ASM Casting pvt. Ltd.

CONTROL PLAN

Prototype	Prelaunch	Production	Core team:	MR. L.M. Sharma, Mr. Balwant,Mr. Deepak Mr. Inderjeet singh,	Key contact/phone:	Mr. Rajiv Gupta 9212247615	Drg, Rev and Date:	XE / 19-04-2021
CONTROL PLAN No.:	ASM/CP/113		Customer Quality Approval Date (If Req'd)				●	(01) Critical to Quality parameters
PART NAME :	Bracket M8 (Kawasaki)		Supplier/Plant Approval Date				◐	(0) Significant characterstics
PART NO.:	S2BG039080		Other Approval Date (If Req'd)				◆	(0) Customer Complaint

Process No.	Process Name/Operation Description	Machine Devices, Jig & Fixtures	Characteristics			Methods					Reaction Plan	Pokayoke status	Ref. Document	Risk	Contigency Plan
			No.	Product	Process	Product/Process specification/ Tolerances	Evaluation/ Measurement Technique	Sample		Control Method					
								Size	Frequency						
10	Receipt of Raw Material & Insert (Bush) & Inspection	R.M. Ingot (Spectro M/C)	1	R.M. Chemical Composition	Laboratory Testing	ADC-12 (As per JIS 5302)	Spectro Testing for Chemical Analysis	Each heat of Every Lot	When Material Received	Check sheet	Reject the Material, Call Supplier, and Raise Debit Note	No	~	R.M. NG	Alternate Supplier (List of Approved Supplier)
							Supplier MTC	Each & Every Lot	When Material Received						
							Third Party	Random Sample of Molten Metal	Once in 3 Month						
			2	R.M. Mechanical Properties.	~	Tensile Strength - 228 MPA Min. Proof Stress - 154 Mps Min. Elongation - 1.4% Min. (As per JIS 5302)	Supplier Report	Each & Every Lot	Material Receiving		inform to Supplier.				
			3	Raw Material Color Code	Proper Color Coding	Blue	Visual	Every Supply	As & When Raw Material Received	Proper Color Coding & Identification and proper location	~	No	ASM/Q/WI/01	Color Code not available on Ingot	Color code in ASM Store
		Insert (Supplier Report)	1	DIM. A/C (HEX)	~	13.0-0.20	D.V.C.	05 Nos. Each Lot	When Material Received	Check sheet	Reject the Material, Call Supplier, and Raise Debit Note	No	~	Material not received on time	Sufficient Stock in ASM
			2	Total Height		17.0±0.2	D.V.C.								
			3	DIA	~	12.0+0.2	D.V.C.								
			4	DIM	~	5.5±0.2	D.V.C.								
			5	DIM	~	4.5±0.2	D.V.C.								
			6	DIM		4.0±0.2	D.V.C.								
			7	DIM	~	3.0±0.2	D.V.C.								
			8	Material	~	EN1A LEADED	Supplier Report	Each Lot							
20	Storage	Pallets	1	Identification of Material	~	No Mixing of Different Material / Different Heat No.	Tag Verification (ASM/F/QC/47)	100%	Each Lot	Supervisor Verification	Segg. As per color code	No	~	~	~
30	Material Melting in Central Melting Furnace	Melting Furnace	1	Temperature	~	720^{0}C - 750^{0}C	Temprature Meter (Pyrometer)	Each Lot		-	-	No	~	Furnace in B'Down	Holding Furnace to be used as Melting cum Holding
			1	Coverall A-11	~	2.0 - 2.50 KG	By weighment	Once	In a shift	Supervisor Verification	Re-process	No			
					Cycle Time	2 - 3 Min.	Timer	Each Ladle	Each Ladle			Interlocking with Machine			
					N2 Pressure	4 - 5 Bar	Pressure Gauge	Each Ladle	Each Ladle						
					Granual (Grade A1L)	300 gm	Std. Packing	Every Ladle	Every Ladle						

40	Material Treat ment (Cleaning and degassing with coverall flux)	N2 Degassing Unit	2	N2 Degassing	Low RPM	450±20	Screen Display	Each Ladle	Each Ladle	check sheet	Re-process	No	ASM/F/QC/31	N2 Degassing Unit in B'Down	Manual Degassing
					High RPM	550±20	Screen Display	Each Ladle	Each Ladle						
					Low LPM	15±4	Screen Display	Each Ladle	Each Ladle						
					High LPM	25±4	Screen Display	Each Ladle	Each Ladle						
			3	Density	Density of Vaccum Sample	2.5 - 3.0 Gm/cm3	Density Index Meter	one Sample	Each Day		Inform to alloy manager	No			
					Density Index of Vaccum Sample	2.0 Max.	Density Index Meter	one Sample	Each Day						
50	Die Setting (Machine Parameter setting &)	Pressure Die Casting Machine-180 TON ~	1	~	N_2Injection pressure	70-80 Kg/Cm2	Pressure Gauge	Once	In a Shift	Check sheet	Reset the machine Parameter	NO	ASM/F/QC/10	Pressure Gauge Damage,N2 Gas Cylinder Empty	Pressure Gauge ,N2 Gas Cylinder in Advance (Store)
			2	~	System/ High Pressure	110 - 130 Kg/Cm2	Pressure Gauge	Once	In a Shift						
			3	~	Low Pressure	20 - 30 Kg/Cm2	Pressure Gauge	Once	In a Shift						
			4	~	ejector on Time	2 - 4 Sec	Timer	Once	In a Shift						
			5	~	Die opning time	4 - 8Sec	Timer	Once	In a Shift						
			6	~	Die temperature After Spray	140 - 180°c	Laser Gun	Once	In a Shift						
			7	~	Spray Time	1 - 3 Sec	Manual	Once	In a Shift						
			8	~	First Phase	3 - 5 Turns	Manual	Once	In a Shift						
			9	~	Second Phase	1 - 3 Turns	Manual	Once	In a Shift						
			10	~	Second Phase Time	0.5 - 1.0 Sec.	Pressure Gauge	Once	In a Shift						
			11	~	Intensification Pressure	280±20Kg/Cm²	Pressure Gauge	Once	In a Shift						
			12	~	Material Temperature	620 - 650°c	Thermocouple	Once	In a Shift						
			13	~	Cover Flux	300 gm	Pressure Gauge	Once	In a Shift						
			14	~	Degassing	2 Tablets (50 gm Each)	Manual	Every 3 Hrs	Every 3 Hrs						
60	Metal Pouring into sleeve and take shot	Pressure Die Casting Machine-180 TON	2	~	Spoon for Pouring	4"	Scale	Scale	100%	Supervsior Verification	Replace the Spoon	~	ASM/Q/WI/06	~	~
			1	Appereance	~	Casting defect, blow hole, non filling, catching & other harmful defects not allowed	Visual								
			2	O.D.	~	Ø 44± 0.2	D.V.C.								
			3	O.D.	~	Ø 31-0.3	D.V.C.								

