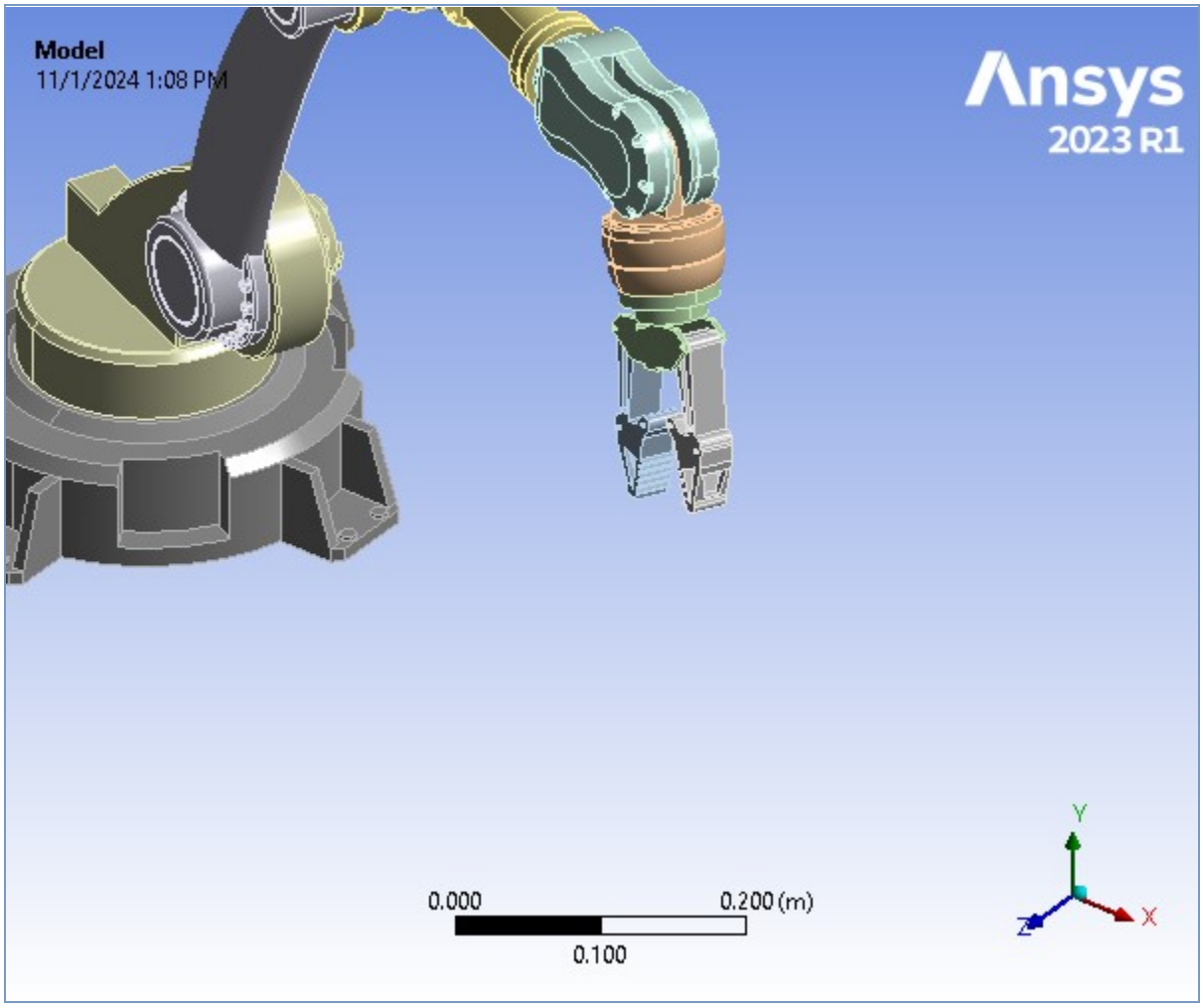
Project

First Saved	Thursday, May 18, 2023
Last Saved	Friday, May 19, 2023
Product Version	2023 R1
Save Project Before Solution	No
Save Project After Solution	No



Contents

Report Not Finalized

Not all objects described below are in a finalized state. As a result, data may be incomplete, obsolete or in error. View first state problem. To finalize this report, edit objects as needed and solve the analyses.

Units

TABLE 1

Unit System	Metric (m, kg, N, s, V, A) Degrees rad/s Celsius
Angle	Degrees
Rotational Velocity	rad/s
Temperature	Celsius

Model (A4)

TABLE 2
Model (A4) > Geometry Imports

Object Name	*Geometry Imports*
State	Solved

TABLE 3
Model (A4) > Geometry Imports > Geometry Import (A3)

Object Name	*Geometry Import (A3)*
State	Solved
Definition	
Source	D:\MSAL\pr 09_files\dp0\SYS\DM\SYS.agdb
Type	DesignModeler
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Advanced Geometry Options	
Compare Parts On Update	No
Analysis Type	3-D

Geometry

TABLE 4
Model (A4) > Geometry

Object Name	*Geometry*
State	Fully Defined
Definition	
Source	D:\MSAL\pr 09_files\dp0\SYS\DM\SYS.agdb
Type	DesignModeler
Length Unit	Meters
Element Control	Program Controlled
Display Style	Body Color
Bounding Box	
Length X	0.91415 m
Length Y	0.65176 m
Length Z	0.50041 m
Properties	
Volume	1.1861e-002 m³
Mass	93.108 kg
Scale Factor Value	1.
Statistics	
Bodies	9
Active Bodies	9
Nodes	9
Elements	9
Mesh Metric	None
Update Options	
Assign Default Material	No
Basic Geometry Options	
Parameters	Independent
Parameter Key	
Attributes	Yes
Attribute Key	
Named Selections	Yes
Named Selection Key	
Material Properties	Yes
Advanced Geometry Options	
Use Associativity	Yes
Coordinate Systems	Yes
Coordinate System Key	

Reader Mode Saves Updated File	No
Use Instances	Yes
Smart CAD Update	Yes
Compare Parts On Update	No
Analysis Type	3-D
Import Facet Quality	Source
Clean Bodies On Import	No
Stitch Surfaces On Import	None
Decompose Disjoint Geometry	Yes
Enclosure and Symmetry Processing	Yes

TABLE 5
Model (A4) > Geometry > Parts

Object Name	*Part8*	*Part8*	*Par7*	*Part6*	*Part5*	*Part4*	*robotic arm part 3 (1)*	*Part2*	*Part1*
State	Meshed								
Graphics Properties									
Visible	Yes								
Transparency	1								
Definition									
Suppressed	No								
Stiffness Behavior	Rigid								
Reference Temperature	By Environment								
Treatment	None								
Material									
Assignment	Structural Steel								
Bounding Box									
Length X	5.1565e-002 m	5.342e-002 m	9.4398e-002 m	8.8437e-002 m	0.18674 m	0.30348 m	0.22006 m	0.29882 m	0.39047 m
Length Y	0.12859 m	0.12657 m	7.172e-002 m	0.12074 m	8.3783e-002 m	0.1325 m	0.41226 m	0.2285 m	0.102 m
Length Z	4.9433e-002 m	4.9218e-002 m	7.4429e-002 m	8.6853e-002 m	0.11354 m	0.1898 m	0.13188 m	0.19353 m	0.39047 m
Properties									
Volume	5.7915e-005 m³		8.1346e-005 m³	3.0022e-004 m³	6.0335e-004 m³	1.4838e-003 m³	1.053e-003 m³	2.7868e-003 m³	5.4366e-003 m³
Mass	0.45464 kg		0.63857 kg	2.3568 kg	4.7363 kg	11.648 kg	8.266 kg	21.876 kg	42.677 kg
Centroid X	0.79932 m	0.73418 m	0.75232 m	0.73887 m	0.6779 m	0.4284 m	0.27723 m	0.15394 m	0.10564 m
Centroid Y	0.67725 m	0.65242 m	0.73677 m	0.7835 m	0.84037 m	0.83474 m	0.61629 m	0.40043 m	0.2714 m
Centroid Z	0.54688 m	0.52566 m	0.5208 m	0.51025 m	0.47973 m	0.37502 m	0.3785 m	0.28283 m	0.26598 m
Moment of Inertia Ip1	5.5408e-004 kg·m²	5.5409e-004 kg·m²	2.9509e-004 kg·m²	2.1487e-003 kg·m²	3.6801e-003 kg·m²	1.5144e-002 kg·m²	0.14678 kg·m²	5.075e-002 kg·m²	0.2619 kg·m²
Moment of Inertia Ip2	5.9999e-005 kg·m²		3.6323e-004 kg·m²	1.7014e-003 kg·m²	1.1871e-002 kg·m²	6.9886e-002 kg·m²	5.4255e-003 kg·m²	0.21079 kg·m²	0.47781 kg·m²
Moment of	5.6383e-004 kg·m²		3.2743e-004	2.1688e-003	1.1834e-002	7.3425e-002	0.1499	0.2159	0.26184

Inertia Ip3		kg·m²	kg·m²	kg·m²	kg·m²	kg·m²	kg·m²	kg·m²
Statistics								
Nodes	1							
Elements	1							
Mesh Metric	None							

TABLE 6
Model (A4) > Materials

Object Name	*Materials*
State	Fully Defined
Statistics	
Materials	1
Material Assignments	0

Coordinate Systems

TABLE 7
Model (A4) > Coordinate Systems > Coordinate System

Object Name	*Global Coordinate System*
State	Fully Defined
Definition	
Type	Cartesian
Coordinate System ID	0.
Origin	
Origin X	0. m
Origin Y	0. m
Origin Z	0. m
Directional Vectors	
X Axis Data	[1. 0. 0.]
Y Axis Data	[0. 1. 0.]
Z Axis Data	[0. 0. 1.]

