

ABSTRACT

METHOD, APPARATUS AND CONTROL DEVICE FOR MULTI-LOAD SELF-ADAPTIVE GRAVITY COMPENSATION OF MANIPULATOR

Disclosed is a method for the multi-load self-adaptive gravity compensation of a manipulator, the method comprising the following steps: S1.1, building a kinematics model for a manipulator; S1.2, reconstructing a gravity item of a dynamics model; S1.3, sampling in a no-load static position; S1.4, sampling in a static position after tools are installed; S1.5, respectively calculating the value of a parameter to be calibrated of each tool; S1.6, respectively calculating the mass and the centroid of each tool; S2.1, calculating a force which is applied to a flange by the tool which is currently installed; and S2.2, compensating for the gravity of the tool. By means of the method, operation steps are reduced, and the efficiency and the gravity compensation performance are improved.

Figure 1