	QA MATRIX		Date	<u>Ж</u> Р	QCS / FI	MEA Shee	et must b	e attache	<u>ed</u>	Tota	al	Category Measurable		Nos Cp/Cp ≥1.33		1	ble or More Check	PAC-V OK	PAC-V NG			Supplier	HMSI					
				'				Supplier name		ame	2								OK			Quality H	ead In o	charge	Approved by	Checked		
Model KONA Part no. 23020-K0NA-D020			Part name	SHAFT	ASSY COUNTER	DC	N KONA	ı-E-115	5 MAP-BLR		_R		Non Measurable						2	OK			PRASHAN'	TH S	HIVA			
To process-based, please write if there is a change in the new process (Use V for marking)		PQCS ≪Base proce □Base Model □Base Plant PQCS ≪New proce □ New Model □ New Plant □ New Supplier			RECEIVING SPECTION OF CHILD PARTS CHILD PARTS CHILD PARTS CHILD PARTS CHILD PARTS ASSEMBLY STATION -1 SEMBLY STATION -2 SEWBLY STATION -2			ROLLING & GO PASS CHECKING CHECKING FINAL INSPECTION FINAL INSPECTION											«Change point Detail of change									
l '					∢	∢						l																
mention	necessary item against al ed process			* 															«Part feature r Specific informa			tuation						
	nange from base - •	Jig and Fixture Mfg. Tools Insp. Tool																										
②There	e is a change from base -	★ Operator training PQCS		*	*	*	*	*																				
		Work Std.		*	*	*	*	*																				
Process A	Assurance Capability - Verifi	Check sheet	Tyne a Measi	rable items (Ex	manles)	<u> </u>	★	*				ssurance Me	<u> </u>				Type b. No	nn Meas	urable items (Examp	iles)				ssurance Me				
 Process Critical Operat 	items included in PQCS and or aware about Critical item		4) Weld penet	Hardness tests ration on dimension for		must				Measurable	•	Cp/Cpk ≥ 1.	33	Sampl	le Inspection		2) Visual Ir 3) Grease (4) Manufa 5) Specifica 6) Materia 7) Salt Spra 8) Specifica	nspection / Oil /Ad acturing pation test all ay / CASS ation test	lhesive applications process parameters	on (100/100 e ndurance tes	ts, Destri	ne tests uctive tests	Non Measura		2 (Minimu	00% Check um Double che Triple Check	eck)	Sample nspection
No.	Critical item	Control value	Insp. Tool						Inspect	ion proces	ss : I								Measurable/ Non Measurable	Cp/C	nk I	No of espection	Included in PQCS	Included in Ope. Std.	Operator Awareness		Rem	arks
1 Dir	ection of setring installed	Install set ring to grooves completely,Round faces of inner dia of set ring shall be installed in dirction shown in the figure.	VISUAL	Freq	100%	100%		5/LOT											Non- measurab	le –		3	0	0	0	ок		
2	Set ring	Set Ring should not be missed.	VISUAL	— Freq	100%	100%		5/LOT											Non- measurab	le –		3	0	0	0	ОК		

QA MATRIX SHEET

23221-K0NA-D000

KONA

Model

28.02.2018

SHAFT COUNTER

DCN KONA-E-115

Supplier name

MAP -BLR

PAC-V OK PAC-V NG Measurable 16 16 20 0 20 Non Measurable 0

Quality Head In charge Approved by Checked by PRASHANTH SHIVA

Part name PQCS «Base process flow»

Base Model

Base Plant To process-based, please write if there is a change in the new process (Use V for marking) Die Maintenance Equipment Jig and Fixture Mfg. Tools
Insp. Tool
Operator training
PQCS 1 No change from base - • ②There is a change from base - ★ * * * * * * * * * * * * * * * * * * * * Work Std. Process Assurance Capability - Verification (PAC-V) will be Oxiv 1. Denotes Assurance Tupe 8. B. birsuit ave OX. for Critical items.
2. Critical items included in POX: and Operation 5rd.
3. Critical items included in POX: and Operation 5rd.
3. Operator aware about Critical items's importance.
Note: For any deviation / change request Supplier must inform Purchase and SQA. Type b. Non Measurable items (Examples)

1) Assembly (Couple, Bullet terminal, etc.)