Connections

TABLE 8
Model (A4) > Connections

Object Name	*Connections*
State	Fully Defined
Auto Detection	
Generate Automatic Connection On Refresh	Yes
Transparency	
Enabled	Yes
Statistics	
Contacts	8
Active Contacts	0
Joints	9
Active Joints	9
Beams	0
Active Beams	0
Bearings	0
Active Bearings	0
Springs	0

Active Springs	0
Body Interactions	0
Active Body Interactions	0

TABLE 9
Model (A4) > Connections > Contacts

Object Name	*Contacts*	*Joints*
State	Suppressed	Fully Defined
Definition		
Connection Type	Contact	Joint
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Auto Detection		
Tolerance Type	Slider	
Tolerance Slider	0.	
Tolerance Value	3.0729e-003 m	
Use Range	No	
Face/Face	Yes	
Face-Face Angle Tolerance	75. °	
Face Overlap Tolerance	Off	
Cylindrical Faces	Include	
Face/Edge	No	
Priority	Include All	
Group By	Bodies	
Search Across	Bodies	Parts
Statistics		
Connections	8	9
Active Connections	0	9

TABLE 10
Model (A4) > Connections > Contacts > Contact Regions

Object Name	*Contact Region*	*Contact Region 2*	*Contact Region 3*	*Contact Region 4*	*Contact Region 5*	*Contact Region 6*	*Contact Region 7*	*Contact Region 8*
State	Suppressed							
Scope								
Scoping Method	Geometry Selection							
Contact	4 Faces			9 Faces	3 Faces	5 Faces	4 Faces	
Target	7 Faces		4 Faces	12 Faces	3 Faces	4 Faces	6 Faces	4 Faces
Contact Bodies	Part8		Par7	Part6	Part5	Part4	robotic arm part 3 (1)	Part2
Target Bodies	Par7		Part6	Part5	Part4	robotic arm part 3 (1)	Part2	Part1
Protected	No							
Definition								
Type	Bonded							
Scope Mode	Automatic							
Behavior	Program Controlled							
Trim Contact	Program Controlled							
Trim Tolerance	3.0729e-003 m							
Suppressed	Yes							

Display	
Element Normals	No
Advanced	
Formulation	Program Controlled
Small Sliding	Program Controlled
Detection Method	Program Controlled
Elastic Slip Tolerance	Program Controlled
Normal Stiffness	Program Controlled
Update Stiffness	Program Controlled
Pinball Region	Program Controlled

TABLE 11
Model (A4) > Connections > Joints > Joints

Object Name	*Fixed - Ground To Part1*	*Revolute - Part1 To Part2*	*Revolute - Part2 To robotic arm part 3 (1)*	*Revolute - robotic arm part 3 (1) To Part4*	*Revolute - Part4 To Part5*	*Revolute - Part5 To Part6*	*Revolute - Part6 To Par7*	*Revolute - Par7 To Part8*	*Revolute - Par7 To Part8*
State	License Conflict								
Definition									
Connection Type	Body-Ground	Body-Body							
Type	Fixed	Revolute							
Solver Element Type	Program Controlled								
Element APDL Name									
Suppressed	No								
Torsional Stiffness		0. N·m/°							
Torsional Damping		0. N·m·s/°							
Reference									
Coordinate System	Reference Coordinate System								
Behavior	Rigid								
Formulation	MPC								
Relaxation Method	No								
Scoping Method		Geometry Selection							
Applied By		Remote Attachment							
Scope		2 Faces				4 Faces	2 Faces	4 Faces	
Body		Part1	Part2	robotic arm part 3 (1)	Part4	Part5	Part6	Par7	
Pinball									

Region		All						
Mobile								
Scoping Method	Geometry Selection							
Applied By	Remote Attachment							
Scope	1 Face	2 Faces				4 Faces	2 Faces	
Body	Part1	Part2	robotic arm part 3 (1)	Part4	Part5	Part6	Par7	Part8
Initial Position	Unchanged							
Behavior	Rigid							
Formulation	MPC							
Relaxation Method	No							
Pinball Region	All							
Stops								
RZ Min Type		None						
RZ Max Type		None						

Mesh

TABLE 12
Model (A4) > Mesh

Object Name	*Mesh*
State	Solved
Display	
Display Style	Use Geometry Setting
Defaults	
Physics Preference	Mechanical
Solver Preference	Mechanical APDL
Element Order	Program Controlled
Element Size	Default
Sizing	
Use Adaptive Sizing	Yes
Resolution	Default (2)
Mesh Defeaturing	Yes
Defeature Size	Default
Transition	Fast
Span Angle Center	Coarse
Initial Size Seed	Assembly
Bounding Box Diagonal	1.2292 m
Average Surface Area	7.3525e-004 m²
Minimum Edge Length	5.5578e-006 m
Quality	
Check Mesh Quality	Mesh Quality Worksheet
Error Limits	Aggressive Mechanical
Target Element Quality	Default (5.e-002)
Smoothing	Medium
Mesh Metric	None

Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
Transition Ratio	0.272
Maximum Layers	5
Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Straight Sided Elements	No
Rigid Body Behavior	Dimensionally Reduced
Rigid Face Mesh Type	Quad/Tri
Triangle Surface Mesher	Program Controlled
Topology Checking	Yes
Pinch Tolerance	Please Define
Generate Pinch on Refresh	No
Statistics	
Nodes	9
Elements	9
Show Detailed Statistics	No

Transient (A5)

TABLE 13
Model (A4) > Analysis

Object Name	*Transient (A5)*
State	License Conflict
Definition	
Physics Type	Structural
Analysis Type	Transient
Solver Target	Mechanical APDL
Options	
Environment Temperature	22. °C
Generate Input Only	No

TABLE 14
Model (A4) > Transient (A5) > Initial Conditions

Object Name	*Initial Conditions*
State	Fully Defined

TABLE 15
Model (A4) > Transient (A5) > Initial Conditions > Initial Condition

Object Name	*Modal (None)*
State	License Conflict
Definition	
Modal Environment	None Available
Pre-Stress Environment	None

TABLE 16
Model (A4) > Transient (A5) > Analysis Settings

Object Name	*Analysis Settings*

State	License Conflict
Step Controls	
Number Of Steps	480.
Current Step Number	1.
Step End Time	1. s
Auto Time Stepping	Off
Define By	Time
Time Step	1. s
Time Integration	On
Solver Controls	
Solver Type	Program Controlled
Weak Springs	Off
Large Deflection	On
App. Based Settings	Moderate Speed Dynamics
Restart Controls	
Generate Restart Points	Program Controlled
Retain Files After Full Solve	No
Combine Restart Files	Program Controlled
Nonlinear Controls	
Newton-Raphson Option	Program Controlled
Force Convergence	Program Controlled
Moment Convergence	Program Controlled
Displacement Convergence	Program Controlled
Rotation Convergence	Program Controlled
Line Search	Program Controlled
Advanced	
Contact Split (DMP)	Off
Output Controls	
Stress	Yes
Back Stress	No
Strain	Yes
Contact Data	Yes
Nonlinear Data	No
Nodal Forces	No
Volume and Energy	Yes
Euler Angles	Yes
General Miscellaneous	No
Contact Miscellaneous	No
Store Results At	All Time Points
Result File Compression	Program Controlled
Analysis Data Management	
Solver Files Directory	D:\MSAL\pr 09_files\dp0\SYS\MECH\
Future Analysis	None
Scratch Solver Files Directory	
Save MAPDL db	No
Contact Summary	Program Controlled
Delete Unneeded Files	Yes
Nonlinear Solution	Yes
Solver Units	Active System
Solver Unit System	mks

TABLE 17
Model (A4) > Transient (A5) > Joint Condition

Object Name	*Joint - Rotation*	*Joint - Rotation*	*Joint - Rotation*	*Joint - Rotation*	*Joint - Rotation*	*Joint - Rotation*	*Joint - Rotation*	*Joint - Rotation*
State	License Conflict							
Scope								
Joint	Revolute - Part1 To Part2	Revolute - Part2 To robotic arm part 3 (1)	Revolute - robotic arm part 3 (1) To Part4	Revolute - Part4 To Part5	Revolute - Part5 To Part6	Revolute - Part6 To Par7	Revolute - Par7 To Part8	
Definition								
DOF	Rotation Z							
Type	Rotation							
Magnitude	Tabular Data							
Lock at Load Step	Never							
Suppressed	No							

FIGURE 1
Model (A4) > Transient (A5) > Joint - Rotation

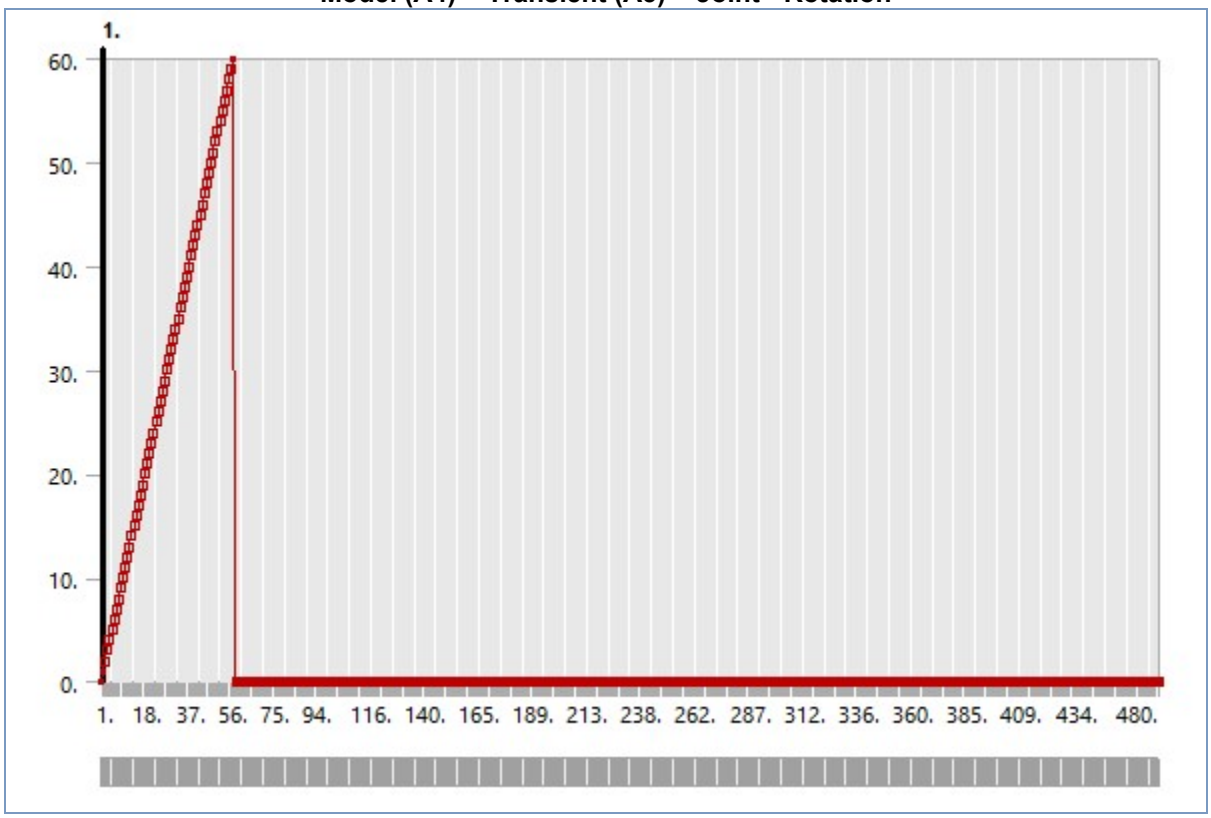


TABLE 18
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	0.
	1.	1.
2	2.	= 2.
3	3.	= 3.
4	4.	= 4.
5	5.	= 5.
6	6.	= 6.
7	7.	= 7.

