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•MEI• Madras Engineering Industries (P) Limited			Control Plan													
Control Plan Number: CP / DC / 001			Key Contact / Phone: N Parthasarathy / -								Date(Original): 30.01.2021					
PROTOTYPE	PRE-LAUNCH	PRODUCTION	Core Team: Dhanasivan S, Gk Ashokkumar, N Dharmaraj, Nilanjan Chakraborty, P Muruganantham, R Raju, V Ramachandran								CP Rev No / Date: 19 / 24.05.2025					
Part Number & Rev No: 3235E3905 / C-23.05.2023			Organization Code: -				Customer Name: Meritor				Customer Engineering Approval / Date (if Req'd):					
Part Name/Description: CASE - DIFF. FIN			Organization / Plant Approval/ Date:				Process Specification:				Customer Quality Approval (if Req'd):					
Organization: MEIL - M.CITY			Other Approval / Date (if Req'd):				IH Metallurgy testing reference: MMA/IH/001 - Rev.3				Other Approval / Date (if Req'd):					
Part/ Process Number	Process Name/ Operation Description	Machine, Device, Jig, Tools For Mfg.	Characteristics			Spl Char Class	Product/ Process Specification/ Tolerance	First Off Inspection				In-Process - Control				Reaction Plan
			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
			29	Roughness on Ø 65.9		-	6.3 Ra Max	Roughness Tester	1		FOI	-	-	-	-	
			30	Step Mark on Spherical Radius		-	Casting to machining area step mark not allowed	Visual	2		FOI	Visual	100%		PCC	
			31	Appearance - Machining		-	Free from Burr, Tool Mark, Step Mark, Chattering Mark, Damage, Rust.	Visual	2		FOI	Visual	100%		PCC	
			32	Appearance - Casting		-	Free From Fettling Damage, Extra Material, Unwash, Casting Damage & Rust. Blow Holes, Sandrop as per Meritor STD.	Visual	2		FOI	Visual	100%		PCC	
20	OD Turning	ACE -5 / ACE -5	1	Total height	Refer SOP: SOP / DC / 002	-	174.30 / 174.80	Height Gauge + Dial	2	Every setting / Tool Change / Major Break down / Fixture Breakdown / If Machine is Continuously Running for 15 days in the Same Setting	FOI	Flush Pin Gauge	2	Every Hour	PCC	1.Stop the production & Inform to supervisor 2.Check the parts produced earlier3. Rework to be done with in 48 hrs & Rejection move to scrap.4.Correct the program / tool / fixture/ parameters5.After correction, get first off approval & Continue to production
			2	Distance			112.84 / 113.16	Special Gauge (variable)	2		FOI	Special Gauge (variable)	2	Every Hour	PMC	
			3	Roughness on Bearing Shoulder		-	3.0 Ra Max	Roughness Tester	1		FOI	-	-	-	-	
			4	Distance		-	58.24 / 58.56	Height Gauge + Dial	2		FOI	2D Height Gauge	2	Every Hour	PCC	
			5	Roughness on face		-	6.3 Ra Max	Roughness Tester	1		FOI	-	-	-	-	
			6	Run out on groove face wrt F		-	0.16 Max	Between Center With Dial	2		FOI	Between Center With Dial	2	Every Hour	PCC	
			7	Distance		-	33.80 / 34.20	Height Gauge With Scriber	2		FOI	Height Gauge With Scriber	2	Every Hour	PCC	
			8	Parallelism wrt D		-	0.04 max	Height Gauge + Dial	2		FOI	Height Gauge + Dial	2	Every Hour	PCC	
			9	Perpendicularity wrt F		-	0.064 Max	Between Center With Dial	2		FOI	Between Center With Dial	2	Every Hour	PCC	
			10	Outer Diameter		-	Ø 101.95 / 102.035	Micrometer	2		FOI	Snap Gauge	2	Every Hour	PCC	
			11	Runout wrt F		-	0.064 Max	Height Gauge + Dial	2		FOI	Height Gauge + Dial	2	Every Hour	PCC	
			12	Roughness on Ø 101		-	3.0 Ra Max	Roughness Tester	1		FOI	-	-	-	-	
			13	Outer Diameter		-	Ø 101.06 / 101.16	Micrometer	2		FOI	Snap Gauge	2	Every Hour	PCC	
			14	Outer Diameter		-	Ø 82.20 / 82.80	Micrometer	2		FOI	Snap Gauge	2	Every Hour	PCC	

