Supplementary Information

1. Effect of Non-Metallic Inclusions on the Mechanical Performance

Figure S1 shows the optical micrographs of the B360, B1400 and CrB steels in non-etched condition. It was observed that all the steels do not have any visible inclusions at a magnification of 250× in the optical microscope. Thus, it can be concluded that the effect of non-metallic inclusions on the mechanical performance of different bainitic steels would either be similar or would not be affected significantly.

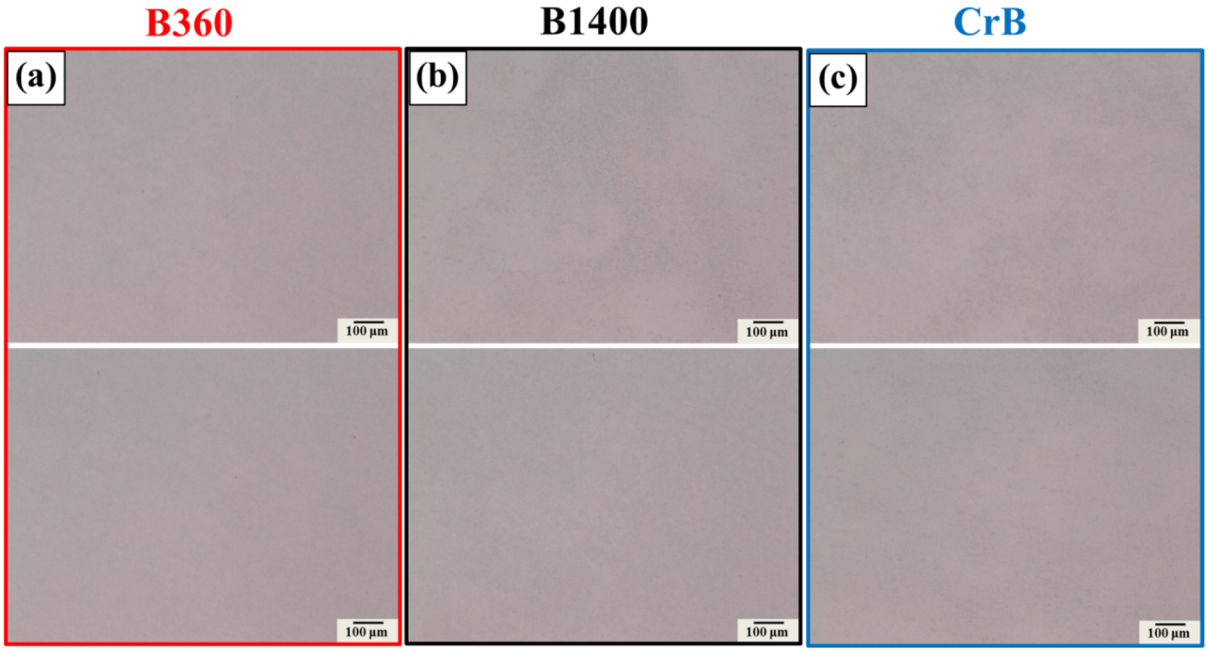

Figure S1. Optical Micrographs of different steels in non-etched condition (**a**) B360, (**b**) B1400, (**c**) CrB.

2. Measurement of Prior Austenite Grain Size (PAGS)

The bainitic transformation in different steels is affected by the PAGS and the chemical composition of the steels. Thus it is essential to reconstruct the prior austenite grains (PAGs) to see if there were any significant differences in the PAGS. Figure S2 shows the PAGs of the heat-treated microstructures which were reconstructed using ARPGE 2.4 software from the EBSD maps which were presented in Figure. 9 (in the original manuscript). We considered N-W orientation relationships for the reconstruction. Then the PAGS was calculated using TSL OIM Analysis 7 ×64 software (AMETEK BV, Tilburg, the Netherlands) and shown in Table S1. The PAGS is the largest for B360-HT and the smallest for CrB-HT (Table S1). However, this difference in PAGS is not significant and does not exceed 8%. We believe that the difference in bainitic lath sizes in the heat-treated steels would not be affected by such small difference in PAGS. But, this difference in packet size in Tables 4 and 5 (in the manuscript), is primarily due to the difference in the chemical composition of the steels.

