Nidec Supplier Manual
(for Automotive Parts)

Edition 5 –July 1st 2025

CONTENT

REVISION RECORD AND APPROVALS 5

1 INTRODUCTION 9

1.1 Purpose 9

1.2 Scope 9

1.3 Responsibility 9

1.4 Language 10

2 NEW SUPPLIERS PREREQUISITES 10

2.1 Selection rules 10

2.1.1 Quality system 10

2.1.2 Other prerequisite: The new Supplier integration process 10

2.2 New Supplier integration process 11

2.2.1 Process flow 11

2.2.2 Step 1 - The quality system: IATF 16949 & Environmental system ISO 14001, Occupational health and safety (OH&S) management system ISO 45001 12

2.2.2.1 Quality System: IATF 16949 12

2.2.2.2 Environmental System: ISO 14001 12

2.2.2.3 Occupational health and safety (OH&S) management system ISO 45001 13

2.2.3 Step 2 - The EVAL questionnaire 13

2.2.3.1 EVAL questionnaire objectives and scores 13

2.2.3.2 Automotive Industry Action Group standards 14

2.2.3.3 E-Business Capabilities 14

2.2.4 Step 3 - The Supplier Validation Audit (SVA) 15

2.2.5 Step 4 - Commercial and financial requirements 15

2.2.5.1 DUNS Registration 15

2.2.5.2 Nidec General Terms and Conditions of Purchase & Supplier Manual 15

2.2.5.3 Non-Disclosure Agreement (NDA) 15

2.2.5.4 Insurance 15

2.2.5.5 NIDEC Supplier Manual 15

2.2.6 Step 5 - Other requirements 16

2.2.6.1 Regulatory requirements 16

2.2.6.2 Material Data System 16

3 NIDEC PROJECT MANAGEMENT 17

3.1 Nidec project management process 17

3.2 Business Attribution 18

3.2.1 Phase 0: Business Attribution 18

3.2.1.1 Business Attribution Process Flow 18

3.2.1.2 Business Attribution Process Description 19

3.3 APQP process (Phase 1 to Phase 4) 20

3.3.1 Introduction 20

3.3.1.1 APQP process 20

3.3.1.2 APQP File 21

3.3.2 Phase 1: Supplier design validation 21

3.3.3 Phase 2: Supplier process design and development 23

3.3.4 Phase 3: Supplier product and process validation 25

3.3.5 Phase 4: Receiving products management 27

3.4 Early Production Containment / Safe Launch Process 28

3.4.1 Early production containment / Safe launch process objectives and rules 28

3.4.2 Supplier responsibility 29

3.4.2.1 Pre-launch CP 29

3.4.2.2 Reinforced control 29
3.5 Traceability 29
3.6 Carry-over 30
3.7 Production Part Approval Process 30
3.7.1 General requirements for PPAP submission 30
3.7.1.1 Reasons for a PPAP submission 30
3.7.2 PPAP submission level & content 31
3.7.2.1 PPAP submission level 31
3.7.2.2 PPAP submission content 32
*** 33**
3.8 Packaging and labelling specifications / Logistic 34
3.8.1 General requirements 34
3.8.2 Labelling requirements for prototypes, IS, deliveries submitted to deviation, and clean point after claim 34
3.9 Process flowchart 34
3.10 PFMEA 34
3.11 Control Plans 35
3.12 Measurement System Analysis (MSA) studies 36
3.12.1 MSA requirements 36
3.12.2 Measurement System R&R studies 36
3.13 Initial process study 36
3.13.1 Nidec's SPPC identification 36
3.13.2 SPPC requirement 37
3.13.3 Process capability & process performance requirements 37
4 SERIAL PRODUCTION REQUIREMENTS 39
4.1 Introduction 39
4.2 Change Management 39
4.2.1 Introduction 39
4.2.2 Permanent changes 40
4.2.2.1 The Supplier Change Request and supporting validation data 40
4.2.2.2 Supplier Change Request approval 40
4.2.2.3 Change validation 41
4.2.2.4 Delivery 41
4.2.3 Temporary Changes 41
4.2.3.1 The Supplier Deviation Authorization Request 41
4.2.3.2 Supplier Deviation Authorization 41
4.2.3.3 Delivery 42
4.2.4 Rework operations 42
4.2.4.1 General requirements 42
4.2.4.2 Rework operation approval 42
4.2.4.3 Delivery 42
4.2.5 Consequences of an unauthorised change 42
4.3 Receiving products control process 43
4.3.1 Introduction 43
4.3.2 Group 1: Deliveries without open quality issues 43
4.3.3 Group 2: Deliveries following a quality incident 43
4.4 Claim Management Process 43
4.4.1 Introduction 43
4.4.2 Claims category 43
4.4.2.1 Quality claims 43
4.4.2.2 Logistics claims 44
4.4.2.3 Recurrent incident 44

4.4.3 Nidec 8D process 44
4.4.3.1 Generality 44
4.4.3.2 The 8D process 44
4.5 Controlled shipment level 1 and 2 (CSL1 and CSL2) 46
4.5.1 Introduction 46
4.5.2 CSL1 activities 46
4.5.3 CSL2 activities 46
4.6 Supplier Audits 47
4.7 Sub-supplier Management 48
4.7.1 Sub-supplier management requirements 48
4.7.2 Special processes assessment: CQI audits 49
4.8 Annual Conformity Report/Annual Requalification 49
4.9 Supplier Facility Access and communicated documents 49
4.10 Contingency Plan 49
4.11 Documents, Samples and Master Samples Retention 50
4.12 Nidec Property – Tools 50
4.13 Product End of Life 50
4.14 Continual Improvement 50
5 SUPPLIERS QUALITY IMPROVEMENT 51
5.1 QCD performance 51
5.1.1 Supplier Performance Report 51
5.1.2 Performance measurements indicators 52
5.1.2.1 Quality performances 52
5.1.2.2 Delivery performances (logistics) 53
5.1.2.3 Cost performances (Supplier cooperation) 53
5.1.3 Rating system 53
5.1.3.1 Supplier performance measurement scoreboard 53
5.2 Supplier Escalation Program 54
5.2.1 Introduction 54
5.2.2 Supplier Improvement Plan (SIP) 55
5.2.3 Top Worst Supplier (TWS) 55
5.2.4 NBOH 55
5.3 Cost Recovery 56
GLOSSARY 61
LIST OF QUOTED DOCUMENTS 66

Revision Record and Approvals

Edition Date	Edition Level	Changes
November 1st 2015	1	Nidec common supplier manual is made by combining NCJ, NAMA's quality documents based on NMA's Supplier Manual. This is the first edition. *NCJ (Nidec Asia region plants):* *<SWI-06-84-4 Quality Control Requirement > Edition 4 (Sep 2015),* *<SWI-06-83-4 Purchased Parts Advanced Quality Planning Request> Edition 4 (July 2015),* *NAMA (Nidec North America region plants):* *<NAMA Supplier Manual W741.13X> Edition 6(Nov 2014)* *based on quality document:* *NMA (Nidec Europe region plants):* *<NMA Supplier Manual HQ-P-7.4-02-F> Edition F (Aug 2015).*
October 1st 2017	2	1.**Cover page**: Edition update 2. **Overall**: Change from "ISO/TS 16949" to "IATF 16949" according to the latest IATF 16949:2016. 3. **Page 6**: Change from "In some instance, documents can be written in native language." to "All documents submitted to Nidec must be in English. If the supplier wants to use native language, it must be written with English together." 4. **Page 9**: Change from "70%" to "80%" to correct clerical error 5-1. **Page 10**: Add "&Environment system: ISO14001" to chapter 2.2.2 title 5-2. **Page 10**: Add title "2.2.2.1 Quality System: IATF 16949" 5-3. **Page 10&11**: Moved chapter "2.2.6.2 Environment Protection" to 2.2.2.2 and changed the title from" Environment Protection" to " Environment System: ISO 14001" 6. **Page 10& GLOSSARY**: Change from "International Automotive Oversight Board (IAOB)" to "International Automotive Task Force (IATF)" 7. **Page 11**: Delete "Otherwise, they are not pre-selected." 8. **Page13,14**: Move chapter "International Material Data System" from "2.2.6.3" to "2.2.6.2" 9. **Page15:** Add (SUSE) to phase0, step8; add (I.S check) to phase3, step 6; add (PSW) to phase 3, step 9 10. **Page 23**: Add "Note6: Definition of Catalogue /standard Components" 11. **Page 24,25,27,32,38,40**: Changed note No. accordingly 12. **Page 25**: Add "However, upon Nidec decision, a Supplier providing Nidec with catalogue components may not be subjected to early production containment / Safe launch process." 13. **Page 25**: Correct step No. 14. **Page 26:** Add "(production day, shift, operator, cavity, machine etc.)" 15. **Page 29, 30:** Correct "Submit Timing (phase)"; adjust "No." 16. **Page 32:** Add "together with PFMEA severity occurrence matrix as per APQP file (8.3 Risk matrix of 8 PFMEA Report)" 17-1 **Page 32, 33**: Moved contents related to <FMEA Report> upward. 17-2 **Page 32**: Delete "Besides, If Nidec requires, "changed from "shall" to "must" 17-3 **Page 33**: Change from "QGx2" to "PPAP approval" 17-4 **Page 33:** Change from "the respective management" to "Nidec" 18. **Page 34:** Add "If GRR (R&R) > 10%, a release from Nidec needs to be obtained in order to qualify the measurement system. * "qualify" here only means temporary qualify, supplier need to submit improvement plan." 19. **Page 34**: Change from "4" to "3" and deleted "Critical Dimension Characteristics (CD) relating to the dimensions which are considered critical." and the last row of "Table VI" 20. **Page 36:** Delete the last row of "Table VIII"; add contents about [CD] characteristics. 21. **Page 40,41,42:** Change "A" to "1", "B" to "2", "C" to "3", also related items in "Table X" 22. **Page 42:** Delete "and the Supplier is notified accordingly" 23. **Page 45:** Add "and at all affected Nidec locations worldwide" 24. **Page 45:** Add contents about "Supplier 8D Report Evaluation Sheet" 25. **Page 45:** Change "NMA" to "Nidec" to correct clerical error 26. **Page 46**: Correct clerical error 27. **Page 46,47**: Supplement for "supplier audit" 28. **Page 48**: Add "Nidec reserves the right to access supplier's facilities (and all processes) to perform CQI audit directly." 29. **Page 48**: Add "Die Casting: CQI-27 Casting System Assessment." 30. **Page 48, 49**: Updated IATF16949 clause according to the latest IATF 16949:2016. 31. **Page 48**: Add "(and all processes)" 32. **Page 51**: Add "Supplier which did not deliver, not be considered at the SPR." 33. **Page 51**: Adjustment for "Table XIV"

		34. **Page 52**: Change from “VDA 6.3 P7.5” to “IATF16949 10.2.5” according to the latest IATF 16949:2016 and VDA6.3:2016. 35. **Page 52**: Add “C3” 36. **Page 53**: Change “Score >80pts” to “Score ≥80pts”; “Score ≤ 80pts” to” Score <80pts” 37. **Page 54:** Add “(4 months)”. 38. **Page 54:** Add “and no improvements have been noticed” 39. **Page 62,63:** Adjust “No.”, add some missing items and correct clerical error 40. **Page 64:** Add “VDA Volumes are available from http://vda-qmc.de/”;add “Quality Assurance for Supplies :” and “(APP)”; delete “Quality Management in the Automotive Industry –”
April 1st 2020	3	1. **Cover page**: Edition update. 2. **Overall**: Add “ISO26262” requirements. 3. **Overall**: Correct clerical error. Change note No. accordingly. 4. **Page 8:** Moved contents related to ISO 14001 upward. 5. **Page 8:** Add “(VDA6.3 Potential Analysis Audit)” 6. **Page 9,14:** Made the scope clear. Change from "All legal and…" to "all regulations applicable in the countries where their Supplies are manufactured and sold and those required by Nidec and Nidec’s customer.". 7. **Page 11:** Delete "guidelines". 8. **Page 12:** Change from “12 months” to “max up to 12 months”. 9. **Page 13:** Add AMEC Procurement Portal (AMEC PP) requirements. 10. **Page 13:** Add description about catalogue components to Supplier Validation Audit (SVA). 11. **Page 24,25,26,28,43,48:** Add description of catalogue components. 12. **Page 15 ,23:** Add requirement that certification issued by laboratory certification with ISO 17025 need to be submitted free of charge 13. **Page 16,17,19,21,23,26:** Delete "Nidec project phase 1 ~ 4 ". 14. **Page 16,17,19:** Change from “Business attribution” to “Supplier Business attribution”. 15. **Page 18:** Add “Feasibility Study and Packaging” 16. **Page 18:** Change from “Nidec Supplier Manual” to “Nidec AMG1 Supplier Manual”. 17. **Page 18:** Add “documents related to end customer specific requirements not included in the drawing or APQP file” to RFQ package. 18. **Page 18:** Add “Feasibility study”. 19. **Page 19:** Change from “native language” to “Supplier native language”. 20. **Page 21:** Add “Nidec AMG1 Supplier Manual”. 21. **Page 22,33,36:** Update from “AIAG FMEA Reference Manual” to “AIAG VDA FMEA Handbook”. 22. **Page 25:** Initial samples were changed from “Nidec place order” to “be submitted free of charge”. 23. **Page 25,62:** Unified from “SQE / CE”, “SQA” to “SQE”. 24. **Page 25,28:** Identified that PSW shall be Nidec template. 25. **Page 27:** Change the period of reinforced control from "the production process is stable" to "last 3 months after Nidec customer SOP and extend if quality incident occur". 26. **Page 28:**.Supplementaion to Carry over. 27. **Page 29:** Delete contents about “PPAP rejection”. 28. **Page 29:** Delete “(changes in production CP)". 29. **Page 29:** Add “additional new tooling (renewal, for capacity issue, etc.)”. 30. **Page 31,64:** Delete “Submit Timing (Phase)” in “Table V PPAP submission matrix”. Change submission status of Measurement method and Dimensional report (Full dimension) in Level 1 from “S” to “R”. Change the document title from “Material Report (Material performance test result)” to “Material Report, Test Report” based on template title. 31. **Page 32:** Add “Packaging for special freight should be defined and is to be previously approved in writing by Nidec.”. 32. **Page 32:** Add “All regulatory symbols belonging to safety and regulatory characteristics of product e.g. inflammability sign (rule of IATF 16949)”. 33. **Page 35:** Add “Include annual requalification”. 34. **Page 35,37:** Unified SPPC and their symbols in AMG1. Add “PC”. 35. **Page 38:** Changed request submission limit for change management Level A from “90 days” to “195 days” before the implementation of the authorized change. 36. **Page 38:** Add details of “Process record” in note. Add “the Supplier shall submit those process records to Nidec on request.”. 37. **Page 41:** Add “Employees to be certified for rework and highly skilled.”. 38. **Page 47:** Clearly define type of supplier audits from five into six. Define audit frequency, audit result substitution and audit standard for suppliers who provide treatment or external process. 39. **Page 49:** Add “Nidec specific requirements to be applied to sub-supplier organizations.” 40. **Page 50:** Delete repetition. 41. **Page 50:** Add “Review of the contingency plan shall be conducted minimum once per year.”. 42. **Page 53:** Revised QCD calculation table (items, points allocation) 43. **Page 54:** Delete “and during any sorting done”. 44. **Page 55:** Add note about rating C. 45. **Page 56:** Changed from “the Supplier shall⋯” to “the Supplier Management shall⋯”. 46. **Page 57:** Changed from “Quality claims” to “Quality claims and the related administrative cost”. 47. **Page 59:** Add "6. Change of Quality Manager" in Others item at "Nidec Change Management Matrix". 48. **Page 16,22,61:** Change from “Off-tool part” to “First Off-tool part (FOT)”.

August 21st 2020	4	1. **Cover page**: Edition update. 2. **Page 56:** Add contents about penalty for "on purposed fraudulent activity". 3. **Page 7:** Add requirement of Product Safety Representative 4. **Page 9,10,11,46:** Clarify certification acquisition of IATF 16949, ISO 14001. Relocate and integrate text. 5. **Page 37:** Add description to "Change management level A". 6. **Page 57:** Clarify "Change of a manufacturing place" in "Nidec Change Management Matrix" 7. **Page 57:** Correct clerical error. 8. **Overall**: Change note No. accordingly.
July 1st 2025	5	1. Cover page: Edition update, Delete AMG1, add (for automotive parts) 2. 1. 2 Scope: add master purchase agreement and/or general terms and conditions 3. 1.3 Responsibility: Any further updated version of this Manual will be released electronically as notification of change; replace PSR by PSCR; update reference on FMEA handbook, MLA, VDA5, VDA SC, VDA PPA; add reference to VDA 19/ISO 16232; TISAX, add reference to comply with Nidec`s customer`s requirements, add requirement on ISO 45001; remove compliant requirement on ISO 26262; add capacity confirmation 4. 2.2.1 add ISO 45001 to certification (step 1) 5. 2.2.2 add ISO 45001, remove ISO 26262 6. 2.2.2.2 add CO2 neutrality strategy available as target 7. 2.2.2.3 ISO 45001 – new chapter 8. ISO 26262 description removed 9. Replace AMEC PP by designated platform system; remove AMEC PP 10. 2.2.5.2 add "&Supplier Manual" and requirement on acceptance of it 11. 2.2. 5.4 Insurance coverage must include in addition risk of commercial damage for Nidec 12. Add 2.2.5.5 Nidec Supplier Manual, Questions shall be addressed to Nidec representative in a timely manner 13. 2.2.6.2 add CAMDS, Etc; remove international: add request for submitting for different maturity levels; remove link to IMDS 14. 3.1 Nidec project management process – SUSE template deleted, added Sourcing Committee as reference 15. 3.2 Business Attribution – terminology LOI (letter of Intent) replaced by LON (Letter of Nomination) 16. 3.2.1.1 / step 3 & 5: add confirmation of capacity; step7 add traceability and cleanliness concept 17. 3.3 Add requirement of Nidec customer`s specific requirements; add reference & requirements to PPA / AIAG. 18. 3.3.2 add requirements on prePPAP for samples; step 1 add theoretical capacity; step 2 replace requirement description on Manual acceptance; step 6; add reference to prePPAP 19. 3.3.3 step 4: add CAMDS; step 7: update on requirements on packaging and labelling information 20. 3.3.4 Step1: add prior to SOP, capacity study; step2 clarify requirement on documentation to be submitted; step6: add capacity requirement/definition; step 7 add requirement on documentation to be submitted as aligned in PPA 21. 3.3.4 Step 7 Parts deviation vs approved PPAP initial samples must approved by Nidec prior to delivery 22. 3.3.5 Delete the sentence "This internal control process targets the compliance of supplier`s controls to CP but can be also done through a physical assessment." 23. 3.4.1 Add the requirement to provide Nidec with data on a regular basis 24. 3.6 add CAMDS 25. 3.7.2.1 Add requirement on PPA agreement. 26. 3.7.2.2, table V - #9 – add CAMDS; #12 delete material report; #13 add material report 27. 3.8.1 Add details on the requirements and delete the sentences: "The Supplier shall document and meet each Nidec's sites requirements regarding packaging, storage, cleanliness level, and shipping instructions"; "The Supplier shall store and retrieve material using the "First In First Out" system (FIFO). Sequences of batches have to be identified on the packaging label by either a date or a batch/lot number."; "The supplier shall fill in and submit Certificate of Origin in specified template when required." 28. Delete Chapter 3.8.2 Packaging requirements 29. Delete Chapter 3.8.2 Labelling requirements for serial production 30. 3.8.2 Labelling requirements: add "clean point after claim"; delete "all delivery units " by listing types of delivery, clean point after claim, delete "and clearly identify and label each packaging for prototypes, IS, samples and deliveries submitted to a deviation (permanent, temporary or rework operations)"; delete reference to note 11 (as deleted).; delete the description and requirements in detail. 31. 3.9 Add "date of process flow chart 32. 3.13.1 Add / changed description of SC, RC, and FC; introduce KFC (new); introduce new symbols; updated table VI 33. 3.13.2 Updated table VII on SPPC 34. 3.13.3 Add "or": either 125 random samples or (25pcs*5lots); update table VIII (SPPC description, scope and new symbols); add table IX for PC requirements. Delete CD characteristic. For attribute characteristics added MSA7 35. 4.1 Evidences of ISO/IATF/TISAX certifications, CQI cover sheet, Conflict Minerals PSCR and CSR compliance to be uploaded on Nidec supplier portal or submitted at Nidec request 36. 4.2.1 add reference to appendix; Change management level A: replace "195 days" by "minimum 6-8 months". Changes caused by the supplier's bankruptcy or withdrawal from the business shall be notified to Nidec in writing at least one and a half years in advance 37. 4.2.2.1add requirement to provide implementation documentation at least 30days before planned change; add note that costs are to be covered by supplier. 38. 4.2.2.2 add sentence concerning customer approval and safety stock. 39. 4.2.2.3 Update of the submission definition (submission scope) 40. 4.2.2.4 Remove the sentence "after PSW signature (..)." 41. 4.2.3.2 Add details concerning supplier Deviation authorization and supplier escalation program.