8	8.	= 8.
9	9.	= 9.
10	10.	= 10.
11	11.	= 11.
12	12.	= 12.
13	13.	= 13.
14	14.	= 14.
15	15.	= 15.
16	16.	= 16.
17	17.	= 17.
18	18.	= 18.
19	19.	= 19.
20	20.	= 20.
21	21.	= 21.
22	22.	= 22.
23	23.	= 23.
24	24.	= 24.
25	25.	= 25.
26	26.	= 26.
27	27.	= 27.
28	28.	= 28.
29	29.	= 29.
30	30.	= 30.
31	31.	= 31.
32	32.	= 32.
33	33.	= 33.
34	34.	= 34.
35	35.	= 35.
36	36.	= 36.
37	37.	= 37.
38	38.	= 38.
39	39.	= 39.
40	40.	= 40.
41	41.	= 41.
42	42.	= 42.
43	43.	= 43.
44	44.	= 44.
45	45.	= 45.
46	46.	= 46.
47	47.	= 47.
48	48.	= 48.
49	49.	= 49.
50	50.	= 50.
51	51.	= 51.
52	52.	= 52.
53	53.	= 53.
54	54.	= 54.
55	55.	= 55.
56	56.	= 56.
57	57.	= 57.
58	58.	= 58.
59	59.	= 59.
60		

	60.	60.
61	61.	0.
62	62.	
63	63.	
64	64.	
65	65.	
66	66.	
67	67.	
68	68.	
69	69.	
70	70.	
71	71.	
72	72.	
73	73.	
74	74.	
75	75.	
76	76.	
77	77.	
78	78.	
79	79.	
80	80.	
81	81.	
82	82.	
83	83.	
84	84.	
85	85.	
86	86.	
87	87.	
88	88.	
89	89.	
90	90.	
91	91.	
92	92.	
93	93.	
94	94.	
95	95.	
96	96.	
97	97.	
98	98.	
99	99.	
100	100.	
101	101.	
102	102.	
103	103.	
104	104.	
105	105.	
106	106.	
107	107.	
108	108.	
109	109.	
110	110.	
111	111.	
112		

	112.
113	113.
114	114.
115	115.
116	116.
117	117.
118	118.
119	119.
120	120.
121	121.
122	122.
123	123.
124	124.
125	125.
126	126.
127	127.
128	128.
129	129.
130	130.
131	131.
132	132.
133	133.
134	134.
135	135.
136	136.
137	137.
138	138.
139	139.
140	140.
141	141.
142	142.
143	143.
144	144.
145	145.
146	146.
147	147.
148	148.
149	149.
150	150.
151	151.
152	152.
153	153.
154	154.
155	155.
156	156.
157	157.
158	158.
159	159.
160	160.
161	161.
162	162.
163	163.
164	

	164.
165	165.
166	166.
167	167.
168	168.
169	169.
170	170.
171	171.
172	172.
173	173.
174	174.
175	175.
176	176.
177	177.
178	178.
179	179.
180	180.
181	181.
182	182.
183	183.
184	184.
185	185.
186	186.
187	187.
188	188.
189	189.
190	190.
191	191.
192	192.
193	193.
194	194.
195	195.
196	196.
197	197.
198	198.
199	199.
200	200.
201	201.
202	202.
203	203.
204	204.
205	205.
206	206.
207	207.
208	208.
209	209.
210	210.
211	211.
212	212.
213	213.
214	214.
215	215.
216	

	216.
217	217.
218	218.
219	219.
220	220.
221	221.
222	222.
223	223.
224	224.
225	225.
226	226.
227	227.
228	228.
229	229.
230	230.
231	231.
232	232.
233	233.
234	234.
235	235.
236	236.
237	237.
238	238.
239	239.
240	240.
241	241.
242	242.
243	243.
244	244.
245	245.
246	246.
247	247.
248	248.
249	249.
250	250.
251	251.
252	252.
253	253.
254	254.
255	255.
256	256.
257	257.
258	258.
259	259.
260	260.
261	261.
262	262.
263	263.
264	264.
265	265.
266	266.
267	267.
268	

	268.
269	269.
270	270.
271	271.
272	272.
273	273.
274	274.
275	275.
276	276.
277	277.
278	278.
279	279.
280	280.
281	281.
282	282.
283	283.
284	284.
285	285.
286	286.
287	287.
288	288.
289	289.
290	290.
291	291.
292	292.
293	293.
294	294.
295	295.
296	296.
297	297.
298	298.
299	299.
300	300.
301	301.
302	302.
303	303.
304	304.
305	305.
306	306.
307	307.
308	308.
309	309.
310	310.
311	311.
312	312.
313	313.
314	314.
315	315.
316	316.
317	317.
318	318.
319	319.
320	

	320.
321	321.
322	322.
323	323.
324	324.
325	325.
326	326.
327	327.
328	328.
329	329.
330	330.
331	331.
332	332.
333	333.
334	334.
335	335.
336	336.
337	337.
338	338.
339	339.
340	340.
341	341.
342	342.
343	343.
344	344.
345	345.
346	346.
347	347.
348	348.
349	349.
350	350.
351	351.
352	352.
353	353.
354	354.
355	355.
356	356.
357	357.
358	358.
359	359.
360	360.
361	361.
362	362.
363	363.
364	364.
365	365.
366	366.
367	367.
368	368.
369	369.
370	370.
371	371.
372	

	372.
373	373.
374	374.
375	375.
376	376.
377	377.
378	378.
379	379.
380	380.
381	381.
382	382.
383	383.
384	384.
385	385.
386	386.
387	387.
388	388.
389	389.
390	390.
391	391.
392	392.
393	393.
394	394.
395	395.
396	396.
397	397.
398	398.
399	399.
400	400.
401	401.
402	402.
403	403.
404	404.
405	405.
406	406.
407	407.
408	408.
409	409.
410	410.
411	411.
412	412.
413	413.
414	414.
415	415.
416	416.
417	417.
418	418.
419	419.
420	420.
421	421.
422	422.
423	423.
424	

	424.
425	425.
426	426.
427	427.
428	428.
429	429.
430	430.
431	431.
432	432.
433	433.
434	434.
435	435.
436	436.
437	437.
438	438.
439	439.
440	440.
441	441.
442	442.
443	443.
444	444.
445	445.
446	446.
447	447.
448	448.
449	449.
450	450.
451	451.
452	452.
453	453.
454	454.
455	455.
456	456.
457	457.
458	458.
459	459.
460	460.
461	461.
462	462.
463	463.
464	464.
465	465.
466	466.
467	467.
468	468.
469	469.
470	470.
471	471.
472	472.
473	473.
474	474.
475	475.
476	

	476.	
477	477.	
478	478.	= 0.
479	479.	
480	480.	

FIGURE 2
Model (A4) > Transient (A5) > Joint - Rotation

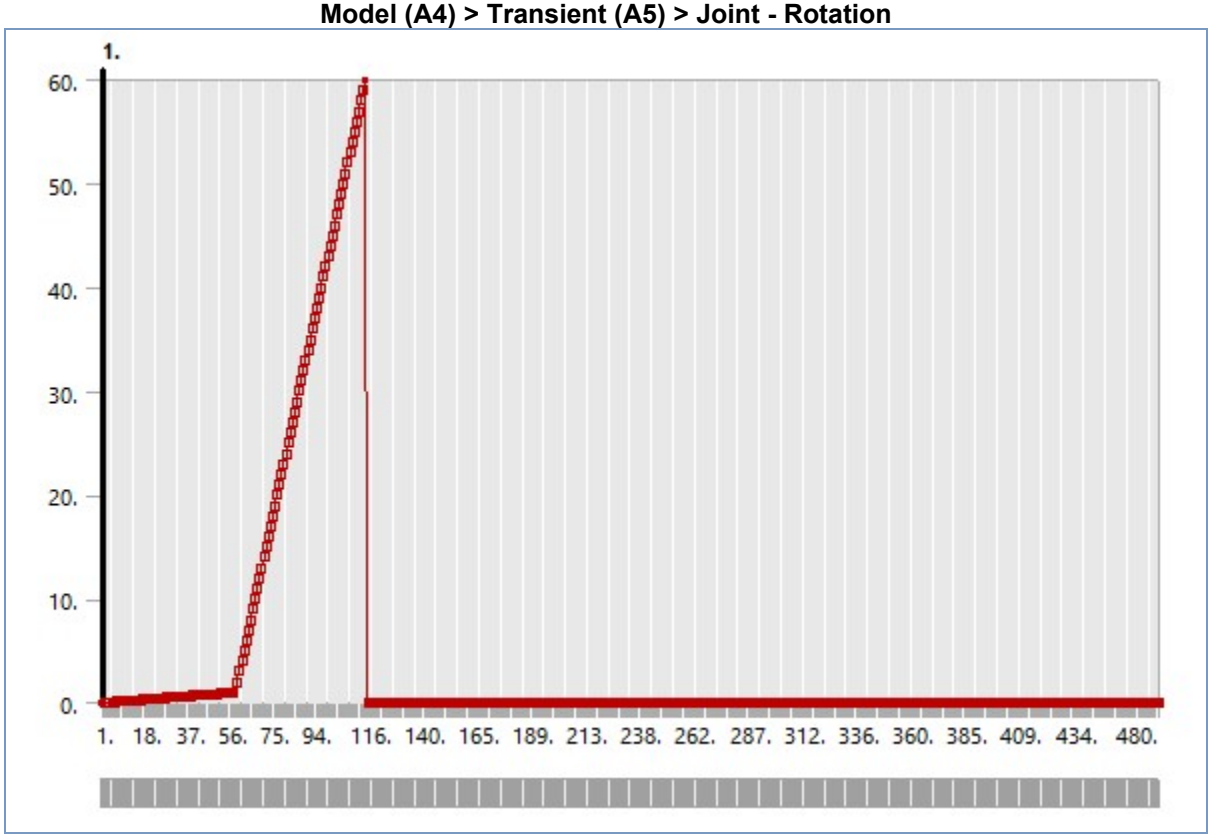


TABLE 19
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	0.
	1.	
2	2.	= 1.6667e-002
3	3.	= 3.3333e-002
4	4.	= 5.e-002
5	5.	= 6.6667e-002
6	6.	= 8.3333e-002
7	7.	= 1.e-001
8	8.	= 0.11667
9	9.	= 0.13333
10	10.	= 0.15
11	11.	= 0.16667
12	12.	= 0.18333
13	13.	= 0.2
14	14.	= 0.21667
15	15.	= 0.23333
16	16.	= 0.25
17	17.	= 0.26667
18	18.	= 0.28333
19	19.	= 0.3
20	20.	= 0.31667
21	21.	= 0.33333

