

**GETRAG**

Production Part Approval

312559

DIMENSIONAL TEST RESULTS

Organization:	GETRAG	Part Number:	250.1.3692.76
Supplier/Vendor Code:	GETRAG Modugno	Part Name:	Double gear
INSPECTION FACILITY:	NA	Design Record Change Level:	a 35331
		Engineering Change Documents:	

Organization Measurement Results (Data)

Item	Dimension/Specification	Specification / Limits	Test Date	Qty. Tested	1	2	3	4	5	test distruttivo	Ok	Not Ok
1	Bore diameter 49	49,025 49,009		5	49,011	49,011	49,010	49,010	49,010		ok	
2	Axial runout 0,05	0,05 0,00		5	0,0450	0,0280	0,0240	0,0260	0,0240		ok	
3	Radial runout ZR2	0,032 0,000		5	0,011	0,015	0,012	0,013	0,015		ok	
4	Radial runout SR2	0,056 0,000		5	0,046	0,029	0,046	0,037	0,037		ok	
5	Radial runout KK	0,100 0,000		5	0,097	0,045	0,058	0,066	0,035		ok	
6	Axial runout 0,03	0,03 0,00		5	0,002	0,005	0,003	0,007	0,002		ok	
7	Roughness surface	0,004 0,000		5	0,0008	0,0005	0,0009	0,0005	0,0073		ok	
8	Axial runout on KK	0,1 0,0		5	0,066	0,067	0,065	0,062	0,068		ok	
9	Thickness 34,97	35,00 34,94		5	34,972	34,972	34,971	34,972	34,971		ok	
10	Particular X zr2	ok nok		5	ok	ok	ok	ok	ok		ok	
11	Rz Teeth	0,004 0,000		5	0,002	0,003	0,001	0,002	0,002		ok	
11	Rmax Teeth	0,0063 0,0000		5	0,002	0,004	0,002	0,002	0,002		ok	
12	MDK	117,880 117,824		5	117,856	117,862	117,851	117,848	117,852		ok	
13	Rz bore	0,003 0,000		5	0,0020	0,0012	0,0013	0,0023	0,0013		ok	
13	Rmax bore	0,004 0,000		5	0,002	0,001	0,001	0,003	0,001		ok	
14	Straitghness bore	0,004 0,000		5	0,001	0,002	0,002	0,001	0,001		ok	
15	Roundness bore	0,006 0,000		5	0,004	0,004	0,003	0,003	0,001		ok	
16	Parallelism bore	0,007 0,000		5	0,001	0,004	0,002	0,003	0,003		ok	
17	X chamfer 0,25 +/-0,15 x45°	0,40 0,10		5	0,398	0,397	0,371	0,393	0,363		ok	
18	Teeth profile ZR2	ok nok		5	ok	ok	ok	ok	ok		ok	
18	Teeth profile SR2	ok nok		5	ok	ok	ok	ok	ok		ok	
19	Rz 10	0,010 0,000		5	0,007	0,007	0,007	0,007	0,007		ok	
20	Chamfer	0,300 -0,500		5	ok	ok	ok	ok	ok		ok	
21	Chamfer	0,3 -0,5		5	ok	ok	ok	ok	ok		ok	
22	Chamfer	0,3 -0,5		5	ok	ok	ok	ok	ok		ok	
23	Chamfer	0,3 -0,5		5	ok	ok	ok	ok	ok		ok	
24	MDK	85,916 85,796		5	85,872	85,859	85,887	85,892	85,879		ok	
25	Particular Y zr2	ok nok		5	ok	ok	ok	ok	ok		ok	
26	Welding process ISO4063-522 Z1	362° 360°		5	ok	ok	ok	ok	ok		ok	
27	Weld bead stand-off Z1	0,5 0,0		1						0,37	ok	

