MUSASHI	STANDARD PROCEDURE				Procedure for New Product development
Procedure No.	Issue	Rev.	Date	Page	
ISP-PE-002	02	01	12-Oct-17	01 of 04	

PAGE NO.	Issue	Rev.	REASON FOR CHANGE	DATE
All	01	00	New Document Release	1-Jun-14
All	01	01	Time frame of issuing final drawing to one deptt. to another deptt , double check is included at sr.no. 3 & flow chart , PQCS made by QA team , PQCS Revision criteria & Handling of Changed PQCS , responsible for receipt of inspection standard from customer is included at s.r. no. 10	24th Jul.2014
All	01	02	Review of Kakotora learning , PQCT change identification method included & PQCT guideline added at pt.no.10 , Rule for identification of special characteristics MQS , process control , past trouble added at pt. no.8 ,	15th Dec.2014
All	01	03	Revised PQCS submit to customer with in seven days added in point no. 10 Trouble record sheet compilation and information to PE for horizontal deployment in New model added at point no .9 and onsite verification of measurement method added at pt. 7,14 ,19 & flow chart	15-Feb-15
All	01	04	Revised PQCS submit to customer with in seven days added in point no. 10 Trouble record sheet compilation and information to PE for horizontal deployment in New model added at point no .9 and onsite verification of measurement method added at pt. 7,14 ,19 & flow chart	18th Feb.2015
All	01	'05	Drawing issue to BLR added at point no. 3	12th Mar.2015
All	02	00	New Issue of IMS manual	1st April.2015
All	02	01	M- Flow (QCD) activity added at point no. 5,11,18,24,28 & in Flow chart	08th May.2015
All	02	02	Distortion observed more than 0.01mm then thorough investigation done is added in flow chart	16th Nov.2015
All	02	03	Responsibility of review & updation of PFMEA clearly defined at point no. 9	30th Jan.2016
All	02	04	Customer specified critical (Q) mark added at point no.8 & OEE and CT rule is added	15th March.2016
All	02	05	Initial flow control & RPN rating calculation (Annexure-2) is added	31st May.2016
All	02	00	Rule New Machine Planning / Ordering / Commissioning , CT information sharing rule is added	15th July.2016
All	02	01	M-flow Timing Chart, Evaluation Item & OEE, cycle time calculation flow included in Anx.3 & 4	21-Jul-16
All	02	02	DCN added in Flow chart	8th Dec.2016
All	02	03	Special characteristics matrix	17th Feb.2017
All	02	04	Human resource department linked to MDT team in point number 01	21-Jul-17
All	02	00	New Document Release	8-May-17
All	02	01	Gauge design approval revised to joint approval by ME & QA in flow chart Production trial done min 3 batches & Tool life to be freeze prior to mass production added in flow chart Point added in 10 After feasibility study , QA Matrix to be prepared & updated MQS requirement point added to Supplier in point no-8 as per TVS action plan	12-Oct-17

Prepared By	Checked By	Approved By	Released By

Major Links To :

MD	Director- HR	Director-Purchase , Sales	Director- Finance & Account , FC,IT
Head HT & Forging	Head- Factory Control	Head - PE	Head- Machine Shop
Head- Sales	Head- Purchase	Head- Quality Assurance	

1.0 Purpose

To establish a procedure for defining the step necessary to assure that the product satisfies the customer and also to facilitate communication with everyone involved assuring that all required steps are completed on time .

2.0 Scope

Applicable For all Products intended to be sold from MAP-ID to customers

1) New products
2) Engineering Changes

3.0 Responsibility

Department Head - Process Engineering

Documents Referenced	Number	Records Referenced	Number
Work Instruction for Engineering	ISW-PE-001	Team Feasibility Commitment	ISF-PE-006
Document Control		Product Quality Planning Signoff	ISF-PE-007
PQCT making Guidelines	ISD-QA-034	Dimensional Inspection Report	ISF-QA-017
Rule Identification of special characteristics	ISD-PE-001	Materlal Inspection Report	ISF-QA-018
Rule - Setting of OEE , cycle time for New model	ISD-PE-002	Inspection Standard issue record	ISF-QA-051
Rule -New Machine Planning / Ordering / Commissioning	ISD-PE-004	Trouble History sheet	ISF-QA-061
Rule- CT Setting information sharing	ISD-PE-005	Initial flow control	ISF-QA-065
		Special characteristics matrix	ISF-PE-021