22	22.	= 0.35
23	23.	= 0.36667
24	24.	= 0.38333
25	25.	= 0.4
26	26.	= 0.41667
27	27.	= 0.43333
28	28.	= 0.45
29	29.	= 0.46667
30	30.	= 0.48333
31	31.	= 0.5
32	32.	= 0.51667
33	33.	= 0.53333
34	34.	= 0.55
35	35.	= 0.56667
36	36.	= 0.58333
37	37.	= 0.6
38	38.	= 0.61667
39	39.	= 0.63333
40	40.	= 0.65
41	41.	= 0.66667
42	42.	= 0.68333
43	43.	= 0.7
44	44.	= 0.71667
45	45.	= 0.73333
46	46.	= 0.75
47	47.	= 0.76667
48	48.	= 0.78333
49	49.	= 0.8
50	50.	= 0.81667
51	51.	= 0.83333
52	52.	= 0.85
53	53.	= 0.86667
54	54.	= 0.88333
55	55.	= 0.9
56	56.	= 0.91667
57	57.	= 0.93333
58	58.	= 0.95
59	59.	= 0.96667
60	60.	= 0.98333
61	61.	1.
62	62.	= 2.
63	63.	= 3.
64	64.	= 4.
65	65.	= 5.
66	66.	= 6.
67	67.	= 7.
68	68.	= 8.
69	69.	= 9.
70	70.	= 10.
71	71.	= 11.
72	72.	= 12.
73	73.	= 13.
74		

	74.	= 14.
75	75.	= 15.
76	76.	= 16.
77	77.	= 17.
78	78.	= 18.
79	79.	= 19.
80	80.	= 20.
81	81.	= 21.
82	82.	= 22.
83	83.	= 23.
84	84.	= 24.
85	85.	= 25.
86	86.	= 26.
87	87.	= 27.
88	88.	= 28.
89	89.	= 29.
90	90.	= 30.
91	91.	= 31.
92	92.	= 32.
93	93.	= 33.
94	94.	= 34.
95	95.	= 35.
96	96.	= 36.
97	97.	= 37.
98	98.	= 38.
99	99.	= 39.
100	100.	= 40.
101	101.	= 41.
102	102.	= 42.
103	103.	= 43.
104	104.	= 44.
105	105.	= 45.
106	106.	= 46.
107	107.	= 47.
108	108.	= 48.
109	109.	= 49.
110	110.	= 50.
111	111.	= 51.
112	112.	= 52.
113	113.	= 53.
114	114.	= 54.
115	115.	= 55.
116	116.	= 56.
117	117.	= 57.
118	118.	= 58.
119	119.	= 59.
120	120.	60.
121	121.	0.
122	122.	
123	123.	
124	124.	
125	125.	
126		

	126.
127	127.
128	128.
129	129.
130	130.
131	131.
132	132.
133	133.
134	134.
135	135.
136	136.
137	137.
138	138.
139	139.
140	140.
141	141.
142	142.
143	143.
144	144.
145	145.
146	146.
147	147.
148	148.
149	149.
150	150.
151	151.
152	152.
153	153.
154	154.
155	155.
156	156.
157	157.
158	158.
159	159.
160	160.
161	161.
162	162.
163	163.
164	164.
165	165.
166	166.
167	167.
168	168.
169	169.
170	170.
171	171.
172	172.
173	173.
174	174.
175	175.
176	176.
177	177.
178	

	178.
179	179.
180	180.
181	181.
182	182.
183	183.
184	184.
185	185.
186	186.
187	187.
188	188.
189	189.
190	190.
191	191.
192	192.
193	193.
194	194.
195	195.
196	196.
197	197.
198	198.
199	199.
200	200.
201	201.
202	202.
203	203.
204	204.
205	205.
206	206.
207	207.
208	208.
209	209.
210	210.
211	211.
212	212.
213	213.
214	214.
215	215.
216	216.
217	217.
218	218.
219	219.
220	220.
221	221.
222	222.
223	223.
224	224.
225	225.
226	226.
227	227.
228	228.
229	229.
230	

	230.
231	231.
232	232.
233	233.
234	234.
235	235.
236	236.
237	237.
238	238.
239	239.
240	240.
241	241.
242	242.
243	243.
244	244.
245	245.
246	246.
247	247.
248	248.
249	249.
250	250.
251	251.
252	252.
253	253.
254	254.
255	255.
256	256.
257	257.
258	258.
259	259.
260	260.
261	261.
262	262.
263	263.
264	264.
265	265.
266	266.
267	267.
268	268.
269	269.
270	270.
271	271.
272	272.
273	273.
274	274.
275	275.
276	276.
277	277.
278	278.
279	279.
280	280.
281	281.
282	

	282.
283	283.
284	284.
285	285.
286	286.
287	287.
288	288.
289	289.
290	290.
291	291.
292	292.
293	293.
294	294.
295	295.
296	296.
297	297.
298	298.
299	299.
300	300.
301	301.
302	302.
303	303.
304	304.
305	305.
306	306.
307	307.
308	308.
309	309.
310	310.
311	311.
312	312.
313	313.
314	314.
315	315.
316	316.
317	317.
318	318.
319	319.
320	320.
321	321.
322	322.
323	323.
324	324.
325	325.
326	326.
327	327.
328	328.
329	329.
330	330.
331	331.
332	332.
333	333.
334	

	334.
335	335.
336	336.
337	337.
338	338.
339	339.
340	340.
341	341.
342	342.
343	343.
344	344.
345	345.
346	346.
347	347.
348	348.
349	349.
350	350.
351	351.
352	352.
353	353.
354	354.
355	355.
356	356.
357	357.
358	358.
359	359.
360	360.
361	361.
362	362.
363	363.
364	364.
365	365.
366	366.
367	367.
368	368.
369	369.
370	370.
371	371.
372	372.
373	373.
374	374.
375	375.
376	376.
377	377.
378	378.
379	379.
380	380.
381	381.
382	382.
383	383.
384	384.
385	385.
386	

	386.
387	387.
388	388.
389	389.
390	390.
391	391.
392	392.
393	393.
394	394.
395	395.
396	396.
397	397.
398	398.
399	399.
400	400.
401	401.
402	402.
403	403.
404	404.
405	405.
406	406.
407	407.
408	408.
409	409.
410	410.
411	411.
412	412.
413	413.
414	414.
415	415.
416	416.
417	417.
418	418.
419	419.
420	420.
421	421.
422	422.
423	423.
424	424.
425	425.
426	426.
427	427.
428	428.
429	429.
430	430.
431	431.
432	432.
433	433.
434	434.
435	435.
436	436.
437	437.
438	

	438.	
439	439.	
440	440.	
441	441.	
442	442.	
443	443.	
444	444.	
445	445.	
446	446.	
447	447.	
448	448.	
449	449.	
450	450.	
451	451.	
452	452.	
453	453.	
454	454.	
455	455.	
456	456.	
457	457.	
458	458.	
459	459.	= 0.
460	460.	
461	461.	
462	462.	
463	463.	
464	464.	
465	465.	
466	466.	
467	467.	
468	468.	
469	469.	
470	470.	
471	471.	
472	472.	
473	473.	
474	474.	
475	475.	
476	476.	
477	477.	
478	478.	
479	479.	
480	480.	

FIGURE 3
Model (A4) > Transient (A5) > Joint - Rotation

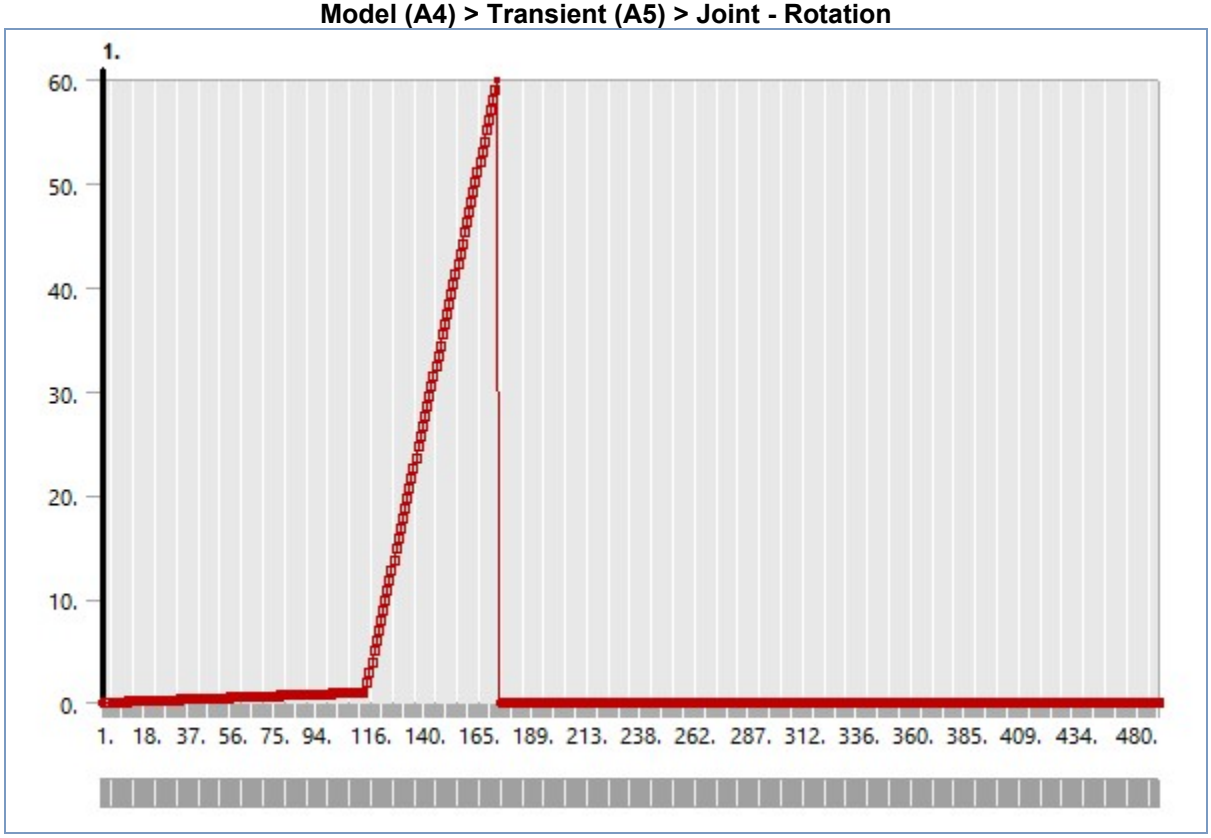


TABLE 20
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	0.
	1.	
2	2.	= 8.4034e-003
3	3.	= 1.6807e-002
4	4.	= 2.521e-002
5	5.	= 3.3613e-002
6	6.	= 4.2017e-002
7	7.	= 5.042e-002
8	8.	= 5.8824e-002
9	9.	= 6.7227e-002
10	10.	= 7.563e-002
11	11.	= 8.4034e-002
12	12.	= 9.2437e-002
13	13.	= 0.10084
14	14.	= 0.10924
15	15.	= 0.11765
16	16.	= 0.12605
17	17.	= 0.13445
18	18.	= 0.14286
19	19.	= 0.15126
20	20.	= 0.15966
21	21.	= 0.16807

