Supplementary material

The influence of sealing processes and machining operations on the scratch and wear resistance of anodized AlSi9Cu3(Fe) diecasting alloy

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Table S-I

Table S-I. Chemical composition of the experimental alloy (wt.%).

Si	Fe	Cu	Mn	Mg	Zn	Cr	Ti	Bi	Al
8.89	0.89	2.30	0.22	0.32	1.05	0.0569	0.037	0.034	bal.

Table S-II

Table S-II. Chemical composition (wt.%) measured on the investigated substrates by optical emission spectrometry.

Substrate	Si	Fe	Cu	Mn	Mg	Zn	Ti	Cr	Bi	Al
As-diecast	10.60	1.00	3.06	0.24	0.40	1.23	0.038	0.069	0.023	bal.
Milled	9.36	0.87	2.32	0.22	0.33	1.15	0.047	0.058	0.019	bal.

Figure S-1

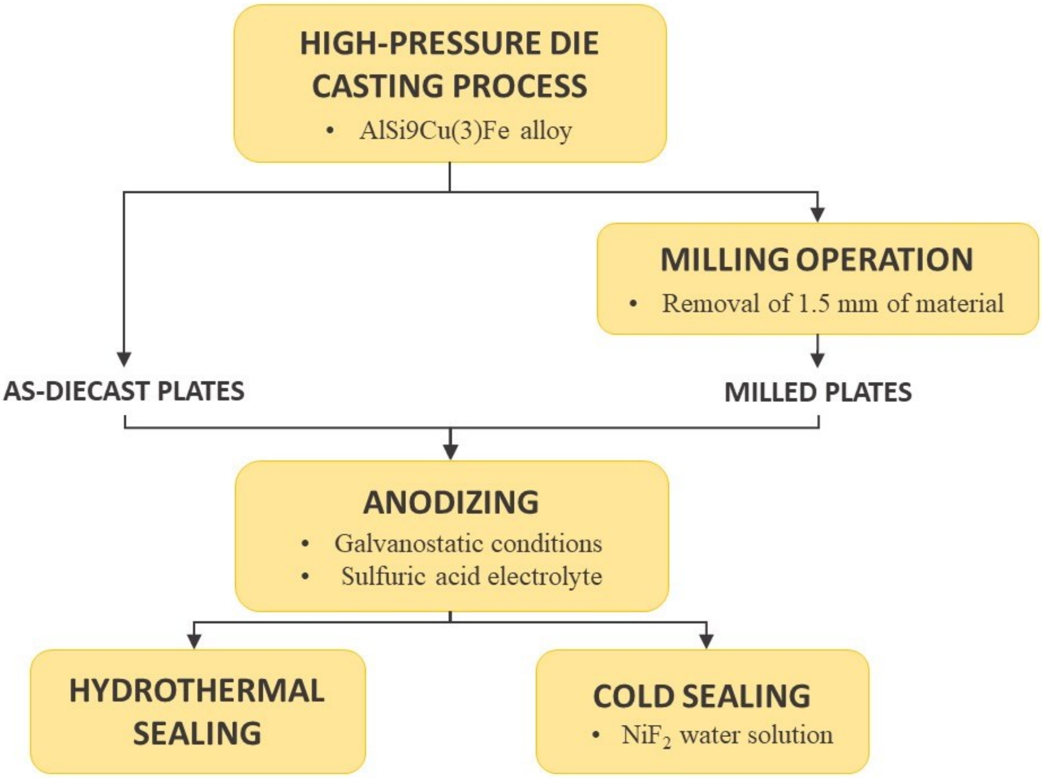

Fig. S-1. Schematic representation of the manufacturing process.

