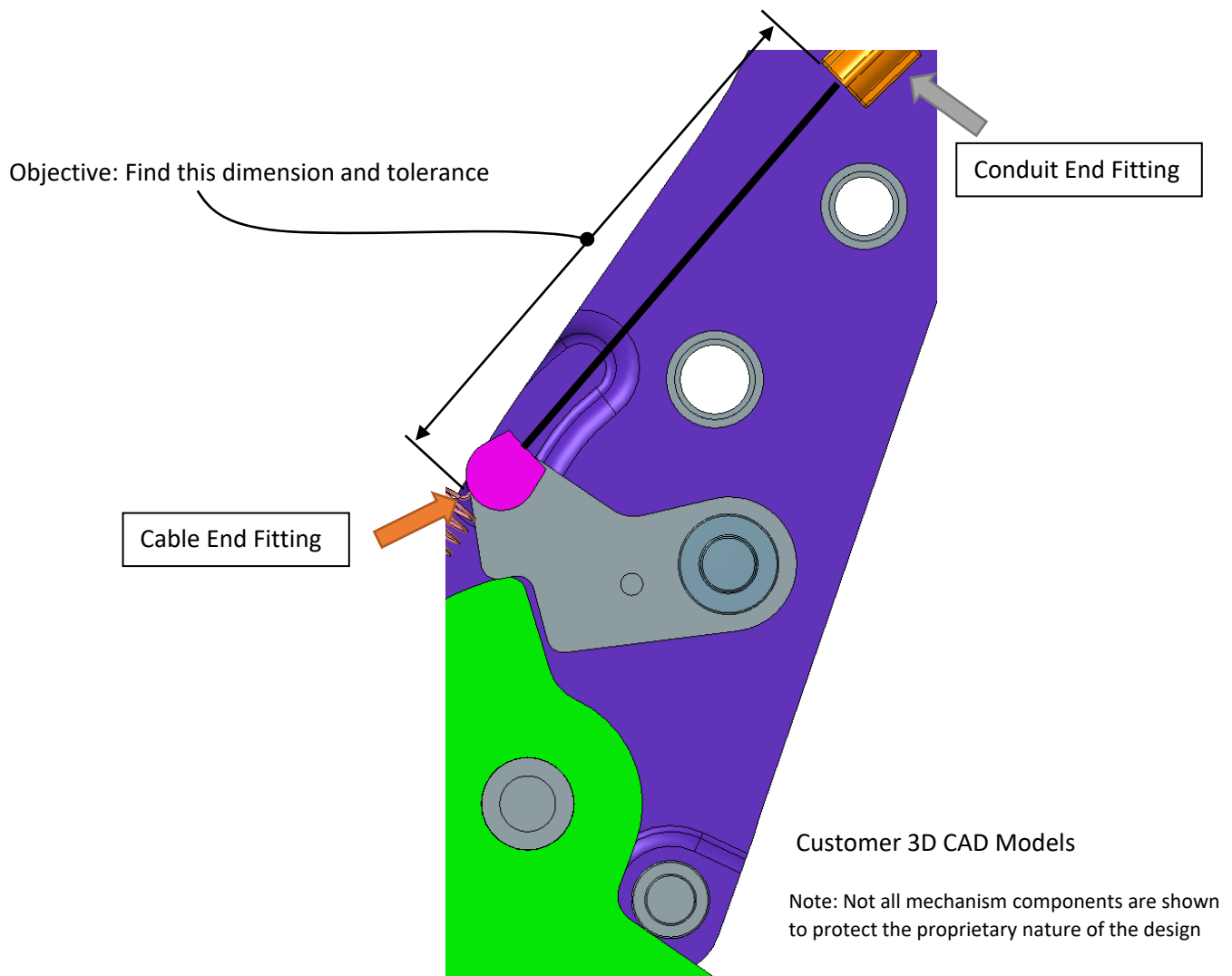


## Release Cable Gage Length – Eventive Analysis

- **Objective:**
  - Find the length and tolerance of the dimension between the Conduit End Fitting and the back side of the Strand End Fitting on the lock interface of a seat latch while accounting for 24 tolerance contributors
- **Constraints:**
  - Resulting length variation should target a CP of 1.67
  - Use component dimensions and tolerances as supplied by the customer

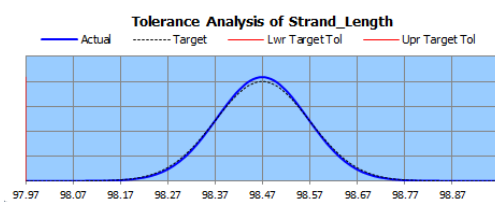


# Virtual Engineering, Inc.

Engineering Your Competitive Edge...