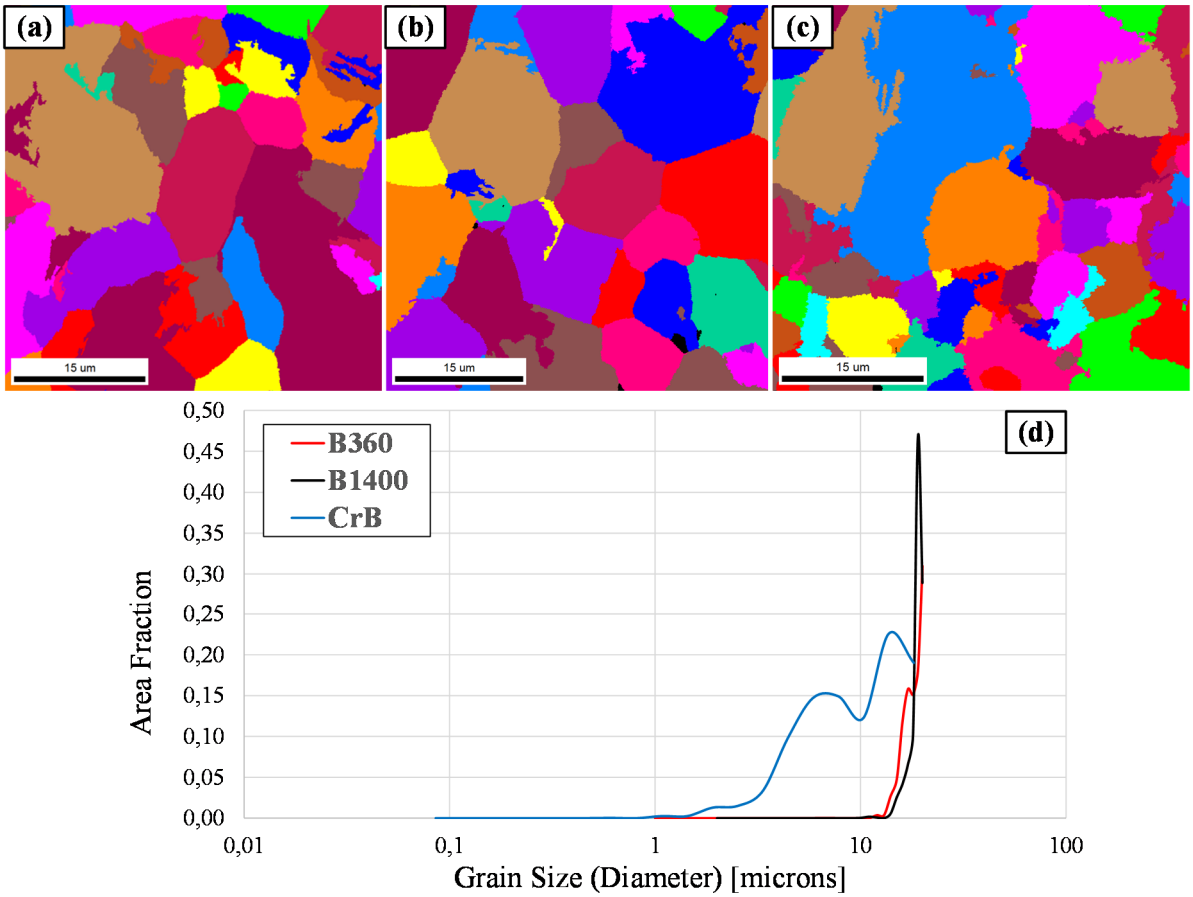

Figure S2. (**a**) Grain map showing the PAGs for B360-HT, (**b**) PAGs for B1400-HT, (**c**) PAGs for CrB-HT, (**d**) the grain size distribution for all steels.

Table S1. PAGS for heat treated steels.

Steels	PAGS (Average diameter)
B360-HT	12.1 ± 6.0
B1400-HT	11.6 ± 3.8
CrB-HT	10.8 ± 6.1