4.0 Procedure

Srl.	Activity	Input	Output	Responsibility
1	Nominate a Multidisciplinary team(MDT) approved by Div.Head for performing product development comprising personnel from following departments, as applicable Process Engineering Sales Machining, HT & Forging Purchase Quality Assurance Engineering Factory control Human resource	Customer requirement	MDT	Head Process Engineering/ FC
2	A Product development plan detailing time plan for various activities is charted out considering all the activities and customer delivery requirements	Customer requirement	Development Plan	MDT/Head PE/ FC
3	MDT performs drawing study and a process sequence is identified			
	Final Drawing issue by Sales to PE With in 3 Days after Receipt From Customer.	Drawings	Issue of Documents	Associate Sales
	Comparison b/w Old,New Revision Drawings through colour matching by Engineer & verified by Section Head			Head PE / Associate PE /
	One copy of Final Drawing issue by PE to QA & ME BLR With in 10 Days after Receipt From Sales.			Associate P.E
4	The MDT will identify,review and document the manufacturing process Design input such as Product Drawings & Standards, Customer Requirements, Experience from previous developments etc	Product Design input Data Previous Experience	Identification of Resources	MDT/ Head PE
5	A team feasibility commitment is conducted by MDT The same is communicated to Div.Head by Head Process Engineering and reviewed for any actions required.	Drawing Study Development Plan	Team Feasibility Commitment	MDT/ Head PE
	M-FLOW (QCD) evaluation is carried out	Final drawing Master timing plan	Evaluation as per annexure -2	MDT
6	Process Sequence matrix is made to have the summary of all processes & source	Drawings	Process Sequence matrix	MDT
7	Process sheets are developed by MDT. Approval from Quality Assurance & Machining / HT & Forging is taken for Quality & process parameters (including measurement method)	Development Plan	Process Sheets	MDT
	Checking of process sheet to be carried out by colour matching with final drawing to ensure all parameters of final drawings are covered in process sheet	Final drawing	Process sheet	Associate- PE
8	Special Characteristics are identified based on following guidelines Customer Drawings / Standards study MQS (Manufacturing Quality Standard) Severity rating 9 or above in PFMEA Previous Manufacturing Experience Safety and Government Regulation Contract Review checklist	Customer Drawing / Regulations/ CRC	Identification of Special Characteristics	MDT
	Note : MQS Sheet (Exp :critical , fit , function parameters) will be shared to Supplier by MDT and Updated MQS will be received . NPD QA has to verify & confirm the same as per Drawing	Drawing /CSR /MQS	Updated MQS Incoming inspection report	MDT
	The Special Characteristics are referred by the notation 1. Safety/Compliance ▽ 3. Fit/Function and Process Control ◊ 2. Past Trouble ✱ 4. Customer specified Q Parameter : **"Q"**	Customer Drawing /	FMEA'S,PQCS-II , Process sheet	MDT