		42. 4.2.4.1 Add PFMEA 43 4.2.5 Add “inform the 3rd party certification body” 44. 4.3.1 Delete the sentence “in that way, (…)”; delete description of process targets and delete description of delivery group descriptions 45. Delete Chapter 4.3.2 Receiving products control process overview 46. Delete Chapter 4.3.3 Group 1 47. Delete Chapter 4.3.4 Group 2 48. Delete Chapter 4.3.5 Group 3 49. 4.4.2.1 Quality claims – 2 more categories added: Informational claim, 0km claim; add FFA, NFT and note to Warranty Return definition 50. 4.4.2.3 Add (FAA) to WR 51. 4.4.3.1 Replace AMEC PP by designated platform system 52. 4.4.3.2 D4: Add “defined methods…(..)”; D5-D6 – add information on response time (each 5 working days); add definition of D5 and D6; D7-D8 replace efficiency by effectiveness; CP update (moved from D5-D6) 53. 4.6 Add CQI audits, Table XIV VDA 6.3 Potential Analysis Judgement updated as per VDA6.3:2023 54. 4.7.2 Add CQI 29 and CQI30 55. 4.8 Add reference to PPA alignment; and requirement of adding requalification plan to CP on request. 56. 4.11 Replace SRC by SC 57. 4.13 Replace 10 years by 30 years, for samples option added for negotiation of time durations for samples 58. 5.1 QCD performance – quality performance could be performed on monthly basis, suppliers in project phase can not be evaluated, last edition of GQSM to be considered during QCD evaluation 59. 5.1.1 Updated table XIV SPR: Quality: Added WR/C1 > 1, Recurrence; Explanation on 8D evaluation; customer Recall: add placement on NBOH 60. 5.1.2.1 Add reference to Table XVI, Remove 3 listings of Quality incidents performance, ppm performance and 8D reactivity 61. 5.1.3.1 ”A” add submission of action plan upon Nidec request; “C” Remove TWS placement; Note 16: add replace “sourcing” by Phase 62. 5.2. Update Process: Supplier Escalation Program 63. 5.2.1. Update Process: Supplier Escalation Program; remove 1 step: phase out; add “special escalation program due to customer escalation” 64. 5.2.2 Replace time from 4 to 3 months for time limit 65. 5.2.3 Remove / Update conditions for TWS placement; correction from 30 to 60 points (a & b); add “by using TWS letter”; remove reverse PFMEA; add Nidec possible audits; change time limit for recovery plan from 4 to 3 months. 66. 5.2.5 Status “Phase out” removed, content remains with NBOH: add note 17 67. 5.3 Add “contracted capacity not available”; add CB audits due to OEM escalation; add claim fee. 68. Appendix I: Nidec Change Management Matrix, CAMDS added 69. New: Appendix II PPA documents 70. Glossary: added explanation: CB, CD/PC, ISO 45001;ISO16232, ISO17025, TISAX, VDA, VDA19, CAMDS, FFA, NCDA, NGPMB, NGPMG, NGPMH, NGPMZ, NIND, PPA, product characteristic, process parameter 71. Updated: FC, NAMA, NCJ,, SPPC, SC, RC, Deleted NMA 72. Reference standards: update AIAG VDA FMEA handbook, VDA 2 PPA; add link to CAMDS, add link to responsible mineral initiative (instead of conflict minerals)

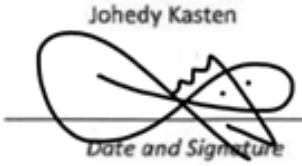
AAD AMEC Chief Purchasing Officer
Sébastien De Nardi



July 3rd 2025

Date and Signature

AAD AMEC Vice President Quality
Johedy Kasten



Date and Signature

AMEC Traction Business Group,
Purchasing General Manager
Keiichiro Nakatani

8/7/2025
K. Nakatani

Date and Signature

AMEC Traction Business Group,
Quality General Manager
Takahiro Manako

Takahiro Manako 3/July/2025

Date and Signature

1 INTRODUCTION

1.1 Purpose

The purpose of this Manual is to specify Nidec requirements for Suppliers. These requirements cover Supplier qualification, Supplier monitoring, new Supplier development, new Supplier production, Continual Improvement, and incident management.

1.2 Scope

This Manual applies to all Suppliers delivering to Nidec.

<MASTER PURCHASE AGREEMENT> and/or <GENERAL TERMS AND CONDITIONS OF PURCHASE> prevail over this Manual.

In order to know Nidec Suppliers status` definition and what is meant by specific terms and acronyms, the lector can consult the glossary at end of the Manual.

1.3 Responsibility

Suppliers shall understand and commit to meeting all requirements set forth in this Manual. Failure to meet these requirements will result in the loss of existing and/or future businesses with Nidec.

Any further updated version of this Manual will be released electronically as notification of change. This Manual becomes valid, if there is no objection by the Supplier received in writing within 30 days from the date of being released.

Furthermore, Suppliers shall:

- Comply with IATF 16949 requirements.
- Comply with ISO 9001 (and amendments) requirements.
- Comply with the latest ISO 26262 requirements if applicable.

  Scope: Suppliers who supply parts having electronic control system that covers functional safety standards.
- Comply with Safety and other Regulatory Requirements, as applicable.
- Comply with Responsibility for the Nidec entire supply chain (“Nidec Group Supply Chain CSR Promotion Guidebook”).

  https://www.nidec.com/en/sustainability/social/supply-chain/supplier/
- Comply to requirements of TISAX- Trusted Information Security Assessment Exchange (when required by Nidec /customer) , in minimum Nidec questionnaire to be fulfilled and submitted to Nidec on yearly basis.
- Use guidance of the Automotive Industry Action Group (AIAG) Publications or VDA Standards.
- Appoint a trained and qualified "Product Safety & Conformity Representative (PSCR)" for all production locations.
- Apply automotive core standards as follows:
  - ✓ Advanced Product Quality Planning (APQP) and Control Plan (CP) or VDA Maturity Level Assurance (MLA),
  - ✓ AIAG VDA FMEA handbook,
  - ✓ Measurement System Analysis (MSA) or VDA 5 - Capability of Measurement Processes,
  - ✓ Statistical Process Control (SPC) or VDA SC Special Characteristics (SC) - A Process Description Covering Special Characteristics,
  - ✓ Production Part Approval Process (PPAP) or VDA 2 Production Process and Product Approval (PPA),
  - ✓ Comply with VDA 19 and/or ISO16232 when requested

Suppliers shall adopt a “Zero Defect” target and commit to:

- 100% on time deliveries,
- Single digit PPM, each nonconformity shall be answered with an 8D,
- 8D application and Quick Reactivity (QR),

- Quality tools application (5W2H, Factor Tree Analysis, 5 Whys, Lesson Learned Card …etc.) and,
- Continual Improvement.

If there is any Nidec customer's specific requirement, the Supplier shall follow up Nidec customer's requirement.

1.4 Language

Nidec official language is English. Therefore, all documents mentioned in this Manual are in English. Nidec requests Suppliers to use English in business communication. All documents submitted to Nidec must be in English. If the supplier wants to use native language, it must be written with English together. However, in case of incident or discrepancies, the English version shall prevail.

2 NEW SUPPLIERS PREREQUISITES

2.1 Selection Rules

2.1.1 Quality System

The Supplier quality system shall be based on:

- Compliance with IATF 16949 requirements, (*please refer to note*[1]),
- A development in line with Nidec Supplier Manual requirements,
- A strong automotive culture,
- The attitude to ensure high quality at all stages in the provision of Supplies and services and,
- A clear and expressed Quality Policy.

The need of an efficient quality system is crucial to:

- Manufacture and deliver high quality Supplies,
- Ensure process stability,
- Guarantee the reliability of all tasks performed,
- Ensure proper communications (especially at Customer / Supplier interface),
- Ensure the continuity of the organisation know-how and,
- Drive Continual Improvement.

2.1.2 Other Prerequisite: The New Supplier Integration Process

Before being awarded business from Nidec, all new Suppliers shall successfully pass the "New Supplier Integration Process" (please refer to chapter 2 <New supplier Prerequisites in this Manual>).

The "New Supplier Integration Process" ensures that all new Suppliers are qualified to place business with Nidec.

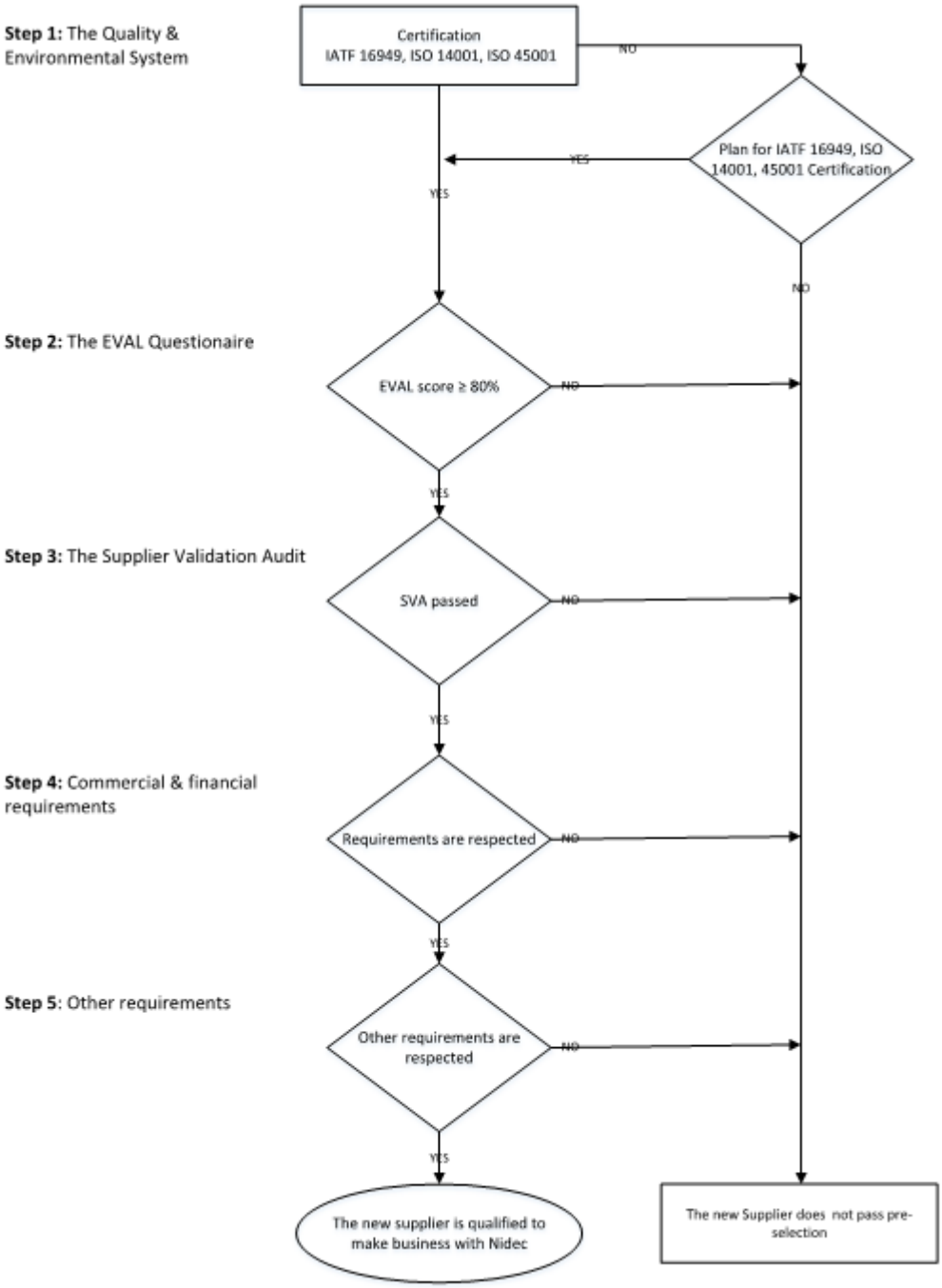
Throughout this process new Suppliers shall:

- Comply either to IATF 16949 or have a clear working plan (within 12 months) to be compliant to IATF 16949,
- Comply either to ISO 14001 or have a clear working plan (within 12 months) to be compliant to ISO 14001,
- Suppliers that already comply or have a clear working plan (within 12 months) to be compliant ISO 45001, would be preferred suppliers,
- Complete with success the EVAL questionnaire,
- Complete with success the Supplier Validation Audit (SVA) (VDA6.3 Potential Analysis Audit),
- Meet all commercial and financial requirements,

- Capacity confirmation on similar business/ in RFQ process mandatory capacity confirmation,
- Suppliers shall comply with all regulations applicable in the countries where their supplies are manufactured and sold and those required by Nidec and Nidec's customer,
- Be familiar with the Automotive Industry Action Group (AIAG) Publications or VDA Standards,
- Present e-business capabilities.

2.2 New Supplier Integration Process

2.2.1 Process Flow



2.2.2 Step 1 - The Quality System: IATF 16949 & Environmental System ISO 14001, Occupational Health and Safety (OH&S) Management System ISO 45001

2.2.2.1 Quality System: IATF 16949

As an automotive Supplier, Nidec requires all new Suppliers (including imposed Suppliers by Nidec's customer) to maintain a quality system. This quality system shall not only comply with the IATF 16949 requirements but also with the additional requirements outlined in this Manual which are consistent with Nidec's and Nidec's customers' expectations.

Unless otherwise specified, new Suppliers shall be certified according to IATF 16949. This certification has to be done by an accredited third-party certification body (*please refer to note*[2]).

Nevertheless, new Suppliers who are ISO 9001 registered may be awarded the business when:

- They develop their quality system in line with the automotive requirements and,
- They must have a working plan to acquire IATF 16949 certification within the next 12 months ready for review. *(please refer to note*[1]*).*

Note 1. *Only supplier of trading company (except sub-suppliers), catalogue components, indirect materials / processing materials and service (packaging, transportation, etc.) can apply for exception to IATF 16949 standard which needs to be formally approved by Nidec Purchasing Director and Nidec Quality Director.*

For existing suppliers and imposed suppliers by Nidec's customer who are not IATF 16949 certified. They should have a clear working plan to be IATF 16949 certified. Nidec will take comprehensive consideration for these existing suppliers, only the APQP experienced suppliers with annual evaluation rank A and no customer complaint received can have the chance by keeping their existing business with Nidec.

Note 2. *Risk matrix Supplier certification*

Severity	SPR	QMS requirement
A/B	A/B/C	IATF16949*
C	A/B	ISO 9001*
C	C	ISO 9001*compliance to customer -defined QMs requirements (MAQMSR)
D	A/B	ISO 9001*
D	C	ISO 9001*compliance to customer -defined QMs requirements (MAQMSR)

** Latest edition* **Table I**

New Suppliers shall inform Nidec of the suspension or the expiration of their certificate(s) of registration within 10 days after the event.

New Suppliers shall systematically issue a copy of their new certificate(s) of registration to all Nidec's sites concerned.

In case of IATF 16949 or ISO 9001 violation, Nidec is entitled to inform the third-party certification body of such violation.

Note 3. *New Suppliers should choose an organisation certified by the International Automotive Task Force (IATF) for third party audit and certification to IATF 16949.*

2.2.2.2 Environmental System: ISO 14001

New Suppliers shall comply with all relevant local, national, and international regulations regarding the environment protection.

Nidec top priority is to work toward high environmental performance. In order to do so, Nidec adopts Continual Improvement for the development of new products and processes as well as the establishment of new practices.

Therefore, Nidec:

- Strives for the sustainable use of raw materials, energy, water and other goods and,
- Fully considers the life cycle of its products.

Because the environmental impact of Nidec's products is the result of Nidec's processes and Suppliers' processes, all new Suppliers should perform activities to reduce damages on the environment. Hence, Nidec expects from all new Suppliers an active involvement in environment.

Consequently, Nidec requires all new Suppliers to be ISO 14001 registered or to have planned the certification within 12 months. *(please refer to note*[4]*)*

Note 4. *For existing suppliers and imposed suppliers by Nidec's customer who are not ISO 14001 certified. They should have a clear working plan to be ISO 14001 certified. Nidec will take comprehensive consideration for these existing suppliers, only the APQP experienced suppliers with annual evaluation rank A and no customer complaint received, can have the chance by keeping their existing business with Nidec.*

Nidec believes that hereafter techniques and methods are prerequisites to achieve sustainable environmental activities:

- Commitment, writing and communication of environmental performance,
- Assessment of each environmental impact throughout periodic reviews of the complete manufacturing process (production, maintenance, supplying and disposal) and all supplies specificities,
- Definition and follow-up of environmental targets for resources safeguarding (raw materials, energy, and water), prevention and reduction of environmental pollution, wastes and rejects management, expendable packaging reduction, etc.,
- Implementation of a contingency plan and,
- The implementation of a recycling programme.

Energy and raw materials shall be managed with efficiency to reduce logistic activities within the supply chain. On request, the supplier shall present recycling and disposal concepts which are appropriate for his products. The Supplier must have a target in its strategy to comply with CO2 neutrality.

2.2.2.3 Occupational Health and Safety (OH&S) Management System ISO 45001

Suppliers certified in accordance with the safety regulations standard ISO 45001 would always prevail among other suppliers during Nidec new suppliers' selection process that are not certified as per ISO45001.

As Nidec organization is committed to comply to high safety regulations and to work with supplier organizations that have continuous actions in place to prevent work accidents, injuries, and occupational diseases.

It is critically important for Nidec organization to cooperate with supplier organizations which have management system in place which ensures hazards elimination and minimize health and safety risks by taking effective preventive and protective measures, which also ensure compliance to the legal requirements.

Supplier organization should ensure as follows:

- Top management leadership, commitment, responsibilities, and accountability
- Integration of health and safety into all business processes
- Consultation and participation of employees or their representatives within its organization in regards of decisions related to the work safety regulations and implementation of such
- Effective processes for identification, control and optimization of health and safety risks and opportunities

Integration of health and safety activities within organization as PDCA process would support and contribute to overall successful supply chain cooperation within Nidec organization.

2.2.3 Step 2 - The EVAL Questionnaire

2.2.3.1 EVAL Questionnaire - objectives and scores

The EVAL questionnaire has been developed by Nidec to preliminary assess new Suppliers. The EVAL questionnaire is conducted by Nidec purchasing department. The EVAL questionnaire consists of eight chapters as follows:

1. Management
2. Key Data
3. Financial Health
4. Development, Products & Processes
5. Production
6. Quality
7. Logistics

8. Cost Management

The final score is the average results of each chapter, see Table II below.

EVAL score < 70%	The Supplier did not pass the EVAL questionnaire.
70% ≤ EVAL score < 80%	The Supplier passed the EVAL questionnaire. However, the Supplier has max up to 12 months to obtain a score ≥ 80%. Re-evaluation must be performed within this period by Nidec.
EVAL score ≥ 80%	The Supplier passed the EVAL questionnaire.

Table II

All new Suppliers must receive a positive evaluation to pass the EVAL questionnaire (score ≥ 80%).

Nevertheless, new Suppliers fail the EVAL questionnaire when they obtain:

- 1 negative or more than 1 "to improve" answers for Management chapter (qualifying questions) or,
- An average score below 50% for one of the eight chapters as indicated above.

The EVAL questionnaire is valid until the end of the business relationship with Nidec. However, Nidec can renew the EVAL questionnaire at any time and in particular after a major change. On Nidec plant level supplier EVAL might be defined in more details and might differ from general definition.

2.2.3.2 Automotive Industry Action Group standards

New Suppliers shall apply AIAG or VDA requirements. This point is addressed in the EVAL questionnaire in chapter 4 - Development, Product & Process, and chapter 5 - Production.

New Suppliers shall apply automotive core standards as follows:

- Advanced Product Quality Planning (APQP) and Control Plan (CP),
- Potential Failure Modes and Effects Analysis (FMEA),
- Measurement System Analysis (MSA),
- Statistical Process Control (SPC),
- Production Part Approval Process (PPAP),

New Suppliers shall know how to develop a Control Plan (CP) by identifying Special Product and Process Characteristics (SPPC).

2.2.3.3 E-Business Capabilities

E-business requires email, internet access and internet browser technology. This point is addressed in the EVAL questionnaire in the chapter 7 – Logistics.

All new Suppliers shall possess e-business capabilities to be permanently connected with Nidec:

- Fast internet connection,
- Web EDI or other internet tool to exchange logistic data,
- Drawing exchange (ex: CATIA native, CATEXP, STEP AP 214, VDAFS 2.0, IGES 5.1, DXF) and,
- Large file exchanges compatibility (> 100MB)
- Cooperate with Nidec via the designated platform system:
  - ✓ maintain actual contact list in the portal
  - ✓ upload mandatory documents on time before expiry date
  - ✓ respond to 8D reports
  - ✓ submit quotation
  - ✓ reply to RFI
  - ✓ issue APQP and PPAP documents etc.

- ✓ respond to periodical, process or 8D audits and propose and follow up on the actions of Supplier Quality Improvement Plan in accordance with the audit type performed.

2.2.4 Step 3 - The Supplier Validation Audit (SVA)

The SVA is covered by VDA 6.3 Potential Analysis Audit. Please refer to Chapter 4.6 <Supplier Audits> for the VDA 6.3 audit judgement standard.

Suppliers for catalogue components (include bulk materials) such as screws, washers, diodes, resistors, capacitors, resin, aluminium ingot, aluminium liquid, copper, steel, oil, lubricant, glue, grease, detergent, release agent, rust-proofing oil, gas, etc., can be audit-exempted under Nidec decision. If there is any Nidec customer's specific requirement, the Supplier shall follow up Nidec customer's requirement.

2.2.5 Step 4 - Commercial and financial requirements

2.2.5.1 DUNS Registration

New Suppliers shall register to Dunn & Bradstreet to obtain a DUNS Number. This registration is free of charge and must be done by each site supplying Nidec.

The Dunn & Bradstreet registration is accessible by visiting their website http://www.dnb.com/us/

2.2.5.2 Nidec General Terms and Conditions of Purchase & Supplier Manual

Unless otherwise agreed in writing, Nidec General Terms and Conditions of Purchase (*please refer to note*[5]) of the buying site shall apply to all purchases made by Nidec whether they are for tools, machines, equipment, parts, raw materials, other materials, or services.

The Supplier shall also sign the Nidec Supplier Manual, as part of the contract, with its company name, signed date and signature name of authorized person as well as the company stamp at the last page of this Manual. This signature is an evidence of Supplier's agreement on this Manual. The Supplier shall send the signed Manual back to Nidec and keep a copy in Supplier side.

2.2.5.3 Non-Disclosure Agreement (NDA)

The purpose of the NDA is to protect non-public and proprietary information. New Suppliers undertake to sign the <NDA> (Nidec's template) prior to disclosure of documents and any other information by Nidec.

2.2.5.4 Insurance

Nidec requires new Suppliers and Sub-suppliers to carry liability insurance, including Supply recall liability, with specific minimum amounts of coverage and asks for yearly evidence of such insurance coverage.

The minimum limits of guarantees that Nidec requires from new Suppliers and Sub-suppliers are set up and documented according to their net annual sales to Nidec as well as the risk of commercial damage that their parts could cause as indicated in the applicable Insurance Procedure.

This coverage includes recall costs engaged either by Nidec, by a car manufacturer or by government authorities and risk of commercial damage.

Note 5. The relevant commercial and financial requirements and documents defined in this chapter 2.2.5 <Commercial and financial requirements> differ from each Nidec buying site. Please follow the specific procedure from each Nidec buying site.