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Organization: MEIL - M.CITY			Other Approval / Date (if Req'd):				IH Metallurgy testing reference: MMA/IH/001 - Rev.3					Other Approval / Date (if Req'd):				
Part/ Process Number	Process Name/ Operation Description	Machine, Device, Jig, Tools For Mfg.	Characteristics			Spl Char Class	Product/ Process Specification/ Tolerance	First Off Inspection				In-Process - Control				Reaction Plan
			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
			14	Outer Diameter		-	Ø 82.20 / 82.80	-	-	Every setting / Tool Change / Major Break down / Fixture Breakdown / If Machine is Continuously Running for 15 days in the Same Setting	-	Snap Gauge	1	1 No. - Before insert corner change ; 1 No. - After insert corner change	PCC	
			15	Runout on Ø 82 wrt F		-	0.16 Max	Special Gauge (variable)	2		FOI	Special Gauge (variable)	2	Every Hour	PCC	
			16	Groove Diameter		-	Ø 78.30 / 78.50	Groove micrometer	2		FOI	Snap Gauge	2	Every Hour	PCC	
			16	Groove Diameter		-	Ø78.30 / 78.50	-	-		-	Snap Gauge	1	1 No. - Before insert corner change ; 1 No. - After insert corner change	PCC	
			17	Groove width		-	5.00 / 5.30	2D Height Gauge	2		FOI	Width Gauge	2	Every Hour	PCC	
			17	Groove width		-	5.00 / 5.30	-	-		-	Width Gauge	1	1 No. - Before insert corner change ; 1 No. - After insert corner change	PCC	
			18	Distance		-	19.10 / 19.50	Height Gauge With Scriber	2		FOI	-	-	-	-	
			19	Runout on Groove top wrt F		-	0.16 Max	Special Gauge (variable)	2		FOI	Special Gauge (variable)	2	Every Hour	PCC	
			20	Roughness		-	6.30 Ra Max	Roughness Tester	1		FOI	-	-	-	-	
			21	Radius		-	R 1.20 / 2.00	Contour	1		FOI	-	-	-	-	
			22	Radius		-	R 0.30 Max	Contour	1		FOI	-	-	-	-	
			23	Chamfer Angle		-	29° / 31°	Contour	1		FOI	-	-	-	-	
			24	Chamfer Distance		-	1.60 / 2.40	Contour	1		FOI	-	-	-	-	
			25	Radius		-	R 2.0 / 2.50	Contour	1		FOI	-	-	-	-	
			26	Radius Depth on Shoulder X		-	0.25 Max	Contour	1		FOI	-	-	-	-	
			27	Distance		-	2.79 Ref	Contour	1		FOI	-	-	-	-	
			28	Chamfer Angle		-	20° Ref	Contour	1		FOI	-	-	-	-	