22	22.	= 0.17647
23	23.	= 0.18487
24	24.	= 0.19328
25	25.	= 0.20168
26	26.	= 0.21008
27	27.	= 0.21849
28	28.	= 0.22689
29	29.	= 0.23529
30	30.	= 0.2437
31	31.	= 0.2521
32	32.	= 0.2605
33	33.	= 0.26891
34	34.	= 0.27731
35	35.	= 0.28571
36	36.	= 0.29412
37	37.	= 0.30252
38	38.	= 0.31092
39	39.	= 0.31933
40	40.	= 0.32773
41	41.	= 0.33613
42	42.	= 0.34454
43	43.	= 0.35294
44	44.	= 0.36134
45	45.	= 0.36975
46	46.	= 0.37815
47	47.	= 0.38655
48	48.	= 0.39496
49	49.	= 0.40336
50	50.	= 0.41176
51	51.	= 0.42017
52	52.	= 0.42857
53	53.	= 0.43697
54	54.	= 0.44538
55	55.	= 0.45378
56	56.	= 0.46218
57	57.	= 0.47059
58	58.	= 0.47899
59	59.	= 0.48739
60	60.	= 0.4958
61	61.	= 0.5042
62	62.	= 0.51261
63	63.	= 0.52101
64	64.	= 0.52941
65	65.	= 0.53782
66	66.	= 0.54622
67	67.	= 0.55462
68	68.	= 0.56303
69	69.	= 0.57143
70	70.	= 0.57983
71	71.	= 0.58824
72	72.	= 0.59664
73	73.	= 0.60504
74		

	74.	= 0.61345
75	75.	= 0.62185
76	76.	= 0.63025
77	77.	= 0.63866
78	78.	= 0.64706
79	79.	= 0.65546
80	80.	= 0.66387
81	81.	= 0.67227
82	82.	= 0.68067
83	83.	= 0.68908
84	84.	= 0.69748
85	85.	= 0.70588
86	86.	= 0.71429
87	87.	= 0.72269
88	88.	= 0.73109
89	89.	= 0.7395
90	90.	= 0.7479
91	91.	= 0.7563
92	92.	= 0.76471
93	93.	= 0.77311
94	94.	= 0.78151
95	95.	= 0.78992
96	96.	= 0.79832
97	97.	= 0.80672
98	98.	= 0.81513
99	99.	= 0.82353
100	100.	= 0.83193
101	101.	= 0.84034
102	102.	= 0.84874
103	103.	= 0.85714
104	104.	= 0.86555
105	105.	= 0.87395
106	106.	= 0.88235
107	107.	= 0.89076
108	108.	= 0.89916
109	109.	= 0.90756
110	110.	= 0.91597
111	111.	= 0.92437
112	112.	= 0.93277
113	113.	= 0.94118
114	114.	= 0.94958
115	115.	= 0.95798
116	116.	= 0.96639
117	117.	= 0.97479
118	118.	= 0.98319
119	119.	= 0.9916
120	120.	1.
121	121.	= 1.9833
122	122.	= 2.9667
123	123.	= 3.95
124	124.	= 4.9333
125	125.	= 5.9167
126		

	126.	= 6.9
127	127.	= 7.8833
128	128.	= 8.8667
129	129.	= 9.85
130	130.	= 10.833
131	131.	= 11.817
132	132.	= 12.8
133	133.	= 13.783
134	134.	= 14.767
135	135.	= 15.75
136	136.	= 16.733
137	137.	= 17.717
138	138.	= 18.7
139	139.	= 19.683
140	140.	= 20.667
141	141.	= 21.65
142	142.	= 22.633
143	143.	= 23.617
144	144.	= 24.6
145	145.	= 25.583
146	146.	= 26.567
147	147.	= 27.55
148	148.	= 28.533
149	149.	= 29.517
150	150.	= 30.5
151	151.	= 31.483
152	152.	= 32.467
153	153.	= 33.45
154	154.	= 34.433
155	155.	= 35.417
156	156.	= 36.4
157	157.	= 37.383
158	158.	= 38.367
159	159.	= 39.35
160	160.	= 40.333
161	161.	= 41.317
162	162.	= 42.3
163	163.	= 43.283
164	164.	= 44.267
165	165.	= 45.25
166	166.	= 46.233
167	167.	= 47.217
168	168.	= 48.2
169	169.	= 49.183
170	170.	= 50.167
171	171.	= 51.15
172	172.	= 52.133
173	173.	= 53.117
174	174.	= 54.1
175	175.	= 55.083
176	176.	= 56.067
177	177.	= 57.05
178		

	178.	= 58.033
179	179.	= 59.017
180	180.	60.
181	181.	0.
182	182.	
183	183.	
184	184.	
185	185.	
186	186.	
187	187.	
188	188.	
189	189.	
190	190.	
191	191.	
192	192.	
193	193.	
194	194.	
195	195.	
196	196.	
197	197.	
198	198.	
199	199.	
200	200.	
201	201.	
202	202.	
203	203.	
204	204.	
205	205.	
206	206.	
207	207.	
208	208.	
209	209.	
210	210.	
211	211.	
212	212.	
213	213.	
214	214.	
215	215.	
216	216.	
217	217.	
218	218.	
219	219.	
220	220.	
221	221.	
222	222.	
223	223.	
224	224.	
225	225.	
226	226.	
227	227.	
228	228.	
229	229.	
230		

	230.
231	231.
232	232.
233	233.
234	234.
235	235.
236	236.
237	237.
238	238.
239	239.
240	240.
241	241.
242	242.
243	243.
244	244.
245	245.
246	246.
247	247.
248	248.
249	249.
250	250.
251	251.
252	252.
253	253.
254	254.
255	255.
256	256.
257	257.
258	258.
259	259.
260	260.
261	261.
262	262.
263	263.
264	264.
265	265.
266	266.
267	267.
268	268.
269	269.
270	270.
271	271.
272	272.
273	273.
274	274.
275	275.
276	276.
277	277.
278	278.
279	279.
280	280.
281	281.
282	

	282.
283	283.
284	284.
285	285.
286	286.
287	287.
288	288.
289	289.
290	290.
291	291.
292	292.
293	293.
294	294.
295	295.
296	296.
297	297.
298	298.
299	299.
300	300.
301	301.
302	302.
303	303.
304	304.
305	305.
306	306.
307	307.
308	308.
309	309.
310	310.
311	311.
312	312.
313	313.
314	314.
315	315.
316	316.
317	317.
318	318.
319	319.
320	320.
321	321.
322	322.
323	323.
324	324.
325	325.
326	326.
327	327.
328	328.
329	329.
330	330.
331	331.
332	332.
333	333.
334	

	334.
335	335.
336	336.
337	337.
338	338.
339	339.
340	340.
341	341.
342	342.
343	343.
344	344.
345	345.
346	346.
347	347.
348	348.
349	349.
350	350.
351	351.
352	352.
353	353.
354	354.
355	355.
356	356.
357	357.
358	358.
359	359.
360	360.
361	361.
362	362.
363	363.
364	364.
365	365.
366	366.
367	367.
368	368.
369	369.
370	370.
371	371.
372	372.
373	373.
374	374.
375	375.
376	376.
377	377.
378	378.
379	379.
380	380.
381	381.
382	382.
383	383.
384	384.
385	385.
386	

	386.
387	387.
388	388.
389	389.
390	390.
391	391.
392	392.
393	393.
394	394.
395	395.
396	396.
397	397.
398	398.
399	399.
400	400.
401	401.
402	402.
403	403.
404	404.
405	405.
406	406.
407	407.
408	408.
409	409.
410	410.
411	411.
412	412.
413	413.
414	414.
415	415.
416	416.
417	417.
418	418.
419	419.
420	420.
421	421.
422	422.
423	423.
424	424.
425	425.
426	426.
427	427.
428	428.
429	429.
430	430.
431	431.
432	432.
433	433.
434	434.
435	435.
436	436.
437	437.
438	

	438.	
439	439.	
440	440.	
441	441.	
442	442.	
443	443.	
444	444.	
445	445.	
446	446.	
447	447.	
448	448.	
449	449.	
450	450.	
451	451.	
452	452.	
453	453.	
454	454.	
455	455.	
456	456.	
457	457.	
458	458.	
459	459.	= 0.
460	460.	
461	461.	
462	462.	
463	463.	
464	464.	
465	465.	
466	466.	
467	467.	
468	468.	
469	469.	
470	470.	
471	471.	
472	472.	
473	473.	
474	474.	
475	475.	
476	476.	
477	477.	
478	478.	
479	479.	
480	480.	

FIGURE 4
Model (A4) > Transient (A5) > Joint - Rotation

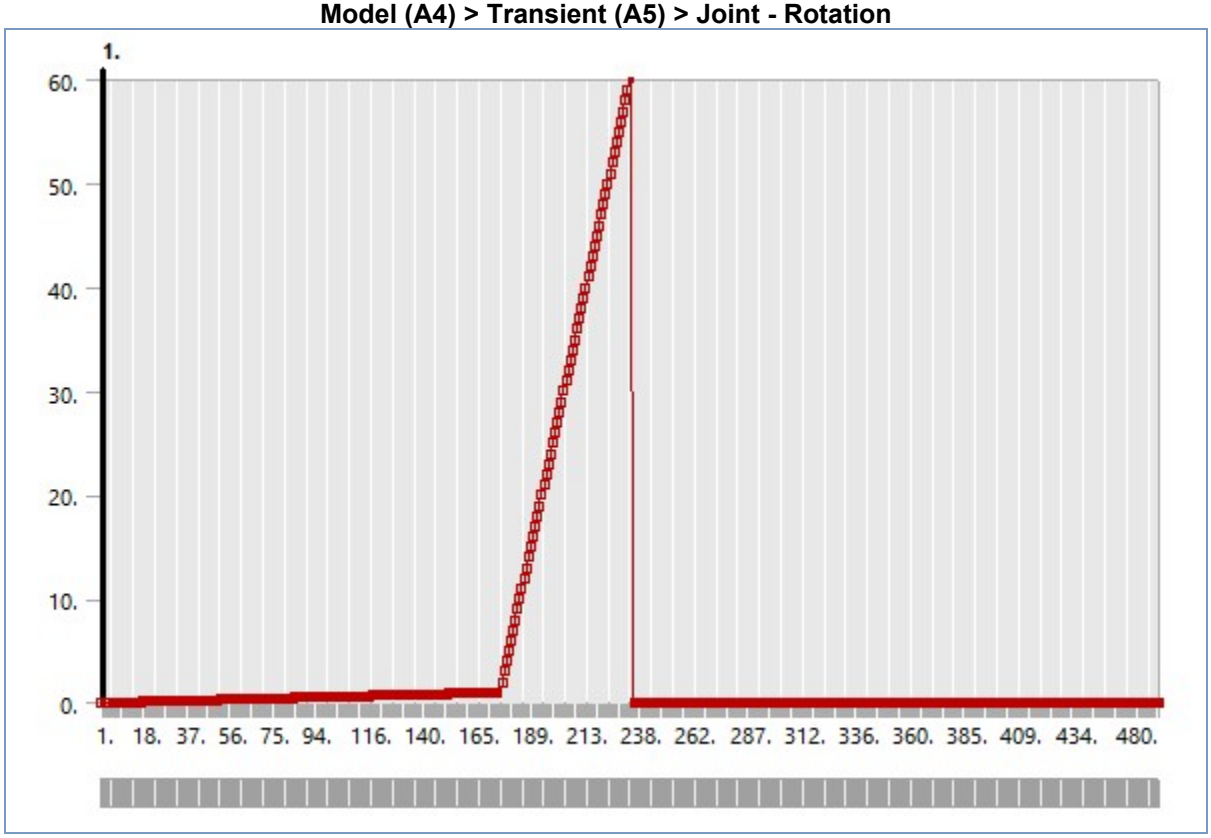


TABLE 21
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	= 0.
	1.	0.
2	2.	= 5.5556e-003
3	3.	= 1.1111e-002
4	4.	= 1.6667e-002
5	5.	= 2.2222e-002
6	6.	= 2.7778e-002
7	7.	= 3.3333e-002
8	8.	= 3.8889e-002
9	9.	= 4.4444e-002
10	10.	= 5.e-002
11	11.	= 5.5556e-002
12	12.	= 6.1111e-002
13	13.	= 6.6667e-002
14	14.	= 7.2222e-002
15	15.	= 7.7778e-002
16	16.	= 8.3333e-002
17	17.	= 8.8889e-002
18	18.	= 9.4444e-002
19	19.	= 1.e-001
20	20.	= 0.10556
21	21.	= 0.11111