2.2.5.5 NIDEC Supplier Manual

Before proceeding with any further steps in the integration process, the supplier shall review all the requirements in this manual and sign acceptance. Questions/concerns shall be addressed to Nidec representative in a timely manner.

2.2.6 Step 5 - Other requirements

2.2.6.1 Regulatory requirements

New Suppliers shall comply with all applicable laws and regulations. These regulations relate, but are not limited to workers health & safety, environment protection, toxic & hazardous materials, free trade, etc.

New Suppliers shall comply with all regulations applicable in the countries where their supplies are manufactured and sold required by Nidec and Nidec's customer.

In particular new Suppliers shall fulfil requirements according to the following regulations and any future amendments:

- European Parliament and Council Regulation (EC) No 1907/2006 and Directive 2006/121/EC on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH),
- Directive 2011/65/EU (RoHS2) on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment,
- Directive 2000/53/EC on End-of-Life Vehicles (ELV),
- Directive 2012/19/EU (WEEE2) on waste electrical and electronic equipment (WEEE),
- Non-use of Banned/Declarable Substances listed in GADSL (Refer to: http://www.gadsl.org/),
- Dodd-Frank Section 1502: Conflict minerals (Refer to: http://www.conflictfreesourcing.org/conflict-minerals-reporting-template),

New Suppliers, regardless of their location, shall ensure that all supplies provided to Nidec's sites comply with the above-mentioned regulations and all other legal requirements, as applicable. This includes responsibility for Sub-suppliers, laws, and regulation's application.

Besides, if Nidec requires, Suppliers shall fill in and submit the <Certificate regarding Environment-related Substances> (Nidec template) to Nidec. Any future amendments or customer's requirements can be added into <Certificate regarding Environment-related Substances>. If there is any Nidec customer's specific requirement, supplier shall follow up Nidec customer's requirement and use Nidec customer's template if needed. Nidec can require the supplier to submit the <Certificate regarding Environment-related Substances> at any period during the business with Nidec.

For further information, please visit the official website of the European Union: http://europa.eu/ and the U.S Security and Exchange Commission website http://www.sec.gov/

The Supplier shall submit evidence (released by specified laboratory) for above regulations and any future amendment free of charge on request.

2.2.6.2 Material Data System

New Suppliers shall use Material Data System (IMDS, CAMDS, etc.) to report all information regarding Supplies content provided to Nidec's sites.

It is the responsibility of new Suppliers to cascade material data reporting requirements to all their Sub-suppliers.

Furthermore, new Suppliers shall ensure that all Sub-suppliers comply with the same material data requirements and shall investigate Sub-suppliers' materials, components, processes, raw materials, lubricants, coatings, paint, chemical constituents …etc.

New Suppliers shall submit material data to Nidec upon being awarded a business and prior PPAP submission (IMDS, CAMDS, etc.) data are part of the PPAP submission and are subject to Nidec approval). If required, supplier shall submit material data for different sample maturity levels.

New Suppliers can access the material data system by visiting their websites.

3 Nidec PROJECT MANAGEMENT

3.1 Nidec Project Management Process

Nidec project management consists of 5 Phases as follows



3.2 Business Attribution

3.2.1 Phase 0: Business Attribution

During this phase, only the Supplier who best matches Nidec needs and requirements, is awarded the business.

This phase starts with the identification of potential Suppliers (new and existing), who can be awarded the business and ends with the official nomination of the Supplier to be awarded the business with signature of the binding LON.

All new Suppliers shall successfully pass the “New Supplier Integration Process” (please refer to chapter 2.2 <New Supplier Integration Process> in this Manual) before proceeding to the “Business Attribution Process”.

3.2.1.1 Business Attribution Process Flow



3.2.1.2 Business Attribution Process Description

Step1: Potential Suppliers Identification

Nidec identifies potential Suppliers (new and existing) for placing a business. New Suppliers must comply with the pre-requisites presented in the chapter 2 <New Supplier Prerequisites> in this Manual.

Prior to the communication of any documents by Nidec, identified Suppliers shall sign the <Non-Disclosure Agreement> (Nidec's template).

Step2: Maturity Evaluation

Nidec will implement the maturity evaluation of the part according to the part innovation and severity level. Please refer to the chapter 3.7.2 <PPAP submission level & content> for detailed information.

Step3: Request for Quotation (RFQ)

Nidec sends a RFQ (*please refer to note[6]*) to each identified Supplier with a documentation package as follows:

- RFQ with Feasibility Study and Packaging
- Nidec General Terms and Conditions of Purchase
- Drawings with technical specifications and SPPC
- Liability Insurance for Supplier procedure
- Nidec Supplier Manual
- APQP File
- Nidec Logistic Manual for Suppliers (might be different from one Nidec site to another)
- Tool Manufacture Loan Agreement
- Long Term Supply Agreement
- Additional documents related to end customer specific requirements not included in the drawing or APQP file
- Confirmation of theoretical capacity

Note 6. The RFQ Package and other relevant business attribution requirements differ from each Nidec buying site. Please follow the specific procedure from each Nidec buying site.

Step4: Suppliers' offers

Identified Suppliers shall review and understand the RFQ package documentation to make an offer. When responding to the RFQ, identified Suppliers commit to applying the procedures and methodologies included in the documentation package. RFQ package documentation shall be signed when applicable.

Identified Suppliers shall complete and sign the RFQ and return a detailed cost breakdown within the deadline set by Nidec. This signature implies the acceptance of Nidec General Terms and Conditions of Purchase.

Step5: Nidec analysis

Nidec analyses the relevance of each identified Suppliers` response according to:

- Supply definition & specifications,
- Feasibility study,
- Design study & development
- QCD objectives commitments and
- Theoretical capacity.

Requirements are updated for Suppliers carried over to another project (please refer to chapter 3.6 <Carry over> in this Manual).

Step6: Supplier Pre-selection

Nidec preselects the identified Supplier who best matches Nidec's expectations. At this stage, the preselected Supplier (new or existing) shall meet all Nidec's requirements as described in chapter 2.2 <New Supplier Integration Process> in this Manual.

Step7: Pre-Design Review

The pre-selected Supplier shall complete and submit the <Feasibility Study> (Sheet 6 in APQP File) to Nidec. The pre-selected Supplier and Nidec jointly analyse the product and process design (including design drawing, packaging, traceability, and cleanliness concept) to ensure that Nidec SPPC have been identified and understood by the pre-selected Supplier.

Step8: Supplier Selection

Nidec selects the Supplier for the business through Nidec internal Sourcing Committee process.

Step9: Supplier Business attribution

The selected Supplier is officially nominated and awarded the business with the signature of the LON. A new Supplier who is awarded a Nidec business contract, is integrated into Nidec Suppliers Panel.

3.3 APQP process (Phase 1 to Phase 4)

3.3.1 Introduction

3.3.1.1 APQP Process

After having been awarded a business, the Supplier shall produce an Advanced Quality Plan driven by the IATF 16949 and the APQP process.

The APQP process describes a set of activities performed throughout a schedule to ensure that all supplies provided meet Nidec's and Nidec's Customers specifications and achieve the expected capacity level. The Supplier is expected to conduct the APQP process and use Nidec's templates. Alternative processes and templates must be previously validated by Nidec in writing.

For guidance, please consult the APQP and CP Reference Manual published by AIAG.

If there is any Nidec customer's specific requirement, the Supplier shall follow up Nidec customer's requirement.

By default, suppliers are required to submit documents according to the AIAG Reference Manual "Advanced Product Quality Planning" unless specified otherwise by Nidec (for instance, VDA 2 Production Process and Product Approval (PPA). If applicable, such specifications will be noted during APQP Kick-Off.

In case the parts need to be VDA approved, the supplier should submit documents according to Appendix II . In this case, following VDA standards should be complied.

- VDA 2 Production Process and Product Approval (PPA).
- VDA Maturity Level Assurance (MLA)
- VDA 5 - Capability of Measurement Processes
- VDA SC Special Characteristics (SC) - A Process Description Covering Special Characteristics
- VDA 4994 - Global Transport Label requirements

3.3.1.2 APQP File

To ensure a flawless APQP process, Nidec has developed the <APQP File>. This document provides Nidec with a tool to monitor QCD targets.

Either for new or modified supplies, the Supplier shall submit and sign the APQP File duly completed to Nidec.

The APQP File consists of specific requirements and its completion is followed-up and approved by Nidec.

All related Nidec's templates must be completed in English. If Nidec requires, Supplier shall complete all related APQP files and PPAP submission documents both in English and in Supplier native language. Any alternative templates shall be previously approved by Nidec in writing.

3.3.2 Phase 1: Supplier Design Validation

This phase starts when the Supplier is awarded a business from Nidec and ends with the contracts and agreements signature. During this phase, the supply requirements are drawn-up, discussed and validated.

If required, the Supplier shall submit PrePPAP for any sample maturity level applicable.

PrePPAP scope is as follows:

1. Signed PSW in accordance with valid sample drawing version
2. Ballooned Drawing
3. Control Plan
4. Dimensional Report
5. Material Certificate/IMDS when required

Nidec customer specific requirements may apply and safety datasheet might be requested, when applicable.

Step1: Kick-off of the APQP File

Nidec kicks-off the APQP File and requests the Supplier to complete <Coversheet> (Sheet 1 from the APQP File), <Information sheet> (Sheet 2 from the APQP File), and <Status and timing chart> (Sheet 3 from the APQP File) if needed.

If there is any information changed in the <Information sheet> (Sheet 2 from the APQP File) during APQP period, the Supplier shall timely inform Nidec and re-submit the updated <Information sheet> to Nidec on request.

To make sure that Nidec is fully informed about the new project during APQP period, the Supplier shall update and submit the <Status and timing chart> (Sheet 3 from the APQP File) regularly on request. And if there is any timing delay or relevant issues occurred, Supplier shall take actions and record them in the <CAR> (Sheet 14 from the APQP File). Supplier shall follow up the implementation of their actions until its closure and approved by Nidec.

The theoretical capacity results and line utilization (Line No., Run Rate Template) for each process step must be less than 85%; if higher, corrective actions must be submitted by the supplier. The calculation must be carried out in APQP phase 1 at the latest. Any deviation must be communicated to Nidec Purchasing and approval must be obtained.

Step2: APQP File acceptance

The intent of this step is to ensure that the Supplier:

- Understand the APQP File requirements and,
- Formally accept the APQP File and its related templates.

The Supplier shall sign the <Coversheet of the APQP File> (Sheet 1 from the APQP File).

Any further updated GSQM version is submitted electronically via supplier portal as notification of change. It will be considered as accepted from supplier if there is no response within 30 days.

Step3: Design Review (DR): Feasibility study & commitment

Nidec and the Supplier shall conduct a documented Design Review (DR) to address potential design issues. During the DR, Nidec and the Supplier shall review and agree on the SPPC and the measurement methods to be used. The DR shall lead to the commitment and signature of the <Feasibility Study> (sheet 6 from the APQP File).

Launch Design Potential Failure Mode and Effects Analysis (DFMEA) if the Supplier designs the product.

And if there is any requirement, that supplier cannot meet or relevant issues occurred during the DR, the Supplier shall take actions and record them in the <CAR> (Sheet 14 from the APQP File). Supplier shall follow up the implementation of their actions until its closure and approved by Nidec.

Step4: Target, Risk, and Quality Agreement

Nidec Project Team and the Supplier review the key dates of the project(s) and perform the project(s) risk assessment. The Supplier shall commit to keeping in line with quality agreement requirements and sign the <Targets, Risks & Quality Agreement> (Sheet 4 from the APQP File) on request.

Step5: Prototype Parts

The Supplier shall reproduce the planned production process as closely as feasible to deliver prototypes to Nidec. The Supplier shall define the prototype control plans (CP) that need to be approved by Nidec, before the Supplier proceeds with making prototypes. If there is any Nidec customer specific requirement (CSR), the Supplier shall follow the Nidec customer's requirement.

Prototypes are made from Nidec authorized drawings and/or other engineering design records. From the prototype purchase order, the Supplier will be informed about the quantity of prototypes to be delivered.

The Supplier shall identify all prototype deliveries accordingly and provide systematically each prototype delivery with an inspection report that must be consistent with the prototypes CP defined. For packaging and labelling requirements please refer to chapter 3.8 <Packaging and labelling specifications/logistic> in this Manual.

The inspection report is to provide evidence of compliance to Nidec specifications, prototypes CP and shall include a material certificate, a metrological/dimensional report and when applicable, an electrical report (Nidec may ask for additional specific certificates and reports). If there is any Nidec customer specific requirement, the Supplier shall follow the Nidec customer's requirement.

Step6: Prototypes Validation

Nidec validates the Supplier's prototypes through internal functional validation tests. Nidec verifies the Supplier's understanding of prototypes requirements and all other related requirements such as prototypes CP.

Supplier shall submit prePPAP for any sample maturity level applicable (B and/or C samples) as described in <3.3.2 Phase 1>.

Design Freeze

The design is frozen based on the signed <Feasibility study> (sheet 6 from the APQP File); to be approved by Nidec.

Before the design freeze, all open issues listed in <CAR> (Sheet 14 from the APQP File) need to be closed. If there are still some open issues remained, the Supplier shall follow up the implementation of their actions until its closure and approval by Nidec.

Step7: Contracts & Agreements Signature

The Supplier shall sign Nidec Supplier Manual, and when adapted the <Tooling Manufacture and Loan Agreement> (TMLA), the <Long-Term Supply Agreement> (LTA) and any other applicable contracts (*please refer to note [7]*).

Note 7. The relevant business agreements and contracts differ from each Nidec buying site. Please follow the specific procedure from each Nidec purchasing site.

Step8: APQP Activities Implementation Confirmation

The purpose of this step is to confirm the implementation of the APQP activities of each phase. At the end of each phase, Nidec SQE will check the implementation of APQP activities and inform the Supplier with the open issues.

Supplier shall take actions and record them in the <CAR> (Sheet 14 from the APQP File). Supplier shall follow up the implementation of their actions until its closure and approval by Nidec.

3.3.3 Phase 2: Supplier Process Design and Development

During this phase, the Supplier shall complete designs for its tooling, assembly lines/cells, process layout and gauging and measurement equipment.

The Supplier shall identify all necessary capital equipment required to manufacture the supply and collect data to ensure that manufactured supplies meet Nidec's drawings, specifications, and capacity requirements.

During this phase, the Supplier shall

- notify of any risk which may affect the supply integrity and the project plan,
- implement, when possible, error proofing / Poka-Yoke to target "Zero Defect",
- identify all changes needed for supplies and/or process specifications and,
- launch Process Potential Failure Mode and Effects Analysis (PFMEA), Pre-Launch and production CPs.

Step1: Detail Process Design

The Supplier shall prepare the necessary specifications to launch equipment, tooling, logistic and packaging for the ramp-up and control of the serial production process.

Step2: Gauge/Tooling/Equipment Review

During this step, the Supplier and Nidec shall review the measurement methods and agree on the equipment to be used. In addition, the Supplier shall review the readiness of its tooling, manufacturing equipment and gauges through MSA studies.

Supplier shall complete the <Measurement method> (Nidec PPAP template) and submit it to Nidec on request. All the characteristics (including all dimensions, performances and specification items listed on the drawing as well as in the drawing notes) shall be recorded in the <Measurement method>.

MSA studies are part of PPAP package (please refer to chapter 3.12 <Measurement System Analysis Studies> in this Manual) and shall meet the AIAG requirements. Supplier shall complete the <GR&R> (Nidec PPAP template) for the variable and attributive characteristic gauges and submit it to Nidec on request. Nidec will validate MSA results. Any issues which affect timing, quality or MSA studies shall be reported to Nidec and be recorded in the <CAR> (Sheet 14 in APQP File) to be followed up until closure.

For further information please consult the AIAG Measurement Systems Analysis Reference Manual.

Step3: PFMEA and CP Development (please refer to chapter 3.10 and 3.11 in this Manual)

The Supplier shall develop PFMEA to ensure that the process potential failure modes and associated causes and effects have been considered and addressed from the initial process definition stage.

The Supplier shall develop pre-launch and production CPs for product and process to guarantee the stability of the production process and the conformity of the supply according to Nidec's requirements.

For further information, please refer to the AIAG & VDA FMEA Handbook manual and the AIAG APQP and CP manual.

Step4: IMDS/CAMDS Submission

IMDS/CAMDS data are part of the PPAP submission and are subject to Nidec for approval. All material/material object data is reported after communicated with Nidec related department to ensure these can fulfil customer and legal requirement. If Nidec requires, each Supplier shall have a qualified IMDS/CAMDS coordinator who can deal with the relevant issues about its IMDS/CAMDS and report to Nidec.

This reporting is applied into IMDS "International Material Data System" / "CAMDS "China Automotive material data system". Nidec will inform its ID No. in the <PPAP submission matrix> (Sheet 15 from the APQP File). If Nidec requires, the Supplier shall re-submit the IMDS/CAMDS.

Step5: Early Production Containment / Safe Launch Process Rules (please refer to chapter 3.4 in this Manual)

Nidec and the Supplier shall agree on the early production containment conditions and exit criteria and sign the <Safe Launch Process Agreement> (Sheet 13.1 in APQP Files).

For measurement and evaluation of the achieved quality, internal and external project/product related quality objectives must be defined. The in-process defect rate (internal) and delivery defect rate (external) are defined in the <Safe Launch Process Agreement> (Sheet 13.1 in APQP Files). .

Step6: First Off-Tool Parts (FOT)

In order to perform this activity, the Supplier shall replicate the planned production process as closely as feasible, identify deliveries accordingly and inform Nidec about measurements methods, materials, dimensions and performances results. Nidec will inform the Supplier about the quantity to be delivered.

During this step, the Supplier shall complete the <Dimensional report> (Nidec PPAP template) and submit it to Nidec on request. Unless otherwise specified by Nidec or Nidec's customer, the sample quantity for full characteristics inspection is normally 5 pieces (N=5).

All the characteristics (including all dimensions, performances and specification items listed on the drawing as well as in the drawing notes) shall be measured and recorded in the <Dimensional report>. The number of full dimensional results in the <Dimensional report> must correlate with the number of items listed in the <Measurement method> and ballooned drawing.

Besides, if Nidec requires, the Supplier shall complete the <Capability Study> (Nidec PPAP template) for first off-tool parts and submit it to Nidec. Unless otherwise specified by Nidec or Nidec's customer, the sample quantity for first off-tool parts capability study is normally 30 pieces (N=30).

The Supplier shall identify all first off-tool deliveries which are measured for full characteristics inspection and capability study accordingly and the number of measurement results in the <Dimensional report> and <Capability study> must correlate with the first off-tool deliveries identified. For packaging and labelling requirements please refer to chapter 3.8 <Packaging and Labelling Specifications/Logistic> in this Manual.

The <Material Report> (Nidec PPAP template) is for the material related result such as material certification, material component report and material performance test result if applicable. The supplier shall submit material certificate released by laboratory certificated with ISO17025 free of charge on request. The <Test Report> (Nidec PPAP template) is for the testing result such as reliability test or other applicable tests. Nidec may ask for additional specific certificates and reports. If there is any Nidec customer specific requirement, the Supplier shall follow the Nidec customer's requirement.

Step7: Packaging & Labelling definition proposal

Unless specified by Nidec, the Supplier shall define the packaging specifications and submit to Nidec for approval. Packaging specification shall be documented and meet each Nidec's sites requirements. Supplier shall fill in and complete <Packaging & labelling> (Sheet 9 from the APQP File). Nidec shall do the appearance inspection of the first delivery to confirm the packaging if needed.

Each metal component provided to Nidec needs to be free from rust. Furthermore, Nidec supplier shall perform and provide to Nidec the rust risk evaluation, if requested by Nidec.

Packaging for special freight should be defined and must be authorised in writing by Nidec in advance.

Step8: Traceability Management (Refer to Chapter 3.5 <Traceability>)

Traceability must be organized in such a way that clear allocation of delivery data to the production and inspection lots is guaranteed. Suppliers including their Sub-suppliers must ensure that they have a functioning system to trace the origin of their products.

As a part of PPAP submission, the Supplier shall submit the traceability management document (Supplier template) on request. This document shall describe the traceability management including lot number definition and how to trace back at least the raw materials lot numbers, manufacturing data, inspection, and test records from lot numbers. Please refer to chapter 3.5 <Traceability>.

Step9: Sub-supplier Application

When there are any external processes and/or the production of parts planned to be done by a Sub-supplier, the Supplier shall specify it and submit the <Sub-supplier Application> (Sheet 10 from the APQP File) to Nidec for approval on request.

Step10: APQP Activities Implementation Confirmation

The purpose of this step is to confirm the implement of the APQP activities of each phase. At the end of each phase, Nidec SQE will check the implement of APQP activities and inform the Supplier with the open issues. Supplier shall take actions and record them in the <CAR> (Sheet 14 from the APQP File). Supplier shall follow up the implementation of their actions until its closure and approved by Nidec.

3.3.4 Phase 3: Supplier product and process validation

This phase starts with the Supplier's internal capacity & capability validation (process debugging run) and ends with the PPAP package approval by Nidec.

During this phase, the Supplier shall complete and submit PPAP package and fill in the APQP File accordingly:

- SPPC (updated) <Special Product and Process Characteristics>（Sheet 7 from APQP File）
- <Process Audit Report> （Sheet 11 from APQP File）
- <Capacity study & Run@Rate>（Sheet 12 from APQP File）
- <Concern & Action Report (CAR)> （Sheet 14 from APQP File）

A manufacturing feasibility and/or a capacity study may be required for each engineering change in design, or which leads to either a new or modified manufacturing process.

Step1: Internal Supplier Capacity and Capability Validation

The Supplier shall perform an internal validation of its supply and its production process prior to SOP. This later is to be validated via a capability and a capacity study. Capability and capacity studies are done through a production representative batch.

As parts of PPAP submission, Supplier shall submit the <Capacity study& Run@Rate> (Sheet 12 from the APQP File) and <Capability study> (Nidec PPAP template) on request. The corresponding result of the <Capability study> shall be recorded in < SPPC> (Sheet 7 from the APQP File) if required.

In capacity study supplier shall consider overall capacity including all Nidec products produced and other customer products at the same machine. Supplier is required to calculate the total peak capacity when supplying to Nidec (One Nidec project. If the supply problem is caused by insufficient capacity design or under capacity, the supplier shall be responsible for it.

