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| **1** | **####** | **1** | **x** | **x** | **x** | **x** | **ML1: Review Confirmation / Contracts** |
| **1.1** | #### | **1** | **x** | **x** | **x** | **x** | Is KOSTAL Supplier APQP confirmed and prepared?<br>e.g. - Define Scope<br>- Define Tools and adress the Scope<br>- Define the Team<br>- Develop the Quality Plan<br>- Prepare/train the Team |
| **1.2** | #### | **1** | **x** | **x** | **x** | **x** | Have the KOSTAL contractural conditions been accepted?<br>- NDA: Non Disclosure Agreement<br>- TCs: Terms and conditions of purchase<br>- WA: Warranty Agreement<br>- Tool Loan Contract/Tool rental agreement<br>- Quality Guideline for Suppliers<br>- Logistics Guideline |
| **2** | **####** | **2** | **x** | **x** | **x** | **x** | **ML2: Review Quality Program / Product Design** |
| **2.1** | #### | **2** | **x** | **x** | **x** | **x** | Does the time plan of the supplier match with the KOSTAL time plan? (planning to confirmation see APQP Overview) |
| **2.2** | #### | **2** | **x** | **x** | **x** | **x** | Have a cross-functional project team and a team leader been defined? Are all project related resources defined? |
| **2.3** | #### | **2** | **x** | **x** | **x** | **x** | The supplier confirms the planning and execution of appropriate tests for the requalification. |
| **2.4** | #### | **2** | **x** | **x** | **x** | **x** | Has the supplier planned sufficient production resources? (Nominal and maximum capacity; peak volumes; capacity planning). |
| **2.5** | #### | **2** | **x** | **x** | **x** | **x** | Has the supplier understand the releated documents and specifications in KOSTAL APQP requested drawing/document? |
| **2.6** | #### | **2** | **x** | **x** | **x** | **x** | Are the contact persons (Link) complete? Is anyone missing? |
| **2.7** | #### | **2** | **x** | **x** | **x** | **x** | Are the risks for part form the supplier to KOSTAL understandable in accordance with the description of the Reasons of APQP (see APQP Overview)? |
| **2.8** | #### | **2** | **x** | **x** | **x** | **x** | Have further risks been identified at the supplier? If so, which ones (please list on the right) |
| **2.9** | #### | **2** | **x** | **x** | **x** | **x** | Has a timing plan been generated to monitor new tooling & equipment in order to meet the deadline for PPAP submission? |
| **3** | **####** | **3** | x | x | x | x | **ML3: Process Planning** |
| **3.1** | #### | **3** | **x** | **x** | | | Is there agreement of requirements, testing and documentation, Pre-Series quantities and timing? |
| **3.2** | #### | **3** | **x** | **x** | | **x** | Has the design been checked for possible potential improvement in terms of manufacturing costs? |
| **3.3** | #### | **3** | **x** | **x** | | | Do the supplier confirm the Pre-Series requirements for the part(s)? |
| **4-I** | **####** | **4** | x | x | x | x | **ML4: Process Verification** |
| **4.1** | #### | **4** | **x** | **x** | | | Does the time plan of the supplier match with the KOSTAL time plan? (planning to confirmation see APQP Overview) |
| **4.2** | #### | **4** | **x** | **x** | | | Are the development objectives & component functions (performance specification, function, dimensions, weight, materials, Interfaces) sufficiently specified? |
| **4.3** | #### | **4** | **x** | **x** | | | Are the quality and reliability objectives defined and known (including warranty and quality targets, ppm)? |
| **4.4** | #### | **4** | **x** | **x** | | | Can the KOSTAL Special Characteristics be fully implemented? |
| **4.5** | #### | **4** | **x** | **x** | | | Does the supplier has defined own Special Characteristics? |
| **4.6** | #### | **4** | **x** | **x** | | | Are reviews been planned (especially for product design, process, manufacturing feasibility study)? |
| **4.7** | #### | **4** | **x** | **x** | | | Has the design been checked for possible potential improvement in terms of risk (see APQP Overview) e.g. actions, manufacturing costs? If so, which ones (please list on the right). |
| **4.8** | #### | **4** | **x** | **x** | | | Has manufacturing feasibility (inc. design, quality & reliability targets) been assessed and documented by all departments? |

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| **4.9** | #### | **4** | **x** | **x** | **x** | **x** | Will there be a required maturity level of the feasibility study to ML 4.5 (e.g. completed, approved and fulfillment of the KOSTAL specifications)? |