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Part/ Process Number	Process Name/ Operation Description	Machine, Device, Jig, Tools For Mfg.	Characteristics			Spl Char Class	Product/ Process Specification/ Tolerance	First Off Inspection				In-Process - Control				Reaction Plan
			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
			29	Radius Depth on Shoulder Y		-	0.25 / 0.30	Contour	1		FOI	-	-	-		
			30	Appearance - Machining		-	Free from Burr, Tool Mark, Step Mark, Chattering Mark, Damage,Rust.	Visual	2		FOI	Visual	100%			PCC
			31	Appearance - Casting		-	Free From Fettleing Damage, Extra Material, Unwash, Casting Damage & Rust. Blow Holes, Sandrop as per Meritor STD.	Visual	2		FOI	Visual	100%			PCC
30	Laser Marking	ACONEX / ACONEX	1	-	Program No	-	DC 3905	Visual in screen	1	Every Day	Process Parameter Monitoring Sheet	-	-	-	If not OK inform to Supervisor to take corrective action	
			2	-	Air pressure	-	4-6 Bar	Pressure Gauge	1	Every Day	Process Parameter Monitoring Sheet	-	-	-		
			3	-	Laser Marking Height	-	37.5 cm	Measuring Scale	1	Every Day	Process Parameter Monitoring Sheet	-	-	-		
			4	-	Marking Direction	-	Clockwise	Visual	1	Every Day	Process Parameter Monitoring Sheet	-	-	-		
			1	Part no	Refer SOP: SOP / DC / 003		3235E3905	Visual	2	Every setting / Tool Change / Major Break down / Fixture Breakdown / If Machine is Continuously Running for 15 days in the Same Setting	FOI	Visual	100%			PCC
			2	Date Code			XXXX - (Julien code) 1st 3 digit Date code & Last Digit year code	Visual	2		FOI	Lab View Display	100%			PCC
			3	Serial No			YYYY - Running Serial no	Visual	2		FOI	Visual	100%			PCC
			4	Legibility of marking			Should be Legible	Visual	2		FOI	Visual	100%			PCC
40	Spline Hobbing	CIMA-8 / CIMA-8	1	Measuring location for BOD @ 10.0	Refer SOP: SOP / DC / 004	-	9.7 / 10.7	Special Gauge (variable) Ref	-	Every setting / Tool Change / Major Break down / Fixture Breakdown / If Machine is Continuously Running for 15 days in the Same Setting	-	-	-	-	1.Stop the production & Inform to supervisor 2.Check the parts produced earlier3. Rework to be done with in 48 hrs & Rejection move to scrap.4.Correct the program / tool / fixture/ parameters5.After correction, get first off approval & Continue to production	
			2	Radius (Ensure cutter Radius)		-	R 39.28 / 40.72	Contour	1		FOI	-	-	-		
			3	Measuring location for Major dia @ 19.30		-	18.90 / 19.70	Height Gauge With Scribe	2		-	-	-	-		
			4	Face to Cutter Center Distance		-	34.18 / 34.82	Contour	1		FOI	-	-	-		
			5	OPD Runout wrt F		-	0.15 Max	Special Gauge (variable)	2		FOI	-	-	-		
			6	OPD (Pin size dia 4.0mm)		-	Ø 105.56 / 105.68	Special Gauge (variable)	2		FOI	Spline Gauge	2	Every Hour		PCC
			7	Tooth relief Chamfer		-	0.1-0.3 x 44° / 46° TYP	Contour	1		FOI	-	-	-		
			8	Minor diameter		-	Ø 96.84 / 96.49	Spline Gauge	2		FOI	Spline Gauge	2	Every Hour		PCC









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			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
			9	Major Diameter		-	Ø 101.20 / 101.0	Spline Gauge	2		FOI	Spline Gauge	2	Every Hour	PCC	
			10	No of Teeth		-	47nos	Spline Gauge	2		FOI	Spline Gauge	2	Every Hour	PCC	
			11	Appearance - Machining		-	Free from Burr, Tool Mark, Step Mark, Chattering Mark, Damage, Rust.	Visual	2		FOI	Visual	100%		PCC	
			12	Appearance - Casting		-	Free From Fetting Damage, Extra Material, Unwash, Casting Damage & Rust. Blow Holes, Sandrop as per Meritor STD.	Visual	2		FOI	Visual	100%		PCC	
50	Angle Hole Drilling	AURAM / AURAM	1	Angle hole Drill Diementer	Refer SOP: SOP / DC / 005	-	4 x Ø 19.20 / 20.80	Vernier	2	Every setting / Tool Change / Major Break down / Fixture Breakdown / If Machine is Continuously Running for 15 days in the Same Setting	FOI	Plug Gauge	2	Every Hour	PCC	1.Stop the production & Inform to supervisor 2.Check the parts produced earlier3. Rework to be done with in 48 hrs & Rejection move to scrap.4.Correct the program / tool / fixture/ parameters5.After correction, get first off approval & Continue to production
			2	Position of Hole		-	As per Drawing	Position Gauge	2		FOI	Position Gauge	2	Every Hour	PCC	
			3	Appearance - Machining		-	Free from Burr, Tool Mark, Step Mark, Chattering Mark, Damage, Rust.	Visual	2		FOI	Visual	100%		PCC	
			4	Appearance - Casting		-	Free From Fetting Damage, Extra Material, Unwash, Casting Damage & Rust. Blow Holes, Sandrop as per Meritor STD.	Visual	2		FOI	Visual	100%		PCC	
60	Induction Hardening & Induction Tempering	IH -02 GHI / IH -02 GHI		Induction Hardening												
			1		Program No	-	08	Visual in screen	1 reading	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	If not OK inform to Supervisor
			2		Coil No	-	DC-3905-01	Visual	1 reading	Every Setting	Metallurgical Lab Report	-	-	-	-	
			3		Spray Nozzle	-	Uniform flow and no blockage	Visual	1	Every Setting	Metallurgical Lab Report	Visual	1	Every Shift	Coil life monitoring sheet	
			4		Coil condition	-	No damage and bend	Visual	1	Every Setting	Metallurgical Lab Report	Visual	1	Every Shift	Coil life monitoring sheet	
			5		Air gap (Shoulder Face)	-	7.5 - 7.8 mm	PLC	1	Every Setting	Metallurgical Lab Report	-	-	-	-	
			6		Air gap (Spline Diameter)	-	1.50 - 5.00 mm	PLC	1	Every Setting	Metallurgical Lab Report	-	-	-	-	
			7		Main Inlet air pressure	-	5 - 6 Bar	Pressure Gauge	1 Reading	Every Setting	Daily Maintenance Check Sheet	Pressure Gauge	1 reading	Once in a day	Daily Maintenance Check Sheet	
			8		Polymer Quench concentration	-	Hi-Quench P11 (3.0 / 5.0%)	Refractometer	1 Reading	Every Setting	Daily Maintenance Check Sheet	Refractometer	1 reading	Once in a day	Daily Maintenance Check Sheet	
			9		Polymer Quench Flow	-	12 - 22 LPM	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	

