

Table S1 : Variant classification used in the present study following the convention of Morito et al. The lattice invariant shear systems as well as the habit planes are given with reference to the austenite. Misorientation axis from V_1 are given with reference to the BCC phase. The predicted habit plane which is calculated to be $\{0.1851\ 0.7827\ 0.5942\}_\gamma$ is approximated as $\{3\ 15\ 10\}_\gamma$.

Variant	Plate group	LIS	Habit plane variant	Misorientation from V_1
V_1	PG1 (011) $_\gamma$	(101)[10-1]	(-3 -15 -10)	--
V_{16}		(10-1)[101]	(-3 15 10)	15.23° [0.09 -0.09 -0.3]
V_6		(110)[-110]	(3 10 15)	56.65° [0 0.38 0.38]
V_{17}		(-110)[110]	(3 -10 -15)	51.38° [-0.3 0.21 -0.3]
V_{19}	PG2 (0-11) $_\gamma$	(110)[-110]	(3 10 -15)	53.1° [-0.11 0.36 0.36]
V_9		(-110)[110]	(3 -10 15)	53.1° [-0.33 0.11 -0.36]
V_{24}		(10-1)[101]	(3 15 -10)	19.35° [0.17 -0.02 0]
V_8		(101)[10-1]	(3 -15 10)	12.63° [0.08 0.08 -0.02]
V_2	PG3 (110) $_\gamma$	(101)[10-1]	(10 15 3)	60.4° [-0.31 -0.3 0.4]
V_{23}		(10-1)[101]	(10 15 -3)	54.54° [-0.12 -0.34 -0.36]
V_3		(011)[01-1]	(15 10 3)	59.9° [0.28 -0.41 0.28]
V_{22}		(0-11)[011]	(-15 -10 3)	51.27° [-0.11 0.33 0.33]
V_{15}	PG4 (1-10) $_\gamma$	(10-1)[101]	(10 -15 -3)	54.54° [-0.36 -0.12 0.34]
V_7		(101)[10-1]	(10 -15 3)	49.03° [-0.28 -0.22 0.28]
V_{14}		(011)[01-1]	(-15 10 3)	50.24° [-0.27 0.22 -0.31]
V_{12}		(0-11)[011]	(15 -10 3)	56.32° [-0.36 0.11 -0.38]
V_4	PG5 (101) $_\gamma$	(011)[01-1]	(15 3 10)	3.51° [0 -0.014 -0.027]
V_{11}		(0-11)[011]	(15 -3 10)	13.68° [0.093 0.075 0.007]
V_5		(110)[-110]	(10 3 15)	59.93° [-0.28 -0.28 0.41]
V_{10}		(-110)[110]	(10 -3 15)	50.24° [-0.31 -0.22 0.27]
V_{21}	PG6 (10-1) $_\gamma$	(0-11)[011]	(-15 -3 10)	19.49° [0.17 0 -0.025]
V_{13}		(011)[01-1]	(-15 3 10)	13.68° [0.074 -0.093 -0.007]
V_{20}		(110)[-110]	(10 3 -15)	56.32° [-0.11 -0.38 -0.36]
V_{18}		(-110)[110]	(10 -3 -15)	51.27° [-0.33 -0.11 0.33]

Figure S1.

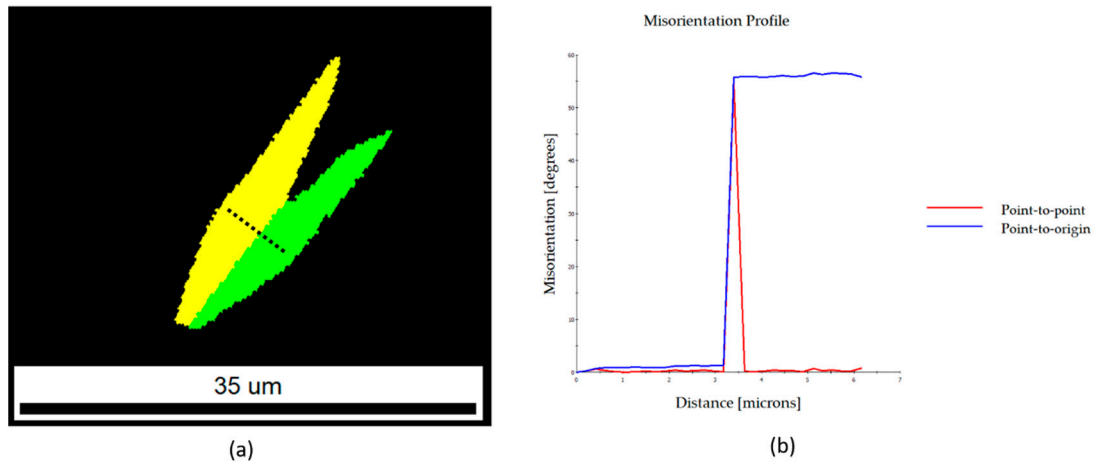


Figure S1. a) EBSD variant map showing the variant pair V_7/V_{12} . b) misorientation profile along the dotted line in Figure S1a. Both the point-to-point and the point-to-origin profiles show a steep increase when crossing the junction plane.

Figure S2.

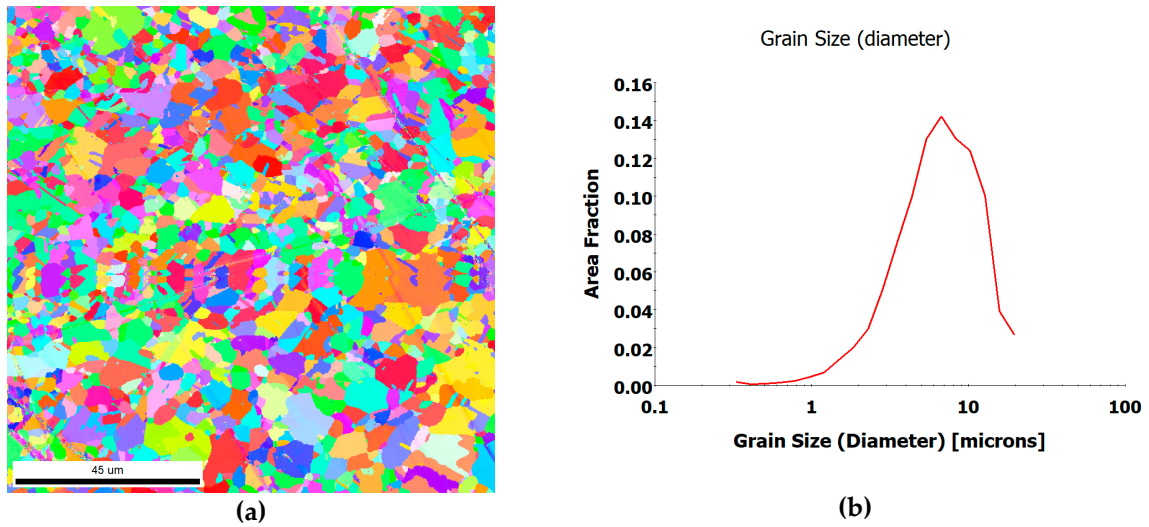


Figure S2. a) EBSD IPF of the FG sample before transformation and b) corresponding grain size distribution.