Srl.	Activity	Input	Output	Responsibility
	Incorporated in the original Drawings,FMEA'S,PQCS-II , Process sheet and accordingly in selling approval , Inspection check sheet , equipment check sheet whereas applicable			
9	PFMEA is carried out by MDT.Past trouble record is reviewed during making / reviewing PFMEA. PFMEA to be reviewed once in a six month or on the basis of :- - corrective action taken against customer complaint & high internal rejection - Trial rejection under new development - addition of new process - whenever any process improvement is carried out - *RPN is calculated as per annexure-2*	Process Sequence matrix /sheets Past Trouble Record	PFMEA	MDT/Head PE
	Receipt quality and final inspection Quality team make the trouble record sheet on basis of problem received from supplier as well as customer and inform to NPD QA team for compilation. After compilation of past troubles in trouble record sheet NPD QA team will inform to Process Engineering . Process engineering will ensure that all c/m taken against past troubles are horizontal deployed in new model , where ever applicable	Past troubles	Trouble record sheet	Head QA / Head PE
	* Past troubles countermeasures of similar models / parts to be reviewed during design stage & QCD-1, QCD-2,QCD-3 evaluation.	Trouble record sheet	Evaluation report	MDT
10	PQCS-I & PQCS-II are made by QA after receipt of inputs from Process sheets , PFMEA , as per PQCS making guidelines & inspection standard (Inspection std.received from customer) with in two business working weeks	PFMEA, Process Sheets Inspection	PQCS-I PQCS-II	Head QA
	Inspection standard received from customer by QA/Sales deptt. & it will be issued to P.E. deptt for updation (like Process sheet) with in one week	Inspection standard	Issue record	Associate QA
	After Feasibility study, Q GATE MATRIX for Fitment Parameters inspection report to be prepared & updated	Drawing	QA Matrix sheet	MDT
	Whenever changed in process sheet / PFMEA / inspection standard the PQCS to be revised accordingly & the revision details should be clearly indicated by encircle the change point for clarity Obsolete hard copies are destroyed / deleted / identified with 'OBSOLETE COPY' Stamp. Obsolete Soft Files are deleted Revised PQCS to be submit to customer with in seven days	Change items	Revised PQCS	Associate QA / Head QA
11	Identify the requirement and plan the procurement of the below items : *New machines / equipment's (as per Rule -New Machine Planning / Ordering / Commissioning)* New gauges / testing equipment's Raw material / Forging / Assembly parts Cutting tools / Dies / Jigs & Fixture Accessories / Consumables	Process Sheets	Procurement Plan sheet	Head Process Engineering
	Note : Gauge design will be jointly review &check by QA & ME *and set the target for OEE , Cycle time , manpower and rejection as per OEE cycle time setting rule* *CT setting is informed to concern as per CT setting information rule for New model*	Gauge plan /gauge drawing *OEE setting sheet* *Standard operation sheet* *Cost sheet*	Gauge approval *Target of OEE* *Cycle time , manpower and rejection*	Head QA / Head PE *Head PE*
	M-FLOW (QCD 0) evaluation is carried out	VA/VE, Master timing plan Costing sheet , past trouble sheet , FMEA	Evaluation as per annexure -2	MDT
12	**Sample production (PP1) :** One copy of Process Sheets with Prototype Marking is issued to Machining/HT&Forging/ QA/PDE			Head PE / Associate PE /
13	Manufacturing of initial samples is carried out by Machining/ HT & Forg. & Samples along with all the documents handed over to QA department by Production Engineering	Process Sheet Original Drawing	Sample lot	Head Machining/ HT & Forging
	In case of 4W - wherever applicable FFT validation at different RPM to be done at shaving operation.	Process sheet	FFT Graph	Associate PE / Associate QA
14	Carry out inspection / testing of sample covering all the dimensional and material characteristics & verify measurement method . A copy of drawing is marked with highlighter pen, numbered & ticked for all parameters covered in inspection.	Original drawing & Process sheet	Dimensional & Material Inspection Report	Associate QA/ Head QA
15	Submit the sample along with relevant inspection and testing report and other documents to the customer	Inspection report & samples	Customer evaluation	Head Factory Control / Sale
16	Receive the customer sample evaluation report and review with MDT. In case of any concern raised by customer, resolve the same. (Re-submit the sample if required after repeating activity 14 to 16)	Sample evaluation report	Action Plan	Head Factory Control / Head Sale
17	Review the documents made for sample production such as PQCS-I, II, Process Sheets and make the necessary changes (if any).	Sample evaluation report	Review of Documents	MDT Head QA Head Process Engineering
18	A controlled copy of Process Documents are issued to the concerned departments ensuring receipt / identification of obsolete documents	Amended Documents	Issue of amended documents	Head Process Engineering
	M-FLOW (QCD 1) evaluation is carried out	Customer approval reports, Lay out inspection report , c/m sheet, Set up summary	Evaluation as per annexure -2	MDT