## Release Cable Gage Length – Enventive Analysis

- **Process:**
  - Converted 3D CAD to 2D parts in Enventive
  - Used customer drawings and tolerances to start...
  - Assembled Enventive parts into assembly with appropriate biasing at pins in consideration of how masses and springs interact with the components
  - Assumed a CP of 1 for all contributing dimensions to the stack
  - Iterated results: Tweaked tolerances of a few of the biggest contributors and refined GD&T to achieve objective
- **Results:**
  - Achieved CP of 1.67 for the dimension with 24 tolerance contributors in the study
  - Some of the component tolerances needed to change and that information was given to the customer along with revised GD&T for three parts



Time	Nominal	Mean	Sigma
11/11/2016 12:57	98.47103	98.47103	0.09558
<b>Target Cp</b>	1.67	n/a	Projected 2
<b>Upr Tol</b>	0.50000	1.26381	0.57348
<b>Lwr Tol</b>	-0.50000	-1.26381	-0.57348
<b>Val Max</b>	98.97103	99.73484	99.04451
<b>Val Min</b>	97.97103	97.20722	97.89755
<b>Fail Rate (ppm)</b>	0.168410371	n/a	0.001973175
<b>% in Tolerance</b>	99.99998%	n/a	100.00000%
<b>Actual Cpk</b>	1.744	4.407	n/a

98.471 +/- 0.50  
Meets CP 1.67

**Contributor Info (Construction contributors are shown in red)**

#	Model Name	Contributor Name	Value	Cp	Upr/Zone	Lower	Sensit.	% Contrib. ↓
1	lost_motion_clip_10	PositionConstraint1	0	1	0.25	n/a	1	14.459%
2	blocker_veng_7	PositionConstraint3	0	1	0.25	n/a	0.999704459	14.450%
3	latch_assembly_release_0	PointOnPolycurve4	0	1	0.2	n/a	1.03472888	13.022%
4	conduit_end_fitting_9	Dim6	7.5	1	0.1	-0.1	-1	12.162%
5	inner_plate_3	PositionConstraint4	0	1	0.2	n/a	1	9.254%
6	inner_plate_3	PositionConstraint3	0	1	0.2	n/a	0.910156618	7.666%
7	lost_motion_clip_10	Dim4	6.35000581	1	0.05	-0.05	1	3.041%
8	conduit_end_fitting_9	Dim3	8.9	1	0.1	-0.1	0.5	3.041%
9	lost_motion_clip_10	Dim3	2.499995	1	0.05	-0.05	-1	3.041%
10	inner_plate_3	Dim20	9.1000072	1	0.1	-0.1	-0.5	3.041%
11	blocker_veng_7	Dim10	16.2000184	1	0.1	-0.1	-0.449745494	2.460%
12	spring_pin_8	PositionConstraint2	0	1	0.1	n/a	1	2.313%
13	spring_pin_8	PositionConstraint3	0	1	0.1	n/a	0.999704459	2.312%
14	pivot_main_2	PositionConstraint2	0	1	0.1	n/a	0.945262248	2.067%
15	spring_pin_8	Dim11	4.68	1	0.08	-0.08	0.5	1.946%
16	pivot_lever_5	PositionConstraint3	0	1	0.1	n/a	0.910156618	1.916%
17	pivot_lever_5	Dim3	16	1	0.08	-0.08	0.449730825	1.574%
18	stop_plate_1	Dim8	16.65	1	0.1	-0.1	0.273776687	0.912%
19	pivot_main_2	Dim3	16.5	1	0.08	-0.08	-0.273776687	0.583%
20	stop_plate_1	PositionConstraint1	0	1	0.25	n/a	0.135826858	0.267%
21	latch_assembly_release_0	PointOnPolycurve1	0	1	0.2	n/a	0.135826858	0.224%
22	inner_plate_3	PositionConstraint2	0	1	0.2	n/a	0.135826887	0.171%
23	rivet_stop_4	PositionConstraint1	0	1	0.1	n/a	0.135826887	0.043%
24	rivet_stop_4	Dim3	14	1	0.08	-0.08	0.067913429	0.036%

