LAYOUT INSPECTION REPORT

D-168,, Shendra MIDC, Aurangabad, Maharashtra	Drg. Modification No.: F/17.02.20	**Madhura Die Cast Pvt. Ltd.**	Customer: Endurance Technology Ltd. / FM/QA/03
Part Name: Housing Clutch (Machining)			Date: 17/08/2024
Part No.: 161FW00133			Supplied Qty.: 3 NOS.
Material: AISI 132			Die No :

Sr.No	Parameter	Specification (mm)	Measuring Instrument	Least count of measuring instrument	Samples C1	Samples C2	Samples C3	Remark
			FRONT VIEW					
1	Angle	43° 30′ ± 20′	CMM	0.0001				
2	Spring sproket width	22 ± 0.2 at 2 places	Vernier Caliper	0.02	22.12	22.15	22.12	OK
					22.12	22.18	22.18	OK
3	Radius	R 0.5 max at 4 places	Visual	NA	R0.5	R0.5	R0.5	OK
4	Diameter	63	Vernier Caliper	0.02	63.02	62.88	62.96	OK
5	Radius	R 0.5 max at 4 places	Visual	NA	R0.5	R0.5	R0.5	OK
6	Angle	9° 30′ - 40′	CMM	0.0001	-			
7	Spring sproket width	24 ± 0.2 at 3 places	Vernier Caliper	0.02	24.11	24.13	24.16	OK
					24.06	24.14	24.17	OK
					24.13	24.12	24.19	OK
8	Angle	9° 30′ - 40′	CMM	0.0001				
9	Angle	43° 30′ ± 20′	CMM	0.0001				
			SECTION A - A					
10	Height	34.5	Digital Height Gauge	0.01	34.40	34.43	34.45	OK
11	Dimension	8	Digital Height Gauge	0.01	8.05	7.96	8.04	OK
12	Diameter	16 at 3 Places	Vernier Caliper	0.02	Not Possible to check			
13	Concentricity on Dia 100	0.2 W.R.T. Datum P	Dial & Mandrell	0.01	0.16	0.17	0.16	OK
14	Concentricity on Dia 109.418	0.2 W.R.T. Datum P	Dial & Mandrell	0.01	0.17	0.18	0.16	OK
15	Diameter	109.418 ± 0.3	Vernier Caliper	0.02	109.60	109.61	109.58	OK
16	Diameter	103.622	Vernier Caliper	0.02	103.61	103.58	103.60	OK
17	Diameter	101.622 ± 0.3	Vernier Caliper	0.02	101.62	101.66	101.59	OK
18	Diameter	100 + 0.5	Vernier Caliper	0.02	100.39	100.32	100.41	OK
19	Diameter	88	Vernier Caliper	0.02	Not checked			OK
20	Diameter	30	Vernier Caliper	0.02	30.13	30.16	30.12	OK

21	Position	0.1 WRT P	CMM/position gauge	0.0001	1°			
22	Slot Width	14.3 + 0.3	Vernier Caliper	0.02	14.58 | 14.46	14.37 | 14.50	14.31 | 14.45	OK
23	Slot Width	14.0 + 0.3 / + 0.1	Vernier Caliper	0.02	14.26 | 14.21	14.24 | 14.28	14.22 | 14.26	OK
24	Dimension	2	Vernier Caliper	0.02	2.00	2.00	2.00	OK
25	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
26	Chamfer at ID 22	0.5 X 45°	Visual	NA	OK	OK	OK	OK
27	Chamfer at OD 30	0.5 X 45°	Visual		OK	OK	OK	OK
28	Radius	R 0.3 TO R 1	Visual	NA	R0.3	R0.3	R0.3	R0.3
29	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
30	Dimension	22.5	Vernier Caliper	0.02	22.46	22.44	22.47	OK
31	Dimension	23.5	Vernier Caliper	0.02	23.47	23.44	23.48	OK
32	Runout ON machined face	0.07 wrt datum P	Dial & Mandrell	0.01	0.02	0.02	0.02	OK
33	Surface Finish on machined face	3.2	Roughness tester	0.001	1.016	0.918	0.970	OK
34	Runout ON machined face (front)	0.07 wrt datum P	Dial & Mandrell	0.01	0.03	0.02	0.03	OK
35	Concentricity on dia 36	0.02 wrt datum P	Dial & Mandrell	0.01	0.009	0.008	0.011	OK
36	Surface finish on face	3.2	Roughness tester	0.001	0.652	0.568	0.719	OK
37	Dimension	31.3 - 0.075	Digital Height Gauge	0.01	31.26	31.27	31.26	OK
38	OD Chamfer	1 X 45°	Visual	NA	OK	OK	OK	OK
39	Surface Finish on Chamfer	6.3	Roughness tester	0.001	Not possible to check			
40	Radius	R 4	Radius Gauge	NA	R4	R4	R4	OK
41	Dimension	8	Vernier Caliper	0.02	8.04	8.04	8.03	OK
42	Chamfer on dia36	0.3 X 45°	Visual	NA	OK	OK	OK	OK
43	Surface finish on dia 57	6.3	Roughness tester	0.001	0.916	0.952	0.880	OK
44	Diameter	110.5 ± 0.4	Vernier Caliper	0.02	110.26	110.42	110.36	OK
45	Diameter	93	Vernier Caliper	0.02	93.06	92.92	93.06	OK
46	PCD	74 ± 0.2	Vernier Caliper	0.02	OK	OK	OK	OK
47	Diameter	57	Vernier Caliper	0.02	57.12	57.18	57.17	OK
48	Diameter	36 -0.009 / -0.034	Air ring gauge	0.001	35.992	35.990	35.992	OK
49	Diameter	30	Vernier Caliper	0.02	30.06	30.08	30.02	OK