For specific requirement of process capability study, please refer to the chapter 3.13 <Initial Process Studies> in this manual.

Step2: Nidec Validation Test

The Supplier shall meet capabilities requirements for SPPC (please refer to chapter 3.13 <Initial process studies> in this Manual) to be validated by Nidec.

The manufacturing process is representative of the serial process. Nidec will define tests requirements and the number of supplies to be measured is performed by cavity (number to be defined by Nidec).

As part of the PPAP documentation package, the Supplier shall provide Nidec with a duly completed dimensional report, material certificate and material performance test results to demonstrate the compliance to Nidec's specifications. Nidec may require additional test reports and samples, such as cleanliness report with 5 pcs of samples.

Step3: PFMEA and CP approval

The Supplier's PFMEA and production CP are validated by Nidec.

Step4: Sub-suppliers PPAP

The Supplier is responsible for reviewing and approving Sub-suppliers PPAP packages. Nidec can request a copy of these documents.

Step5: Process Audit

The Process audit is to ensure that the Supplier

- has a stable and valid process flow and,
- meets quality requirements and specification.

Nidec will perform the Process audit according VDA 6.3 and communicate results to the Supplier. However, Nidec reserves the right to delegate independent auditors to assess the Supplier process. The Supplier shall act proactively and conduct internal process audits. Results from the last internal audit shall be systematically communicated to Nidec.

Suppliers for catalogue components (include bulk materials) such as screws, washers, diodes, resistors, capacitors, resin, aluminium ingot, aluminium liquid, copper, steel, oil, lubricant, glue, grease, detergent, release agent, rust-proofing oil, gas, etc., can be audit-exempted under Nidec decision. However, being audit-exempted does not prevent the Supplier from performing internal process audits. If there is any Nidec customer's specific requirement, the Supplier shall follow up Nidec customer's requirement.

Please refer to chapter <5.3 Cost Recovery> in this Manual for detailed information about the corresponding amounts charged back to the Supplier due to failed process audits.

Step6: Run @ Rate Audit (Capacity study)

The Supplier Run@Rate Audit is performed by Nidec to assess the capacity of the Supplier manufacturing process. The standard template to be used is included in the APQP File. As parts of PPAP submission, Supplier shall fill in and submit the <Capacity study& Run@Rate> (Sheet 12 from the APQP File) to Nidec on request. The supplier shall consider overall capacity including all Nidec products produced at the same machine, including other customer products as well.

<Capacity study & Run@Rate> (Sheet 12 from the APQP File) can only be approved by Nidec in the following cases

- the result is "Acceptable".
- the result is "Unacceptable" or "Acceptable with Caution" but with a clearly defined recovery and/or investment plan.

However, upon Nidec decision, a Supplier providing Nidec with catalogue component (include bulk materials) (*please refer to note [8]*) such as screws, washers, diodes, resistors, capacitors, resin, aluminium ingot, aluminium liquid, copper, steel, oil, lubricant, glue, grease, detergent, release agent, rust-proofing oil, gas…etc., can be audit-exempt. Nidec reserves the right to audit these suppliers. If there is any Nidec customer's specific requirement, the Supplier shall follow up Nidec customer's requirement.

Unless otherwise specified by Nidec, the production shall be scheduled to run between 1 hour and 8 hours with at least the production of 300 consecutive supplies.

During the Run @ Rate audit, sorting is not authorized. Resulting Initial Samples (IS) are used for validation. Key data from the audits are recorded in the APQP File (proper cycle times, quality expectations and results).

Please refer to chapter 5.3 <Cost Recovery> in this Manual for detailed information about the corresponding amounts charged to the Supplier due to failed Supplier Run@Rate audits and / or failed capacities studies that cause delays or stoppages at customer or OEM production.

Note 8. Definition of catalogue /standard components as following: ・No Nidec requirement on the drawing ・Catalogue component circulating at the market.

Step7: PPAP Submission (please refer to chapter 3.7 <Production Part Approval Process> in this Manual)

The Supplier shall submit a PPAP package to Nidec which meets Customers Specific Requirements and which comply with PPAP process as described in the AIAG PPAP Manual.

IS sample shall be submitted free of charge for each cavity (usually 5 pieces). In case of multi-cavity tooling, Nidec defines how many pieces of each cavity the Supplier has to provide.

Further samples needed for additional tests like cleanliness tests (destructive tests) may be requested and must be submitted with the PPAP; details on documentation and sample quantities are aligned during PPA.

Deviation (not defined by drawing specification) vs. submitted PPAP initial samples (e.g. visual appearance, shape differences etc.) needs to be communicated to Nidec before parts shipment which shall be approved by Nidec prior to any sample delivery (e.g. approval of failure catalogue). If deviation versus initial samples is not communicated to Nidec, Nidec has the right to issue official complain to supplier.

Step8: Nidec Line Trial

Prior to approving the Supplier's PPAP, Nidec can perform a trial on its assembly line. The number of supplies to be used on the assembly line is defined by Nidec (usually 400 pieces).

Supplies to be used for the trial run are from the Supplier's mass production equipment, manpower, and material.

Nidec will validate the trial run and communicate results to the Supplier and Nidec SQE.

The Supplier shall identify packaging accordingly with a special label (for packaging and labelling requirements please refer to chapter 3.8 <Packaging and Labelling Specifications/Logistic> in this Manual).

Step9: PPAP Approval

PPAP approval is done through a cross-team analysis and required complete agreement between Nidec Departments.

The validation scope includes, but is not limited to, responsibilities of Nidec Purchasing, Quality, Logistic, Industrial / Production Engineering and R&D.

Nidec formally approves IS, PPAP package and all required deliverables by signing the <Part Submission Warrant> (PSW Nidec template).

Once PPAP is validated, the Supplier shall initiate and execute early production containment activities according to agreed conditions and criteria <Safe Launch Agreement> (Sheet 13.1 from the APQP File). The specific requirement for early production containment please refers to chapter 3.4 <Early Production Containment / Safe Launch Process> in this Manual.

Step10: APQP activities implementation confirmation

The purpose of this step is to confirm the implement of the APQP activities of each phase. At the end of each phase, Nidec SQE will check the implement of APQP activities and inform the Supplier with the open issues. Supplier shall take actions and record them in the <CAR> (Sheet 14 from the APQP File). Supplier shall follow up the implementation of their actions until its closure and approved by Nidec.

3.3.5 Phase 4: Receiving products management

Once the Supplier's PPAP is validated (IS acceptance), all deliveries may be directly sent to production upon Nidec each plant internal procedure (*please refer to note[9]*). However, according to an internal process, some deliveries are subjected to a specific internal control (please refer to chapter 4.3 <Receiving Products Control Process> in this Manual).

Note 9. The incoming management procedure differs from each Nidec plant. Supplier shall follow each Nidec plant's specific incoming procedure.

In this phase, especially when the production quality performance at the Supplier is not stable (example: Cpk: less than 1.33 or 1.67), the Supplier shall conduct 100% inspection in their production line as a physical evaluation. In the event of a discrepancy or non-conformity during the control, Nidec opens an incident and initiates an 8D process.

Step1: Receiving Products Control Planning

Nidec prepares the internal planning for the Supplier's deliveries to be controlled.

Step2: Weekly Report

Upon Nidec request, the Supplier shall communicate weekly reports to measure the Supplier's internal quality performances <weekly report> (sheet 13.2 from the APQP File).

Step3: Safe Launch Process Confirmation and Closure

After Nidec validation, the APQP File is closed and signed by Nidec. When necessary, Nidec reserves the right to require the Supplier to perform the APQP activities once again from phase 1 to 4.

The Safe Launch Process will be closed after Nidec signs the <Safe Launch Process Agreement> (Sheet 13.1 from the APQP File). The specific requirement for early production containment please refers to chapter 3.4 <Early Production Containment / Safe Launch Process> in this Manual.

Step4: Open Orders released

Nidec's buying site releases open orders (*please refer to note[10]*) which are always governed by the Nidec's General Terms of Purchase.

The Suppliers shall sign the open orders and send them back to Nidec. In the absence of the signed open orders by the Suppliers, the execution of the open orders shall be deemed an express acceptance of Nidec General Terms of Purchase and shall automatically entail Supplier's waiver of its own terms and conditions.

Note 10. The orders and contracts differ from each Nidec buying site. Supplier shall sign the applicable contracts and agreements based on each Nidec buyer procedure.

3.4 Early Production Containment / Safe Launch Process

3.4.1 Early production containment / Safe launch process objectives and rules

Early Production Containment / Safe launch Process is mandatory for all pre-production and production supplies that require a PPAP submission. However, upon Nidec decision, a Supplier providing Nidec with catalogue components (include bulk materials) such as screws, washers, diodes, resistors, capacitors, resin, aluminium ingot, aluminium liquid, copper, steel, oil, lubricant, glue, grease, detergent, release agent, rust-proofing oil, gas, etc., may not be subjected to early Production Containment / Safe launch Process. Once PPAP is validated, the Supplier shall initiate and execute early Production Containment activities according to agreed conditions and criteria <Safe Launch Agreement> (Sheet 13.1 from the APQP File). The Safe Launch Process management should also be implemented, if needed, when the Supplier re-starts the production after an intermission more than 6 months.

This process is to check and document the efforts of the Supplier to control its processes during start-up and ramp-up phases and to ensure quick identification, containment, and correction of quality issues at the Supplier manufacturing or assembling site rather than at Nidec's Customers sites.

The Supplier is obliged to provide Nidec with data (at least measurement reports; if not otherwise defined in the deviation authorisation) on a regular basis, starting from the first deliveries to Nidec until the final PPAP release and the completion of the SLP phase.

Duration, conditions and exit criteria which are defined in <Safe Launch Agreement> (Sheet 13.1 from the APQP File) have to be agreed by Nidec and the Supplier at Phase 2 step 5 early production containment rules.

Unless otherwise specified by Nidec and Nidec customer, the duration of Safe Launch Process is normally 6 months with at least the production of 3,000 consecutive supplies. The Safe Launch duration will be extended longer if the production quantity is less than 3,000 or any incident occurs.

During this period, Supplier shall implement the safe Launch production based on the requirement of the <Safe Launch Agreement> and no change permitted during this period unless Nidec approves.

The Safe Launch management duration will be changed upon Nidec customer's specific requirement. If there is any specific Nidec customer's requirement for the Safe Launch management, the Supplier shall follow Nidec customer's requirement.

3.4.2 Supplier Responsibility

3.4.2.1 Pre-launch CP

Early production containment / Safe Launch Process requires a Pre-launch CP to be validated by Nidec. The Pre-launch CP is a significant enhancement to the Production CP that raises the confidence level to ensure that supplies will meet Nidec's requirements.

The Pre-launch CP consists of additional controls, inspection audits, and testing to identify non-conformances during the production process. Nidec requires the Supplier to highlight all additional controls in yellow in its Pre-launch CP. It shall take into consideration all known critical conditions of the supply as well as potential areas of concern identified during PPAP.

According to the manufacturing or assembling process dominant factor (set-up, machinery, fixture, tooling, operator, material/components, preventative maintenance, and climate), additional controls include:

- Off-line, separate, and independent checks from the normal production process whenever possible,
- Increased frequency/sample size of receiving, process, and/or shipping inspections,
- Sub-supplier containment and/or sub-Supplier audits,
- Addition of inspection/control items,
- Enhanced process controls such as error proofing or,
- Error proofing validation through introduction of known defects.

The Pre-launch CP also serves to validate the Production CP. Therefore, the Supplier shall document early production containment requirements / Safe Launch Process in their Production CP to be reviewed and validated by Nidec.

Approval of the Supplier's Pre-launch or Production CP does not discharge the Suppliers` responsibility to meet Nidec's expectations, specifications and the applicable laws and regulations.

3.4.2.2 Reinforced control

The scope of the reinforced control includes new validated PPAP and lasts 3 months after Nidec Customer SOP. If any quality incident will occur in this period of time, reinforced control shall be extended for another period of 3 months. The reinforced control is done by the Supplier to protect Nidec lines through a specific control done according the Pre-launch CP.

During the agreed period, the Supplier shall measure its internal quality performance and to submit results regularly on Nidec request.

The Supplier shall implement immediate containment and corrective actions when non-conformances are detected. PFMEAs and CPs are updated accordingly if applicable.

3.5 Traceability

The Supplier shall implement an identification system with lot traceability or production data to provide Nidec with a tool to execute efficient lot controls in the event that a non-conforming batch is identified. On request, Nidec will identify and document unique requirements during the APQP kick-off meeting or other formal communication.

Identification shall at least permit to trace back the Supplier raw material lot numbers, manufacturing data (production day, shift, operator, cavity, machine, etc.), inspection and test records.

For supplies produced under similar conditions (same raw material lot, same manufacturing line/batch, etc.), the Supplier shall be able to trace back when and to which Nidec's buying site they have been shipped. Nidec may, at any time, in its sole discretion, assess the Supplier's traceability system through the process audit.

3.6 Carry-Over

If a supply is carried over from one project to another one, the Supplier shall:

- Check the status of the tools and propose a maintenance programme,
- Systematically conduct a Run @ Rate audit and communicate results to Nidec (audit report),
- Present a copy of the previous validated PPAP (*please refer to note[11]*),
- Use the Lessons Learned Cards (LLC) from previous incidents,
- Update quality targets,
- Update process FMEA and CP,

In case one commodity of a Supplier was qualified by any site of Nidec, this Supplier automatically gets validation to supply any other site for the same commodity, assuming that production is made by Supplier from the same plant, same process without any changes.

Note 11. In some instance, Nidec can require PPAP resubmission for PSW, Capacity study & Run@Rate, Packaging specifications, and IMDS/CAMDS.

3.7 Production Part Approval Process

3.7.1 General Requirements for PPAP Submission

The intent of PPAP submission is to ensure that all specification and requirements are understood by the Supplier and to ensure stability and predictability of the Supplier's process to produce compliant supplies consistently. In some instance, Nidec may ask the Supplier to submit PPAP documentation package in electronic version.

Prior to submitting PPAP documentation package and IS to Nidec, the Supplier shall ensure that all PPAP requirements are met as per the AIAG PPAP Reference Manual. PPAP submission shall be based on the approved production drawings. A copy of these drawings ("ballooned" drawings) shall be included in PPAP package. The Supplier shall also manage Sub-suppliers PPAP including imposed Sub-suppliers for a proper PPAP process control.

The Supplier is responsible for filling-in all applicable PPAP documents with Nidec's <PSW template> signature and submitting on-time PPAP package and IS. It is strictly forbidden to start shipping Nidec without prior approval with the signed PSW.

However, upon Nidec decision, catalogue components (include bulk materials) such as screws, washers, diodes, resistors, capacitors, resin, aluminium ingot, aluminium liquid, copper, steel, oil, lubricant, glue, grease, detergent, release agent, rust-proofing oil, gas …etc., may not be subjected to the PPAP submission. As a part of PPAP submission, the bulk materials list shall be submitted on request.

When the first PPAP is rejected, the Supplier will be charged for following PPAP validation tests (please refer to chapter 5.3 <Cost recovery> in this Manual for further information).

3.7.1.1 Reasons for a PPAP Submission

PPAP submission may be required, but not be limited to any of the situations as follows:

- Initial submissions,
- Changes in process or engineering design,
- Tooling transfers, replacement or refurbishment, additional new tooling (renewal, for capacity issue, etc.)
- Corrections of discrepancies from a previous PPAP submission,
- Changes in a tooling status from inactive to active when the inactive period was longer than 1 year,
- Changes in the Supplier's manufacturing/assembling location,
- Changes in Sub-suppliers (new Sub-suppliers) or,
- Changes in Sub-suppliers' process, tooling or engineering design,

Besides, unless otherwise specified by Nidec or Nidec customer, the PPAP submission is mandatory if the Change Management Level is 'A' defined in the table <Nidec Change Management Matrix > (See the list of quoted document at the end of this manual). Please refer to chapter 4.2 <Change Management> for detailed requirement about the change management. Nidec reserves the right to require the Supplier's PPAP Submission for any other applicable condition.

For further information and suggested method to use, please refer to the AIAG PPAP Reference Manual.

3.7.2 PPAP Submission Level & Content

3.7.2.1 PPAP Submission Level

Nidec PPAP Levels may vary from customer PPAP Levels, therefore PPAP scope is to be in alignment with customer PPAP scope, usually defined as PPA agreement.

PPAP consist in submission of a PSW, IS (usually 5 pieces) and several documents according to the submission level required by Nidec.

The PPAP Submission Level is determined by [Part Innovation Rank] (Table IV) and [Part Severity Rank] (Table V) according to [PPAP Submission Level] (Table III). Nidec will define the part Innovation rank, Part Severity rank, and determine the PPAP Submission Level. Supplier will be informed with the PPAP Submission Level in the <Initial Sample Requirements> (Sheet 5 from the APQP File) and PSW.

Severity \ Innovation	A	B	C
A	Level 3	Level 3	Level 3
B	Level 3	Level 3	Level 2
C	Level 3	Level 2	Level 1
D	Level 2	Level 1	Level 1

Table III PPAP Submission Level

Rank	Criteria	Request
A	Parts, purchased from a potential/an existing supplier, which use a modern technology/method/material	Propose an advance product quality plan, promote a project, and monitor progress based on the plan, and report status at an important stage of every step.
B	Parts, purchased from an existing supplier, which use an existing technology Parts or similar products, purchased from a new supplier, which have been sold in the market	Propose an advance product quality plan, promote a project, and monitor progress based on the plan, and submit a plan at the beginning of a project.
C	Parts, purchased from an existing supplier, which have been sold in the market	Propose a plan that satisfies Nidec's mass production plan and promote a project and monitor progress based on the plan.

Table IV Part Innovation Rank

Rank	Scope	Detailed description	Severity DFMEA	Example
A	Parts that may cause physical injury-causing defect	Parts that may cause smoke or fire	9-10	Copper wires, PCB ASSY, bearing, plastic material (e.g. insulator molding compound, coating powder).
B	Parts which may cause a defect that causes the customer dissatisfaction	Parts that may cause the motor to lock, or deteriorate its performance by 30% or more	5-8	Shaft, lead bush, magnet, metal materials (e.g. steel, bare metal)
C	Parts that cause a defect that the customer does not feel or feel some dissatisfaction	Parts that may cause the motor's performance to deteriorate up to 20% or so.	2-4	Bolt, washer
D	Parts that do not affect the customer	Parts that virtually do not deteriorate the motor's performance	1	Name plate, INSULOCK

Table V Part Severity Rank

3.7.2.2 PPAP Submission Content

PPAP consist in submission of a PSW, IS (usually 5 pieces) and several documents according to the submission level required by Nidec. According to the PPAP Submission Level defined by Nidec, the PPAP Submission Content is specified on Table VI [PPAP submission matrix]. However, Nidec may ask for further documents regardless PPAP Level.

Unless formally approved by Nidec, the Supplier shall use the Nidec's <PSW template>. Any alternative template shall respect the Automotive Standard and is to be previously approved in writing by Nidec.

As PPAP shall meet requirements from the AIAG PPAP Reference Manual, any alternative PPAP system and templates are to be previously approved in writing by Nidec.

The following chapters will detail submission requirements for packaging specification, flow charts diagram, PFMEA, CP, Measurements System Analysis (MSA) and initial process study (capabilities studies).

Nidec will countermeasure at the IS as a minimum special characteristic (SPPC).

No.	PPAP content	Nidec template	PPAP Submission Level				
			L1	L2	L3	L4	L5
1	Part submission warrant (PSW)	○	S	S	S	S	R
2	Design record/"Ballooned" drawings	--	S	S	S	*	R
3	Approved change documents (if applicable)	--	R	S	S	*	R
4	DFMEA (if applicable)	--	R	R	S	*	R
5	Process layout	--	R	R	S	*	R
6	Process flow diagram/chart	--	R	R	S	*	R
7	PFMEA	--	R	R	S	*	R
8	Control plan	--	R	S	S	*	R
9	IMDS/CAMDS (Nidec ID No.: _____)	--	S	S	S	*	R
10	Measurement method	○	R	S	S	*	R
11	Dimensional report (Full dimension)	○	R	S	S	*	R
12	Test Report	○	R	S	S	*	R
13	Material report, Material certification	○	S	S	S	*	R
14	Capability study (Initial process study)	○	R	S	S	*	R
15	GR&R (Measurement system analysis)	○	R	R	S	*	R
16	Capacity study & Run@Rate	○	R	S	S	*	R
17	Packaging specifications	--	S	S	S	*	R
18	Traceability Management (Traceability description)	--	S	S	S	*	R
19	Appearance approval report (if applicable)	○	S	S	S	*	R
20	Bulk materials list/requirement (if applicable)	--	S	S	S	S	R
21	Master sample ((if applicable)	--	R	R	R	*	R
22	Qualified laboratory documentation	--	R	S	S	*	R
23	Compliance with the Customer's Specific Requirement (if required)	--	R	R	S	*	R
24	Checking Aids	--	R	R	R	*	R
25	Additional requirement	Comments/details					
25.1	APQP File	○					
25.2	Sub-supplier PPAP	--					
25.3	Shipping report	--					
25.4	Conflict Minerals	--					
25.5	Contingency Plan	--					
25.6	Calibration test	--					
25.7	Reliability Report	--					
25.8	CQI audit report						
	Other	--					

S: The Supplier must submit the documents to Nidec and keep a copy or a document version of the documents' record.
(The Supplier confirms that a FMEA was developed or submits a copy of the FMEA coversheet. The FMEA usually remains with the supplier. Upon request by Nidec, FMEA must be presented at Nidec.)

R: The supplier does not need to submit the documents to Nidec. Please keep a copy or a document version of the documents' record. However, if requested by Nidec, please make the documents available for its use.

*: The supplier does not need to submit the documents to Nidec, but please keep a copy or a document version of the documents' record. However, if requested by Nidec, please submit the documents.

Table VI PPAP Submission Matrix

3.8 Packaging and Labelling Specifications / Logistic

3.8.1 General Requirements

The Supplier shall respect the requirements (packaging, storage, cleanliness level, and shipping instructions, labelling instructions for samples and pallets, etc.) specified in Nidec Logistic Manual for Suppliers which might vary from different Nidec plants.

Nidec can define specific logistic protocols with the Supplier if it´s necessary.

The Supplier shall respect safety identification criteria according to applicable laws and Nidec's requirements.