Srl.	Activity	Input	Output	Responsibility
	Pilot Batch Production (PP2/PP3) :			
19	On the basis of Original Drawing, Forging / Blank Drawings etc. the respective Incoming inspection, Setup Approval sheets for various machines, In-Process inspection formats, Final Inspection report format are prepared and onsite verification of measurement method .	Original Drawing, PQCS-I & II, Process sheets	Inspection formats for various stages	MDT / Head QA Head Mcg /HT&Forg.
20	MSA study is carried out as per PQCS-II requirements	PQCS-II, Process sheet	MSA Results	Head QA & Mcg /HT&Forg.
21	Pilot production is planned as per customer agreed quantity/ Qty. identified by MDT. (Default Target for MDT : 2 Days Output (Mass prodn. despatch intent qty x 2)	Sample Approval	Pilot Batch Production	Head Mcg /HT&Forg.
	The Initial process studies are carried out to measure the process Capability. The acceptance criteria is	Pilot Batch Production	Initial Process Study	*Head QA Mcg /HT&Forg.*
	Results ***Interpretation***			
	Index>1.67 The process currently meets acceptance criteria			
	1.33≤Index≤1.67 The process may be acceptable. Contact the authorized customer representative for a review of the study results.			
	Index<1.33 The process does not currently meet the acceptance criteria. Contact the authorized customer represent--tive for a review of the results.			
22	Carry out inspection / testing of sample covering all the dimensional and material characteristics. A copy of drawing is marked with highlighter pen, numbered & ticked for all parameters covered in inspection.	Pilot Batch Production	Dimensional & material Inspection Report	Head QA
23	Submit the Pilot lot along with IPP / Customer specified format to the customer	IPP & Pilot Lot	Customer approval	*Head Factory Control / Sale*
24	The reviews during development cycle are planned & carried out with TM as per plan. The quality planning sign off / M FLOW (QCD 2) evaluation meeting is carried out before (N-2 months , N= SOP) Mass production initiation.	Development Plan Trial results evaluation report	QCD 2 evaluation meeting / Quality Sign off As per annexure -2	MDT
25	Plan and implement the actions decided to complete the pending activities if identified during quality planning sign off/ QCD 2 evaluation.		Actions implemented	MDT
26	A PAP file is maintained by QA for each component	IPP Approval	PAP File	*Head QA*
27	Regular production is carried out as per plans received from customer.	Customer Production plan	Production schedule	Head Factory Control
28	M-FLOW (QCD 3) evaluation is carried out at the completion of first three months of mass production. The various problems encountered during initial mass production (Initial flow control) runs are reviewed for status / closures.	Development Plan	Evaluation as per annexure-2	MDT
	Initial Flow control			
	Initial flow control period should be fixed , in principle initial flow period should be 3 months for new parts			
	The following activities to be carried out during initial flow control:-			
	Special inspection / process controls that is higher than normal controls these could be either added inspection points or inspections at higher frequency			
	Process capability check			
	Systematic taking observation and recording of problem and taking countermeasure and improvement action quickly without undue delay			
	Systematic confirmation of effects of countermeasures for the problems which was observed during trial stages prior to mass production Establishment and confirmation of proper inspection method during initial control period			
	Initial flow control period to be terminated / Approved with conditions by HOD QA , if at the end of initial flow period following conditions are satisfied-			
	1 Cpk > 1.33			
	2. All problems occurring before SOP are solved and recheck done to confirm that they remain solved			
	3. Any new problem arising in initial flow period is also solved			
	If any of the conditions are not met then initial flow control period can be extended till time all criteria are met			
	Note 1.: Receipt of Input material from supplier is also monitored & Confirmed for Initial flow control as above sr.no 28 @ supplier end also for defect parameter.	Drawing /specification	Supplier sample layout/ inspection report	Head QA/Receipt QA
	Note 2. : MQS parameters will be monitor for effectiveness for next 3 month		MQS	MDT
29	A list of various new projects is maintained by Factory Control & updated for schedules / event management.	New dev. projects	monitoring of projects	Head Factory Control
	Engineering Change Handling			
30	Any changes in Product / Process are handled as per "Work instruction for Engineering Document Control".	Engineering Changes	Implementation of Changes	Head Process Engineering