50	Diameter	22 +0.04 +0.02	Air plug gauge	0.001	22.037	22.035	22.032	OK
51	chamfer ID 22 length	1.5	Vernier Caliper	0.02	1.48	1.55	1.60	OK
52	Surface finish on ID	1.6	Roughness tester	0.001	0.650	0.738	0.640	OK
53	Surface finish on ID chamfer	6.3	Roughness tester	0.001	Not possible to check			
54	Chamfer Angle	15°	Visual	NA	OK	OK	OK	OK
55	Surface Finish on OD 30	6.3	Roughness tester	0.001	0.618	0.726	0.570	OK
56	Surface finish on OD 36	3.2	Roughness tester	0.001	0.438	0.530	0.605	OK
57	Dimension	3	Vernier Caliper	0.02	3.08	2.80	2.90	OK
58	Diameter	16 ± 0.2	Vernier Caliper	0.02	16.17	16.17	16.18	OK
59	Surface finish on dia 16 face	6.3	Roughness tester	0.001	Not Possible to check			
60	Surface Finish	6.3	Roughness tester	0.001	Not Possible to check			
61	Dimension	18.3 + 0.3 at 3 places	Digital Height Gauge	0.01	18.41	18.42	18.40	OK
62	Dimension	12.2 - 0.7	Digital Height Gauge	0.01	11.84	11.82	11.83	OK
63	Dimension	6 ± 0.1	Digital Height Gauge	0.01	5.99	5.97	5.95	OK
64	Runout on face	0.07 wrt datum P	Dial & Mandrell	0.01	0.02	0.03	0.02	OK
			BOTTOM VIEW					
65	Angle	45° small slot	CMM	0.0001				
66	Note	8 Slots Equispaced	Visual	NA	OK	OK	OK	OK
67	Note	Identification Mark 5P IN RELIEF OF 0.3	Visual	NA	OK	OK	OK	OK
68	Identification mark width	4	Vernier Caliper	0.02	4.00	4.00	4.00	OK
69	Dimension	14	Vernier Caliper	0.02	Not Checked			
70	Dimension	20	Vernier Caliper	0.02	Not Checked			
71	Note	8 Slots Equispaced	Visual	NA	OK	OK	OK	OK
72	Radius	R 0.5	Visual	NA	R0.5	R0.5	R0.5	OK
73	Angle	45° big slot	CMM	0.0001				
74	Angle	22°30′	CMM	0.0001				
75	Note	Border and letter in relief of 0.3 as per drg. BA-6622	Visual Inspection	NA	OK	OK	OK	OK

76	Note	Manufacturing Month & Year as per BAS 03 015	Visual Inspection	NA		OK	OK	OK
77	Diameter	16	Vernier Caliper	0.02	← Not Possible to Check ←			
78	Note	Suppliers identification mark die & caviety number	Visual Inspection	NA	OK	OK	OK	OK
			SECTION B - B					
79	Radius	R 0.5 at 2 places	Visual	NA	R0.5	R0.5	R0.5	OK
80	Dimension	4	Vernier Caliper	0.02	4.01	4.00	4.03	OK
81	Dimension	4	Vernier Caliper	0.02	4.03	4.00	4.02	OK
			DETAIL K					
82	Radius	R 0.1 TO R 0.2	Visual	NA	OK	OK	OK	OK
83	Angle	90°	CMM	0.0001	90°	90°	90°	OK
84	Dimension	0.5	Vernier Caliper	0.02	0.5	0.5	0.5	OK
			PARTIAL SECTION					
85	Dimension	34.5	Digital Height Gauge	0.01	34.54	34.49	34.46	OK
86	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
87	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
88	Diameter	30	Vernier Caliper	0.02	30.13	30.16	30.12	OK
89	Diameter	88	Vernier Caliper	0.02	Not checked			
90	Diameter	100	Vernier Caliper	0.02	100.12	100.06	100.15	OK
91	Diameter	101.622	Vernier Caliper	0.02	101.62	101.66	101.59	OK
92	Diameter	103.622	Vernier Caliper	0.02	103.61	103.58	103.60	OK
93	Diameter	109.418	Vernier Caliper	0.02	109.60	109.61	109.58	OK
94	Radius	R 2	Radius Gauge	NA	R2	R2	R2	OK
95	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
96	Radius	R0.3 to R0.5	Radius Gauge	NA	R0.3	R0.4	R0.4	OK
97	Redius	R1	Redius Gauge	NA	R1	R1	R1	OK
98	Chamfer	2 X 45°	Vernier Caliper	0.02	2 X 45°	2X45°	2X45°	OK
99	Radius	R 4	Radius Gauge	NA	R4	R4	R4	OK
100	Radius	R 10	Radius Gauge	NA	R10	R10	R10	OK
101	Radius	R 4	Radius Gauge	NA	R4	R4	R4	OK
102	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
103	Dimension	18.3 + 0.3	Digital Height Gauge	0.01	18.43	18.42	18.41	OK
104	surface finish	6.3	Roughness tester	0.001	Not possible to check			

