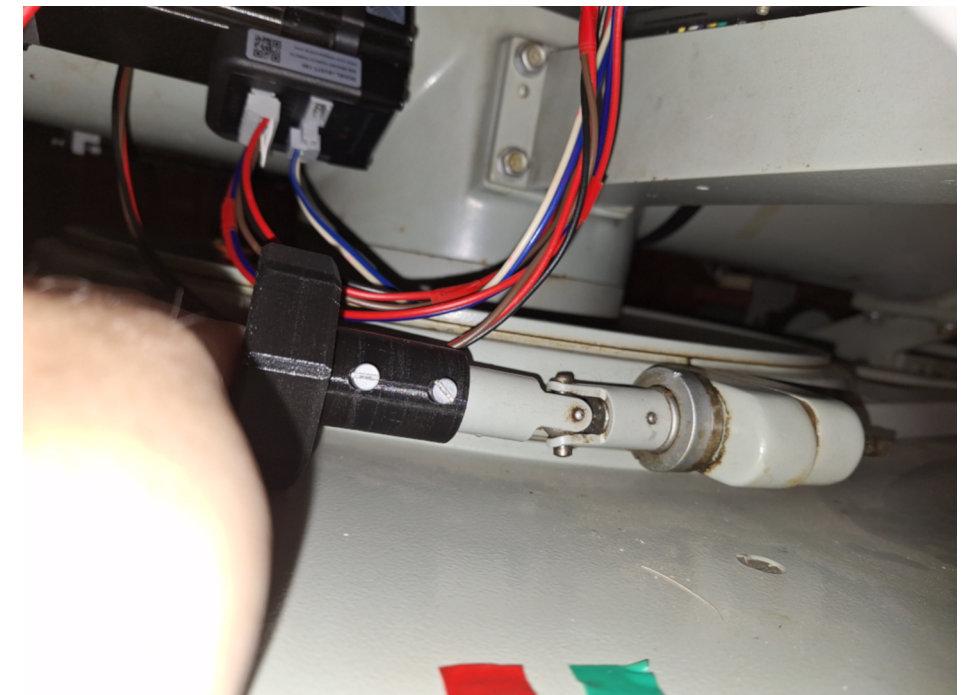


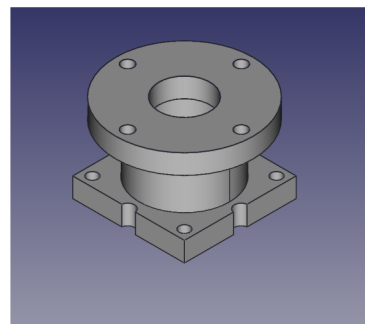
Detail of Nema23 motor with adapter mounted at sidereal drive input of telescope (RA/HA axis)



Detail of internal gearing output at RA/HA axis - locking off RA/HA axis - replaced with NEMA23 motor with installed gearbox reducer and 3D adapter (out of second picture - cables visible) with 3D printed knob for locking of RA/HA axis



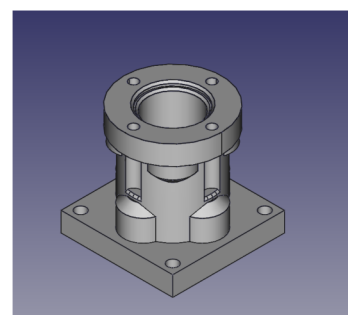
NEMA23 180W 36V DC servomotor used in this work



3D model of adapter between NEMA23 motor and sidereal drive input of telescope (RA/HA axis)



Planetary gearbox reducer 100:1 for NEMA23 sized motors



3D model of adapter between gearbox for NEMA23 sized motors and internal gearing for fine movement of RA/HA axis of telescope



Detail of NEMA23 motor with installed gearbox reducer and 3D adapter to internal gearing output at RA/HA axis for fine movements



Detail of mechanical short at place of manual controllers for RA/HA axis