2) Vousil Inspection

3) Grease / Gil /Almebure applications

4) Manufacturing process parameters

5) Specification test an automatical specification of the second of t 1) Variable Dimensions 2) Torques 3) Destructive Hardness tests 4) Weld penetration 5) Cross Section dimension for whic 6) Breaking toque / load etc. Measurable/ Non-Measurable No. Critical item Control value Insp. Tool Inspection process : Cp/Cpk in Ope. Std. PAC-V Remarks SCr420HV — SG 0092Z-GHA-C400 SPECTRO Non -measurable OK Destructive Item Freq 1/LOT . . Freq 100% 100% 100% JIS INV.S 25X13X1.667 . INV. S 1.52 OK OBD MIC & BALL ø 3.0 27.563 -0.035 5/LOT Freq -0.087 1.74 OK Surface Rz 8 MAX ROUGHNESS TESTER Measurable 1/LOT 1/LOT Freq ф20 -0.011/-0.022 MICROMETER/ARG 1.73 2 0 OK 5/SETUP &TC Freq 5/LOT Outer diameter surface (Oil seal part) ROUGHNESS TESTER OK 1/SHIFT &TC 1/LOT Work with axially stopped grine outer diameter (C-3 Bush area) ф20 -0.011/-0.022 MICROMETER/ARG 1.80 5/SETUP &TC 5/LOT Freq 100% Outer diameter surface (C-3 Bush area) Rz 6.3 MAX ROUGHNESS TESTER Measurable 1.89 2 Freq 1/SETUP &TC 1/LOT outer diameter (C-1 Bush area) ф17 f7 -0.016/-0.034 CROMETER/ARG/ RING GAU 1.56 OK 5/SFTUP &TC 5/LOT . 1.73 Rz 3.2 MAX ROUGHNESS TESTER Freq 1/SETUP &TC 1/LOT INV.S 20X19X1.0 . INV. S 11 1.72 OK OBD MIC & BALL ø2.0 Measurable 0 OPD PIN U=2.0 Freq 5/LOT 5/LOT 22.112 -0.030/-0.067 12 Surface Rz 8 MAX ROUGHNESS TESTER 1.73 OK Frea 1/LOT 1/LOT 13 1.95 0 0 Freq 5/LOT &TC 1/50 . Spline circumferential run out SECTION CC 0.1 MAX (Datum G-H) PCD TESTER 1.52 OK 5/LOT Freq 14 Spline circumferential run out SECTION DD 0.1 MAX (Datum G-H) PCD TESTER Measurable 1.86 OK RUNOUT CHEKED AT BAWA 5/LOT Freq • standard: Prohibition of run-out correction When it is inevitable to carry out straightening, determine the stroke upper limit value by the following method DATA NEED TO BE SHARE Stroke feed of run-out correcting Freq 5/LOT <Reference example > In mass production preparation stage, carry out the volume check , and calculate the average and standard deviation(σ) of stroke occurrence of cracks on the outermost surface. Upper limit of the stroke = average $\sigma = -4\sigma$ After correcting, no cracking on the outermost surface. 16 Case depth 0.3~0.5 mm MICROVICKER 2.198 destructive item Freq 1/LOT 1/LOT Measure the hardness distribution with a micro Vickers hardness tester and check the distance from the surface of the hardened layer to the point of hardness HV 513. Freq 1/LOT 1/LOT 2.958 5/LOT 1/LOT . . 19 ROCKWELL HARDNESS TESTER Measurable 2.032 2 destructive item Hardness inside HRC 30~45 Freq 1/LOT 20 All surfes Confirm that there is not a de-coal bed Freq

Cp/Cpk Backup (Do r	not disturb formula	in Cell) :o calculated (Do not dict	urb formula			Trunction is	anut area (S	Cample readin	ac)																												
Cpk	Ср	Max.	Min.	Aver.	Range	Std. Dev.	USL	LSL	Sample reading	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
#DIV/0!	#DIV/0!	0.000	0.000	#DIV/0!	0.000	#DIV/0!	3.000	0.500																														
#DIV/0!	#DIV/0!	0.000	0.000	#DIV/0!	0.000	#DIV/0!	60.000	50.000																														
1.52	1.80	27.512	27.498	27.506	0.014	0.005	27.528	27.476	27.493	27.498	27.502	27.501	27.510	27.499	27.498	27.506	27.510	27.506	27.510	27.502	27.512	27.506	27.505	27.501	27.512	27.510	27.508	27.506	27.510	27.506	27.510	27.508	27.510	27.506	27.506	27.510	27.510	27.510
1.74	2.46	6.170	4.250	5.173	1.920	0.543	8.000	0.000	3.840	4.560	5.100	5.140	5.220	5.690	5.140	4.690	4.590	5.730	5.120	5.250	4.250	4.890	4.560	5.100	6.170	5.160	4.890	6.140	6.120	5.140	5.240	5.220	6.160	5.160	5.220	5.260	5.270	5.160
1.73	2.37	19.986	19.984	19.985	0.002	0.001	19.989	19.978	19.986	19.984	19.984	19.985	19.984	19.985	19.984	19.984	19.985	19.984	19.984	19.985	19.985	19.986	19.984	19.985	19.985	19.986	19.985	19.985	19.986	19.986	19.984	19.985	19.986	19.986	19.985	19.986	19.986	19.985
1.68	1.74	2.780	1.580	1.962	1.200	0.230	3.200	0.800	1.740	2.060	1.930	2.780	1.690	1.840	1.920	1.860	1.970	1.860	1.850	1.900	2.020	1.960	1.910	1.820	2.090	2.020	1.920	2.060	2.450	2.060	1.960	1.580	1.860	2.140	1.860	2.010	1.590	2.160
1.80	2.37	19.986	19.983	19.985	0.003	0.001	19.989	19.978	19.985	19.983	19.985	19.985	19.984	19.985	19.984	19.984	19.985	19.984	19.984	19.985	19.985	19.986	19.984	19.985	19.985	19.986	19.985	19.985	19.986	19.986	19.984	19.985	19.986	19.986	19.985	19.984	19.984	19.985
1.89	2.04	4.540	2.480	3.374	2.060	0.515	6.300	0.000	2.480	3.590	4.540	2.860	3.390	4.510	2.890	3.360	3.450	2.980	3.560	3.480	2.960	3.150	2.960	2.480	3.270	3.520	3.890	2.840	3.390	4.180	2.980	3.240	3.480	3.520	4.160	2.980	3.580	3.560
1.56	1.74	16.978	16.970	16.974	0.008	0.002	16.984	16.966	16.972	16.973	16.975	16.970	16.973	16.974	16.975	16.974	16.973	16.975	16.974	16.975	16.974	16.974	16.973	16.977	16.975	16.970	16.974	16.976	16.974	16.973	16.978	16.976	16.972	16.974	16.975	16.975	16.975	16.975
1.726	2.185	2.540	1.580	1.936	0.960	0.244	3.200	0.000	1.930	1.980	2.220	2.540	1.630	2.120	1.580	1.730	1.690	2.010	1.860	2.150	1.960	2.150	2.540	1.930	2.040	2.010	1.930	2.030	1.960	2.160	1.630	1.750	1.920	1.630	1.680	1.730	1.860	1.730
1.722	2.034	22.068	22.054	22.061	0.014	0.003	22.082	22.045	22.063	22.058	22.061	22.059	22.061	22.058	22.062	22.063	22.061	22.059	22.059	22.062	22.063	22.059	22.062	22.059	22.062	22.068	22.063	22.065	22.065	22.062	22.064	22.061	22.056	22.058	22.054	22.056	22.059	22.058
1.728	1.983	6.240	2.960	4.514	3.280	0.672	8.000	0.000	4.160	3.480	5.120	4.630	3.960	4.220	3.980	4.060	3.980	4.060	5.020	4.960	5.120	4.980	4.990	5.120	4.630	5.120	6.240	4.860	4.850	4.550	3.920	2.960	3.580	4.560	5.240	4.060	5.040	3.980
1.947	2.148	13.070	13.040	13.055	0.030	0.008	13.100	13.000	13.050	13.060	13.040	13.050	13.050	13.060	13.040	13.060	13.070	13.050	13.060	13.050	13.050	13.060	13.050	13.050	13.060	13.070	13.050	13.060	13.050	13.050	13.070	13.050	13.060	13.050	13.060	13.050	13.060	13.050
1.525	1.869	0.076	0.045	0.059	0.031	0.009	0.100	0.000	0.066	0.047	0.049	0.059	0.049	0.060	0.069	0.060	0.055	0.060	0.059	0.046	0.069	0.076	0.051	0.076	0.045	0.052	0.062	0.051	0.059	0.069	0.066	0.060	0.071	0.062	0.051	0.059	0.069	0.049
1.861	2.561	0.078	0.051	0.064	0.027	0.007	0.100	0.000	0.063	0.059	0.066	0.059	0.063	0.059	0.062	0.069	0.059	0.051	0.051	0.056	0.066	0.058	0.061	0.062	0.058	0.066	0.071	0.072	0.065	0.066	0.067	0.068	0.073	0.078	0.059	0.066	0.076	0.061
#DIV/0!	#DIV/0!	0.000	0.000	#DIV/0!	0.000	#DIV/0!																																
1.187	2.198	0.460	0.420	0.446	0.040	0.015	0.500	0.300	0.450	0.420	0.450	0.450	0.460																									
#DIV/0!	#DIV/0!	0.000	0.000	#DIV/0!	0.000	#DIV/0!	0.500	0.300																														
2.958	4.019	81.500	81.000	81.160	0.500	0.207	83.000	78.000	81.000	81.500	81.200	81.000	81.100																									
2.032	6.350	33.100	32.200	32.400	0.900	0.394	45.000	30.000	32.200	32.200	33.100	32.200	32.300																									
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