105	Radius	R0.5	visual	NA	R0.5	R0.5	R0.5	OK
106	Diameter	7.2 + 0.2 (3 holes)	Vernier Caliper	0.02	7.31 | 7.34	7.32 | 7.33	7.31 | 7.34	OK
107	position of 3 holes	0.1	CMM/position gauge	0.0001				
108	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
109	Dimension	11.5 - 0.7	Digital Height Gauge	0.01	11.10	11.08	11.13	OK
110	Dimension	8	Digital Height Gauge	0.01	8.00	8.00	8.00	OK
			SECTION C - C					
111	Dimension	6	Vernier Caliper	0.02	6.02	6.00	5.99	OK
112	Radius	R1 at 2 Places	Radius Gauge	NA	R1	R1	R1	OK
113	Angle	10°	CMM	0.0001	← Not checked		→	OK
114	Dimension	2	Digital Height Gauge	0.01	1.92	1.91	1.91	OK
			PARTIAL SECTION					
115	Dimension	31.3	Digital height gauge	0.01	31.13	31.16	31.12	OK
116	Surface finish	6.3	Roughness tester	0.001	0.917	0.812	0.719	OK
117	Dimension	26.5	Vernier caliper	0.02	26.54	26.50	26.50	OK
118	Dimension	30	Vernier caliper	0.02	30.03	30.04	30.00	OK
119	Radius	R 5	Radius Gauge	NA	R5	R5	R5	OK
120	Dimension	0.7 Min	Vernier Caliper	0.01	0.87	0.89	0.87	OK
121	Radius	R 5	Radius Gauge	NA	R5	R5	R5	OK
122	Dimension	3.6	Digital height gauge	0.01	3.64	3.78	3.74	OK
123	Flatness	0.1	Dial Gauge	0.01	0.06	0.04	0.04	OK
124	Dimension	3	Digital height gauge	0.01	3.01	3.04	3.06	OK
125	Dimension	0.5 + 0.2	Tool Ref. Dimn.	NA	} Not possible to check			
126	Diameter	15	Tool Ref. Dimn.	NA				
127	Dimension	2	Tool Ref. Dimn.	NA				
128	Dimension	1	Digital height gauge	0.01	1.01	1.01	0.98	OK
129	Diameter	74	Vernier caliper	0.02	74.015	74.050	74.006	OK
			VIEW U					
130	Dimension	14 + 0.2	Vernier caliper	0.02	14.08 | 14.16	14.10 | 14.18	14.11 | 14.17	OK
131	Note	0' +10' draft angle.this is important machine if not possible on casting	CMM	0.0001	OK	OK	OK	OK
132	Dimension	8	Vernier caliper	0.02	8.03 | 8.05	8.04 | 8.06	8.03 | 8.04	OK
133	Dimension	21 - 0.2	Vernier caliper	0.02	20.96	20.92	20.94	OK

134	Dimension	34.5	Vernier caliper	0.02	34.54	34.49	34.46	OK
135	Radius	R 4	Radius Gauge	NA	R4	R4	R4	OK
136	Radius	R 2	Radius Gauge	NA	R2	R2	R2	OK
137	Radius	R 1	Radius Gauge	NA	R1	R1	R1	OK
138	Position WRT P	0.1	CMM	0.0001	——	Not check	——	
139	Dimension	10	Vernier caliper	0.02	10.01	10.02	10.00	OK
			NOTE					
140	Unspecified radii	R 2	Redius Gauge	NA	R2	R2	R2	OK
141	Unspecified draft angles	1°30'	CMM	0.0001	OK	OK	OK	OK
142	Scaled error on groove (14 + 0.3/+0.1 & 14 +0.2)		CMM	0.0001	OK	OK	OK	OK
143	Remove Sharp Edges & Burr		Visual Inspection	NA	OK	OK	OK	OK
144	Material	Alsi132 for alternative material refer BAS 03 003	Lab Report	NA	——	Alsi132	——	OK
145	Weight	0.196	Weighing machine	NA	188.0gm	189.5gm	187.5gm	OK

Checked By:

Approved By: