

Table S1 Co-N-C@MA-900 catalyst Co, N and C elemental mass and atomic ratio.

Element	Wt %	Atomic %
Co	5.60	1.20
N	1.65	1.49
C	92.75	97.31
Total:	100.00	100.00

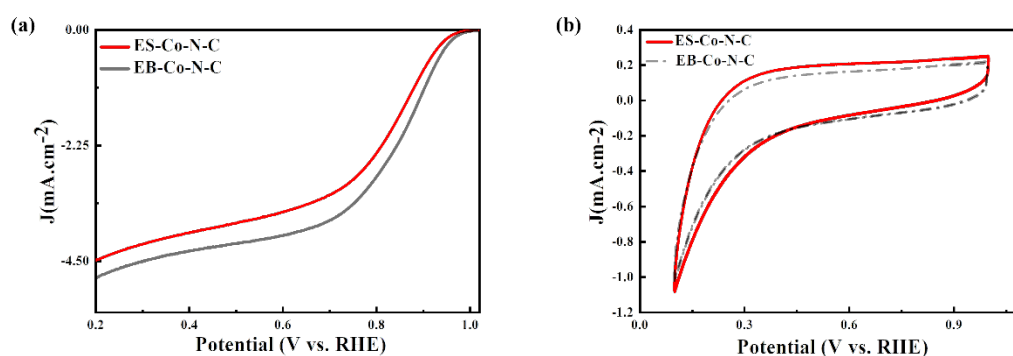


Fig. S1 LSV curve of ES/EB-Co-N-C in $0.1 \text{ mol}\cdot\text{L}^{-1}$ KOH saturated O_2 solution at 1600 rpm (a); CV curve of ES/EB-Co-N-C in $0.1 \text{ mol}\cdot\text{L}^{-1}$ KOH saturated N_2 solution (b).

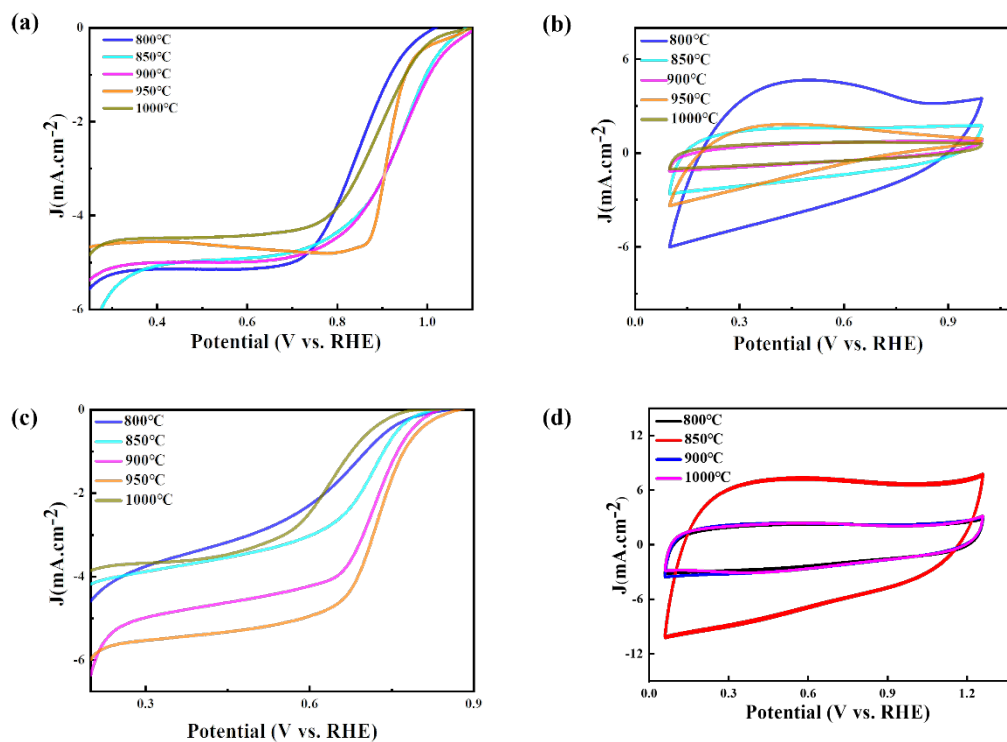


Fig. S2 In $0.1 \text{ mol}\cdot\text{L}^{-1}$ KOH solution, ORR curves (a); CV curves (b); in $0.1 \text{ mol}\cdot\text{L}^{-1}$ HClO_4 solution,

ORR curves (c); CV curves (d)

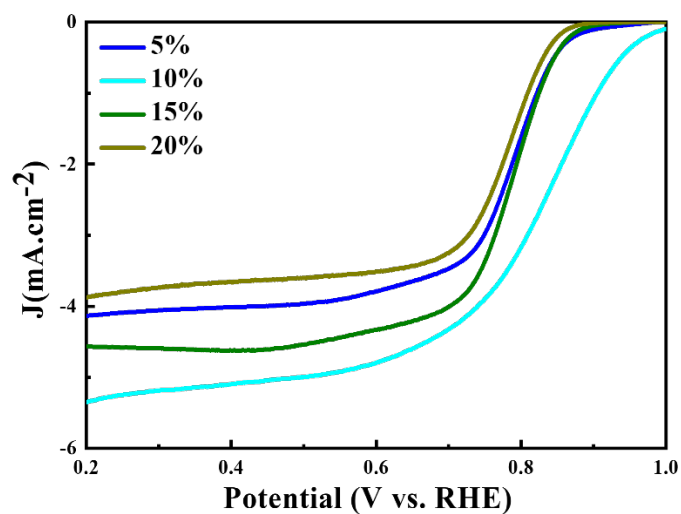


Fig. S3 ORR curves for the synthesis of Co-N-C@MA-900 in O₂ saturated 0.1 mol·L⁻¹ KOH solution at 1600 rpm under different Co content conditions.

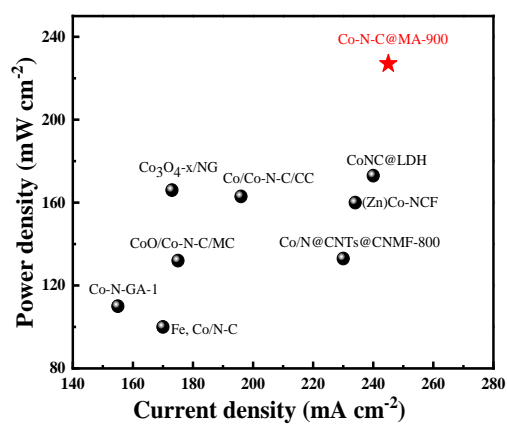


Fig. S4 Maximum power density of Co-N-C@MA-900 catalyst in zinc-air batteries compared to other similar work.