| **4.10** | #### | **4** | **x** | **x** | **x** | **x** | Will the execution of a risk assesment of sub-supplier be necessary (for example, for quality planning, consideration of sub-supplier components, …)? |
| **4.11** | #### | **4** | **x** | **x** | **x** | **x** | Is there agreement of requirements, testing and documentation, quantities and timing? |
| **4.12** | #### | **4** | **x** | **x** | **x** | **x** | In the supplier's opinion should an additional independent expert be brought in to provide assurance (additional costs will/can be generated)? |
| **4.13** | #### | **4** | **x** | **x** | | | Do the pre-series parts meet the current drawing level (e.g., performance, fit, finish, quality, dimensions, identification, IMDS, etc.), or must non-conformances be expected/corrected? |
| **4.14** | #### | **4** | **x** | **x** | | | The supplier confirms that the requirements to Pre-Production Parts 1 are fulfilled? |
| **4-II** | #### | **4.5** | x | x | x | x | **ML4.5: Review: Final Design and Supplier Sourcing** |
| **4.15** | #### | **4.5** | **x** | **x** | **x** | **x** | Are the specified development objectives & component functions (performance specification, function, dimensions, weight, materials, Interfaces) confirmed? |
| **4.16** | #### | **4.5** | **x** | **x** | **x** | **x** | Are the specified quality and reliability objectives (including warranty and quality targets, ppm) confirmed? |
| **4.17** | #### | **4.5** | **x** | **x** | **x** | **x** | Has the scope of the requalification tests, start time, interval and documentation been coordinated with KOSTAL? |
| **4.18** | #### | **4.5** | **x** | **x** | **x** | **x** | Is the feasibility study completed, approved and does the feasibility study fulfil the KOSTAL specifications? |
| **4.19** | #### | **4.5** | **x** | **x** | **x** | **x** | Has risk assesment of sub-supplier been carried out?<br>Has quality planning (e.g. APQP) been generated/considered for sub-supplier components? |
| **4.20** | #### | **4.5** | **x** | **x** | **x** | **x** | Are all the required documents for nomination available?<br>Are these documents listed in the APQP Overview>For APQP agreed documents. |
| **4.21** | #### | **4.5** | **x** | **x** | **x** | **x** | Is timing plan up to date and cover all timings (to include: tools, equipment, test planning, test criteria, etc.) and can the deadline for PPAP/PPF submission be met? |
| **4.22** | #### | **4.5** | **x** | **x** | **x** | **x** | Has any product specific traceabilty been defined and agreed with supplier (e.g. PCBA labelling)? |
| **4.23** | #### | **4.5** | **x** | **x** | **x** | **x** | Are all essential KOSTAL specifications/ requirements and customer (OEM) specifications known & available, up-to-date and released?<br>Are they understood and accepted? |
| **4.24** | #### | **4.5** | **x** | **x** | **x** | **x** | Have all non-conforming requirements been clarified/agreed? (e.g. clashing requirements in drawings, drawing changes by KOSTAL, delivery dates, prices) |
| **4.25** | #### | **4.5** | **x** | **x** | **x** | **x** | Has sufficient test capacity/ressources been planned for the tests to be carried out?<br>Does project timing plan consider capacity and testing requirements? |
| **4.26** | #### | **4.5** | **x** | **x** | **x** | **x** | Are you planning to produce at more than one location?<br>If yes: Was it indicated in RFQ with DUNS? Are there corresponding PPAP / PPF processes? |
| **4.27** | #### | **4.5** | **x** | **x** | **x** | **x** | Is the quotation based on the lastest drawing? |
| **4.28** | #### | **4.5** | **x** | **x** | **x** | **x** | Are the specifications (technical, quality) confirmed (e.g. nominal and maximum capacity, customer loadings, capacity planning, ...)? |
| **4.29** | #### | **4.5** | **x** | **x** | **x** | **x** | Has the design been checked for possible potential improvement in terms of manufacturing costs? |
| **4.30** | #### | **4.5** | **x** | **x** | **x** | **x** | Does the supplier have sufficient resources (e.g. peak volumes/ product mix, ...)? |
| **5** | #### | **5** | x | x | x | x | **ML5: Process Valdidation / Conditions** |
| **5.1** | #### | **5** | **x** | **x** | **x** | **x** | Do the pre-series parts meet the KOSTAL requirements (e.g. current drawing level, performance, fit, finish, quality, dimensions, identification, IMDS, etc.)? |
| **5.2** | #### | **5** | **x** | **x** | **x** | **x** | Are the KOSTAL packing guideline known/communicated? |