Figure S-2

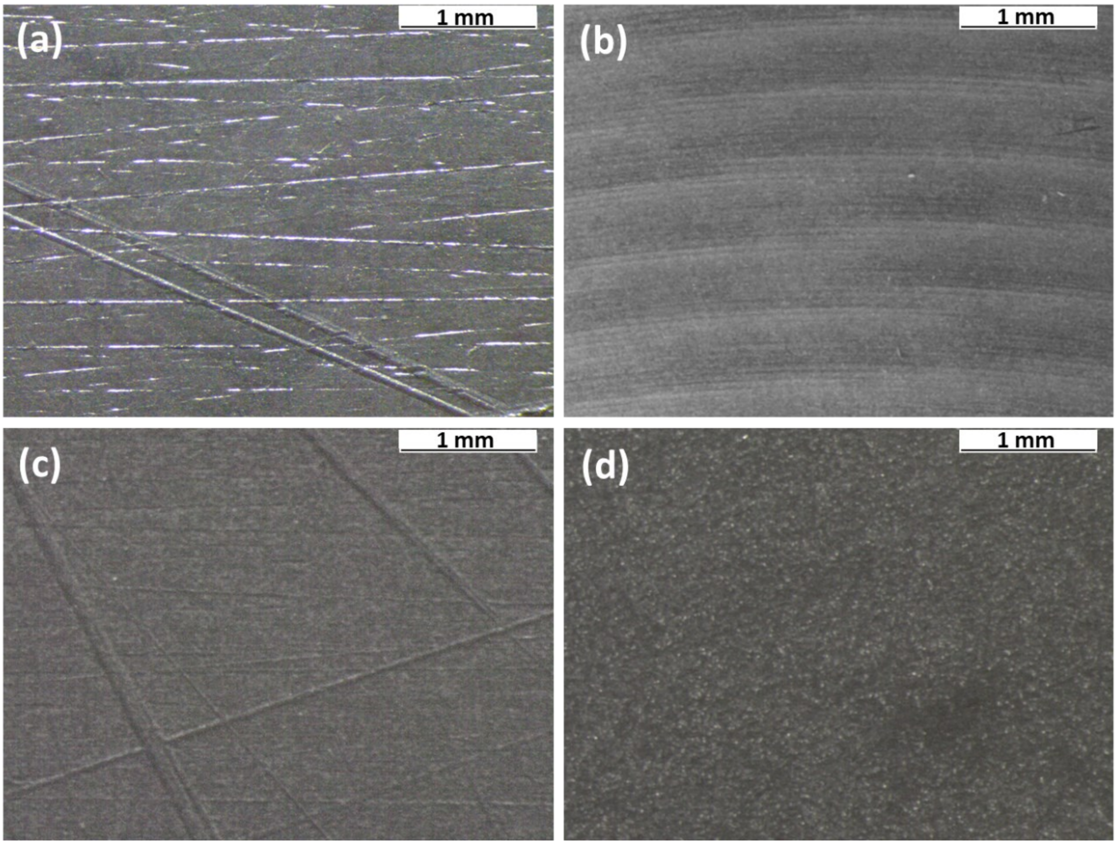

Fig. S-2. Surfaces of the plates in the (a,c) as-diecast and (b,d) milled conditions as they appear (a,b) before and (c,d) after the anodizing process. The sealing processes did not alter the surface appearance of the plates, thus Figs. (c,d) are also representative of the surfaces after both the sealing processes.

Figure S-3

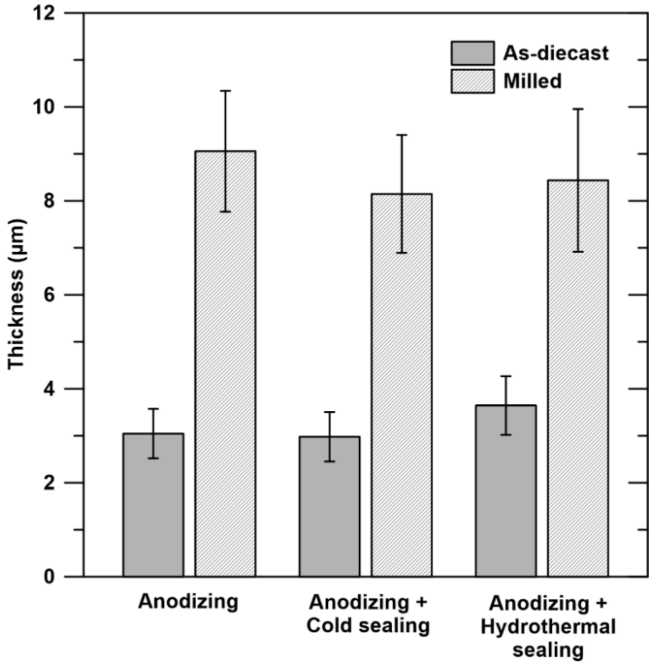

Fig. S-3. Evolution of the anodic thickness after the anodizing and sealing processes in the as-diecast and milled substrates.

