Electronic Supplementary Material (ESI) for RSC Advances.

Fig. S1 shows the evolution of friction coefficient as a function of sliding time for MoS_2/DLC multilayer coatings against steel ball without SLD condition. As shown in Fig. S1, the friction coefficients decreased first and increased afterward with bilayer period. And the MoS_2/DLC-4L coating with the lowest value of 0.02 can be selected as the optimum coating.

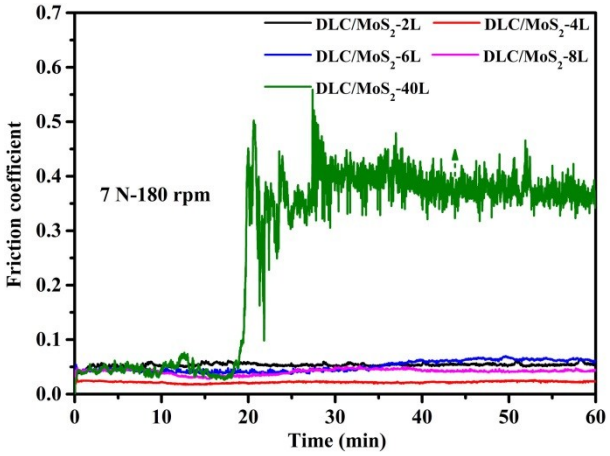

Fig. S1 Variation in friction coefficients of MoS_2/DLC multilayer coatings sliding against steel ball as a function of the sliding time under the applied load of 7 N in high vacuum without SLD.

Fig. S2 shows the wear rates of MoS_2/DLC-4L coating under different applied loads without SLD. As shown in Fig. S2, the wear rates increased gradually with the increasing of applied load.

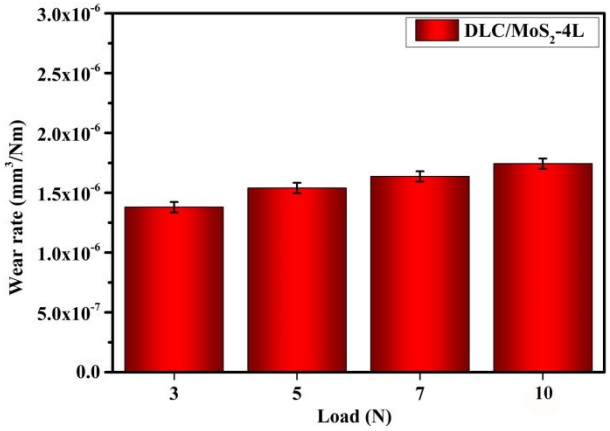

Fig. S2 Wear rates of MoS_2/DLC-4L coating sliding against steel ball without SLD under different applied load in high vacuum.