| **5.3** | #### | **5** | **x** | **x** | **x** | **x** | Have additional packaging specification been defined? |

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| **5.4** | #### | **5** | x | x | x | x | Has alternative packaging been agreed? |
| **5.5** | #### | **5** | x | x | x | x | Is the Quallity Requirement Specification available? |
| **5.6** | #### | **5** | x | x | x | x | Are the viewing zones for decorative parts been (correctly) defined? |
| **5.7** | #### | **5** | x | x | x | x | Is there an order for PPAP/tool order/samples placed by KOSTAL? |
| **5.8** | #### | **5** | x | x | x | x | Is the PAET document carried out & agreed by supplier & KOSTAL? |
| **5.9** | #### | **5** | x | x | x | x | Have the PAET requirements for PPAP/PPF release been accepted? |
| **5.10** | #### | **5** | x | x | x | x | Has the process flow for new parts been developed based on Lessons learnt from previous products/ PFMEA's? |
| **5.11** | #### | **5** | x | x | x | x | Does the process flow match the KOSTAL requirements? |
| **5.12** | #### | **5** | x | x | x | x | Have "lessons learned" taken into account (e.g. recalls, internal factory requirements, similar PFMEAs, failures, warranty data)? |
| **5.13** | #### | **5** | x | x | x | x | Have the special characteristics (according to valid VDA/AIAG) been incorporated in the Process FMEA and identified? |
| **6-I** | #### | **6** | x | x | x | x | **ML6-I: Review CP (Control Plan)** |
| **6.1** | #### | **6** | x | x | x | x | Are the type and extent of the EOL (End Of Line) tests / checks and the associated checking equipment specified and agreed with KOSTAL? |
| **6.2** | #### | **6** | x | x | x | x | Is there a safe-launch-concept planned and presented to KOSTAL? |
| **6.3** | #### | **6** | x | x | x | x | Are the KOSTAL Capacity Analysis (Verification Stage 1) targets agreed and signed? |
| **6.4** | #### | **6** | x | x | x | x | Are environmental restrictions considered in terms of IMDS? |
| **6.5** | #### | **6** | x | x | x | x | Have the requirements for FOT/C0 been met and is everything on schedule? |
| **6.6** | #### | **6** | x | x | x | x | Have provisional process capability (pp/ppk) requirements been documented? |
| **6.7** | #### | **6** | x | x | x | x | Are the requalification tests fully documented in the control plan in accordance with the agreement in 4.17? |
| **6-II** | #### | **6** | x | x | x | x | **ML6-II: Review Logistics / Packaging** |
| **6.8** | #### | **6** | x | x | x | x | Has orders for packaging been placed & has returnable packaging system been implemented? |
| **6.9** | #### | **6** | x | x | x | x | Verify that a management system is in place to monitor, control returnable packaging for damage, qty (etc. trays); if yes (G) please specify. |
| **6.10** | #### | **6** | x | x | x | x | Packaging concept per piece part is reviewed for suitability of assembly/ automation/ handling. |
| **6-III** | #### | **6** | x | x | x | x | **ML6-III: Review Tools / Production Location(s)** |
| **6.11** | #### | **6** | x | x | x | x | Has a plan been developed for the preventive maintenance of tools and equipment? |
| **6.12** | #### | **6** | x | x | x | x | Is there a system in place to ensure that any reworked products are identified and checked before they are used? |
| **6.13** | #### | **6** | x | x | x | x | Does a clear quarantine and labelling process exist for Non conforming parts? |
| **6-IV** | #### | **6** | x | x | x | x | **ML6-VI: Review Parts and Process Quality** |
| **6.14** | #### | **6** | x | x | x | x | Are special characteristics for processes and products agreed and laid down in drawings, documents and operator training? |
| **6.15** | #### | **6** | x | x | x | x | All Kostal/Customer tooling is clearly identified at Supplier |
| **6.16** | #### | **6** | x | x | x | x | Have instructions and visual aids been developed in order to ensure the correct use of the gauges and test equipment during production? |
| **6.17** | #### | **6** | x | x | x | x | Are instructions available regarding SPC, special characteristics, monitoring rework and preventive actions, as well as maintenance plans? |
| **6.18** | #### | **6** | x | x | x | x | Is the FOT parts status sufficient for maturity level 6 (time planning)? |
| **7-I** | #### | **7** | x | x | x | x | **ML7-I: Series Parts from Series Tools** |

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| **7.1** | #### | **7** | **x** | **x** | **x** | **x** | Are the production machines, tools and equipment available at planned places available? |