22	22.	= 0.11667
23	23.	= 0.12222
24	24.	= 0.12778
25	25.	= 0.13333
26	26.	= 0.13889
27	27.	= 0.14444
28	28.	= 0.15
29	29.	= 0.15556
30	30.	= 0.16111
31	31.	= 0.16667
32	32.	= 0.17222
33	33.	= 0.17778
34	34.	= 0.18333
35	35.	= 0.18889
36	36.	= 0.19444
37	37.	= 0.2
38	38.	= 0.20556
39	39.	= 0.21111
40	40.	= 0.21667
41	41.	= 0.22222
42	42.	= 0.22778
43	43.	= 0.23333
44	44.	= 0.23889
45	45.	= 0.24444
46	46.	= 0.25
47	47.	= 0.25556
48	48.	= 0.26111
49	49.	= 0.26667
50	50.	= 0.27222
51	51.	= 0.27778
52	52.	= 0.28333
53	53.	= 0.28889
54	54.	= 0.29444
55	55.	= 0.3
56	56.	= 0.30556
57	57.	= 0.31111
58	58.	= 0.31667
59	59.	= 0.32222
60	60.	= 0.32778
61	61.	= 0.33333
62	62.	= 0.33889
63	63.	= 0.34444
64	64.	= 0.35
65	65.	= 0.35556
66	66.	= 0.36111
67	67.	= 0.36667
68	68.	= 0.37222
69	69.	= 0.37778
70	70.	= 0.38333
71	71.	= 0.38889
72	72.	= 0.39444
73	73.	= 0.4
74		

	74.	= 0.40556
75	75.	= 0.41111
76	76.	= 0.41667
77	77.	= 0.42222
78	78.	= 0.42778
79	79.	= 0.43333
80	80.	= 0.43889
81	81.	= 0.44444
82	82.	= 0.45
83	83.	= 0.45556
84	84.	= 0.46111
85	85.	= 0.46667
86	86.	= 0.47222
87	87.	= 0.47778
88	88.	= 0.48333
89	89.	= 0.48889
90	90.	= 0.49444
91	91.	= 0.5
92	92.	= 0.50556
93	93.	= 0.51111
94	94.	= 0.51667
95	95.	= 0.52222
96	96.	= 0.52778
97	97.	= 0.53333
98	98.	= 0.53889
99	99.	= 0.54444
100	100.	= 0.55
101	101.	= 0.55556
102	102.	= 0.56111
103	103.	= 0.56667
104	104.	= 0.57222
105	105.	= 0.57778
106	106.	= 0.58333
107	107.	= 0.58889
108	108.	= 0.59444
109	109.	= 0.6
110	110.	= 0.60556
111	111.	= 0.61111
112	112.	= 0.61667
113	113.	= 0.62222
114	114.	= 0.62778
115	115.	= 0.63333
116	116.	= 0.63889
117	117.	= 0.64444
118	118.	= 0.65
119	119.	= 0.65556
120	120.	= 0.66111
121	121.	= 0.66667
122	122.	= 0.67222
123	123.	= 0.67778
124	124.	= 0.68333
125	125.	= 0.68889
126		

	126.	= 0.69444
127	127.	= 0.7
128	128.	= 0.70556
129	129.	= 0.71111
130	130.	= 0.71667
131	131.	= 0.72222
132	132.	= 0.72778
133	133.	= 0.73333
134	134.	= 0.73889
135	135.	= 0.74444
136	136.	= 0.75
137	137.	= 0.75556
138	138.	= 0.76111
139	139.	= 0.76667
140	140.	= 0.77222
141	141.	= 0.77778
142	142.	= 0.78333
143	143.	= 0.78889
144	144.	= 0.79444
145	145.	= 0.8
146	146.	= 0.80556
147	147.	= 0.81111
148	148.	= 0.81667
149	149.	= 0.82222
150	150.	= 0.82778
151	151.	= 0.83333
152	152.	= 0.83889
153	153.	= 0.84444
154	154.	= 0.85
155	155.	= 0.85556
156	156.	= 0.86111
157	157.	= 0.86667
158	158.	= 0.87222
159	159.	= 0.87778
160	160.	= 0.88333
161	161.	= 0.88889
162	162.	= 0.89444
163	163.	= 0.9
164	164.	= 0.90556
165	165.	= 0.91111
166	166.	= 0.91667
167	167.	= 0.92222
168	168.	= 0.92778
169	169.	= 0.93333
170	170.	= 0.93889
171	171.	= 0.94444
172	172.	= 0.95
173	173.	= 0.95556
174	174.	= 0.96111
175	175.	= 0.96667
176	176.	= 0.97222
177	177.	= 0.97778
178		

	178.	= 0.98333
179	179.	= 0.98889
180	180.	= 0.99444
181	181.	1.
182	182.	= 2.
183	183.	= 3.
184	184.	= 4.
185	185.	= 5.
186	186.	= 6.
187	187.	= 7.
188	188.	= 8.
189	189.	= 9.
190	190.	= 10.
191	191.	= 11.
192	192.	= 12.
193	193.	= 13.
194	194.	= 14.
195	195.	= 15.
196	196.	= 16.
197	197.	= 17.
198	198.	= 18.
199	199.	= 19.
200	200.	= 20.
201	201.	= 21.
202	202.	= 22.
203	203.	= 23.
204	204.	= 24.
205	205.	= 25.
206	206.	= 26.
207	207.	= 27.
208	208.	= 28.
209	209.	= 29.
210	210.	= 30.
211	211.	= 31.
212	212.	= 32.
213	213.	= 33.
214	214.	= 34.
215	215.	= 35.
216	216.	= 36.
217	217.	= 37.
218	218.	= 38.
219	219.	= 39.
220	220.	= 40.
221	221.	= 41.
222	222.	= 42.
223	223.	= 43.
224	224.	= 44.
225	225.	= 45.
226	226.	= 46.
227	227.	= 47.
228	228.	= 48.
229	229.	= 49.
230		

	230.	= 50.
231	231.	= 51.
232	232.	= 52.
233	233.	= 53.
234	234.	= 54.
235	235.	= 55.
236	236.	= 56.
237	237.	= 57.
238	238.	= 58.
239	239.	= 59.
240	240.	60.
241	241.	0.
242	242.	
243	243.	
244	244.	
245	245.	
246	246.	
247	247.	
248	248.	
249	249.	
250	250.	
251	251.	
252	252.	
253	253.	
254	254.	
255	255.	
256	256.	
257	257.	
258	258.	
259	259.	
260	260.	
261	261.	
262	262.	
263	263.	
264	264.	
265	265.	
266	266.	
267	267.	
268	268.	
269	269.	
270	270.	
271	271.	
272	272.	
273	273.	
274	274.	
275	275.	
276	276.	
277	277.	
278	278.	
279	279.	
280	280.	
281	281.	
282		

	282.
283	283.
284	284.
285	285.
286	286.
287	287.
288	288.
289	289.
290	290.
291	291.
292	292.
293	293.
294	294.
295	295.
296	296.
297	297.
298	298.
299	299.
300	300.
301	301.
302	302.
303	303.
304	304.
305	305.
306	306.
307	307.
308	308.
309	309.
310	310.
311	311.
312	312.
313	313.
314	314.
315	315.
316	316.
317	317.
318	318.
319	319.
320	320.
321	321.
322	322.
323	323.
324	324.
325	325.
326	326.
327	327.
328	328.
329	329.
330	330.
331	331.
332	332.
333	333.
334	

	334.
335	335.
336	336.
337	337.
338	338.
339	339.
340	340.
341	341.
342	342.
343	343.
344	344.
345	345.
346	346.
347	347.
348	348.
349	349.
350	350.
351	351.
352	352.
353	353.
354	354.
355	355.
356	356.
357	357.
358	358.
359	359.
360	360.
361	361.
362	362.
363	363.
364	364.
365	365.
366	366.
367	367.
368	368.
369	369.
370	370.
371	371.
372	372.
373	373.
374	374.
375	375.
376	376.
377	377.
378	378.
379	379.
380	380.
381	381.
382	382.
383	383.
384	384.
385	385.
386	

	386.
387	387.
388	388.
389	389.
390	390.
391	391.
392	392.
393	393.
394	394.
395	395.
396	396.
397	397.
398	398.
399	399.
400	400.
401	401.
402	402.
403	403.
404	404.
405	405.
406	406.
407	407.
408	408.
409	409.
410	410.
411	411.
412	412.
413	413.
414	414.
415	415.
416	416.
417	417.
418	418.
419	419.
420	420.
421	421.
422	422.
423	423.
424	424.
425	425.
426	426.
427	427.
428	428.
429	429.
430	430.
431	431.
432	432.
433	433.
434	434.
435	435.
436	436.
437	437.
438	

	438.	
439	439.	
440	440.	
441	441.	
442	442.	
443	443.	
444	444.	
445	445.	
446	446.	
447	447.	
448	448.	
449	449.	
450	450.	
451	451.	
452	452.	
453	453.	
454	454.	
455	455.	
456	456.	
457	457.	
458	458.	
459	459.	= 0.
460	460.	
461	461.	
462	462.	
463	463.	
464	464.	
465	465.	
466	466.	
467	467.	
468	468.	
469	469.	
470	470.	
471	471.	
472	472.	
473	473.	
474	474.	
475	475.	
476	476.	
477	477.	
478	478.	
479	479.	
480	480.	