Figure S-4

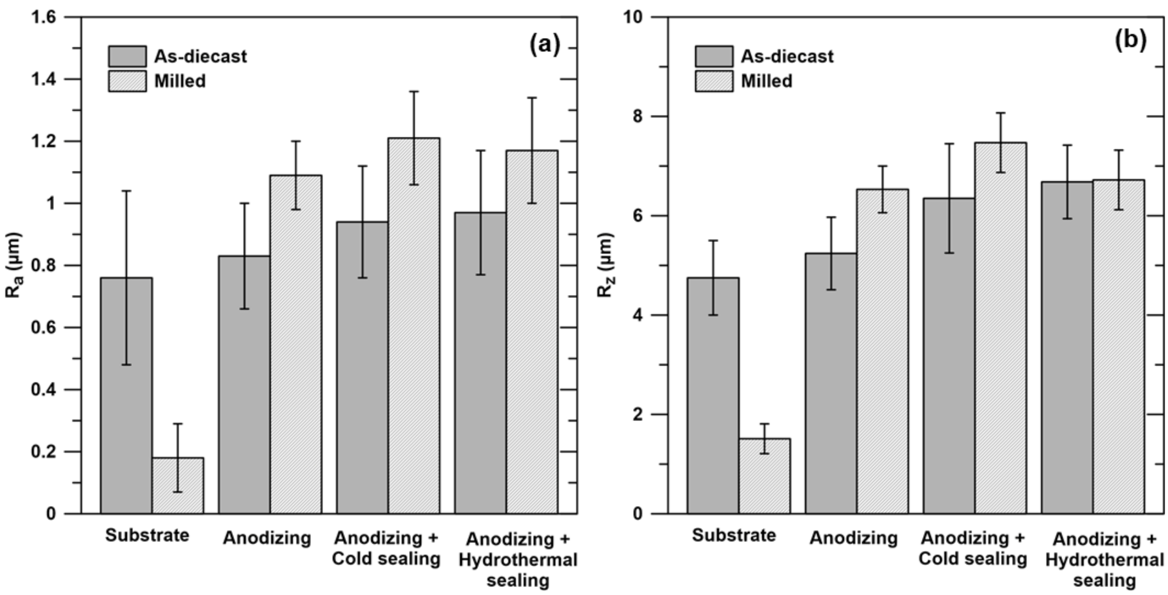

Fig. S-4. Evolution of the surface roughness during the anodizing and sealing processes: (a) Ra and (b) Rz parameters.

Figure S-5

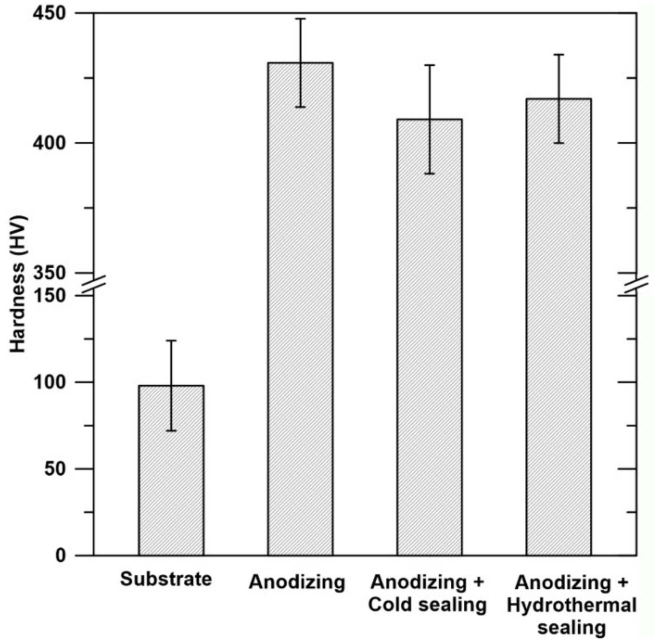

Fig. S-5. Variation of the surface microhardness ($HV_{0.05}$) after the anodizing and the different sealing processes. The results refer to the milled AlSi9Cu3(Fe) alloy substrate.