| **7.2** | #### | **7** | **x** | **x** | **x** | **x** | Do the PV/Cn Samples (series parts) meet the current drawing level (e.g., performance, fit, finish, quality, dimensions, identification, IMDS, etc.), or must non-conformances be expected/corrected? |
| **7.3** | #### | **7** | **x** | **x** | **x** | **x** | Ist IS&PPAP submission on schedule? |
| **7.4** | #### | **7** | **x** | **x** | **x** | **x** | Has the supplier started to collect boundary sample parts? |
| **7-II** | #### | **7** | **x** | **x** | **x** | **x** | **ML7-II: Measurement / PV prepartation** |
| **7.5** | #### | **7** | **x** | **x** | **x** | **x** | Have all method, test/inspection equipment/gauges and systems been released by Quality Assurcance as capable (documents)? |
| **7.6** | #### | **7** | **x** | **x** | **x** | **x** | Is the qualification plan & test equipment (PV) available? |
| **7.7** | #### | **7** | **x** | **x** | **x** | **x** | Are the acceptance criteria for PV testing agreed? |
| **7.8** | #### | **7** | **x** | **x** | **x** | **x** | Have the PAET requirements for PPAP/PPF fully met? |
| **7-III** | #### | **7** | **x** | **x** | **x** | **x** | **ML7-III: Trial runs / PV Samples** |
| **7.9** | #### | **7** | **x** | **x** | **x** | **x** | Have trial productions runs sucessfully been carried out under production conditions for internal approval/release? |
| **7.10** | #### | **7** | **x** | **x** | **x** | **x** | Are work instructions and process instructions verified during the trial production run, to ensure that they correspond with the actual process? |
| **7.11** | #### | **7** | **x** | **x** | **x** | **x** | Are the tools, equipment, facilities, work operations, personnel and packing all at full production level? |
| **7.12** | #### | **7** | **x** | **x** | **x** | **x** | Are products / components stored appropriately and are the packing arrangements suitable for any special characteristics of the products / components? |
| **7.13** | #### | **7** | **x** | **x** | **x** | **x** | Are parts (samples from series production) available for KOSTAL if required? Note: Delivery to KOSTAL only under Sample condition! |
| **7.14** | #### | **7** | **x** | **x** | **x** | **x** | Were the parts 100% measured and the dimensional data recorded? |
| **7.15** | #### | **7** | **x** | **x** | **x** | **x** | Is it confirmed that the qualification (PV) and PPAP submission (IS&ISIR) will be done according to schedule (Deadline PPAP Submission)? |
| **7.16** | #### | **7** | **x** | **x** | **x** | **x** | Is the successful process audit (process acceptance result) available? |
| **8-I** | #### | **8** | **x** | **x** | **x** | **x** | **ML8-I: PPAP / Short-term process capability** |
| **8.1** | #### | **8** | **x** | **x** | **x** | **x** | The supplier confirmed the final document(s)/drawing(s) [Process FMEA & Control plan, Process flow, ...] and the compleation of Manufacturing Feasibility is completed. |
| **8.2** | #### | **8** | **x** | **x** | **x** | **x** | Has the quantity under production conditions (duration) to be produced during the run@rate requirement: ordered peak volume plus flex rate been agreed? |
| **8.3** | #### | **8** | **x** | **x** | **x** | **x** | Is it confirmed that the qualification (PV) is sucessfull (acceptance criteria were met) completed? |
| **8.4** | #### | **8** | **x** | **x** | **x** | **x** | Has the effectiveness of risk minimization measures been proven (scrap, process capability, …)? |
| **8.5** | #### | **8** | **x** | **x** | **x** | **x** | Was the required and confirmed scope of PPAP (specified and confirmed in PAET) submitted in time (deadline submission date)? |
| **8.6** | #### | **8** | **x** | **x** | **x** | **x** | Can all capabilities completely fullfilled (no non-capable extisting) in processes/corrective actions? |
| **8.7** | #### | **8** | **x** | **x** | **x** | **x** | Have the parts from the supplier's production line achieved the KOSTAL requirements (e.g. state of the art & passed measurement report)? |
| **8.8** | #### | **8** | **x** | **x** | **x** | **x** | Has the supplier involved their sub-suppliers to support the final desing an manufacutring feasibility review (if applicable)? |
| **8.9** | #### | **8** | **x** | **x** | **x** | **x** | Have short-term process capability studies been carried out for all defined characteristics in the production plant (as documented in the pre-production control plan) and has the required Ppk values (**Q**uality **R**eqirement **S**pecification) been achieved? |
