem 	<ul style="list-style-type: none"> Form the problem solving team (incl. team leader) Record, completely describe and differentiate the problem 	Inspection Chart <table border="1"> <thead> <tr> <th>Defect Type</th> <th>Mon</th> <th>Tue</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> </tr> </thead> <tbody> <tr> <td>Corrosion</td> <td>###</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Scratch</td> <td>///</td> <td>///</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bump</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Dirt</td> <td>///</td> <td>###</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Laquer failure</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> Histogram  Pareto-Diagram 	Defect Type	Mon	Tue	Wed	Thu	Fri	Corrosion	###					Scratch	///	///				Bump						Dirt	///	###				Laquer failure						<ul style="list-style-type: none"> Problem solving team is formed Problem is clearly described and differentiated 									
Defect Type	Mon	Tue	Wed	Thu	Fri																																											
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Scratch	///	///																																														
Bump																																																
Dirt	///	###																																														
Laquer failure																																																
Step 2: Take containment actions 	<ul style="list-style-type: none"> Remove defective parts from circulation Take actions to maintain supply availability 	Interim Working Schedule <table border="1"> <thead> <tr> <th colspan="2">Interim Working Schedule</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td></td> </tr> <tr> <td>2.</td> <td></td> </tr> <tr> <td>3.</td> <td></td> </tr> </tbody> </table> Interim Control Plan <table border="1"> <thead> <tr> <th>Characteristic</th> <th>Evaluation</th> <th>Reaction Plan</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Interim Working Schedule		1.		2.		3.		Characteristic	Evaluation	Reaction Plan										<ul style="list-style-type: none"> Problem is isolated from the customer (internal/external) 																									
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Characteristic	Evaluation	Reaction Plan																																														
Step 3: Analyse the root causes 	<ul style="list-style-type: none"> Identify possible causes Determine and represent cause and effect relationships 	Cause & Effect-Diagram  Time Series Plot  Correlation Diagram 	<ul style="list-style-type: none"> Root causes of the problem are identified 																																													
Step 4: Define corrective actions 	<ul style="list-style-type: none"> Develop, assess and select potential corrective actions Embed corrective actions within the organisational structure Cancel containment actions 	FMEA <table border="1"> <thead> <tr> <th>S</th> <th>O</th> <th>D</th> <th>RPN</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>8</td> <td>3</td> <td>216</td> <td>name/wkX</td> </tr> <tr> <td>9</td> <td>2</td> <td>2</td> <td>(36)</td> <td>name/wkX</td> </tr> </tbody> </table> Working Schedule <table border="1"> <thead> <tr> <th colspan="2">Regular Working Schedule</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td></td> </tr> <tr> <td>2.</td> <td></td> </tr> <tr> <td>3.</td> <td></td> </tr> </tbody> </table> Control Plan <table border="1"> <thead> <tr> <th>Characteristic</th> <th>Evaluation</th> <th>Reaction Plan</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	S	O	D	RPN	Action	9	8	3	216	name/wkX	9	2	2	(36)	name/wkX	Regular Working Schedule		1.		2.		3.		Characteristic	Evaluation	Reaction Plan										<ul style="list-style-type: none"> Corrective actions are sustainably embedded in the organisation 										
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Step 5: Verify corrective actions 	<ul style="list-style-type: none"> Test selected correctve actions and prove effectiveness 	Process Capability Study  Design Verification Plan & Report <table border="1"> <thead> <tr> <th>function</th> <th>plan</th> <th>result</th> </tr> </thead> <tbody> <tr> <td>FU 1</td> <td>Test 01</td> <td>✓</td> </tr> <tr> <td>FU 2</td> <td>Test 02</td> <td>✓</td> </tr> </tbody> </table> Inspection Chart <table border="1"> <thead> <tr> <th>Defect Type</th> <th>Mon</th> <th>Tue</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> </tr> </thead> <tbody> <tr> <td>Corrosion</td> <td>###</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Scratch</td> <td>///</td> <td>///</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bump</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Dirt</td> <td>///</td> <td>###</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Laquer failure</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	function	plan	result	FU 1	Test 01	✓	FU 2	Test 02	✓	Defect Type	Mon	Tue	Wed	Thu	Fri	Corrosion	###					Scratch	///	///				Bump						Dirt	///	###				Laquer failure						<ul style="list-style-type: none"> Effectiveness of corrective actions is proved
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Step 6: Ensure effectiveness 	<ul style="list-style-type: none"> Review the long term organisational implementation of problem solving 	Control Chart  Flow Chart  Training Plan 	<ul style="list-style-type: none"> Actions are taken to prevent recurrence of the problem 																																													
Step 7: Define preventive actions 	<ul style="list-style-type: none"> Make the lessons learned available for other existing products/processes Make the lessons learned available for future products/processes 	Design guideline  Audit Checklist <table border="1"> <thead> <tr> <th rowspan="2">Item</th> <th colspan="2">compliance?</th> </tr> <tr> <th>yes</th> <th>no</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> FMEA-Software / FMEA-Database 	Item	compliance?		yes	no							<ul style="list-style-type: none"> Lessons learned are also used for other products/processes 																																		
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