The Supplier shall fill in and submit Certificate of Origin in specified template when required; delivery notes shall contain UL traceability sheets for deliveries of Nidec motors at USA market.)

The Supplier shall conduct regular internal logistic audits. Nidec may ask for evidence of logistic audits.

3.8.2 Labelling Requirements for Prototypes, IS, Deliveries submitted to deviation, and clean point after claim

The Supplier shall label each packaging for prototypes, IS, samples, first delivery after change, deliveries submitted to deviation (permanent, temporary or rework operations), clean point after claim according to each Nidec's sites requirements to prevent Nidec from any possible mixing.

3.9 Process Flowchart

As part of PPAP submission, the Supplier shall present to Nidec a process flow chart which shall contain:

- A complete process flow starting with the receiving inspection process and ending with the packaging & shipping process,
- Sub-suppliers along with their names and controls done at their locations,
- Machine numbers or unique identifiers which reflect the approved process steps,
- All operations which include SPPC, and
- Date of process flow chart.

3.10 PFMEA

PFMEA is part of PPAP submission. Unless otherwise specified, the Supplier shall use the latest edition of AIAG VDA FMEA Handbook *(please refer to note[12])* to create its PFMEA. During the PFMEA, the Supplier shall follow the same flow established within in the process flowchart.

In addition to process and tooling elements, the Supplier shall consider through failure mode analysis all SPPC including those from Nidec's drawings.

The Supplier shall prepare an action plan based on PFMEA Action Priority (AP) as per APQP file (8.3 Action Priority (AP) of 8 PFMEA Report) and document all actions implemented.

Supplier must fill in the <PFMEA Report> (Sheet 8 from the APQP File) and the FMEA Action Priority (AP) listed in the <PFMEA Report> must be used for the risk reduction.

- Priority High (H): Highest priority for review and action.

  The team needs to either identify an appropriate action to improve prevention and/or detection controls or justify and document why current controls are adequate.

- Priority Medium(M): Medium priority for review and action.

  The team should identify appropriate actions to improve prevention and/or detection controls, or, at the discretion of the company, justify and document why controls are adequate.

Priority Low(L): Low priority for review and action.

The team could identify actions to improve prevention or detection controls.

Unless otherwise required by Nidec's customers, requirements included in AIAG & VDA FMEA handbook have to be followed.

The Supplier shall systematically review and update the PFMEA after any major incidents which occurred at its line or declared by Nidec's sites.

The Supplier shall consider the importance of following statements in the PFMEA development:

- The PFMEA analysis is to be performed with multi-disciplinary team.
- It is recommended that potential Severity 9-10 failure effects with Action priority High and Medium, at a minimum, be reviewed by Management including any recommended actions that were taken.
- This is not the prioritization of High, Medium, or Low risk, it is the prioritization of the need for actions to reduce risk.

PFMEA as the top-level document is compatible with lower-level documents such as CP and work instructions. All the index and symbols (especially for SPPC) in these documents should be the same. If there is any prescribed SPPC symbols which Nidec's customer require Suppliers to be used from PFMEA to relevant lower-level documents, Supplier shall follow customer's specific requirement.

Note 12. Start from new project after the release of the latest edition of AIAG VDA FMEA handbook.

3.11 Control Plans

Production CP for product and process is part of PPAP Submission. The Supplier shall understand, apply and update the Production CP which provides a documented description of the method used to minimize process and supply variations.

The Supplier shall present the Pre-launch CP used for Safe Launch Process on request. Please refer to Chapter 3.4 <Early Production Containment/ Safe Launch Process> for detailed requirement of the Pre-Launch CP.

Besides, on Nidec request, Supplier shall add the management item of annual re-qualification (annual full characteristics inspection and capability study. Please refer to Chapter 4.8 <Annual Conformity Report>) or any other management item into the CP. Supplier shall present and update their CP, if Nidec or Nidec customer requires it.

A Production CP is the combination of a Process CP and a Product CP where:

- Product CP ensures that the supplies provided to Nidec meet Nidec's requirements, specifications, SPPC, tolerances and other important characteristics for control.
- Process CP ensures the supplier's processes predictability and stability by consistently operating at the target of performance with only normal variations. It includes, but is not limited to process parameters, process related SPPC, machines, fixture, and tools for manufacturing, etc.

Unless otherwise specified, the Supplier shall use the AIAG APQP and CP Reference Manual as the basis to create its CP which shall:

- Properly reflect the Process Flow Diagram and the PFMEA analysis,
- Include SPPC from Nidec's drawings,
- Include annual requalification,
- Include audits results,
- List current process & product control and,
- Include results of the actions from the PFMEA analysis.

3.12 Measurement System Analysis (MSA) Studies

3.12.1 MSA Requirements

MSA studies are done to determine the amount of total variation from the measurement system.

The Supplier shall use the AIAG MSA Reference Manual as the basis to perform MSA studies.

Based on the agreed measurements methods, the Supplier shall perform MSA studies to assess its measurement system. MSA studies have to be done BEFORE capability studies.

The Supplier shall validate the measurement system for the SPPC more restrictive.

It is necessary to validate a validated measurement system if this measurement system changes.

If 30% ≥ GRR (R&R) > 10%, a release from Nidec needs to be obtained in order to qualify* the measurement system.

* "qualify" here only means temporary qualify, supplier need to submit improvement plan.

3.12.2 Measurement System R&R studies

Measurement System R&R studies have to be done according to suggested methods from the AIAG MSA Reference Manual.

3.13 Initial Process Study

3.13.1 Nidec's SPPC Identification

Nidec SPPC are classified in 3 categories (please consult the glossary for the detailed definitions):

- Product Safety Characteristics (SC) relating to product characteristics or process parameter of which rationally predictable failure can affect vehicle running and product safety.
- Regulatory (Legal) Characteristics (RC) relating to a product characteristic or process parameter with concern about deviation from related legislation if special control is not provided. Characteristics assure compliance with the latest applicable statutory, regulatory, and other requirements in the countries where they are manufactured and in the customer-identified countries of designation.
- Significant- Key Functional characteristics (KFC) relating to a product characteristic or process parameter crucial for product functionality or crucial for customer product functionality and have direct impact on customer satisfaction except safety.
- Functional Characteristics (FC) relating to a product characteristic or process parameter of which rationally predictable failure can directly (as first factor) affect a function, performance, fit with the customer component, etc. (Quality characteristics affect customer production lines and/or user complaints caused by early deterioration in performance and/or function).

These SPPC are shown on approved Nidec's drawings, according to specific symbols shown in the below table VII.

Term	Nidec	
	Text	Drawing symbol
Regulatory (Legal) Characteristic RC	RC	
Product Safety Characteristic SC	SC	
Significant - Key Functional Characteristic KFC	KFC	
Functional Characteristic FC	FC	

Table IIIII

3.13.2 SPPC Requirement

According to the IATF 16949 requirements, the Supplier shall identify and address all identified SPPC. In order to do so, the Supplier shall review Nidec designated SPPC from Nidec's drawing, applicable laws and regulations, internal specifications, etc. and formalise identified SPPC through FMEAs analysis according to criteria defined by Nidec as described in table below.

Term	Drawing symbol	PFMEA
		Severity
Product Safety Characteristic SC		10 (*)
Regulatory (Legal) Characteristic RC		9 (*)
Significant – Key Functional Characteristic KFC		8 or higher (*)
Functional Characteristic FC		8 or 7 (*)

Table IVIII

(*) Reason for reduction or increase of SPPCs acc. to severity has to be explained in FMEA document

All SPPC, including Nidec's SPPC shall be incorporated into applicable documents including, but not limited to, drawings, specifications, test plans, test reports, FMEAs, CPs, work instructions, relevant inspection instructions, sample reports, checklists, control sheets, process sheets, operation, and tool sheets, etc.

Furthermore, the Supplier is also responsible to ensure Sub-suppliers SPPC understanding, identification, incorporation, and control within Sub-Supplier organisation.

3.13.3 Process Capability & Process Performance Requirements

The use of Statistical Process Control (SPC) and appropriate SPC data is mandatory for managing SPPC if there isn´t a 100% control of it. The Suppliers shall use methods defined in the SPC Reference Manual published by AIAG for determining process capability index (Cpk) and process performance index (Ppk) for unilateral and bilateral tolerances unless an alternate method is formally approved in writing by Nidec. Nidec, at its sole discretion, may control the Supplier's calculations during the process audit.

Process capability must be established and documented for all identified SPPC. The methods used for these studies and the capability figures must be agreed between Nidec and supplier.

The requirement for capability indices:

- Machine capability index/Short-term capability Cm/Cmk

The machine capability studies must be planned in such a way that all verifications are available no later than at the time of the PPAP submission If Nidec or Nidec customer requires.

- Process performance index/long-term study of non-stable process (preliminary process) Pp/Ppk

The evaluation of preliminary process capability study shall be presented during APQP Phase 3 Step1 <Internal Supplier capacity and capability validation> at least 100 random samples unless Nidec or Nidec customer specified.

A regular evaluation of the SPC records (if possible automated) must be carried out no later than at the start of series production.

- Process capability index/ -term study of stable process Cp/Cpk

The long-term process capability study shall be submitted to Nidec during Safe Launch Process, once at least 125 random samples or (25pcs*5Lots) unless Nidec or Nidec customer specified. Furthermore, the results of the process capability study must be submitted upon request.

Besides, Supplier shall implement the capability study based on Nidec or Nidec customer's specific requirements.

Unless otherwise formally agreed by Nidec, the minimum required for process capability level and process performance level regarding SPPC are shown on table VIII. Supplier shall follow the specific capability values defined on the design drawing. Besides, customer may demand greater capability values for special characteristics.

SPPC	Symbol	Machine capability index Cmk	Process performance index Ppk	Process capability index Cpk
Regulatory (Legal) Characteristic RC		N/A	N/A （≥ 2,00)*	N/A (≥ 1,67)*
Product Safety Characteristic SC		≥ 1,67	≥ 1,67 (≥ 2,00)*	≥ 1,67
Significant – Key Functional Characteristic KFC		≥ 1,67	≥ 1,67 (≥ 2,00)*	≥ 1,67
Functional Characteristic FC		≥ 1,33	≥ 1,33 (≥ 1,67)*	≥ 1,33

**According to specific customer requirement, () value to be utilized.*

Table IX

Beside the above SPPC, Nidec have another special symbol on the drawing,  (Process Characteristics). It means excluding special characteristics, significant dimension that effect on Nidec assembly process.

Nidec specific characteristic	Symbol	Process performance index Ppk	Process capability index Cpk
Process characteristic PC		≥ 1,00	≥ 1,00

Table X

However, Supplier shall follow the specific capability values defined on the design drawing. Other requirements (identification and SPC, etc.) for PC characteristics is the same as SPPC.

If the CSR (Customer Specific Requirements) are higher than the above values, then they must be applied by the Supplier.

As part of PPAP documentation package, the Supplier shall provide Nidec with a capability report which includes all SPPC. Supplier shall fill in and submit the <Capability study> (Nidec PPAP template) and the corresponding results shall be recorded in < SPPC> (Sheet 7 from the APQP File) if Nidec requires.

Any RC or SC failing to meet the minimum requirement for capability, require proper controls (100% control, error proofing, etc.) and a timeline for implementation; to be validated by Nidec.

Any FC or KFC failing to meet the minimum requirement for capability, requires a statistical process control and a timeline for implementation; to be validated by Nidec.

Unless requested by Nidec, the Supplier is not required to calculate and report process capability and performance for other characteristics. However, characteristics considered to be "predictors of process stability" should be considered by the Supplier.

When specified by Nidec, other characteristics failing to meet the minimum requirement for capability also require a containment plan (100% control, error proofing …etc.) and an action plan.

Any control applied on SPPC, or other characteristics specified by Nidec shall be shown in the production CP.

When appearance and material specification are specified as SPPC, than solutions to be found with alignment with Nidec and Nidec customer how process stability to be ensured.

4 SERIAL PRODUCTION REQUIREMENTS

4.1 Introduction

Once the Supplier's PPAP is validated, the Supplier can proceed to the serial production phase. During Serial production, the Supplier shall follow specific requirements as described in this chapter. Approved supplier shall submit/upload on Nidec Supplier portal once a year evidences of each ISO/IATF/TISAX certifications or applicable action plan/fulfilled Nidec questionnaire when certification is not available. CQI audits cover sheet, PSCR nomination per each site and Conflict Minerals to be uploaded on Nidec Supplier Portal on yearly basis, as well evidences of compliance to customer specific requirements upon Nidec request.

4.2 Change Management

4.2.1 Introduction

During Pre-production and after Start of Production (SOP), the Supplier shall not make changes (permanent, temporary or rework operations) to their processes and design without formal Nidec approval.

Nidec has implemented a corporate-wide change management system designed to ensure the quality and integrity of Nidec's products where the Supplier is expected to take a proactive approach to handle promptly and efficiently any changes to design, components, materials, performance, or processes.

Furthermore, is considered as a process change all items listed in the AIAG PPAP Reference Manual (chapter Customer notification and submission requirements). Nidec requires the Supplier to document and maintain records of all changes and their effective dates.

Changes caused by the supplier's bankruptcy or withdrawal from the business shall be notified to Nidec in writing at least one and a half years in advance. And normal supply shall be ensured until an agreement is reached between the two parties.

The supplier shall bear the costs of testing at Nidec and Nidec's customer caused by such changes.

Nidec lists all possible engineering change contents and ranks them for 3 levels as a Change Management Matrix (see Appendix I <Change Management Matrix >).

- Change management level A

The Supplier shall make the <Supplier Change Request > (Nidec template) acceptable to Nidec for approval minimum 8 months before the implementation of the authorized change, and the PPAP submission is mandatory unless otherwise Nidec specified. Besides, Change management level A requires the application to Nidec's customer and customer's approval.

Changes in the implementation timing might be requested in accordance to with the Nidec customers' specific requirement. The minimum of 8 months notification shall not be considered as a commitment to the implementation of the change. Depending on the scope and complexity of the change, affected applications and customer requirements, qualification of Nidec may take longer than 8 months before change can be released.

- Change management level B

The Supplier shall submit the <Supplier Change Request > (Nidec template) to Nidec for approval 90 days before the implementation of the authorized change.

- Change management level C

The Supplier shall do the proper self-evaluation with supporting validation and manage the level C changes internally. Process records *(please refer to note[13])* have to be taken and stored and traceability has to be kept. And the Supplier shall submit those process records to Nidec on request.

Note 13. Process records mean full characteristics inspection, the process capability for special characteristics, and the document that recorded changes, or repairs.

After the < Supplier Change Request> (Nidec template) approved by Nidec, Supplier shall submit < Supplier Change Implementation> (Nidec template) with the supporting verification data 60 days before the implementation of the authorized change. The decision whether the change requires a new PPAP submission or not will be recorded by Nidec in <Supplier Change Request> and <Supplier Change Implementation> to inform the Supplier. Refer to the following chapter 4.2.2 <Permanent changes> for detailed requirements.

Change Management Level	Nidec Customer Approval	<Supplier Change Request> Supporting Verification Data	Supplier Self-Evaluation
Level A: Nidec Evaluation	○	○	○
Level B: Supplier Evaluation		○	○
Level C: Supplier Self-management			○

Table XI

4.2.2 Permanent changes

4.2.2.1 Supplier Change Request and supporting validation data

The Supplier shall not make permanent changes to its design and process unless submission of a Supplier Change Request (Nidec's template) to shall be previously approved in writing by Nidec.

To demonstrate a proper change control, the Supplier shall attach to a Supplier Change Request the following documents and submit to Nidec purchasing department:

- Dimensional report,
- Performance test results,
- Process parameters after and before modification,
- APQP documentation package updated accordingly (DFMEA, PFMEA, production CP, etc.) and,
- Detailed timeline (*please refer to note[14]*) and status deliverable (resources and safety stock requirements).

Note 14. The timeline shall include Nidec's and, when required, Nidec's Customers timing for validation.

Supplier should provide <Supplier Change Implementation> and related documents at least 30 days before planned change.

If the change is initiated by the supplier, the costs (including, for example, validation costs at Nidec and its customers) must be borne by the Supplier.

4.2.2.2 Supplier Change Request Approval

Nidec reviews the Supplier Change Request and related supporting validation data. During this review, Nidec may ask the Supplier for further documents such as an implementation schedule, instructions revisions, capability studies from final tooling, etc.

Nidec approves the Change Request by signing the Supplier Change Request. However, Nidec may require an extended period for validation whenever Nidec's Customers agreement is necessary. After the <Supplier Change Request> (Nidec template) approved by Nidec, supplier shall submit <Supplier Change Implementation> (Nidec template). Once the <Supplier Change Request> approved, supplier can implement the authorized change.

If customer approval is not obtained, supplier is not allowed to deliver to Nidec and must ensure enough safety stock until final validation Nidec approval is given.

4.2.2.3 Change validation

After the approval phase, a change meeting is to be held. The change meeting involves a multi-disciplinary team from Nidec and when required Supplier's representative(s). The evaluation of the change at Nidec includes defining the content for the PPA process / PPAP submission. Nidec will communicate the decision in <Supplier Change Request> and <Supplier Change Implementation> to supplier.

In case of PPAP resubmission, the Supplier shall formally agree with Nidec on the PPAP resubmission level and content requirements. The same PPAP validation flow applies.

Nidec approves the Supplier's PPAP re-submission by signing the PSW. It is strictly forbidden to start implementing changes without prior Nidec approval formalized with the signed PSW.

Since the change is validated, the Supplier shall implement a stop-start strategy (sorting, labelling, instructions, training, etc.) and clearly identify all elements related to the new process in comparison with the old process.

4.2.2.4 Delivery

The Supplier shall follow Nidec logistic requirements and clearly identify shipments (please refer to chapter 3.8 <Packaging and labelling specifications/logistic> in this Manual).

Furthermore, the Supplier shall follow Nidec specific requirements for deliveries submitted to a deviation regarding a permanent change (please refer to chapter 4.3 <Receiving Products Control Process> in this Manual).

4.2.3 Temporary Changes

4.2.3.1 The Supplier Deviation Authorization Request

The Supplier shall submit a Supplier Deviation Authorization (Nidec's template) to request a deviation for design, components, materials, performance, or processes which temporary deviate from the drawing, specifications, design, or CP.

According to Nidec rules, a request for deviation is limited in quantity and/or time (max. 3 months unless Nidec or Nidec customer specified).

It specifies:

- The date of return to normal conditions,
- Risk mitigation actions,
- How the Supplies are identified and,
- How traceability is maintained.

In the event that the Supplier provides several sites, the Supplier shall submit a <Supplier Deviation Authorization> (Nidec's template) independently to each Nidec's concerned site. For cosmetic deviation, supplier shall submit the <Appearance Approval Report > (Nidec's template).

4.2.3.2 Supplier Deviation Authorization

Nidec will review and make the decision if the SDA will be -approved, -approved under conditions or -refused.

In case the supplier needs to extend SDA for another period of 3 months, then SDA request from supplier shall be submitted minimum 10 working days prior to extension.

Nidec reserves the rights to start Supplier Escalation Program when supplier is not able to finalize deviation activities within agreed timing.

In extraordinary cases, when no final PPAP is available and deliveries are requested, then conditional approved PPAP must been obtained in minimum.

4.2.3.3 Delivery

The Supplier shall follow Nidec logistic requirements and clearly identify shipments (please refer to chapter 3.8 <Packaging and labelling specifications/logistic> in this Manual).

Furthermore, the Supplier shall follow Nidec specific requirements for deliveries submitted to a deviation regarding a temporary change (please refer to chapter 4.3 <Receiving products control process> in this Manual).

4.2.4 Rework Operations

4.2.4.1 General Requirements

No rework allowed, except Nidec approval under SDA.

Rework operations are defined as any additional tasks performed outside the standard manufacturing process, which are not authorized unless formally approved by Nidec.

The Supplier shall submit to Nidec a request for any rework operations to be performed:

- updated process flowchart
- updated PFMEA
- updated production CP
- rework instruction
- samples (if requested)
- others if required.

The Supplier must understand that the insertion of rework operations within the manufacturing or assembling process may cause production variances. Hence, rework operations have to be limited as much as possible.

Employees to be qualified for rework and highly skilled.

The Supplier must provide Nidec with the documented evidence (measurement report, capability study) with each shipment of compliance to Nidec's drawings and specifications.

4.2.4.2 Rework Operation Approval

All documents issued by the supplier with rework operation have to be validated by Nidec and approved by SDA.

4.2.4.3 Delivery

The Supplier shall follow Nidec logistic requirements and clearly identify shipments (please refer to chapter 3.8 <Packaging and labelling specifications/logistic> in this Manual).

Furthermore, the Supplier shall follow Nidec specific requirements for deliveries submitted with deviation regarding a rework operation (please refer to chapter 4.3 <Receiving products control process> in this Manual).

4.2.5 Consequences of an unauthorised change

In the event a Supplier has implemented a non-communicated or unauthorised change (permanent, temporary or rework) and Nidec and/or Nidec's Customers have been negatively impacted, the Supplier will be responsible for compensating Nidec for all associated costs (Please refer to chapter 5.3 <Cost recovery> in this Manual).

Nidec opens an incident, formally notifies the Supplier, and reserves the right to:

- Require an immediate containment by a third-party provider,
- Change the Supplier's commercial status into New Business on Hold (NBOH),
- Require a third-party audit of the affected supply of the supply chain including all Sub-suppliers involved,
- Inform the third-party certification body.

On receipt of notification from Nidec, the Supplier is required to develop an action plan to be validated by Nidec.

4.3 Receiving products control process

4.3.1 Introduction

Nidec targets “Zero Defect” performance and strives for providing high quality products to its customers. As a key element, Continual Improvement is the path leading to this target.

Note 15. The incoming management procedure including “received products control” differs from each Nidec plant. Supplier shall follow each Nidec plant’s specific incoming procedure.

4.3.2 Group 1: Deliveries without open quality issues

All deliveries belonging to Group 1 are directly put to production. Nevertheless, Nidec can at any time decide to perform a spot check to verify deliveries conformity to CP/specification.

In order to do so, upon Nidec request, the Supplier shall provide Nidec with production process control records to prove CP compliance per batch. The Supplier shall deliver these documents in less than 24hrs upon Nidec’s request.

In case of non-compliance with CP/specification, Nidec opens an incident and initiates an 8D (please refer to chapter 4.4 <Claim management process> in this Manual).