70	Casting & first shot approval from QC & Patrolling inspection	Pressure Die Casting Machine-180 TON	4	DIA	~	Ø 21 (After Machining)	D.V.C.	Each Part 01 Cavity	Die Loading & every 3 Hrs.	check sheet	Stop Die Running till correction	No	ASM/F/QC/26 & ASM/F/QC/03	Part not as per specification	Unload Die & Sent to tool room for correction
			5	DIM	~	18+0.2	D.V.C.								
			6	DIM	~	17.7 +0.2	D.V.C.								
			7	Parting Line	~	Mismatch allowed 0.5mm max.	Visual								
			8	Breaking Load	~	1500kgf min.	UTM.		Die Loading After Threading						
			9	1 Shifting	~	Not Allowed	Visual		Die Loading						
80	Fattling	Manually	01	File 10"	burr removing	No Burr allowed at gate area	Visual	2pcs/4 hour	3 times in a shift.	Supervsior Verification	Re - Process	No	~	Oprator Absent	Alternate Operator
90	Lancering	Lancer Machine	01	Lancering	~	No parting line allowed	Visual	2pcs/4 hour	3times in a shift	Supervsior Verification	Re-process	No	~	Machine in b'down	Spare Machine Available
			02	~	Belt Size	60 NO.	Visual	Once	In a shift	Supervsior Verification	Change belt	No	~		
100	Reamer	Reaming Machine ,Reamer 20.4 mm	01	Dia	~	Ø20.40±0.1	DVC	2pcs/4 hour	3times in a shift	check sheet	Inform to Production Supervisor to take corrective action	No	~	Machine in b'down	Spare Machine Available
			02	~	Tool life	125000 Pcs.	Visual	_	Once in a shift	Tool history card	Inform to suprvisor	No	~		
110	Shot Blasting	Shot blasting machine	01	Shot Size		Ø 0.5 mm (Cut Wire SS)	~	2 pcs /lot	Each Lot	Supervsior Verification	Re-Process	No	~	Machine in b'down	Spare Machine Available
			02	Cycle Time		15 min	Timer								
			03	Product Surface			Visual as per master sample								
120	Drilling & Tapping	SPM Machine	1	Drilling Dia	~	6.8+0.2	DVC	5 parts at set up approval & 1 part every 2 hrs	Every 2 Hrs	check sheet	inform to production supervisor	No	~	Machine in b'down	Spare Machine Available
				~	Tool life	7000 Pcs.	~								
			2	Drilling Depth	~	16±0.20	D.V.C.								
			3	Tapping	~	M8*1.25-6H	TPG								
				~	Tool life	5000 Pcs.	~								
			4	Tapping Depth	~	15.0 mm Min	D.V.C.								
			5	~	Clamping Pressure	6.0 KG	Pressure Gauge	Once	In a shift	Supervisor Verification	Inform to HOD	No	~		
			6	~	Drill Make	Miranda	Visual								
			7	~	Tape Make	E.T.	Visual								
			1	Appereance	~	Casting defect, blow hole, non filling, catching & other harmful defects not allowed	Visual								
			2	O.D.	~	Ø 44± 0.2	D.V.C.								
			3	O.D.		Ø 31-0.3	D.V.C.								

130	Final Inspection & PDIR	Relevent Instruments	**4**	DIA		Ø 20.4	D.V.C.	5pcs	Each Lot	Inspection Std.	Inform to Production Supervisor to take corrective action	No	~	~	~
			5	DIM	~	18+0.2	D.V.C.								
			6	DIM	~	17.7 +0.2	D.V.C.								
			7	Tapping	~	M8*1.25-6H	TPG								
			8	Tapping Depth	~	15.0 mm Min.	TPG + DVC								
			9	Breaking Load	~	1500kgf min.	UTM.								
140	Packing the material as per the work instruction	Manually	01	Packing	~	200pcs/Box	Counting	Each Box	Each Box	Supervsior Verification	Supervsior Verification	No	~	~	~
150	Material despatch to ETL	Vehicle	~	~	Transporation	Quantity as per schedule Invoice and other documents applicable inhouse.	Approved Transporter	Each supply	Each Supply	Maintain Dispatch Record	~	No	~	~	~

1	30/09/2022	Check Point added for Shifting		
0	01/11/2019	initial release	Ateev Sharma	L.M. Sharma
Rev.No.	**Rev. Date**	**AMENDMENTS**	**PREPARED BY:**	**APPROVED BY:**