



QA MATRIX SHEET

Date	28.02.2018
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✖PQCS / FMEA Sheet must be attached

Supplier name

Total	Category	Nos	Cp/Cpk ≥1.33	Cp/Cpk <1.33	Double or More Check	PAC-V OK	PAC-V NG
2	Measurable	--	--	--	--	OK	--
	Non Measurable	2			2	OK	--

Supplier

HMSI

Model	KONA
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Part no.	14101-KONA-D000 - H1
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Part name	SHAFT COMP CAM
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DCN | KONA-E-109

MAP -BLR

Quality Head	In charge	Approved by	Checked by
PRASHANTH	SHIVA		

[illegible][illegible]

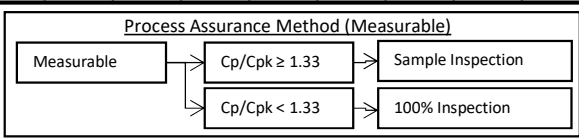
Process Assurance Capability - Verification
(PAC-V) will be OK if -

1. **Process Assurance (Type a, & b) result are OK** for Critical items.
2. Critical items included in PQCS and Operation Std.
3. Operator aware about Critical item's importance.

Note : For any deviation / change request Supplier must inform Purchase and SQA.

Type a. Measurable items (Examples)

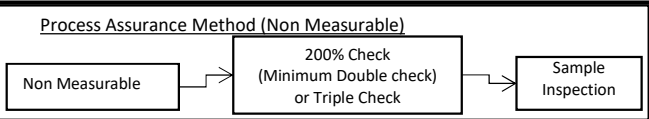
- 1) Variable Dimensions
- 2) Torques
- 3) Destructive Hardness tests
- 4) Weld penetration
- 5) Cross Section dimension for which part cut is must
- 6) Breaking torque / load etc.



Type b. Non Measurable items (Examples)

- 1) Assembly (Coupler, Bullet terminal. etc.)
- 2) Visual Inspection
- 3) Grease / Oil /Adhesive applications
- 4) Manufacturing process parameters
- 5) Specification test
- 6) Material
- 7) Salt Spray / CASS tests, Paint adhesion (100/100 etc.) Offline tests
- 8) Specification test (e.g. - Durability/ Endurance tests, Destructive tests etc.)

[above Examples are case by case & may change as per Requirement]

[illegible]

❌PQCS / FMEA Sheet must be attached

Supplier		HMSI	
Quality Head	In charge	Approved by	Checked by
PRASHANTH	SHIVA		

Model	KONA	Part no.	14101-KONA-D000 -H1	Part name	SHAFT CAM	DCN	KONA-E-109	MAP -BLR
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<div>To process-based, please write if there is a change in the new process (Use V for marking)</div>		PQCS <<Base process flow>> <input type="checkbox"/> Base Model <input type="checkbox"/> Base Plant	RECEIVING INSPECTION	FACING & CENTERING	TURNING -1	TURNING-2	KEYWAY MILLING		CAM MILLING	INDUCTION HARDENING	AXIS GRINDING	CAM GRINDING	DILLING & REAMING	BUFFING	CAM LAPPING	VISUAL INSPECTION	FINAL INSPECTION	<<Change point column>> Detail of change point etc.
		PQCS <<New process flow>> <input type="checkbox"/> New Model <input type="checkbox"/> New Plant <input type="checkbox"/> New Supplier	RECEIVING INSPECTION	FACING & CENTERING	TURNING -1	TURNING-2	KEYWAY MILLING	DILLING & REAMING TAPPING	CAM MILLING	INDUCTION HARDENING	AXIS GRINDING	CAM GRINDING	DILLING & REAMING	BUFFING	CAM LAPPING	VISUAL INSPECTION	FINAL INSPECTION	

