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UAV Parameters

- Tubes - applies to all tube sizes
 - Length - defines length of tube.
 - BASE_ROT - rotates the coordinate system (CS) at the base.
 - END_ROT - rotates the CS at the end.
 - Offset1 - moves the offset1 CS along the length of the tube from 0 (base) to length (end).
 - Offset2 - moves the offset2 CS along the length of the tube from 0 (base) to length (end) .
- Flange - applies to all flange sizes
 - SIDE_ANGLE - rotates the side CS of the flange. Allows for the flange to be independently rotated if connected to the offset connectors on the tubes.
 - BOTTOM_ANGLE - rotates the bottom CS of the flange. Serves a similar purpose to the tube rotations, should probably not be used in conjunction to avoid unexpected double rotations.
- Connectors - all connectors
 - DIAMETER - this sets the diameter of all the holes for the connector, this should match the OD property of the tubes being used
 - ANGHORZCONN - this sets the angle between all of the side ports on the connector.
 - ANGVERTCONN - this sets the vertical angle of all the side ports on the connector.
- Capsule Fuselage
 - HORZ_DIAMETER - sets the external horizontal (width) dimensions of the elliptical cross section of the fuselage.
 - VERT_DIAMETER - sets the external vertical (height) dimenions of the elliptical cross section of the fuselage.
 - FUSE_CYL_LENGTH - sets the length of the elliptical extrusion that makes up the central portion of the fuselage, the ends are rotations of the profile, so the this is not the total overall length.
 - FLOOR_HEIGHT - sets the height of the floor within the fuselage, minimum of 3 (the thickness of the walls), maximum should be VERT_DIAMETER-3 but then you will not actually have space to place any components along the floor.
 - FLOOR_CONNECTOR_X_DISP_WIDTH - sets the position of the floor connector in the width/horz_diameter direction, should be between -HORZ_DIAMETER/2 and HORZ_DIAMETER/2. 0 is in the center of the fuselage.
 - FLOOR_CONNECTOR_X_DISP_LENGTH - sets the position of the floor connector in the length direction, should ge be between -(LENGTH+VERT_DIAMETER)/2 and (LENGTH+VERT_DIAMETER)/2. 0 is in the center of the fuselage.
- Wing_horiz_hole
 - CHORD_1 - sets the size of the chord on one end.
 - CHORD_2 - sets the size of the chord on the other end.
 - SPAN - sets the span (length) of this wing segment.
 - TAPER_OFFSET - this changes which edge (leading or trailing) has the taper applied. 0 applies the taper to the trailing edge, 1 applies the taper to the leading edge. Values between 0 and 1 will distribute the taper accordingly.
 - THICKNESS - Not the real thickness, this value is the final 2 digits of the NACA profile value that sets the thickness as a percentage of the chord. A thickness of 12 and a chord length of 200 would have an actual max thickness of 24.
 - NACA_Profile - This does not change anything within the CAD model, but the final 2 digits need to be the same as your THICKNESS parameter.
 - TUBE_DIAMETER - the diameter of the hole, should match the tube you are using.
 - TUBE_OFFSET - for this wing this parameter does not do anything as the hole is locked to extend through the entire wing span at the quarter-chord.
 - TUBE_ROTATION - rotates the mounting CS about the axis of the mounting hole.
 - LOAD - this is the expected load in Newtons that you want the wing to be able to withstand. This adjusts the weight of the wing. If this load value is exceeded during flight testing, it is assumed the wing has snapped and the flight failed.
 - CONTROL_CHANNEL - No physical impact.
 - -1 designates an auto-assigned channel.
 - 0 designates an UNCONTROLLED channel.
 - Wing control channels come after motor channels and maintain continuity. Wings can share channels with other wings but continuity must be maintained.
- Wing_vert_hole
 - CHORD_1 - sets the size of the chord on one end.
 - CHORD_2 - sets the size of the chord on the other end.
 - SPAN - sets the span (length) of this wing segment.
 - TAPER_OFFSET - this changes which edge (leading or trailing) has the taper applied. 0 applies the taper to the trailing edge, 1 applies the taper to the leading edge. Values between 0 and 1 will distribute the taper accordingly.
 - THICKNESS - Not the real thickness, this value is the final 2 digits of the NACA profile value that sets the thickness as a percentage of the chord. A thickness of 12 and a chord length of 200 would have an actual max thickness of 24.
 - NACA_Profile - This does not change anything within the CAD model, but the final 2 digits need to be the same as your THICKNESS parameter.
 - TUBE_DIAMETER - the diameter of the hole, should match the tube you are using.
 - TUBE_OFFSET - This moves the mounting hole along the span. The front-to-back location is locked at the quarter-chord.
 - TUBE_ROTATION - rotates the mounting CS about the axis of the mounting hole.
 - LOAD - this is the expected load in Newtons that you want the wing to be able to withstand. This adjusts the weight of the wing. If this load value is exceeded during flight testing, it is assumed the wing has snapped and the flight failed.
 - CONTROL_CHANNEL - No physical impact.
 - -1 designates an auto-assigned channel.
 - 0 designates an UNCONTROLLED channel.
 - Wing control channels come after motor channels and maintain continuity. Wings can share channels with other wings but continuity must be maintained.
- Cargo
 - WEIGHT - sets the mass of the cargo component, to reflect an unloaded run use 0.001. Less than that will cause an error with Creo.

- Batteries
 - ROTATION - rotates the bottom mounting CS.
- Sensors - all
 - ROTATION - rotates the bottom mounting CS.
- Propellers
 - Prop_type - pusher or puller prop
 - Direction - Clockwise or counter clockwise
 - Prop_type/Direction pairings
 - Upward and Forward:
 - 1/1 or -1/-1
 - Downward and back facing: (this assumes that you want a downward facing motor to give upward thrust and a back facing prop to give forward thrust)
 - -1/1 or 1/-1
- Motors
 - CONTROL_CHANNEL - No physical impact.
 - -1 designates an auto-assigned channel.
 - 0 designates an UNCONTROLLED channel.
 - Controls channels must be continuous but can be shared.
 - For example
 - [1,2,3,4] Good
 - [1,1,2,2] Good
 - [1,3,4,5] Bad

UAM Component Information

UAV Component Parameters

corpus

Corpus Instructions and Details