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INSPECTION FACILITY: NA					Design Record Change Level: a 35331								
					Engineering Change Documents:								
Organization Measurement Results (Data)													
Item	Dimension/Specification	Specification / Limits		Test Date	Qty. Tested	1	2	3	4	5	test distruttivo	Ok	Not Ok
28	Welding deep 3 min	3,000	0,000		1						3,19	ok	
29	Technical cleanliness	ok	nok		5	ok	ok	ok	ok	ok		ok	
30	Incompletely filled groove permissible Z	0,500	0,000		1						ok	ok	
31	Full penetration Z	ok	nok		1						ok	ok	
32	Weld bead stand-off Z	0,5	0,0		1						0,2	ok	
33	M1 Case hardness	83,0	80,5		1						81	ok	
34	M2 Tooth flank CHD (Eht)550 =0,5+0,4	0,9	0,5		1						0,62	ok	
35	M3 Bore CHD (Eht) 550=0,3 min	0,3	0,0		1						1	ok	
36	M4 Inside base tooth min 300 HV10	--	min 300		1						306	ok	
37	Machining parameter at hard turning op.	0,05	0,04		5	ok	ok	ok	ok	ok		ok	
38	Chamfer	0,0000	-0,5000		5	-0,065	-0,026	-0,037	-0,014	-0,018		ok	
39	Chamfer	0,0000	-0,5000		5	-0,088	-0,059	-0,033	-0,041	-0,010		ok	
40	Chamfer	0,0000	-0,5000		5	-0,110	-0,055	-0,029	-0,053	-0,033		ok	
41	Chamfer	0,0000	-0,5000		5	-0,0200	-0,0560	-0,0220	-0,0440	-0,0200		ok	
42	Chamfer 1	1,500	0,500		5	0,968	0,912	0,935	0,966	0,931		ok	
43	Tip diameter	90,0	89,7		5	89,798	89,818	89,809	89,797	89,817		ok	
44	Root diameter	76,350	75,900		5	76,157	76,148	76,156	76,144	76,162		ok	
45	Chamfer 0,7	1,1	0,3		5	0,985	0,907	0,932	0,945	0,938		ok	
46	Chamfer 0,7	1,1	0,3		5	0,965	0,771	0,770	0,855	0,744		ok	
47	Tickness 12,5 8 (prof Y SR2)	12,6	12,4		5	12,5	12,5	12,5	12,5	12,5		ok	
48	Tickness 12,99	13,09	12,89		5	12,94	12,94	12,93	12,93	12,93		ok	
49	Chamfer 1	1,5	0,5		5	0,922	0,843	0,783	0,823	0,759		ok	
50	Total Tickness 34,97= p.to9	35,00	34,94		5	34,975	34,957	34,957	34,972	34,971		ok	
51	Chamfer 1	1,50	0,5		5	0,536	0,539	0,850	0,576	0,513		ok	
52	Chamfer 0,7	1,1	0,3		5	0,542	0,524	0,612	0,599	0,580		ok	
53	Chamfer 0,7	1,1	0,3		5	0,780	0,688	0,685	0,714	0,708		ok	
54	Chamfer 1	1,5	0,5		5	0,791	0,744	0,667	0,698	0,761		ok	
55	Tickness 1,8	2,1	1,5		5	2,051	2,033	2,041	2,058	2,076		ok	
56	Angle 20°	23°	17°		5	19,979	19,996	19,826	20,026	20,235		ok	
57	Diameter 59,04	59,055	59,025		5	59,024	59,022	59,024	59,029	59,027		ok	

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58	Axial run out 0,03	0,03	0,00		5	0,019	0,018	0,018	0,016	0,019		ok	
59	Radial run out 0,03	0,03	0,00		5	0,0050	0,0060	0,0040	0,0030	0,0040		ok	
60	Axial run out 0,02	0,020	0,000		5	0,016	0,017	0,003	0,014	0,003		ok	
61	radial run out 0,03	0,03	0,00		5	0,013	0,006	0,004	0,004	0,004		ok	
62	Chamfer 0,1	0,000	-0,100		5	0,070	0,093	0,091	0,088	0,078		ok	
63	Rz surface 10	0,010	0,000		5	0,008	0,007	0,007	0,007	0,008		ok	
64	Rz surface 25	0,025	0,000		5	0,012	0,016	0,015	0,014	0,021		ok	
65	Rz Teeth 6,3	0,0063	0,0000		5	0,001	0,001	0,001	0,001	0,001		ok	
66	Rmax Teeth 10	0,010	0,000		5	0,001	0,001	0,001	0,001	0,001		ok	
67	Rz surface 25	0,025	0,000		5	0,012	0,012	0,012	0,012	0,012		ok	
68	Rz surface 16	0,016	0,000		5	0,009	0,007	0,009	0,011	0,008		ok	
69	particular X sr2	ok	nok		5	ok	ok	ok	ok	ok		ok	
70	Tickness15,1	15,15	15,05		5	15,097	15,110	15,104	15,103	15,108		ok	
71	Root diameter 107,75	107,75	107,45		5	107,647	107,636	107,638	107,631	107,644		ok	
72	Tip diameter 118,6	118,6	118,4		5	118,446	118,428	118,434	118,424	118,431		ok	
73	Tickness 5,5 (prof. 73-80-49)	6,0	5,0		5	5,932	5,454	5,457	5,490	5,554		ok	
74	Rz 16	0,016	0,000		5	0,016	0,015	0,015	0,016	0,015		ok	
75	Particular Y sr2	ok	nok		5	ok	ok	ok	ok	ok		ok	
76	Axial runout 0,03	0,03	0,00		5	0,011	0,010	0,022	0,021	0,022		ok	
77	Particular Z zr2	ok	nok		5	ok	ok	ok	ok	ok		ok	
78	Particular W zr2	ok	nok		5	ok	ok	ok	ok	ok		ok	
79	Chamfer 0,1	0,0	-0,1		5	-0,099	-0,095	-0,096	-0,094	-0,099		ok	
80	Chamfer 0,7	1,1	0,3		5	0,827	0,802	0,809	0,806	0,793		ok	
81	Diameter 71,05	71,065	71,035		5	71,046	71,047	71,044	71,043	71,046		ok	
82	Diameter 71,18	71,21	71,15		5	71,185	71,187	71,185	71,183	71,187		ok	
83	Tickness 1,65	1,85	1,45		5	1,832	1,835	1,835	1,836	1,836		ok	
84	Axial run out 0,03 part Y DG	0,030	0,000		5	0,003	0,003	0,007	0,011	0,006		ok	
85	Roughness 4 part Y DG	0,004	0,000		5	0,001	0,001	0,001	0,001	0,001		ok	
86	Tickness 15,1	15,15	15,05		5	15,100	15,100	15,099	15,102	15,099		ok	
87	Diameter 71,085	71,1	71,1		5	71,082	71,081	71,096	71,090	71,094		ok	

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