4.3.3 Group 2: Deliveries following a quality incident

Nidec decides the application perimeter to:

- A full technology family, if a generic process is at fault
- A concerned reference, if a specific process is at fault

4.4 Claim Management Process

4.4.1 Introduction

Nidec has implemented a claim management process based on the 8D methodology to ensure prompt, fair and efficient management of claims and related services.

This chapter is to provide the Supplier with a quick reference guide to the Nidec claims concepts and the requirements associated with processing claims.

4.4.2 Claims Category

4.4.2.1 Quality Claims

A quality claim occurs when Nidec or Nidec’s Customers detect a discrepancy or a defective supply.

Nidec defines 6 categories for quality claims as follows:

Quality claim category 1 – C1
Any incidents related to the Supplier detected at Nidec’s Customers location.

Quality claim category 2 – C2
Any incidents related to the Supplier detected at Nidec’s assembly line.

Quality claim category 3 – C3
Any incidents related to the Supplier detected during Nidec’s incoming product control process.

Informational claim
Information given towards the supplier alerting for example a possible risk of declining component quality (process data close to warning limits, signs of incipient tool wear, etc.) while the product is meeting specifications, no impact on functionality and no risk for customer is involved.

Informational claim is not part of SPR evaluation.

0km claim
Any incidents related to the Supplier detected at OEM.

Warranty Return – WR
Any incidents related to the Supplier detected at the end user. The vehicle has been delivered to the end user. FFA (Field Failure Analysis) methodology including NTF (as applicable) should be used.

The supplier shall respond to official claim issued by Nidec even in prototype phase and pre-serial production, and 8D methodology is mandatory to be used.

4.4.2.2 Logistics Claims

A logistics claim occurs when Nidec records loss, damaged, delayed, or incorrect deliveries from the Supplier.

Nidec defines 2 categories for logistics claims as follows:

Logistics claim category 1- L1
Any incidents, related to Supplier's deliveries which impact Nidec's on-time delivery to its customers.

Logistics claim category 2- L2
Any incidents, related to Supplier's deliveries which impact Nidec's internal production plan.

Nidec also issues L1 or L2 claims for each extraordinary expense (premium freight, sorting activities, etc.), not compensated by the Supplier, to avoid the Supplier's deliveries disrupting Nidec`s assembly lines.

4.4.2.3 Recurrent incident

Nidec defines a recurrent incident as an incident which occurs on the same Supply family, with the same effect and with the same root causes regardless its category (C1, C2, C3, WR (FAA), L1 and L2).

Recurrent incidents are considered by Nidec to rate Suppliers during the Supplier performance measurements (please refer to chapter 5.1 <QCD performance> in this Manual).

4.4.2.4 Claim with OEM escalation

Nidec reserves the right to inform the Supplier CB of the OEM escalation and to request an audit by a third party (Supplier CB) to ensure IATF certification of the NC management at the Supplier's expense.

4.4.3 Nidec 8D process

4.4.3.1 Generality

The Supplier shall have trained personnel (automotive core tools) with the ability to quickly and permanently resolve quality issues (use of defined, structured process and adequate tools).

The Supplier shall use the 8-Discipline (8D) process as problem solving tool. Nidec only accepts the Nidec 8D report as official format filled in on the designated platform system or as aligned.

8D problem solving tool is a highly effective approach to find root causes, develop the proper actions to eliminate them, and implement permanent corrective actions.

4.4.3.2 The 8D process

When a defective supply is identified, Nidec opens an incident and issues an 8D report to the Supplier.

24h, 3 days, 10 days is the standard timing requested by Nidec for the 8D tool. Any other timing shall be previously approved in writing by Nidec. Supplier will be informed of the claim level defined by Nidec quality department. Specific Nidec customer timing requirement Supplier shall follow all.

Note 16. 8D process must also be carried out if claim rejection from supplier is justified until it is proven "no failure found".

C1 Customer Claim (Priority)		C2/C3 Nidec Claim	
Content	Due date	**Content**	Due date
D1-D4	24hrs	**D1-D3**	24hrs
		D4	3 working days
D5-D6	5 working days	**D5-D6**	10 working days
D7-D8	10 working days (Including customer approval)+ Updating each 5 working days until approval	**D7-D8**	10 working days + Updating each 5 working days until approval

Table XII

D1	Incident notification
Nidec opens and incident and issues an 8D to the Supplier	

D2-D3	Within **24 hours** of the notification date (Nidec claims)
The Supplier undertakes to: • Contain all defective Supplies which have the same defect from all stocks (finished and semi-finished) and in transportation and at all affected Nidec locations worldwide, • Upon request, send a team to carry out sorting and inspection operations at Nidec and Nidec's Customers locations, • Upon request, send a team at Nidec's site to address the issue, even if the responsibility of the Supplier has not been proven yet, • Replace defective batch (es), • Label non-defective batch(es) accordingly,	

D4	Within **D4 3 working days** or any other delay agreed with Nidec in writing) of the notification date (Nidec claims)
The Supplier undertakes to: • Perform an exhaustive analysis to identify the root cause of the non-conformity with the defined methods (Ishikawa, FTA, 5Why)	

D5-D6	Within **D5 5 working days + D6 5 working days** – together 10 working days (or any other delay agreed with Nidec in writing) of the notification date (Nidec claims)
The Supplier undertakes to: • D5: Planning of permanent corrective actions (PCA) Provide Nidec with an action plan to be validated by Nidec prior to any action being implemented. • D6: Implementation of PCAs	

D7-D8	Within **10 working days** (or any other delay agreed with Nidec in writing) of the notification date (Nidec claims)
The Supplier undertakes to: • Check the effectiveness of the actions implemented. Results have to be validated by Nidec. • Update all related documents. • Update the production CP accordingly to be validated by Nidec. • Implement the actions to similar Supplies and processes (elimination of recurrences). • Issue a Lesson Learned Card.	

Supplier 8D Report Evaluation Sheet
8D Evaluation Sheet has to be presented with final version of 8D report. Evaluation sheet is a tool for assessing compliance of 8D content with Nidec requirements. There are with three levels of acceptance: • 0% - 79% - 8D does not meet minimum requirements and cannot be accepted • 80% - 89% - 8D meets minimum requirements and can be accepted • 90% - 100% - 8D evaluated with bonus points and can be accepted 8D Evaluation Sheet has three levels of points: • Unsatisfactory / Not OK • Acceptable • Requirements fulfilled / Bonus

Incidents closure
8D following C1 and C2 incidents will be closed after Nidec validation. Nidec may perform an 8D audit to assess 8D application for C1 incidents. The standard template (<Supplier 8D audit>) to be used, is provided with the RFQ package.

Table XIII

4.5 Controlled Shipment Level 1 and 2 (CSL1 and CSL2)

4.5.1 Introduction

Nidec has implemented CSL1 and CSL2 activities to protect Nidec's Customers and assure the quality of its products. Conditions to be placed on controlled shipment are, but not limited to:

- Non-conformances due to Supplier's failures identified at Nidec or Nidec's Customers location,
- Line stoppages due to Supplier's failures at Nidec or Nidec's Customer location or,
- Recurrent incidents, as referred to in chapter 4.4 <Claim management process> in this Manual.

4.5.2 CSL1 activities

During CSL1 activities, the Supplier bears its expenses, further 100% inspection costs with in-house staff in addition to their production CP.

CSL1 activities are performed in a dedicated area and all inspection data are collected. The Supplier shall certify inspected supplies and provide Nidec's site with the inspection data on a weekly basis. Furthermore, the Supplier shall maintain traceability and label the inspected supplies as well as the packaging accordingly. Nidec and the Supplier will define jointly CSL1 exit conditions.

4.5.3 CSL2 activities

In the event of CSL1 activities failures, Nidec may request the Supplier to proceed to CSL2 activities. Nevertheless depending of the gravity of the incident, Nidec can decide to directly request CSL2 activities without any obligation to request CSL1 activities.

During CSL2 activities, the Supplier bears its expenses; further 100% inspection with a 3rd party representing Nidec interest specific to the containment activity.

CSL2 activities can be performed either at Supplier's site and/or Nidec's site and/or external site. The designated third-party service provider shall systematically inform Nidec of sorting activity outcome. Furthermore, the Supplier shall maintain traceability and label the inspected supplies as well as the packaging accordingly.

Nidec and the Supplier will define jointly the CSL2 exit conditions, after 3 months without issue, unless otherwise agreed between Nidec and the Supplier.

4.6 Supplier Audits

Nidec performs seven different audits as follows:

1. Supplier Validation Audit (VDA6.3 Potential Analysis): To assess conformity to automotive requirements
2. Supplier Process Audit (VDA6.3 Process Audit): To assess process stability, been implemented during supplier PPAP activity.
3. Supplier Periodical Audit (VDA6.3 Process Audit): To assess process stability, frequency is based on supplier's QCD performance result (please refer to chapter <5.1 QCD performance>)

   # 3 years: Two times "A" rated in last 2 SPR's & min. "B" rated in last Process Audit

   # 2 years: Two times "B" or "A"/"B" rated in last 2 SPR's & min. "B" rated in last Process Audit

   # Min. once a year: "C" rated in last SPR or "C" rated in last Process Audit

   For supplier whose quality is not stable, the audit frequency may be increased.

   For supplier planning to be IATF16949 certified, the audit frequency should be once per year.

   Please refer to the following definition for audit objects:

   - It is not necessary to perform audit for trading companies, but necessary to production plants of trading company.
   - It is not necessary to perform audit for catalogue components (include bulk materials) such as screws, washers, diodes, resistors, capacitors, resin, aluminium ingot, aluminium liquid, copper, steel, oil, lubricant, glue, grease, detergent, release agent, rust-proofing oil, gas, etc.; but for electrical components, audit is necessary if customer has requirement or quality issue happened. Audit for special process should be performed by personnel who got CQI certified.
   - For material, not necessary to perform audit for suppliers of raw material such as ingot, steel plate and resin material, but necessary for supplier of slitted steel plate, bar material.
   - In case audit was performed to the same supplier for similar commodity during new project APQP in the past year, the audit result can be used as substitution of periodical audit.
   - For supplier who provide treatment or external process (except special process) to Nidec, audit standard can be defined by each Nidec plant.
   - If there is any Nidec customer specific requirement, Nidec would follow the customer's requirement.
4. Special processes assessment (CQI audits): to assess conformity to AIAG requirements

The Supplier shall perform a self-evaluation of each applicable special process listed below with the associated AIAG Manual and provide Nidec with audit results (at least first page) on a yearly basis. Nidec reserves the right to access supplier's facilities (and all processes) to perform CQI audit directly. When the Supplier subcontracts special processes, Nidec requires the evidence that related Sub-suppliers are ISO 9001 registered.

- Heating: CQI-9 for Heat Treat System Assessment,
- Plating: CQI-11 for Plating System Assessment,
- Coating: CQI-12 for Coating System Assessment,
- Welding: CQI-15 for Welding System Assessment,
- Soldering: CQI-17 for Soldering System Assessment,
- Molding: CQI-23 Molding System Assessment.
- Die Casting: CQI-27 Casting System Assessment.
- Brazing: CQI-29 Brazing System Assessment
- Rubber Processing: CQI-30 Rubber Processing System Assessment

- LPA Audit: CQI-8

For further information, please visit http://www.aiag.org

5. Run @ Rate Audit: To assess production capacity
6. Supplier 8D Audit: To assess action plans application following an 8D (80% minimum reached for validation)
7. Supplier Evaluation: To achieve min level B

After the supplier received a notification of a future audit, Nidec greatly recommends the Supplier to conduct an internal audit. Supplier self-audit has to be performed upon Nidec request.

When the first audit performed by Nidec fails, Nidec reserves the right to apply financial penalties for each following audit (please refer to chapter 5.3 <Cost recovery>).

Nidec will conduct the Supplier Validation Audit by using the VDA 6.3 Potential Analysis Audit and conduct the Supplier Process Audit by using the VDA 6.3 Process Audit. The judgement standard is as below table. Any other audit form may be requested by customer specific requirement.

Classification		Assessment by questionnaire		
		Yellow	Red	Action
	Fully approved supplier	Max. 6	None	Findings need to be improved
	Conditionally approved	Max. 12	None	Findings need to be improved to achieve Green Level
	Barred supplier	More than 12	1 or more than 1	/

Table XIV VDA 6.3 Potential Analysis Judgement

VDA 6.3 Process Audit Judgement		
A	EG% ≥ 90	Quality-capable, findings need to be improved.
B	80 ≤ EG% < 90	Conditionally quality-capable, findings need to be improved to achieve A.
C	EG%< 80	Not quality-capable, take corrective actions immediately to achieve A, 100% inspection before shipment will be conducted on request.

Table XV VDA 6.3 Process Audit Judgement

4.7 Sub-supplier Management

4.7.1 Sub-supplier Management Requirements

The Supplier shall manage all Sub-suppliers including imposed Sub-suppliers. The scope of Sub-supplier management includes APQP requirements and periodic audits.

Nidec specific requirements to be applied to Sub-supplier organizations.

The Supplier shall audit and manage Sub-suppliers' critical processes. In order to do so, the Supplier shall use the adequate CQI audit format. However, whenever necessary and without any limitation of Supplier's responsibility, Nidec may audit directly Sub-suppliers' critical processes to assure that controls are properly implemented throughout the complete supply chain.

The Supplier shall understand that all Sub-suppliers (for raw materials, sub-components, services …etc.) have a significant impact on the quality of its Supplies. Their influence is so critical that the Supplier shall implement a Sub-

supplier management system with a dedicated function to systematically track and report quality and delivery performance.

The Supplier shall be able to demonstrate a proper management of any issue related to Sub-suppliers' issues. In order to do so, the Supplier shall document all actions implemented and monitor Sub-suppliers' activities.

4.7.2 Special Processes Assessment: CQI audits

When the Supplier subcontracts special processes, Nidec requires the evidence that related Sub-suppliers are ISO 9001 registered.

Pursuant to the IATF 16949 standard, the Supplier shall perform a self-evaluation of each applicable special process listed below with the associated AIAG Manual and upon request, provide Nidec with audit results. Nidec reserves the right to access supplier's facilities (and all processes) to perform CQI audit directly.

- Heating: CQI-9 for Heat Treat System Assessment,
- Plating: CQI-11 for Plating System Assessment,
- Coating: CQI-12 for Coating System Assessment,
- Welding: CQI-15 for Welding System Assessment,
- Soldering: CQI-17 for Soldering System Assessment,
- Molding: CQI-23 Molding System Assessment.
- Die Casting: CQI-27 Casting System Assessment.
- Brazing: CQI-29 Brazing System Assessment
- Rubber Processing: CQI-30 Rubber Processing System Assessment
- LPA Audit: CQI-8

For further information, please visit http://www.aiag.org

4.8 Annual Conformity Report/Annual Requalification

According to IATF 16949, (clause 8.6.2) the Supplier shall complete an annual layout inspection of each reference and perform functional testing on supplied components. The layout inspection requirements are based on the validated PPAP. The annual conformity report/annual requalification report includes the annual full items (all dimensions, performance and items listed in the drawing and drawing note) inspection, capability study for SPPC and raw material certification. Details are to be defined in the PPAP/PPA alignment.

The Supplier shall keep available to Nidec the results of inspections and issue the annual conformity report without having Nidec to ask for requalification test results. All information related to the features/characteristics addressed during the project shall be recorded and the PFMEA and production CP updated accordingly. Supplier shall add the annual requalification plan item into CP as part of PPAP.

The Supplier shall provide Nidec with the conformity reports within 48 hours upon Nidec's request.

4.9 Supplier Facility Access and communicated documents

The Supplier shall authorise Nidec and Nidec's Customers to access their facilities (and all processes) and Sub-suppliers' sites to join our supplier's audit. Nidec may request documents such as FMEA, CP, financial reports, action plans, etc.

4.10 Contingency Plan

According to IATF 16949 (clause 6.1.2.3), the Supplier shall establish a contingency plan for any potential catastrophes which may disrupt the flow within Supply chain (including but not limited to pandemic situations and cyber-attacks). The contingency plan is to be communicated to Nidec upon request.

Review of the contingency plan shall be conducted minimum once per year.

In the event of a major event, the Supplier shall warn Nidec immediately and provide the crisis action plan to safeguard Nidec's supply chain.

4.11 Documents, Samples and Master Samples Retention

The Supplier shall retain documents and samples (according to signed PPAP) during the time the Suppliers 30 active years minimum. A supply is active as long as the final product is provided to the final Customer.

For SC (Product Safety Characteristic) products, the supplier must retain documents and samples 30 years. In case of multiple cavities die, mould, or pattern, the Supplier shall retain one sample identified as "master sample" for each position of the cavity die, mould, or pattern.

Master samples are retained 30 years. The Supplier shall identify master samples accordingly which shall include the PPAP reference and the approval date.

When a Supply is used on multiple programs, it may require a longer retention period.

Special agreements for samples retainment shorter than 30 years, although not less than 20 years, may be obtained with Nidec. Such agreements are valid only with written Nidec approval.

4.12 Nidec Property – Tools

As per IATF 16949, all tools, manufacturing testers and equipment belonging to Nidec or to Nidec's Customers are permanently marked to clearly show they are the property of Nidec or Nidec's Customers. These tools, manufacturing testers and equipment are to be used exclusively for Nidec's needs.

The property of Nidec or Nidec's Customers shall be evidenced by the signature of a <Tooling Manufacture Loan Agreement>.

4.13 Product End of Life

The Supplier commits to providing provide Nidec with spare parts after Original Equipment Manufacturers (OEM) end of production for minimum 15 years or more, if the OEMs request a longer period of time.

It is strictly forbidden to scrap tools and equipment or to deliver spare parts without prior Nidec formal approval.

Unless otherwise agreed in writing, spare parts are sold at the last fixed price during 3 years after the end of the OEM production.

4.14 Continual Improvement

Continual Improvement is an IATF 16949 requirement and is essential to successfully compete in today's business environment. The Supplier shall continually improve in quality, service (including timing and delivery) and cost to benefit Nidec and the Supplier's organisation.

Continual Improvement is a global approach which covers the complete supply chain and lead to best-in-class Suppliers. Continual Improvement is to establish, prioritize, monitor, and act upon key performance objectives and targets defined according to business plans, QCD targets, Customers' requirements, internal capacity, and internal management systems.

For information purpose, key areas for improvements could be:

- Internal quality system,
- Unscheduled machine downtime,
- Machine set-up,
- Dies, moulds changeover times,
- Excessive cycle time,

- Cost competitiveness,
- Scrap, rework & repair,
- Proactivity management,
- Non-value-added use of floor space,
- Test requirements not justified,
- Long-term commitment,
- Poor quality (quality complaints / quality requirements / specifications not achieved),
- Excessive handling and storage,
- New target values to optimize processes or,
- Sub-suppliers' involvement,

Nidec recommends the Suppliers the use LLC (Lesson Learned card) to initiate their Continual Improvement process (LLC are included in the Supplier 8D report) and to focus on SPPC.

Nidec considers the Supplier's efforts in developing Continual Improvement within its organisation and records it through the Supplier performance measurements. However, the Supplier shall understand that all actions implemented to return to sustained performance levels are not improvement actions but corrective actions. Therefore, Nidec does not take them into account for the Supplier performance measurement.

Nidec can recommend the Supplier specific improvement areas and may deploy a team when necessary. Nevertheless, Nidec expects from the Supplier to create their own Continual Improvement program in order to find opportunities within its organisation.

5 SUPPLIERS QUALITY IMPROVEMENT

5.1 QCD performance

5.1.1 Supplier Performance Report

Nidec supports best-in-class Supplier in meeting Nidec and Nidec's Customers' needs. The focus of best-in-class is to have a partner relationship with Suppliers who are the most competitive in QCD.

On a semester basis, Nidec measures the QCD performances and communicate it to the Supplier. The chart below presents the QCD calculator that are used by Nidec to rate its Suppliers.

Latest Edition of Supplier Manual will be considered during QCD performance evaluation and it is Supplier responsibility to require addition information/training for better understanding of applicable changes.

To achieve Nidec "Zero ppm target" Nidec reserves the right to measure Supplier Quality Performance on monthly basis and communicate to supplier in order to establish special quality improvement programmes (SQIP) which are followed on regular basis.

Supplier which is still in project validation phase can not be considered for the SPR.

Targets	Indicators	Indicator Details	Score max (100)	Definition	
Quality In case of not paid Quality costs: 0 points for Quality.	Incidents	WR,C1,C2,C3 *(*)The occurrence of WR or C1 more than once the score will be "0" zero point.*	25	0 incidents C6M	25
				0< C6M incidents ≤ 3	20
				3 < C6M incidents ≤ 6	15
				C6M incidents > 6	0
				WR/C1 > 1	0
		Recurrence greater or equal to 3 recurrence incidents, the score is zero	5	0 recurrent incident	5
				recurrent incident ≥ 3	0
	PPM	Parts Per Million	12	PPM = 0	12
				0 < PPM ≤ 10	10
				10 < PPM ≤ 50	5
				PPM > 50	0
	8-D Evaluation by Nidec	% Not closed 8Ds: SQA will do final judgement of the evaluation result based on the quality of the 8D steps already fulfilled by supplier.	5	90%	5
				> 90% ≥ 80%	3
				<80%	0
	8-D Reactivity (quick response within 24h)	On time or not	5	On time	5
				Not on-time	0
	Quality Certifications	ISO 9001 minimum, IATF 16949 recommended additional certifications according ISO 14001 and ISO 45001	5	IATF 16949	2
				ISO 9001	1
				ISO 14001	1
				ISO 45001	1
				None	0
	Customer Black List supplier	Supplier black listed by our customer?	2	no	2
				yes	0
	Customer Recall	Any car recall due to the supplier? When yes: 0 points for whole Quality and placement on NBOH	1	no	1
				yes	0
			60		
Cost (Supplier cooperation) When the Supplier's status is NBOH, 0 point is attributed for cooperation	Level of Productivity, Negotiation	Achieved or failed	5	achieved	5
				failde	0
	Nidec Specific Requirement	Nidec Supplier Manual	2,5	signed	2,5
				not signed	0
		Nidec General Terms of purchasing	2,5	signed	2,5
				not signed	0
	Supplier suggestions, Technical Productivity	Number of suggestions	5	For each suggestion 2.5 points up to max. 5.	
			15		
Delivery (logistics) In case of not paid Logistics costs: 0 points for Logistics	Special Freights	caused by late deliveries, unrespect of safety stock, Nidec production stop	15	Deduction of 5 points per logistic perturbation reported by Nidec	
	Customer disruption	Customer impacted due to late delivery when yes: 0 pt for whole Delivery	5	No impact	5
				Impacted	0
	Customer stopped line	Customer impacted due to late delivery when yes: 0 pt for whole Delivery	5	No impact	5
				Impacted	0
			25		

Table XVI

5.1.2 Performance Measurements Indicators

5.1.2.1 Quality Performances

It is the responsibility of the Supplier to calculate Incidents/PPM and provide related data to Nidec upon request. Incidents/PPM include the quantity of verified non-conform supplies found in Nidec's production line, during the receiving product control process by Nidec.

Initial PPM includes total quantity of suspect supplies returned to Supplier. This quantity will be adjusted later to reflect actual defect quantity.

Incidents/PPM will not include the following:

- Supplies which have not been PPAP approved,
- Prototypes,

- Supplies submitted to a deviation and claimed defects related to it and,
- Supplies sorted upon Supplier's request.

The Supplier shall adopt a "Zero Defect" target and respond to all potential incidents within the time limits prescribed. The supplier shall implement the independent detection and analysis of deviations from quality requirements, with the rapid introduction of corrective actions including evidence of effectiveness, are requirements demanded of the quality control circle. Besides, according to IATF16949 10.2.5 requirement, initiation criteria must be agreed with Nidec for the 'NTF (No Trouble Found)' process. The characteristics to be checked and the specification for the checks must be documented and agreed with Nidec. Capable checking equipment and the associated resources must be planned.

In that case, Nidec issues a C1, C2 or C3 claim for each quality incident open (please refer to chapter 4.4 <Claim management process>) and Nidec measures on a semester based on the Table XVI.

5.1.2.2 Delivery Performances (logistics)

The Supplier shall ensure 100% on-time delivery. Therefore, Nidec measures the Supplier on-time delivery performance based on the delivery date appearing on the purchase order vs the date of reception.

5.1.2.3 Cost Performances (Supplier cooperation)

The Supplier shall commit to a yearly productivity plan and use productivity levers such as production relocation in Leading Competitive Countries (LCC), QCD workshops or Technical Productivity (TP).

Once per quarter, the Supplier shall use the <Supplier Suggestion Sheet> (Nidec's template) to issue improvement suggestions.

The Supplier shall issue a <Supplier Change Request> for all identified products productivities requesting a permanent change. The implementation of formally agreed productivity improvement action is cost-shared between Nidec and the Supplier.

Only latest published Supplier Manual Edition shall be considered.

5.1.3 Rating system

5.1.3.1 Supplier performance measurement scoreboard

During a semester review, Nidec rates the Supplier. The final score is the total sum of the scores the Supplier obtained in each category (Quality, Cost and Delivery). Based on the results, the Supplier is classified as follows:

Rating	Result	Consequence
A	Score ≥ 80pts	This is the highest rating level possible. All Suppliers start out in this category and remain in this category as long as their performance continues to be maintained at a high level. If the achieved score is below 100 pts, we expect corrective actions and continual improvement. Action plan(s) to be presented upon Nidec request.
B	60pts ≤ Score < 80pts	A Supplier Improvement Plan (SIP) is required within 2 weeks after Nidec's notification
C	Score < 60pts	The Supplier can be placed on TWS. A Supplier recovery plan is required within 2 weeks after Nidec's notification.

Table XVII

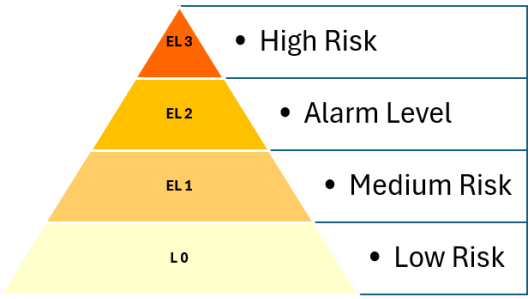
Note 17. In case A supplier been rated 4 times in a row as C rank (without significant improvement in 2 years), Nidec will hold a Purchasing Management Meeting about the supplier status (NBOH, Phase out, ⋯).

5.2 Supplier Escalation Program

5.2.1 Introduction

Nidec is targeting a high level of Supplier quality performance. In order to do so, Nidec has set up a Supplier Escalation Program to ensure the alignment of the Supplier with QCD targets while guarantying the optimum surveillance of its deliveries.

The Supplier Escalation Program is a proactive approach where the Supplier's "on-dock" deliveries respect the agreed QCD targets. . If a supplier does not meet defined requirements and obligations relating to the Nidec contracts, causing a critical situation at Nidec or Nidec customers (quality, deliveries, APQP fulfilment, not satisfactory reactivity, etc, …) Nidec could apply this Escalation Program related to the Supplier as per below escalation level pyramid:



Level	Definition	Consequence	Escalation Responsibility level	Exit criteria
L0	Deviation from specifications / contracts (8D report, supplier meeting, SPR Performance)	Standard automotive activity in case of supplier claims (C1, C2, C3, WR and L1, L2) defined in GSQM	Plant Level	L0 exit criteria are reached as per defined Quality tool.
EL 1	Supplier has a recurrent claim from level 0, SPR deterioration.	Monitoring Level CSL1 (as defined in GSQM) Supplier can be placed on (TWS) status.	Management / Plant Level	EL1 exit criteria are reached as per defined in SEP
EL 2 Alarm Level	Supplier fails to the level 1 (CSL2 as defined in GSQM)	CSL2 (as defined in GSQM) with the support of an external company. All costs to be hared by the supplier. Supplier is placed on (TWS) status. Management meeting	Director Level	EL2 exit criteria are reached as per defined in SEP
EI 3 Highest Level	Supplier fails to the level 2	Nidec internal Top Management meeting is organized to decide the supplier status and future of the supplier in : NBOH or Phase out The supplier will receive the letter from Commodity Buyer (global) / Plant buyer (local).	AMEC Corporate level	EL3 exit criteria are reached as per defined in SEP. Fulfill the requirements of Top management meeting

Table XVIII Level Overview

(*) If the supplier is the focus of attention at escalation level 1 & 2 two semesters in a row, the next higher level is to be applied.

The Supplier escalation program consists of 3 steps:

- Supplier Improvement Plan (SIP),
- Top Worst Supplier (TWS),
- NBOH.

Those steps are answering to Supplier's quality performance deterioration. However, upon Nidec decision, the Supplier could be directly placed on TWS or NBOH status.

When necessary, Nidec may implement containment actions (CSL1, CSL2) to protect Nidec's and Nidec's Customers' lines (please refer to chapter 4.5 <Controlled Shipment Level 1 and 2> in this Manual).

When Nidec is in escalation program due to customer/OEM claims due to supplier issues, supplier might be placed on special escalation program. Cost impact - please refer to chapter <5.3. Cost Recovery>

5.2.2 Supplier Improvement Plan (SIP)

Conditions for submitting a SIP are based on the Supplier performance measurements (QCD performance - B rating).

The Supplier is required to formulate, implement, and sustain improvement actions through the SIP to be considered for upgrade. The SIP is to be submitted within 2 weeks after Nidec's notification and is used to achieve agreed QCD targets and to obtain the A level during the Supplier performance measurements.

Nidec recommends the Supplier to use the fundamentals outlined in the IATF 16949 standard as a platform for organising its SIP. The SIP shall include lessons learned from previous quality issues.

Nidec follows the strict application of the Supplier's SIP actions and will use the SIP as basis to audit the Supplier's processes.

The Supplier may be placed on TWS or NBOH when no improvements have been noticed within the time limits prescribed (3 months).

5.2.3 Top Worst Supplier (TWS)

Conditions for being placed on TWS are based on the following conditions:

A supplier (production site) whose QCD performance lower than 60 points, will be rated C and will be declared TWS.

Nidec decides jointly when the Supplier is to be placed on TWS and will notify the Supplier accordingly by using TWS letter. When the Supplier receives the notification from Nidec, a TWS meeting is to be scheduled. During the TWS meeting, the Supplier Management shall present the recovery plan which shall include corrective and improvement actions to reach QCD targets and the timeline for implementation. Nidec may audit (8D audit, VDA6.3 process audit, Reverse PFMEA) the Supplier to assess the Supplier`s processes and check the effectiveness of the implemented actions.

When the Supplier does not send the recovery plan and no improvements have been noticed within the time limits (3 months) prescribed, the Supplier may be placed on NBOH.

5.2.4 NBOH

Conditions for being placed on NBOH are based on the Supplier performance measurements (QCD performance - C rating), degraded performances observed after a SIP submittal or TWS activities, chronic under-performances or by having severe QCD issues.

Nidec sends to the Supplier a NBOH letter which contains the reasons of the decision as well as the exit criteria.

When, despite all activities performed during Nidec's Supplier escalation program including containment activities (CSL1, CSL2) the Supplier still demonstrates systematic and severe under-performances regarding QCD targets, Nidec initiates the Supplier phase out.

This exclusion is done thanks to a disengagement plan, officially communicated to Supplier and compliant with the automotive industry standards.

5.3 Cost Recovery

The Supplier will be charged with corresponding amounts for each one of the situations bellow:

- Quality claims and the related administrative cost
- Production disruptions or incidents
- Unauthorized or non-communicated changes
- Delivery performance failures
- 8D audits closure
- Shipments of unapproved products
- Contracted capacity not available
- Sorting and rework operations
- Special freights to Nidec or Nidec's Customers
- PPAP submission rejections,
- Line stoppages
- Supplier audits fail (process, R@R 8D…etc.)
- Rework operations

The above list is not exhaustive, more generally the Supplier will be charged for all additional costs due to failed audits, complementary validations, generated incidents, failed PPAP, disruptions, property damage, economic loss, and any resulting damages, losses, costs and expenses incurred to Nidec and Nidec's Customers regardless of whether the claim or demand arises under tort, contract, strict liability or other legal theories.

Furthermore, the Supplier will be charged the costs due to Supplier's defective design or manufacture of Supplies or its negligent acts or omissions in its performance.

Nidec reserves the right to apply penalties according to incidents gravity or incidents reoccurrence.

Nidec performs at its expenses the SVA, the Run @ Rate Audit and the Supplier Process Audit. If the first audit fails, then expenses related to following audits will be charged to the Supplier, administrative fee and travel costs of auditors.

In case of special CB audits conducted at Nidec request due to OEM escalations, all costs for audits and auditor accommodations to be carried by supplier.

Nidec performs the PPAP counter measures / validations. If the first PPAP presentation fails, each new presentation will be charged to the Supplier.

With each new confirmed claim issued, administrative fee could be applicable. All costs generated during 8D closure audits performed by Nidec team at supplier site, such as administration fees, travel costs, accommodation and hourly rates will be charged to the Supplier.

Nidec reserves the right to apply penalties according to on purposed fraudulent activity such as default, data falsification, etc.

On purposed fraudulent activity includes, but is not limited to

1) Defaulted on agreed issues during PPAP. (Ex. Change management scope, inspection frequency/size of control plan; Inspection by uncertified inspector, etc.)

2) Falsification of inspection result, delivery, and supply of defect product.

In case of above cases:

1) The supplier will be charged with all related cost caused by the fraudulent activity.

2) In the case that Nidec will have a customer recall due to the supplier's responsibility, supplier will bare all costs appeared at Nidec and Nidec customer side.

3) The supplier would be placed on NBOH.

Appendix I

Nidec Change Management Matrix

Item	Content	Level			Remark
		A	B	C	
Change of a manufacturing place	1.1. Addition of new processes (lines)		○		
	1.2. Addition of new processes (lines) (special characteristics, critical parts: S/F symbol marked in CP)	○			
	2. Addition or relocation of the plant	○			Change of the layout:
	3.1. Change of the layout		○		With impact to products, make a check list for risk validation and rank them (light, vibration, tilt etc.)
	3.2 Change of the layout (special characteristics, critical parts: S/F symbol marked in CP)	○			
	4. In-house production⇔Outsourcing change	○			
	5. Change of sub-supplier（except distributors and trade firms）	○			
Change of operation methods, facilities, jigs, fixtures	1.1. New establishment or change of operation methods, facilities, jigs, fixtures		○		Change of operation methods
	1.2. New establishment or change of operation methods, facilities, jigs, fixtures(special characteristics, critical parts: S/F symbol marked in CP)	○			e.g.1 Adhesive Change of pressure = facility conditions (Rank B)
	2.1. Remodeling of facilities or jigs, fixtures		○		
	2.2. Remodeling of facilities or jigs, fixtures (special characteristics, critical parts: S/F symbol marked in CP)		○		Put adhesive five tiers from 1 tier= Change of an operation methods(Rank A)
	3.1. Repair of facilities or jigs, fixtures			○	
	3.2. Repair of facilities or jigs, fixtures (special characteristics, critical parts: S/F symbol marked in CP)			○	
	4.1. manual operation ⇔ automatic		○		e.g.2 welding jig (three-dividing jig) strengthen stricter control = Rank B change to ring jigs =Change of operation method（Rank A）
	4.2. manual operation ⇔ automatic (special characteristics, critical parts: S/F symbol marked in CP)	○			
	4.3. Change of handling from manual operation to automatic		○		
Change of mould/ die	1.1. Modification of mould/ die		○		
	1.2. Modification of mould/ die (special characteristics, critical parts: S/F symbol marked in CP)		○		
	2.1. Renewal or expansion of mould/ die		○		
	2.2. Renewal or expansion of mould/ die (special characteristics, critical parts: S/F symbol marked in CP)		○		
	3.1. Repair of mould/ die (including maintenance)			○	
	3.2. Repair of mould/ die (including maintenance) (special characteristics, critical parts: S/F symbol marked in CP)			○	
Change of jigs and/or tools	1.1. Renewal or Modification of jigs and/or tools			○	
	1.2. Renewal or Modification of jigs and/or tools(special characteristics, critical parts: S/F symbol marked in CP)		○		
	2.1. Repair of jigs and/or tools			○	
	2.2. Repair of jigs and/or tools(special characteristics, critical parts: S/F symbol marked in CP)			○	
	3.1. Change of processing, assembly and processing master sample			○	
	3.2. Change of processing, assembly and processing master sample(special characteristics, critical parts: S/F symbol marked in CP)			○	
Change of manufacturing conditions (processing, assembly)	1.1. Change of Work Procedures and Work Instructions			○	
	1.2. Change of Work Procedures and Work Instructions(special characteristics, critical parts: S/F symbol marked in CP)			○	
	2.1. Change of facility conditions (renewal, modification)			○	
	2.2. Change of facility conditions (renewal, modification) (special characteristics, critical parts: S/F symbol marked in CP)		○		
	3. Change of conditions for special process (heat-treatment, welding, surface-treatment, soldering, coating, adhesion, caulking etc.)		○		

Item	Content	Level	Remark

		A	B	C	
Change of inspection method	1.1 Creation or remodeling of inspection jigs and/or instruments			○	1.1~2.2
	1.2.Creation or remodeling of inspection jigs and/or instruments(special characteristics, critical parts: S/F symbol marked in CP)			○	Jigs and instruments have to be calibrated
	2.1. Repair of inspection jigs and/or instruments			○	
	2.2. Repair of inspection jigs and/or instruments(special characteristics, critical parts: S/F symbol marked in CP)			○	
	3.1. Change of measuring devices and measuring criteria		○		3.1~3.8 There is no problem with correlation and GR&R. Rank A if agreement is arranged with the customer.
	3.2. Change of measuring devices and measuring criteria(special characteristics, critical parts: S/F symbol marked in CP)		○		
	3.3. Change of measuring devices for shipping inspection			○	
	3.4. Change of measuring devices for shipping inspection(special characteristics, critical parts: S/F symbol marked in CP)			○	
	3.5. Change of measuring criteria		○		
	3.6 Change of measuring criteria(special characteristics, critical parts: S/F symbol marked in CP)		○		
	3.7. Change of measuring criteria for shipping inspection		○		
	3.8. Change of measuring criteria for shipping inspection(special characteristics, critical parts: S/F symbol marked in CP)		○		
	4.1. Change of the number of inspection specimens(the number of sampling)			○	4.1~4.4 Application to the customer is necessary if agreement is arranged with the customer. (Rank A)
	4.2. Change of the number of inspection specimens(the number of sampling) (special characteristics, critical parts: S/F symbol marked in CP)		○		
	4.3. Change of the number of inspection specimens of shipping inspection (the number of sampling)		○		
	4.4. Change of the number of inspection specimens of shipping inspection (the number of sampling) (special characteristics, critical parts: S/F symbol marked in CP)		○		
Change of materials	1.1. Change of material manufacturers	○			
	1.2. Change of material manufacturers(special characteristics, critical parts: S/F symbol marked in CP)	○			
	2. Change of materials or suppliers			○	
	3.1 Change of bulk material (lubricant, detergent, release agent, rust-proofing oil, gas)		○		
	3.2. Change of bulk material (lubricant, detergent, release agent, rust-proofing oil, gas) special characteristics, critical parts: S/F symbol marked in CP)	○			
	4. Change of material components (proportion)	○			In the case description of IMDS/CAMDS etc. is different
Others	1. Change of operators of critical process			○	
	2. Change of transportation method, packing method, or packaging (package)			○	
	3. Restart after production interruption for 6 months or more		○		
	4. Change of warehouse	○			It applies to warehouses which has storage function and packaging change function
	5. Change of transportation methods		○		Discuss actions for emergent transportation in another time
	6. Change of Quality Manager		○		

Appendix II

PPA Documents

No.	PPA content
0.1	Cover sheet for PPA report and PPA evaluation
0.2	Self-assessment for product, production process, and if appl. software
1. Deliverables of the product development	
1.1	Technical specifications
1.2	Approved design changes
1.3	Design, development approvals
1.4	Material data via IMDS
1.5	Design FMEA
2. Deliverables of the production process development	
2.1	Process flowchart
2.2	Process FMEA
2.3	Control Plan (CP)
3. Deliverables of the product verification	
3.1	Geometry, measurements
3.2	Material (strength, physical properties, etc.)
3.3	Function
3.4	Haptics
3.5	Acoustics
3.6	Odor
3.7	Appearance
3.8	Surface requirement
3.9	Technical cleanliness
3.10	Reliability
3.11	Resistance to electrostatic discharge (ESD)
3.12	Electrical safety / high-voltage safety
3.13	Electromagnetic compatibility (EMC)
4. Deliverables of the production process validation	
4.1	Assurance of Special Characteristics according to technical specifications and agreed characteristics (e.g. poka-yoke, 100% inspection, process capabilities, etc.)
4.2	Laboratory qualification
4.3	Samples incl. labelling (e.g. identification of series, production lot etc. that allow conclusions to be made about the documentation accompanying production)
4.4	Master sample
4.5	Production capacity
4.6	Tools

5. General deliverables	
5.1	Evidence of compliance with legal requirements
5.2	PPA status of supply chain
5.3	Test equipment list for product and production process
5.4	Measurement equipment analysis studies for product and production process
5.5	Part history
5.6	Evidence of suitability of the employed load carriers including storage
5.7	Documentation of the agreements regarding the diagnosis and analysis process
5.8	Documentation of the agreements regarding Layout inspection and functional testing
5.9	Other
6. Deliverables for software	
6.1	SW release (e.g. Appendix 5 “Cover Sheet PPA software)
6.2	Definition of the scope of the SW product
6.3	Reference to contractually stipulated quality requirements
6.4	Documentation of technical SW specifications (functional and non-functional)
6.5	Implementation of the requirements from 6.3 and 6.4, especially the Special Characteristics
6.6	Documentation about FOSS (free and open-source software)
6.7	List of known errors
6.8	Documentation of development tools
6.9	Documentation of test tools
6.10	Documentation of version management
6.11	Documentation of a process evaluation (e.g. Automotive SPICE®)

GLOSSARY

Term & Acronyms	Definitions
5W2H	**5W2H:** *A quality tool which consist in a serial of questions for getting complete information about an incident (Who, What, When, Where, Why, How, How Many*)
8D	**Eight Disciplines:** *Nidec official problem-solving process tool*
AIAG	**Automotive Industry Action Group:** *North American automotive organization, editing and publishing standards (http://www.aiag.org)*
AMEC	***Automotive Motor & Electronic Control*** *Business Unit*
APQP	**Advance Product Quality Planning:** *A structured and detailed planning process developed by the AIAG automotive organization to communicate common product quality planning and control guidelines for the automotive industry Suppliers*
C1	**Quality claim category 1**
C2	**Quality claim category 2**
C3	**Quality claim category 3**
CAMDS	**China Automotive material data system:** A data system for China used to collect and report on the materials that make up components and assemblies.
CB	**Certification Body**
Cmk	**Capability machine index:** *The machine capability is the ability of a machine tool to produce parts within the tolerance interval. Capability indices are a statistical way of describing how well a product is machined compared to defined target values and tolerances.*
Continual Improvement	Continual improvement refers to a process that is repeated and has pauses in between repetitions. This approach is phased, with improvements being made, then a break to measure and analyse the
CP	**Control Plan:** *A tool which lists all Supply and process inspection points required to deliver a defect-free product. A production control plan includes a process CP which is essential for maintaining a process stable over the long run and a product CP to check products conformity to Customer specification including SPPC, tolerances and other characteristics for control related to the supply*
Cpk	**Capability process index:** *The process capability index is a long-term capability including process centring. It is a comparison of the inherent variability of a process output to specification limits under statistically stable conditions.*
CQI audit	**Continuous Quality Improvement audit***: An audit dedicated to special processes using special assessment technique from AIAG*
CR	**Cost Recovery:** *A process ensuring that the Supplier is charged back the amount incurred to Nidec and Nidec's Customers for any failures regarding audits, PPAP, complementary validations, as well as generated incidents and perturbations*
Critical characteristics	***Special characteristics crucial for safety, performance, or functionality of the product with direct impact*** *on quality, reliability, safety. Lack of these can result in serious consequences. They require special attention and control to ensure constancy and compliance with requirements and specifications.*
CSL1	**Control shipment level 1**
CSL2	**Control shipment level 2**
CSR	*Customer Specific Requirement*
Customer(s):	*Refer to Nidec's own client(s).*
DFMEA	**Design Potential Failure Mode and Effect Analysis:** *The application of the Failure Mode and Effects Analysis (FMEA) method specifically to components/materials/assembly design.*
DR	**Design review:** *A documented review to address potential design issues.*
DUNS	**Data Universal Numbering System:** *A unique identifier for business.*
DV	**Design validation:** *Testing which ensures that a Supply design meets the client requirement.*
EDI	**Electronic Data Interchange:** *A standardized method for transferring data between different computer systems or computer networks.*
ELV	**End of Life Vehicle**: *A European Directive to prevent wastes from end of life vehicles.*
EOL	**End Of Life:** *Mention the end of life of a product.*