FIGURE 5
Model (A4) > Transient (A5) > Joint - Rotation

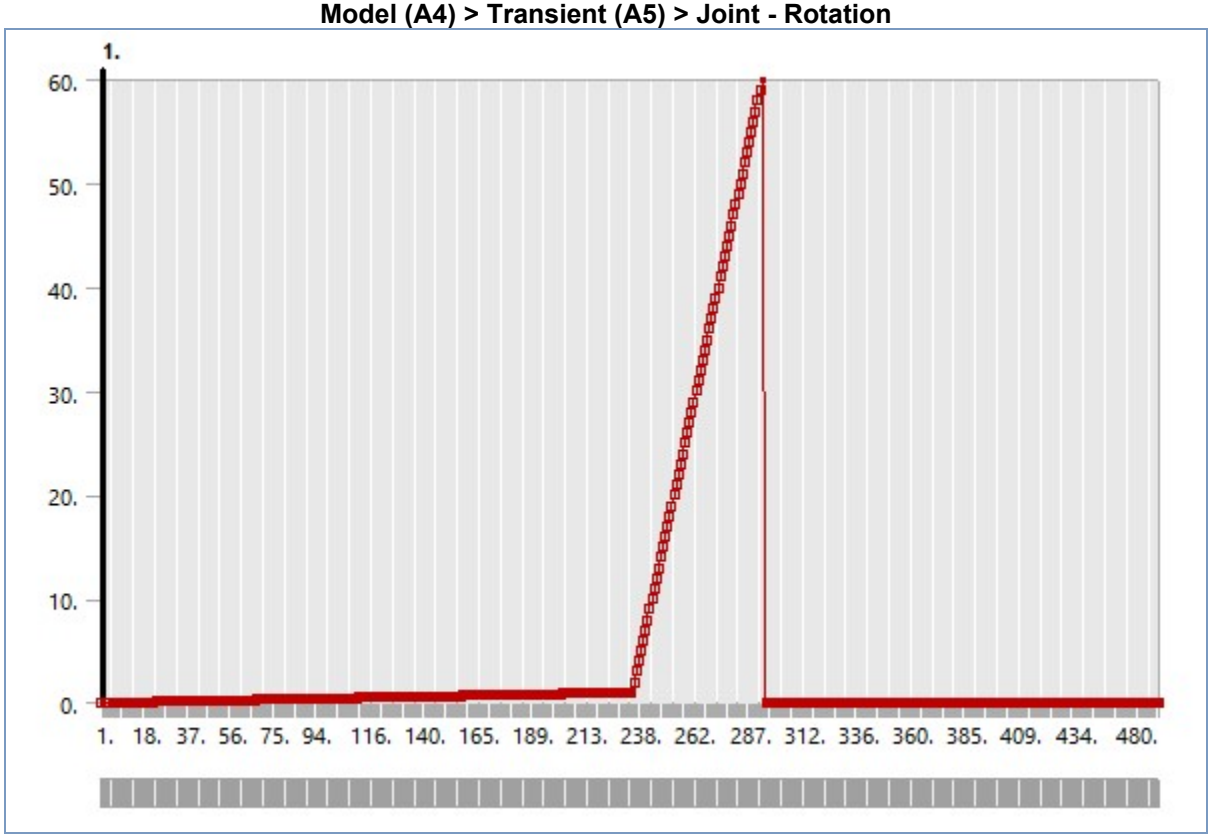


TABLE 22
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	= 0.
	1.	0.
2	2.	= 4.1667e-003
3	3.	= 8.3333e-003
4	4.	= 1.25e-002
5	5.	= 1.6667e-002
6	6.	= 2.0833e-002
7	7.	= 2.5e-002
8	8.	= 2.9167e-002
9	9.	= 3.3333e-002
10	10.	= 3.75e-002
11	11.	= 4.1667e-002
12	12.	= 4.5833e-002
13	13.	= 5.e-002
14	14.	= 5.4167e-002
15	15.	= 5.8333e-002
16	16.	= 6.25e-002
17	17.	= 6.6667e-002
18	18.	= 7.0833e-002
19	19.	= 7.5e-002
20	20.	= 7.9167e-002
21	21.	= 8.3333e-002

22	22.	= 8.75e-002
23	23.	= 9.1667e-002
24	24.	= 9.5833e-002
25	25.	= 1.e-001
26	26.	= 0.10417
27	27.	= 0.10833
28	28.	= 0.1125
29	29.	= 0.11667
30	30.	= 0.12083
31	31.	= 0.125
32	32.	= 0.12917
33	33.	= 0.13333
34	34.	= 0.1375
35	35.	= 0.14167
36	36.	= 0.14583
37	37.	= 0.15
38	38.	= 0.15417
39	39.	= 0.15833
40	40.	= 0.1625
41	41.	= 0.16667
42	42.	= 0.17083
43	43.	= 0.175
44	44.	= 0.17917
45	45.	= 0.18333
46	46.	= 0.1875
47	47.	= 0.19167
48	48.	= 0.19583
49	49.	= 0.2
50	50.	= 0.20417
51	51.	= 0.20833
52	52.	= 0.2125
53	53.	= 0.21667
54	54.	= 0.22083
55	55.	= 0.225
56	56.	= 0.22917
57	57.	= 0.23333
58	58.	= 0.2375
59	59.	= 0.24167
60	60.	= 0.24583
61	61.	= 0.25
62	62.	= 0.25417
63	63.	= 0.25833
64	64.	= 0.2625
65	65.	= 0.26667
66	66.	= 0.27083
67	67.	= 0.275
68	68.	= 0.27917
69	69.	= 0.28333
70	70.	= 0.2875
71	71.	= 0.29167
72	72.	= 0.29583
73	73.	= 0.3
74		

	74.	= 0.30417
75	75.	= 0.30833
76	76.	= 0.3125
77	77.	= 0.31667
78	78.	= 0.32083
79	79.	= 0.325
80	80.	= 0.32917
81	81.	= 0.33333
82	82.	= 0.3375
83	83.	= 0.34167
84	84.	= 0.34583
85	85.	= 0.35
86	86.	= 0.35417
87	87.	= 0.35833
88	88.	= 0.3625
89	89.	= 0.36667
90	90.	= 0.37083
91	91.	= 0.375
92	92.	= 0.37917
93	93.	= 0.38333
94	94.	= 0.3875
95	95.	= 0.39167
96	96.	= 0.39583
97	97.	= 0.4
98	98.	= 0.40417
99	99.	= 0.40833
100	100.	= 0.4125
101	101.	= 0.41667
102	102.	= 0.42083
103	103.	= 0.425
104	104.	= 0.42917
105	105.	= 0.43333
106	106.	= 0.4375
107	107.	= 0.44167
108	108.	= 0.44583
109	109.	= 0.45
110	110.	= 0.45417
111	111.	= 0.45833
112	112.	= 0.4625
113	113.	= 0.46667
114	114.	= 0.47083
115	115.	= 0.475
116	116.	= 0.47917
117	117.	= 0.48333
118	118.	= 0.4875
119	119.	= 0.49167
120	120.	= 0.49583
121	121.	= 0.5
122	122.	= 0.50417
123	123.	= 0.50833
124	124.	= 0.5125
125	125.	= 0.51667
126		

	126.	= 0.52083
127	127.	= 0.525
128	128.	= 0.52917
129	129.	= 0.53333
130	130.	= 0.5375
131	131.	= 0.54167
132	132.	= 0.54583
133	133.	= 0.55
134	134.	= 0.55417
135	135.	= 0.55833
136	136.	= 0.5625
137	137.	= 0.56667
138	138.	= 0.57083
139	139.	= 0.575
140	140.	= 0.57917
141	141.	= 0.58333
142	142.	= 0.5875
143	143.	= 0.59167
144	144.	= 0.59583
145	145.	= 0.6
146	146.	= 0.60417
147	147.	= 0.60833
148	148.	= 0.6125
149	149.	= 0.61667
150	150.	= 0.62083
151	151.	= 0.625
152	152.	= 0.62917
153	153.	= 0.63333
154	154.	= 0.6375
155	155.	= 0.64167
156	156.	= 0.64583
157	157.	= 0.65
158	158.	= 0.65417
159	159.	= 0.65833
160	160.	= 0.6625
161	161.	= 0.66667
162	162.	= 0.67083
163	163.	= 0.675
164	164.	= 0.67917
165	165.	= 0.68333
166	166.	= 0.6875
167	167.	= 0.69167
168	168.	= 0.69583
169	169.	= 0.7
170	170.	= 0.70417
171	171.	= 0.70833
172	172.	= 0.7125
173	173.	= 0.71667
174	174.	= 0.72083
175	175.	= 0.725
176	176.	= 0.72917
177	177.	= 0.73333
178		

	178.	= 0.7375
179	179.	= 0.74167
180	180.	= 0.74583
181	181.	= 0.75
182	182.	= 0.75417
183	183.	= 0.75833
184	184.	= 0.7625
185	185.	= 0.76667
186	186.	= 0.77083
187	187.	= 0.775
188	188.	= 0.77917
189	189.	= 0.78333
190	190.	= 0.7875
191	191.	= 0.79167
192	192.	= 0.79583
193	193.	= 0.8
194	194.	= 0.80417
195	195.	= 0.80833
196	196.	= 0.8125
197	197.	= 0.81667
198	198.	= 0.82083
199	199.	= 0.825
200	200.	= 0.82917
201	201.	= 0.83333
202	202.	= 0.8375
203	203.	= 0.84167
204	204.	= 0.84583
205	205.	= 0.85
206	206.	= 0.85417
207	207.	= 0.85833
208	208.	= 0.8625
209	209.	= 0.86667
210	210.	= 0.87083
211	211.	= 0.875
212	212.	= 0.87917
213	213.	= 0.88333
214	214.	= 0.8875
215	215.	= 0.89167
216	216.	= 0.89583
217	217.	= 0.9
218	218.	= 0.90417
219	219.	= 0.90833
220	220.	= 0.9125
221	221.	= 0.91667
222	222.	= 0.92083
223	223.	= 0.925
224	224.	= 0.92917
225	225.	= 0.93333
226	226.	= 0.9375
227	227.	= 0.94167
228	228.	= 0.94583
229	229.	= 0.95
230		

	230.	= 0.95417
231	231.	= 0.95833
232	232.	= 0.9625
233	233.	= 0.96667
234	234.	= 0.97083
235	235.	= 0.975
236	236.	= 0.97917
237	237.	= 0.98333
238	238.	= 0.9875
239	239.	= 0.99167
240	240.	= 0.99583
241	241.	1.
242	242.	= 2.
243	243.	= 3.
244	244.	= 4.
245	245.	= 5.
246	246.	= 6.
247	247.	= 7.
248	248.	= 8.
249	249.	= 9.
250	250.	= 10.
251	251.	= 11.
252	252.	= 12.
253	253.	= 13.
254	254.	= 14.
255	255.	= 15.
256	256.	= 16.
257	257.	= 17.
258	258.	= 18.
259	259.	= 19.
260	260.	= 20.
261	261.	= 21.
262	262.	= 22.
263	263.	= 23.
264	264.	= 24.
265	265.	= 25.
266	266.	= 26.
267	267.	= 27.
268	268.	= 28.
269	269.	= 29.
270	270.	= 30.
271	271.	= 31.
272	272.	= 32.
273	273.	= 33.
274	274.	= 34.
275	275.	= 35.
276	276.	= 36.
277	277.	= 37.
278	278.	= 38.
279	279.	= 39.
280	280.	= 40.
281	281.	= 41.
282		