| **8-II** | #### | **8** | **x** | **x** | **x** | **x** | **ML8-II: Supplier Production approval / Run @ Rate** |

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| **8.9** | #### | **8** | **x** | **x** | **x** | **x** | Are the production / hard tools, production process equipment, production gauges for the first production stream installed in their facility at the final production location (DUNS) been approved? |
| **8.10** | #### | **8** | **x** | **x** | **x** | **x** | Have the relevant operators been trained and instructed? Are work-plans accessible at the work-place?<br>Note: This is the Self-assessment and part of the PAET |
| **8.11** | #### | **8** | **x** | **x** | **x** | **x** | Can all requirements regarding volumes be met (specified in Capacity Planing sheet)?<br>Typical: Run@Rate requirement: ordered peak volume plus flex rate |
| **8.12** | #### | **8** | **x** | **x** | **x** | **x** | Are the results and retained reference samples archived (if applicable: Are Master samples/ boundary samples defined; agreed with Supplier and archived)?. |
| **8.13** | #### | **8** | **x** | **x** | **x** | **x** | Are the tests carried out with parts which were made in the Run@Rate, including parts from alternative paths (e.g., from repair/rework in the process and alternative manufacturing processes)? |
| **8-III** | #### | **8** | **x** | **x** | **x** | **x** | **ML8-III: PPAP/PPF Submission** |
| **8.14** | #### | **8** | **x** | **x** | **x** | **x** | The supplier confirms that all part dimensons specified in the Design Record have been masured using a capable measurement system. |
| **8.15** | #### | **8** | **x** | **x** | **x** | **x** | The supplier documents the results and ensures compliance with the part specifications. |
| **8.16** | #### | **8** | **x** | **x** | **x** | **x** | Has the supplier completes the inital process capability studies for all Special Characteristics? |
| **8.17** | #### | **8** | **x** | **x** | **x** | **x** | The supplier ensures that all necessary corrections to the measurement system are implemented prior to initiating the process capability study. |
| **8.18** | #### | **8** | **x** | **x** | **x** | **x** | Are the KOSTAL requirements completely fulfilled or agreed in the PAET of the PPAP/PPF? |
| **8.19** | #### | **8** | **x** | **x** | **x** | **x** | Is it ensured that the submitted initial samples (typ. 5 parts per cavity) can be clearly assigned to the measurement report (typ. clearly labelled)? |
| **8.20** | #### | **8** | **x** | **x** | **x** | **x** | Are initial samples and the ISIR (Initial Sample Inspection Report) submitted on time (PPAP submission)? |
| **9** | #### | **9** | **x** | **x** | **x** | **x** | **ML9: Review KOSTAL PPAP/PPF Decision** |
| **9.1** | #### | **9** | **x** | **x** | **x** | **x** | The supplier confirms that there are no changes to manufacturing process that affected the PPAP/PPA release for the material at production location. |
| **9.2** | #### | **9** | **x** | **x** | **x** | **x** | Has the delivery release been given to the supplier with KOSTAL signed PSW (PPAP released [green], or at least interim PPAP released [yellow])?<br>In case of rejection (PPAP rejected in PSW):<br>1) Were the reasons for rejection accepted and Post PPAP according to KOSTAL sampling process with new Index auf PPAP number started?<br>2) Is a Deviation Request according KOSTAL conditions requested (if applicable)? |
| **9.3** | #### | **9** | **x** | **x** | **x** | **x** | In case of rejection: Is an action plan available (typ. 6 weeks time period to solve the problem)?<br>Note: Every delivery without PPAP release needs a deviation approval. |
| **10** | #### | active | **x** | **x** | **x** | **x** | **Active: Long-term process capability** |
| **10.1** | #### | **as of ramp up** | **x** | **x** | **x** | **x** | Are there any potential supply bottlenecks due to ramp-up problems recognizable? |
| **10.2** | #### | **as of ramp up** | **x** | **x** | **x** | **x** | Are all process long-term capabilities calculated and confirmed? |
| **10.3** | #### | **as of ramp up** | **x** | **x** | **x** | **x** | Is the actual yield/yield loss/scrap rate evaluated and does it fit to the calculated scrap rate? |
| **10.4** | #### | **as of ramp up** | **x** | **x** | **x** | **x** | Are all open points from the APQP process closed? |
| **10.5** | #### | **as of ramp up** | **x** | **x** | **x** | **x** | Has a documented Lessons Learned session been carried out? |