Mark in necessary item against above mentioned process ① No change from base - ● ② There is a change from base - ★	4M situation	Raw materials	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	<<Part feature note column>> Specif information about 4M situation
		Die Maintenance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Equipment	-	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		Jig and Fixture	-	★	-	-	★	★	★	★	★	★	★	★	★	★	★	
		Mfg. Tools	-	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		Insp. Tool	-	●	●	★	★	●	●	●	●	★	-	●	-	-	-	
		Operator training	★	●	★	★	★	★	★	★	★	-	★	★	★	★	★	
		PQCS	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	
		Work Std.	★	★	★	★	★	★	★	★	★	★	-	★	★	★	★	
Check sheet	★	★	★	★	★	★	★	★	★	★	★	-	★	★	★	★		

Process Assurance Capability - Verification (PAC-V) will be OK if - 1. Process Assurance (Type a, & b) result are OK for Critical items. 2. Critical Items included in PQCS and Operation Std. 3. Operator aware about Critical Item's importance. Note : For any deviation / change request Supplier must inform Purchase and SQA.		Type a. Measurable Items (Examples) 1) Variable Dimensions 2) Torques 3) Destructive Hardness tests 4) Weld penetration 5) Cross Section dimension for which part cut is must 6) Breaking toque / load etc.	Process Assurance Method (Measurable) <div>Measurable → Cp/Cpk ≥ 1.33 → Sample Inspection Cp/Cpk < 1.33 → 100% inspection</div>								Type b. Non Measurable Items (Examples) 1) Assembly (Coupler, Bullet terminal. etc.) 2) Visual Inspection 3) Grease / Oil /Adhesive applications 4) Manufacturing process parameters 5) Specification test 6) Material 7) Salt Spray / CASS tests, Paint adhesion (100/100 etc.) Offline tests 8) Specification test (e.g. - Durability/ Endurance tests, Destructive tests etc.) [above Examples are case by case & may change as per Requirement]								Process Assurance Method (Non Measurable) <div>Non Measurable → 200% Check (Minimum Double check) or Triple Check → Sample Inspection</div>			
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No.	Critical item	Control value	Insp. Tool	Inspection process : ■																Measurable/ Non-Measurable	Cp/Cpk	No of Inspection	Include d in PQCS	Included in Ope. Std.	Operator Awareness	PAC-V	Remarks
17	Position of decompressor arm hole	11.7 ±0. 1	CMM/CD GAUGE	—										■				■	Measurable	1.67	2	o	o	o	OK		
				Freq												1/SETUP &TC 1/50											1/LOT
18	Hole diameter of decompressor arm/com hole	φ4 +0.03/ +0.01	PLUG GAUGE	—										■				■	Measurable	2.08	2	o	o	o	OK		
				Freq												100%											5/LOT
19	S u r f a c e roughness of decompressor arm/com hole	Rz 6. 3 MAX	ROUGHNESS TESTER	—										■				■	Measurable	1.86	2	o	o	o	OK		
				Freq												1/SETUP &TC											1/LOT
20	Parallelism of decompressor (2Places)	φ0. 03 MAX (Datum G-H)	CMM	—										■				■	Measurable	1.86	2	o	o	o	OK		
				Freq												1/SETUP &TC											1/LOT
21	Hight of Measuring position IN-O (195.93° Angle point)	0.547 ±0. 08mm	CAM TESTER	—									■					■	Non -measurable	--	2	o	o	o	OK	program control	
				Freq												1/SETUP &TC 1/10											5/LOT
22	Hight of Measuring position EX-O (65.96° Angle point)	0.498 ±0. 08mm	CAM TESTER	—									■					■	Non -measurable	--	2	o	o	o	OK	program control	
				Freq												1/SETUP &TC 1/10											5/LOT
23	Hight of Measuring position EX-O (65.96° Angle point)	0.556 ±0. 08mm	CAM TESTER	—									■					■	Non -measurable	--	2	o	o	o	OK	program control	
				Freq												1/SETUP &TC 1/10											5/LOT
24																											

