

REPORT 14/078

Date: 08/05/2014
Author: Giovanni Borracci

Reason for analysis: PPAP Edison

Requester: GPS1 - Cicirelli Giacomo

Part Name: OS1
P/N: 250.6.3973.35
State of parts: Finished

Material: GCG_805000_Part 2
Customer:

Result: OK

Distribution List: GPS1 - G. Cicirelli

Notes:

Surface Hardness Verification

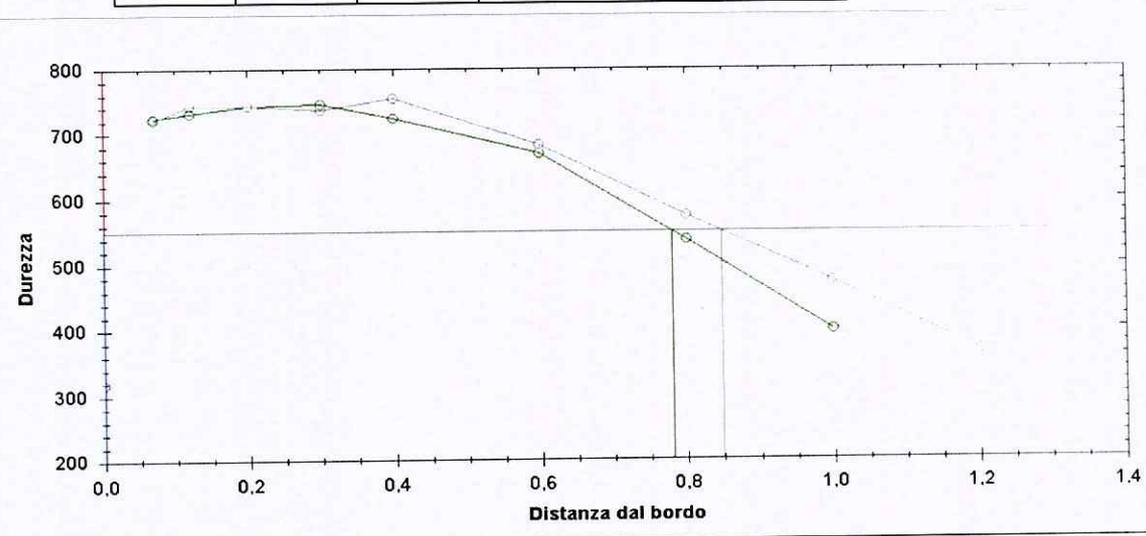
Scale	Position	Values [mm]	Range
HRA	M1	81,5	80,5 + 2,5
HRC	M1	60,9	60 + 3

Core Hardness Verification

Sample	Scale	Position	Values [HV10]	Range
1437/14	HV10	M6	318	≥ 300

CHD Verification

Sample	Scale	Position	Values [mm]	Range
1437/14	CHD 550 HV1	M2	0,85	0,7 + 0,5 mm
1437/14	CHD 550 HV1	M3	0,78	min 0,5 mm



Picture 1: Hardness profiles

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Metallographic Analysis

Sample # 1437/14	OS1
Tooth flank surface structure:	Martensite + 15% retained austenite (OK)
Tooth base core structure:	Martensite + bainite (OK)



Picture 2: Surface microstructure at tooth flank (X500)



Picture 3: Core microstructure at tooth base (X500)

Process Capability Study Plan

DCT Shafts

EDISON

Side 1

Part -Nr.: 250.6.3973.35

Supplier : ■■■ GETRAG

Creation Date: 27.05.2014

Part Name: Output Shaft 1

Supplier Plant Name: BARI

Revision Date: 30.05.2014

SCIF #	Identification of Characteristics	Specified Tolerance	$C_m/C_{mk} \geq 1,67$	Study #	Scheduled date	$P_{pk} \geq 1,67$	Study #	Scheduled date	Measurement equipment	Results / Comments
1	Measurement over Balls Profil I	Max. 56,486 Min. 56,421	2.85			1.88			TEST BENCH	
2	Measurement over Balls Profil II	Max. 46,231 Min. 46,167	2.62			1.92			TEST BENCH	
3	Measurement over Balls Profil III	Max. 42,148 Min. 42,088	1.88			1.72			TEST BENCH	
4	Length 164,05	+0,025 -0,025	2.82			1.90			EXAMECA	
5	Length 22,26	+0,025 -0,025	2.54			2.50			EXAMECA	
6	Diameter 35,50	h6	2.74	3974		1.77			EXAMECA	
7	Diameter 37,00	h6	2.46	3974		1.73			EXAMECA	
8	Diameter 25,00	m6	2.14	3974		2.12			EXAMECA	
9	Diameter 40,00	h6	3.26	3974		2.40			EXAMECA	
10	Diameter 40,00	h6	2.39	3974		2.37			EXAMECA	
11										
12										