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			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
			10		Polymer Quench Oil Temperature	-	25 - 35°C	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			11		Coil cooling flow	-	5.0 - 8.0 LPM	Flow Meter	1 Reading	Every Day	Daily Maintenance Check Sheet	Flow Meter	1 reading	Once in a day	Daily Maintenance Check Sheet	
			12		Coil Cooling temperature	-	25 - 35°C	Thermal Indicator	1 Reading	Every Day	Daily Maintenance Check Sheet	Temperature Indicator	1 reading	Once in a day	Daily Maintenance Check Sheet	
			13		Induction Hardening Traceability	-	Laser marking SI no used as traceability for the IH process	-	-	-	-	Lab view Program	100%	Each sample	Online Data logger	
				Heat Position												
			14		Power	-	30 ± 5 KW	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			15		Position	-	87.1 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			16		Feed Rate	-	800 mm / min	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			17		Dwell	-	2 Sec	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
				Quench Start												
			18		Position	-	94.60 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
				Zone 1												
			19		Power	-	32 ± 5 KW	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			20		Position	-	94.60 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			21		Feed Rate	-	120 mm / min	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			22		Dwell	-	0 Sec	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
				Zone 2												
			23		Power	-	37 ± 5 KW	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	
			24		Position	-	110.60 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger	

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			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method		
			25		Feed Rate	-	55 mm / min	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			26		Dwell	-	0 Sec	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
				Zone 3													
			27		Power	-	27 ± 5 KW	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			28		Position	-	124.3 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			29		Feed Rate	-	95 mm / min	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			30		Dwell	-	0 Sec	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
				Quench Stop													
			31		Position	-	155.6 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			32		Feed Rate	-	520 mm / min	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			33		Dwell	-	60 Sec	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
				Induction Tempering													
				Heat Position													
			34		Power	-	8 ± 5 KW	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			35		Position	-	87.1 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			36		Feed Rate	-	1000 mm / min	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
				Zone 1													
			37		Power	-	8 ± 5 KW	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		
			38		Position	-	94.60 ± 1 mm	PLC	1	Every Setting	Metallurgical Lab Report	PLC	100%	Each sample	Online Data logger		