EVAL	*A questionnaire used for new Supplier qualification to have business with Nidec.*
FC	**Functional Characteristic:** *A product characteristic or process parameter for which a reasonably anticipated variation is likely to affect the manufacturing process, either at Supplier and/or Nidec and/or Nidec's Customers location, which results in a reduced quality performance and a decreased Nidec's and/or Nidec's Customers satisfaction.*
FFA	**Field failure Analysis:** *defines a joint approach between the customer and supplier for the analysis of field returns including no fault found scenarios.*
FIFO	**First In First Out:** *A management method to organise and manipulate Supply and data according to time and prioritisation.*
First Off-tool part (FOT)	*A Supply produced by serial tooling which may not meet specifications. Off-tool parts are generally used as confirmation for serial tooling.*
FMEA	**Potential Failure Mode and Effects Analysis:** *A tool which aims to identify every possible failure mode of the required function of process / Supply and respective effects. The FMEA is also used to rank and prioritize the possible causes of failures as well as develop and implement preventive actions, with responsible persons assigned to carry out these actions.*
FOT	*First Off-Tool Parts*
FTA	**Factor Tree Analysis:** *A quality tool to identify the causes for occurrence and non-detection of an incident.*
GSQM	*Global Supplier Quality Manual*
IATF 16949	**Automotive Quality Management System Standard International Automotive Task Force 16949:** *Quality management system, with particular requirements for automotive production and relevant service part organization.*
IMDS	**International Materials Data System:** *A data system used to collect and report on the materials that make up components and assemblies.*
IS	**Initial Sample:** *IS a defined qty. of pieces which are measured to validate if the defined features are OK*
ISO 14001	**International Standard Organization 14001:** *Environmental management systems -Requirements with guidance for use*
ISO 16232	**ISO 16232** *is an international standard that specifies requirements for the cleanliness of components and systems in road vehicles. It provides guidelines for determining particulate contamination on functionality relevant automotive parts*
ISO 17025	*Specifies the general requirements for the competence of testing and calibration laboratories. It is widely recognized and used by laboratories to implement a quality management system aimed at improving their ability to consistently produce valid results*
ISO 26262	**ISO 26262 Road vehicles – Functional safety:** *An international standard for functional safety of electrical and/or electronic systems in production automobiles defined by the International Organization for Standardization (ISO).*
ISO 45001	**Occupational health and safety management systems - requirements with guidance for use** *Reduction of workplace incidents and demonstrating* **OH&S commitment**
ISO 9001	**International Standard Organization 9001:** *Quality management systems–Requirements*
KFC	**Significant – Key Functional Characteristic** *A product characteristic or process parameter crucial for product functionality or crucial for customer product functionality and have direct impact on customer satisfaction except safety.*
L1	**Logistics claim category 1**
L2	**Logistics claim category 2**
LCC	**Leading Competitive Countries:** *Identified countries as competitive cost wise.*
LLC	**Lesson Learned card:** *The knowledge acquired from the experience gained. These lessons come from working with or solving real-world problems. Collecting and disseminating lessons learned helps to eliminate recurrences in future projects.*
LON	**Letter of Nomination:** *Indicates that the supplier has been selected to provide specific parts or services for a particular project. Serves as a preliminary agreement, outlining the intent to enter into a formal contract, and often includes key terms such as pricing, delivery schedules, and quality requirements . The LoN is crucial as it marks the beginning of the supplier's involvement in the project, allowing supplier to start preparations for production, such as securing materials and planning capacity. However, it is important to note that the LoN is typically not a legally binding contract but rather an indication of the Nidec intent to award the business to the supplier.*

Manual	*The entire document in its current version or any future amendments as the case may be.*
MLA	*Maturity Level Assurance (VDA)*
MSA	**Measurement System Analysis:** *A method to identify the components of variation in the measurement.*
NAMA	**Nidec Automotive Motor Americas, LLC**
NAMM	**Nidec Automotive Motor Mexicana**
NAMS	**Nidec Motor (Zhejiang) Corporation**
NCJ	**Nidec Corporation Japan**
NDA	**Non-Disclosure Agreement:** *A document signed by NIDEC and the Supplier which purpose is to protect non-public and proprietary information.*
NTF	***No Trouble Found***
NEMS	**Nidec Electrical Motors Serbia d.o.o**
NGPMBRZ	**Nidec GPM do brasil Automotiva Ltda**
NGPMG	**Nidec GPM GmbH (Germany)**
NGPMH	**Nidec GPM Hungary LLC**
NGPMZH	**Nidec GPM Automotive Pumps (Suzhou) Co. Ltd**
NIND	**Nidec India Private Limited**
NMAG	**Nidec Motors and Actuators (Germany) GmbH**
NMAP	**Nidec Motors and Actuators (Poland) Sp.z.o.o**
NMAS	**Nidec Motors and Actuators (Spain) S.A.U.**
OEM	**Original Equipment Manufacturer:** *Applies to car makers, i.e., BMW, Ford, Daimler, GM, PSA, Renault, Volkswagen, etc.*
PC	***PC Process characteristic*** *Important characteristics or dimensions with effect on Nidec assembly process which are not specified as (SC) or (FC) but need to be controlled by specifically defined monitoring method.*
PFMEA	**Process Potential Failure Modes Effects Analysis:** *The application of the Failure Mode and Effects Analysis (FMEA) method specifically to processes.*
PPA	**Production Process and Product Approval:** *describes the basic requirements for sampling of serial parts submission for automotive serial parts.*
PPAP	**Production Part Approval Process:** *A process defined for the validation of new materials and subsequent processes. It outlines the methods used for approval of production and service commodities up to PSW in the APQP.*
Ppk	**Process Performance Index***: The process performance index is a short-term capability including process centring. It is the comparison of the actual process variation to the specification limits.*
PPM	**Parts per Million:** *A dimensionless value which represents the Supply of a whole number in units of 1/1000000.*
Process parameter	*A process parameter which variation from nominal (target value and tolerances) is likely to affect the manufacturing or assembling, process or the final product characteristic. It requires controls and ongoing monitoring through an approved process Control Plan (CP).*
Product characteristics	*A product characteristic is a definable and measurable product dimension, feature, or property (physical or chemical) and relates either to a variable characteristic (length, diameter, torque, or conductivity, cleanliness, etc.) or an attribute characteristic (colour, appearance, etc.).*
PSCR	**Product Safety & Conformity Representative (**
PSW	**Part Submission Warrant:** *A procedure according to AIAG, by which the Supplier gives evidence to the Customer that he is able to satisfy the QCD requirements as well as capability and capacity requirements.*

PV	**Product Validation:** *Testing that assures that the manufacturing process produces Supplies that meets the Customers' requirements*.
QCD	**Quality Cost Delivery:** *key targets that Suppliers should follow up to be competitive.*
QR	**Quick Reactivity：** *Quick Reactivity is a binding decision to perform the quick reactivity.*
R&R	**Repeatability and Reproducibility** studies.
R@R	**Run at Rate:** *An audit to assess Supplier's manufacturing process capacity.*
RC	**Regulatory (Legal) Characteristic (RC)** *A product characteristic or process parameter with concern about deviation from related legislation if special control is not provided. (e.g. safety regulations, switching parts for the environment, threshold control of environmental regulated substances). Characteristics assure compliance with the latest applicable statutory, regulatory, and other requirements in the countries where they are manufactured and in the customer-identified countries of designation.*
REACH	**Regulation Evaluation and Authorisation of Chemicals:** *An EU regulation which came into force on 1st June 2007 concerning the registration, evaluation, authorisation and restriction of chemicals*
RFI	*Request for Information*
RFQ	**Request for Quotation:** *A standard business process*
RoHS	**Restriction of Use of Hazardous Substances:** *An EU directive which aims to restrict certain dangerous substances commonly used in electronic and electronic equipment*
SAP	A *software package that centralizes the management of all resources*
SC	**Product Safety Characteristic (SC)** *A product characteristic or process parameter of which rationally predictable failure can affect vehicle running and product safety.*
SDA	**Supplier Deviation Authorization:** *A document issued by the supplier showing deviations according to the specifications. SDA must include all actions to recover the specifications. SDA must be approved by Nidec.*
SIP	**Supplier Improvement Plan:** *A quality document issued by the Supplier showing all actions it will undertake and implement to eliminate an incident.*
SLP	*Safe Launch Process*
SOP	**Start Of Production**
SPC	**Statistical Process Control:** *Use of control charts to monitor process performance and define priorities on how and when to adjust the process*
SPPC	**Special Product and Process Characteristic:** *A SPPC is a special product characteristic or a special process parameter. NIDEC classifies SPPC as either Product Significant Safety Characteristic (SC), Regulatory (Legal) Characteristics (RC) or Functional Characteristics (FC).*
SQA	**Supplier Quality Assurance** *within Nidec*
SQE	**Supplier Quality Engineer** *within Nidec*
Sub-supplier(s):	*All organisations that provide Nidec direct Suppliers for Nidec's needs. It includes Suppliers for heat treating, plating, coating, welding, soldering, or other finishing services.*
Suppliers:	*All entities involved in the production of Supplies purchased by Nidec's buying sites.*
Supplies	*Tools, machines or equipment, parts, raw materials, other materials, or services purchased by or furnished.*
SVA	**Supplier Validation Audit:** *An audit performed to assess the Supplier's conformity to automotive requirements.*
TISAX	**Trusted Information Security Assessment Exchange:** *It is a standardized information security assessment framework specifically designed for the automotive industry*.
TP	**Technical productivity:** *Any optimisation of the Supply that affects the total cost of the item/material purchased (Price decrease, reduction in the quantity of purchased materials, etc.) without any*

TWS	**Top Worst Supplier:** *A status attributed to the Supplier by Nidec's SQE and Commodity Buyers due to its low QCD performances*
VDA	**VDA** *stands for Verband der Automobilindustrie, which is the German Association of the Automotive Industry. It represents the interests of German automotive manufacturers and suppliers*
VDA 4994	*Global Transport Label requirements*
VDA 5	*Capability of Measurement Processes*
VDA SC	*VDA SC Special Characteristics (SC) - A Process Description Covering Special Characteristics,*
VDA19	***VDA 19** is a standard developed by the German Association of the Automotive Industry (VDA) that focuses on the technical cleanliness of automotive components.*
VDA2	*Production Process and Product Approval (PPA).*
WR	**Warranty Return:** *An incident identified at the final Customer (end user).*

Supplier status (Purchasing Definition)

Existing Suppliers	*Existing Suppliers are organisations integrated into Nidec Suppliers panel. Existing Suppliers shall meet the requirements specific to automotive industry as well as those outlined in this Manual, including requirements for new Suppliers. Nidec may, at any time, in its sole discretion, control the respect for the rules incumbent to existing Suppliers set forth in this Manual.* *Suppliers from Nidec Suppliers panel who set up a new location are still considered as existing Suppliers. However, they shall pass again the New Suppliers Integration Process.*
Nidec Suppliers panel	*The lists of all Suppliers who are awarded a Nidec contract business and involved in a project development.*
New	*New Suppliers are either,* • *Organisations which have never done business with Nidec or,* • *Organisations which have not provided Nidec with Supplies during 3 consecutive years.* *New Suppliers are organisations that can be integrated into Nidec Suppliers panel after being awarded a business from the signature of the Letter of Intent (LOI).* Prior being awarded a business, new Suppliers shall pass the New Suppliers Integration Process
Core	*Core Suppliers are organisations which have a privileged relationship with Nidec. There is no restriction to place and develop business insofar as the commodity (core competence) is respected.*
Imposed	*Imposed Suppliers are organisations imposed by the Nidec Customers.*
End of life	*End of Life Suppliers (EOL) are organisations which are going to stop providing Nidec with Supplies after end of life of Nidec current production. End of Life Suppliers are not awarded new business contracts.*
New Business on Hold	*NBOH Suppliers are organisations on probation. An improvement plan is to be defined and agreed. No new business can be placed without Nidec management decision.*
Phase out / Pending	*Phase out / Pending Suppliers are organisations that will be phased out. The date of business ending is agreed. No new business can be placed.*
OES/AM	*Original Equipment Spare / after Market Suppliers are organisations that provide spare parts and services for vehicles repair.*

List of quoted documents

Nidec PPAP documents			
No.	PPAP content	Nidec template	Where it mentioned in this manual
1	Part submission warrant (PSW)	○	Chapter 3.3.4 APQP Phase 3 Step 9 PPAP Approval Chapter 3.7.2 PPAP submission level & content Chapter 3.7.1 General Requirements for PPAP submission Chapter 3.7.2.2 PPAP Submission Content
2	Design record/"Ballooned" drawings	--	Chapter 3.7.1 General requirements for PPAP submission
3	Approved change documents (if applicable)	--	Chapter 4.2.2 Permanent changes
4	DFMEA (if applicable)	--	Chapter 3.3.2 APQP phase 1 Step3: Design Review (DR)
5	Process layout	--	Chapter 3.3.3 APQP phase 2
6	Process flow diagram/chart	--	Chapter 3.9 Process flowchart
7	PFMEA	--	Chapter 3.10 PFMEA
8	Control plan	--	Chapter 3.11 Control plan
9	IMDS/CAMDS (Nidec ID No.: _____)	--	Chapter 3.3.3 APQP phase 2 step 4 IMDS/CAMDS
10	Measurement method	○	Chapter 3.3.3 APQP phase 2 step 2 Gauge/tooling/equipment review
11	Dimensional report (Full dimension)	○	Chapter 3.3.3 APQP phase 2 step 6 First off-tool parts
12	Test Report	○	Chapter 3.3.3 APQP phase 2 step 6 First off-tool parts
13	Material Report, Material certification	○/--	Chapter 3.3.3 APQP phase 2 step 6 First off-tool parts
14	Capability study (Initial process study)	○	Chapter 3.3.3 APQP Phase 2, Step 6 First off-tool parts Chapter 3.3.4 Phase 3, Step 1 Chapter 3.13 Initial process study Chapter 3.13.3 Process Capability & Process Performance Requirements
15	GR&R (Measurement system analysis)	○	Chapter 3.3.3 APQP phase 2 step 2 Gauge/tooling/equipment review
16	Capacity stud y& Run@Rate	○	Chapter 3.3.4 APQP phase 3 step 1 Internal Supplier capacity and capability validation
17	Packaging specifications	--	Chapter 3.3.3 APQP phase 2 Step7: Packaging & labelling definition proposal
c	Traceability Management (Traceability description)	--	Chapter 3.3.3 APQP phase 2 Step8: Traceability Management
19	Appearance approval report (if applicable)	○	Chapter 4.2.3.1 The Supplier Deviation Authorization
20	Bulk materials list/requirement (if applicable)	--	Chapter 3.7.1 General requirements for PPAP submission
21	Master sample ((if applicable)	--	Chapter 4.11 Documents, Samples and Master Samples Retention
22	Qualified laboratory documentation	--	Chapter 3.7.2 PPAP submission level & content
23	Compliance with the customer's specific requirement (if required)	--	Chapter 3.7.2 PPAP submission level & content
24	Checking Aids	--	Chapter 3.7.2 PPAP submission level & content
25	Additional requirement		Comments/details
25.1	APQP File	○	Chapter 3.2.1.2 Business attribution process description
25.2	Sub-supplier PPAP	--	Chapter 3.3.4 APQP Phase 3 Step4: Sub-suppliers PPAP
25.3	Shipping report	--	Chapter 3.7.2 PPAP submission level & content
25.4	Conflict Minerals	--	Chapter 2.2.6 Step 5 - Other requirements
25.5	Contingency Plan	--	Chapter 4.10 Contingency Plan
25.6	Calibration test	--	Chapter 3.7.2 PPAP submission level & content
25.7	Reliability Report	--	Chapter 3.3.4 APQP Phase 3 Step2: Nidec validation test
25.8	CQI audit report	--	Chapter 4.7.2 Special processes assessment: CQI audits
	Other		
Nidec APQP File			

Sheet	APQP file Content APQP	Where it mentioned in this manual
0	APQP phase	Chapter 3.1 Nidec project management process
1	Coversheet	Chapter 3.3.2 APQP phase 1 step 1 Kick-off of the APQP File
2	Info Sheet	Chapter 3.3.2 APQP phase 1 step 1 Kick-off of the APQP File
3	Status and timing chart	Chapter 3.3.2 APQP phase 1 step 1 Kick-off of the APQP File
4	Targets, risks & Quality Agreement	Chapter 3.3.2 APQP phase 1 step 4: Targets, risks & Quality Agreement
5	Initial Sample Requirements	Chapter 3.7.2 PPAP submission level & content
6	Feasibility Study	Chapter 3.3.2 APQP phase 1 step 3: Design Review (DR): Feasibility study & commitment Chapter 3.2.1.2 Business Attribution Process Description Step7 Chapter 3.3.2 Phase 1: Step 6 Design Freeze
7	Special Product and Process Characteristics	Chapter 3.3.4 APQP phase 3 step 1 Internal Supplier capacity and capability validation Chapter 3.13.3 Process Capability & Process Performance Requirements
8	PFMEA Report	Chapter 3.10 PFEMA
9	Packaging & labelling	Chapter 3.3.3 APQP phase 2 step 7 Packaging & labelling definition proposal
10	Sub-supplier Application	Chapter 3.3.3 APQP phase 2 step 9 Sub-supplier Application
11	Process Audit Report	Chapter 3.3.4 APQP phase 3 step 5 Process audit
12	Capacity stud y& Run@Rate	Chapter 3.3.4 APQP phase 3 step 1 Internal Supplier capacity and capability validation Chapter 3.3.4 APQP phase 3 step6 Run@Rate Audit
13.1	Safe launch process agreement	Chapter 3.3.3 APQP phase 2 step 5 Early production containment rules Chapter 3.3.4 APQP Phase 3 Step 9 PPAP Approval Chapter 3.3.5 APQP phase 4 Step3: Safe Launch Process Confirmation and Closure Chapter 3.4.1 Early production containment / Safe launch process objectives and rules
13.2	Weekly Report	Chapter 3.3.5 APQP phase 4 step 2 Weekly Report
14	Concern & Action Report	Chapter 3.3.2 APQP Phase 1 step 1 Kick-off of the APQP File Chapter 3.3.2 APQP phase 1 Step 3 DR Chapter 3.3.2 APQP Phase 1: Step 6 Design Freeze Chapter 3.3.2 APQP phase 1 step 8 APQP activities implementation confirmation Chapter 3.3.3 APQP phase 2 step 10 APQP activities implementation confirmation Chapter 3.3.4 APQP Phase 3 Step 10 APQP activities implementation confirmation
15	PPAP Submission Matrix	Chapter 3.3.3 APQP Phase 2 Step 4 IMDS/CAMDS submission Chapter 3.7.2 PPAP submission level & content

Nidec's other applicable documents

No.	Document	Template	Where it mentioned in this manual
1	EVAL	Common	Chapter 2.2.3 Step 2 - The EVAL questionnaire
2	General Terms and Conditions of Purchase	AMEC	Chapter 2.2.5 Step 4 - Commercial and financial requirements
3	Non-Disclosure Agreement (NDA)	AMEC	Chapter 2.2.5 Step 4 - Commercial and financial requirements Chapter 3.2.1.2 Business Attribution Process Description, Step1
4	Certificate regarding Environment-related substances	Common	Chapter 2.2.6 Step 5 - Other requirement
5	Letter of Nomination (LON)	AMEC	Chapter 3.2.1 Phase 0: Business attribution
6	Request for quotation (RFQ)	AMEC	Chapter 3.2.1.2 Business attribution process description Step3: Request for quotation (RFQ）
7	Liability Insurance for Supplier procedure	AMEC	Chapter 3.2.1.2 Business attribution process description Step3: Request for quotation (RFQ）
8	Tool Manufacture Loan Agreement (TMLA)	AMEC	Chapter 3.2.1.2 Business attribution process description Step3: Request for quotation (RFQ） Chapter 4.12 Nidec Property – Tools
9	Long Term Supply Agreement	AMEC	Chapter 3.2.1.2 Business attribution process description Step3: Request for quotation (RFQ）
10	Supplier Selection Sheet	AMEC	Chapter 3.2.1.2 Business attribution process description Step8: Supplier selection
11	Supplier Change Request	Common	Chapter 4.2 Change management Chapter 5.1.2.3 Cost performances (Supplier cooperation)
13	Supplier Deviation Authorization	Common	Chapter 4.2.3 temporary change
14	Supplier Suggestion Sheet,	AMEC	Chapter 5.1.2.3 Cost performances (Supplier cooperation)
15	Run @ Rate Audit	Common	Chapter 3.3.4 APQP phase 3 step 6: Run @ Rate audit (Capacity study）
16	Supplier 8D Audit	Common	Chapter 4.4.3.2 The 8D process
17	Supplier 8D report	Common	Chapter 4.4.3.2 The 8D process

If not already provided, please ask your Nidec contact for the above documents.

AIAG core tools Manuals available from http://www.aiag.org

- Advanced Product Quality Planning (APQP) and Control Plan (CP),
- Production Part Approval Process (PPAP),
- AIAG VDA FMEA handbook,
- Measurement Systems Analysis (MSA),
- Statistical Process Control (SPC),

VDA Volumes are available from http://vda-qmc.de/

- VDA 1 Documentation and Archiving,
- VDA 2 Quality Assurance for Supplies: Production and Process Approval (PPA),
- AIAG VDA FMEA handbook,
- VDA 5 Capability of Measurement Processes
- VDA 6.3 Process Audit
- VDA 6.5 Product Audit

Other websites:

- http://www.mdsystem.com
- https://www.camds.org.cn/#/
- http://www.dnb.com/us/
- http://www.gadsl.org
- http://www.responsiblemineralsinitiative.org/
- http://europa.eu/
- http://www.sec.gov/

Supplier Information

Supplier Name

.....

Supplier Adress

.....

Approved by Supplier representative
name / position
(with company stamp)

.....

Approval date