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			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
80	Crack Detection - Inspection	ULTRAMAG / ULTRAMAG	1	Presence of Crack	Q/ WI / 003	-	Free from Crack	AS per CD Inspection SOP	100%		CD Inspection Report	-	-	-	-	Inform to Supervisor
90	Slot Milling, M16 Drill & Tapping	DVC 400 & AMS 05 / DVC 400 & AMS 05	1	Distance	Refer SOP: SOP / DC / 008A & SOP / DC / 008B	-	88.506 /88.866	CMM	2	Every setting / Tool Change / Major Break down / Fixture Breakdown / If Machine is Continuously Running for 15 days in the Same Setting	FOI	-	-	-	-	1.Stop the production & Inform to supervisor 2.Check the parts produced earlier3. Rework to be done with in 48 hrs & Rejection move to scrap.4.Correct the program / tool / fixture/ parameters5.After correction, get first off approval & Continue to production
			2	Distance		-	65.758 / 66.118	CMM	2		FOI	-	-	-	-	
			3	Distance		-	28.637 / 28.997	CMM	2		FOI	-	-	-	-	
			4	Distance		-	88.506 /88.866	CMM	2		FOI	-	-	-	-	
			5	Distance		-	65.758 / 66.118	CMM	2		FOI	-	-	-	-	
			6	Distance		-	28.637 / 28.997	CMM	2		FOI	-	-	-	-	
			7	Squareness on Spider hole wrt B			0.10 Max	Special Gauge (variable)	2		FOI	Special Gauge (variable)	2	Every Lot	PMC	
			8	Spider Hole Depth			15.495 / 15.550	Special Gauge (variable)	2		FOI	Special Gauge (variable)	2	Every Lot	PMC	
			9	Slot Chamfer		-	8 x 0.20 / 0.80 x 44° / 46°	Contour	1		FOI	-	-	-	-	
			10	Spider Hole Dimension			30.79 / 30.83 mm	-	-		FOI	Mandrel	2	Every Hour	PCC	
			10	Spider Hole Dimension			30.79 / 30.83 mm	CMM	2		FOI	Readable gauge	2	4 hours once	PMC	
			11	Roughness on Spider Hole		-	3.0 Ra Max	Roughness Tester	1		FOI	-	-	-	-	
			12	Position on Spherical Radius wrt C-B			0.10 Max	Special Gauge (variable)	2		FOI	Special Gauge (variable)	2	Every Hour	PMC	
			13	Thread			12 x M16 x 1.5 - 6H - Thru	Thread gauge	2		FOI	Thread Plug Gauge	2	Every Hour	PCC	
			14	Thread Chamfer		-	12 x 0.2 / 0.60 x 45° / 46°	Contour	1		FOI	-	-	-	-	
			15	Position on Thread wrt C-B / D (M)			0.45 Max	CMM	2		FOI	Position Gauge	2	Every Hour	PCC	
			16	Position on Spline Major Dia wrt C-B / A		-	0.16 Max	Special Gauge (variable)	2		FOI	Special Gauge (variable)	2	Every Hour	PCC	
17	Runout on Bearing Dia wrt C-B / D			0.064 Max	Special Gauge (variable)	2	FOI	Special Gauge (variable)	2	Every Hour	PMC					

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Madras Engineering Industries (P) Limited

Control Plan

Control Plan Number: CP / DC / 001			Key Contact / Phone: N Parthasarathy / -								Date(Original): 30.01.2021					
PROTOTYPE	PRE-LAUNCH	PRODUCTION	Core Team: Dhanasivan S, Gk Ashokkumar, N Dharmaraj, Nilanjan Chakraborty, P Muruganantham, R Raju, V Ramachandran								CP Rev No / Date: 19 / 24.05.2025					
Part Number & Rev No: 3235E3905 / C-23.05.2023			Organization Code: -				Customer Name: Meritor				Customer Engineering Approval / Date (if Req'd):					
Part Name/Description: CASE - DIFF. FIN			Organization / Plant Approval/ Date:				Process Specification:				Customer Quality Approval (if Req'd):					
Organization: MEIL - M.CITY			Other Approval / Date (if Req'd):				IH Metallurgy testing reference: MMA/IH/001 - Rev.3				Other Approval / Date (if Req'd):					
Part/ Process Number	Process Name/ Operation Description	Machine, Device, Jig, Tools For Mfg.	Characteristics			Spl Char Class	Product/ Process Specification/ Tolerance	First Off Inspection				In-Process - Control				Reaction Plan
			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
			21	Position on Spherical Radius wrt D		-	0.24 max	Special Gauge	2	Per Skid	Dock Audit Report	-	-	-	-	
			22	External Spline		-	12/ 24 Pitch (2.117 / 1.058)	Spline Gauge	2	Per Skid	Dock Audit Report	-	-	-	-	
			23	Appearance		-	Blow Holes, Sandrop as per Meritor std. Sharp edges, Line mark, Step mark, Chattering mark, Loose burr.- No step on Ground OD, Presence of cross hole, No cast surface projection on Spherical machined area, No extra material on 64.285 depth face.	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
			24	Contamination on part, Foreign particles and Burrs		-	Not Allowed	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
			25	Rust		-	Not Allowed	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
			26	Excess Oil		-	Not Allowed	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
			27	Burrs		-	Not Allowed	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
			28	Marking		-	Cast Part No, Heat Code, MERITOR Logo and ME Identification	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
			29	PVC Protector on Spline area		-	Should be provided	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
			30	Dust and contamination on Spacer V-EMB 81		-	Not Allowed	Visual	2	Per Skid	Dock Audit Report	-	-	-	-	
Remarks: 1. Layout inspection to be carried once in a year for all product 2. Process capability study for special characteristics (32 nos) will be Performed during new machine, new part, any process change or improvement, any ECN change. If no change once in 3 month to be conduct 3. 100% Inspection Parameter - to recorded as hourly basis																
FOI - First Off Inspection					PCC - Process Control Chart					PMC - Process Monitoring Chart						
Legend - Meritor	 Meritor - QCC Symbol (Denotes Major Characteristics)				 Meritor - QCC Symbol (Denotes Safety Related Characteristics)				 MEI Symbol (Denotes Process Critical Characteristic)				 MEI Symbol (Denotes Major Characteristic)			
Prepared By: Sathiyathan									Approved By: Dhanasivan S							
Changes / Revision Details																

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Control Plan

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Part Name/Description: CASE - DIFF. FIN			Organization / Plant Approval/ Date:					Process Specification:					Customer Quality Approval (if Req'd):			
Organization: MEIL - M.CITY			Other Approval / Date (if Req'd):					IH Metallurgy testing reference: MMA/IH/001 - Rev.3					Other Approval / Date (if Req'd):			
Part/ Process Number	Process Name/ Operation Description	Machine, Device, Jig, Tools For Mfg.	Characteristics			Spl Char Class	Product/ Process Specification/ Tolerance	First Off Inspection				In-Process - Control				Reaction Plan
			No.	Product	Process			Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	Evaluation Measurement Technique	Sample Size (Nos)	Sample Freq.	Control Method	
Rev. No	Rev. Date	Nature of Change							Reason for Change							
0	30.01.2021	Release of control plan							-							
1	18.10.2021	Crack Detection Test Introduction							Audit Observation							
2	18.04.2022	Customer PPAP Observation updated							-							
3	22.04.2022	Added Grind burn mark & All Process SOP							-							
4	10.05.2022	Cylindricity & PCD runout Inspection method changed as per customer mail on 10th may'22							-							
5	23.07.2022	Operation Combined pre-Boring & ID turning							-							
6	17.08.2022	As new stage Drawing Changed							-							
7	29.09.2022	Layout Changes & Machine Added (ACE - Turning Machine, DIV - VMC Machine)							Layout standardisation & Capacity Improvement							
8	06.10.2022	Customer Drawing revised from B8 to B9. & Process Parameter Changed - Air cool & Polymer Quench introduced after tempering							-							
9	03.11.2023	Additional oiling stage opn 125 removed							process improvement							
10	01.06.2024	Control Plan Implemented in Software							System Improvement							
11	08.07.2024	Appearance Checkpoint Separated							System Improvement							
12	15.10.2024	Verification Error Corrected							System Improvement							
13	06.12.2024	Verification Error Corrected							System Improvement							
14	24.02.2025	Document No Rearranged							System Improvement							
15	28.02.2025	Verification Error Corrected							System Improvement							
16	01.03.2025	To avoid defect produced parts during insert change							System Improvement							

<div><div></div><div>• MEI •</div><div>Madras Engineering Industries (P) Limited</div></div>			Control Plan													
Control Plan Number: CP / DC / 001			Key Contact / Phone: N Parthasarathy / -										Date(Original): 30.01.2021			
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17	13.03.2025	IH distortion						System Improvement								
18	19.04.2025	Auto thread gauge introduced in PDI						1.Improvement 2.To avoid manual error 3.To avoid customer complaint								
19	24.05.2025	Readable gauge introduced						Improvement								