	282.	= 42.
283	283.	= 43.
284	284.	= 44.
285	285.	= 45.
286	286.	= 46.
287	287.	= 47.
288	288.	= 48.
289	289.	= 49.
290	290.	= 50.
291	291.	= 51.
292	292.	= 52.
293	293.	= 53.
294	294.	= 54.
295	295.	= 55.
296	296.	= 56.
297	297.	= 57.
298	298.	= 58.
299	299.	= 59.
300	300.	60.
301	301.	0.
302	302.	
303	303.	
304	304.	
305	305.	
306	306.	
307	307.	
308	308.	
309	309.	
310	310.	
311	311.	
312	312.	
313	313.	
314	314.	
315	315.	
316	316.	
317	317.	
318	318.	
319	319.	
320	320.	
321	321.	
322	322.	
323	323.	
324	324.	
325	325.	
326	326.	
327	327.	
328	328.	
329	329.	
330	330.	
331	331.	
332	332.	
333	333.	
334		

	334.
335	335.
336	336.
337	337.
338	338.
339	339.
340	340.
341	341.
342	342.
343	343.
344	344.
345	345.
346	346.
347	347.
348	348.
349	349.
350	350.
351	351.
352	352.
353	353.
354	354.
355	355.
356	356.
357	357.
358	358.
359	359.
360	360.
361	361.
362	362.
363	363.
364	364.
365	365.
366	366.
367	367.
368	368.
369	369.
370	370.
371	371.
372	372.
373	373.
374	374.
375	375.
376	376.
377	377.
378	378.
379	379.
380	380.
381	381.
382	382.
383	383.
384	384.
385	385.
386	

	386.
387	387.
388	388.
389	389.
390	390.
391	391.
392	392.
393	393.
394	394.
395	395.
396	396.
397	397.
398	398.
399	399.
400	400.
401	401.
402	402.
403	403.
404	404.
405	405.
406	406.
407	407.
408	408.
409	409.
410	410.
411	411.
412	412.
413	413.
414	414.
415	415.
416	416.
417	417.
418	418.
419	419.
420	420.
421	421.
422	422.
423	423.
424	424.
425	425.
426	426.
427	427.
428	428.
429	429.
430	430.
431	431.
432	432.
433	433.
434	434.
435	435.
436	436.
437	437.
438	

	438.	
439	439.	
440	440.	
441	441.	
442	442.	
443	443.	
444	444.	
445	445.	
446	446.	
447	447.	
448	448.	
449	449.	
450	450.	
451	451.	
452	452.	
453	453.	
454	454.	
455	455.	
456	456.	
457	457.	
458	458.	
459	459.	= 0.
460	460.	
461	461.	
462	462.	
463	463.	
464	464.	
465	465.	
466	466.	
467	467.	
468	468.	
469	469.	
470	470.	
471	471.	
472	472.	
473	473.	
474	474.	
475	475.	
476	476.	
477	477.	
478	478.	
479	479.	
480	480.	

FIGURE 6
Model (A4) > Transient (A5) > Joint - Rotation

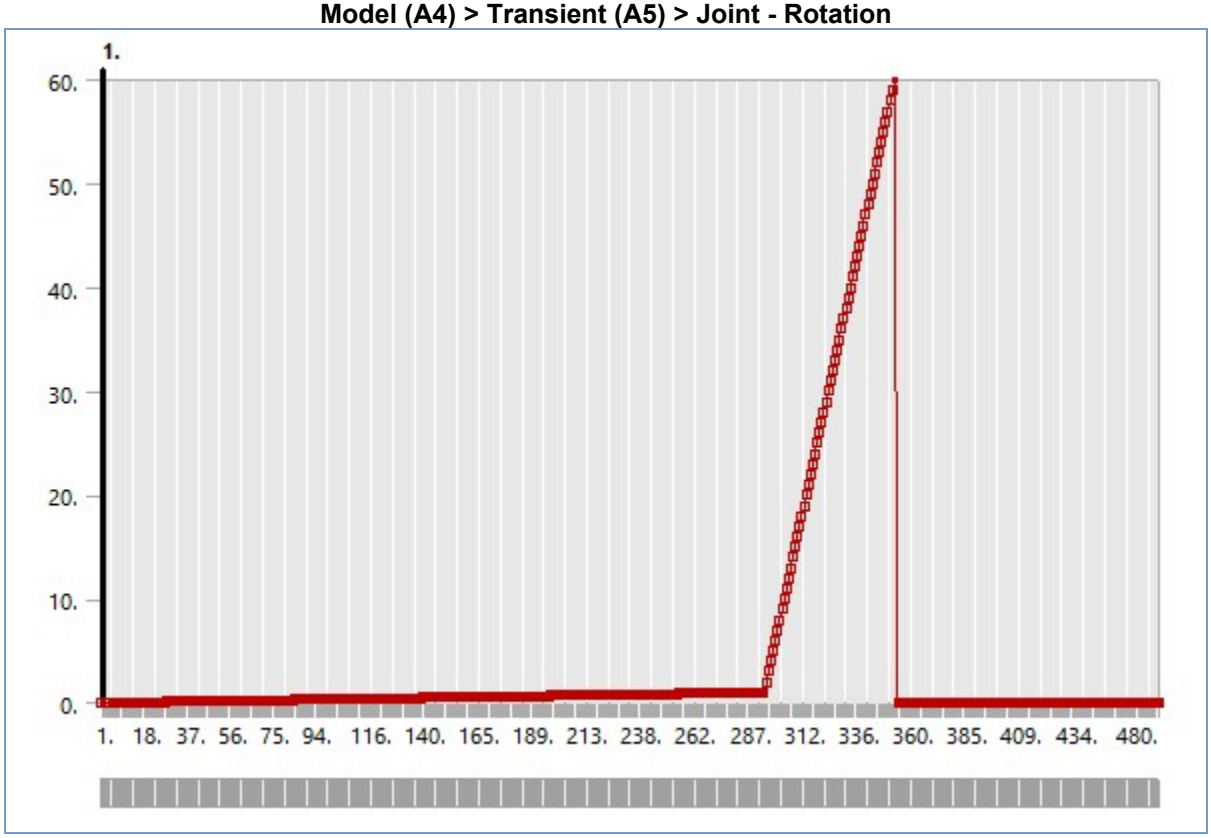


TABLE 23
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	= 0.
	1.	0.
2	2.	= 3.3333e-003
3	3.	= 6.6667e-003
4	4.	= 1.e-002
5	5.	= 1.3333e-002
6	6.	= 1.6667e-002
7	7.	= 2.e-002
8	8.	= 2.3333e-002
9	9.	= 2.6667e-002
10	10.	= 3.e-002
11	11.	= 3.3333e-002
12	12.	= 3.6667e-002
13	13.	= 4.e-002
14	14.	= 4.3333e-002
15	15.	= 4.6667e-002
16	16.	= 5.e-002
17	17.	= 5.3333e-002
18	18.	= 5.6667e-002
19	19.	= 6.e-002
20	20.	= 6.3333e-002
21	21.	= 6.6667e-002

22	22.	= 7.e-002
23	23.	= 7.3333e-002
24	24.	= 7.6667e-002
25	25.	= 8.e-002
26	26.	= 8.3333e-002
27	27.	= 8.6667e-002
28	28.	= 9.e-002
29	29.	= 9.3333e-002
30	30.	= 9.6667e-002
31	31.	= 1.e-001
32	32.	= 0.10333
33	33.	= 0.10667
34	34.	= 0.11
35	35.	= 0.11333
36	36.	= 0.11667
37	37.	= 0.12
38	38.	= 0.12333
39	39.	= 0.12667
40	40.	= 0.13
41	41.	= 0.13333
42	42.	= 0.13667
43	43.	= 0.14
44	44.	= 0.14333
45	45.	= 0.14667
46	46.	= 0.15
47	47.	= 0.15333
48	48.	= 0.15667
49	49.	= 0.16
50	50.	= 0.16333
51	51.	= 0.16667
52	52.	= 0.17
53	53.	= 0.17333
54	54.	= 0.17667
55	55.	= 0.18
56	56.	= 0.18333
57	57.	= 0.18667
58	58.	= 0.19
59	59.	= 0.19333
60	60.	= 0.19667
61	61.	= 0.2
62	62.	= 0.20333
63	63.	= 0.20667
64	64.	= 0.21
65	65.	= 0.21333
66	66.	= 0.21667
67	67.	= 0.22
68	68.	= 0.22333
69	69.	= 0.22667
70	70.	= 0.23
71	71.	= 0.23333
72	72.	= 0.23667
73	73.	= 0.24
74		

	74.	= 0.24333
75	75.	= 0.24667
76	76.	= 0.25
77	77.	= 0.25333
78	78.	= 0.25667
79	79.	= 0.26
80	80.	= 0.26333
81	81.	= 0.26667
82	82.	= 0.27
83	83.	= 0.27333
84	84.	= 0.27667
85	85.	= 0.28
86	86.	= 0.28333
87	87.	= 0.28667
88	88.	= 0.29
89	89.	= 0.29333
90	90.	= 0.29667
91	91.	= 0.3
92	92.	= 0.30333
93	93.	= 0.30667
94	94.	= 0.31
95	95.	= 0.31333
96	96.	= 0.31667
97	97.	= 0.32
98	98.	= 0.32333
99	99.	= 0.32667
100	100.	= 0.33
101	101.	= 0.33333
102	102.	= 0.33667
103	103.	= 0.34
104	104.	= 0.34333
105	105.	= 0.34667
106	106.	= 0.35
107	107.	= 0.35333
108	108.	= 0.35667
109	109.	= 0.36
110	110.	= 0.36333
111	111.	= 0.36667
112	112.	= 0.37
113	113.	= 0.37333
114	114.	= 0.37667
115	115.	= 0.38
116	116.	= 0.38333
117	117.	= 0.38667
118	118.	= 0.39
119	119.	= 0.39333
120	120.	= 0.39667
121	121.	= 0.4
122	122.	= 0.40333
123	123.	= 0.40667
124	124.	= 0.41
125	125.	= 0.41333
126		

	126.	= 0.41667
127	127.	= 0.42
128	128.	= 0.42333
129	129.	= 0.42667
130	130.	= 0.43
131	131.	= 0.43333
132	132.	= 0.43667
133	133.	= 0.44
134	134.	= 0.44333
135	135.	= 0.44667
136	136.	= 0.45
137	137.	= 0.45333
138	138.	= 0.45667
139	139.	= 0.46
140	140.	= 0.46333
141	141.	= 0.46667
142	142.	= 0.47
143	143.	= 0.47333
144	144.	= 0.47667
145	145.	= 0.48
146	146.	= 0.48333
147	147.	= 0.48667
148	148.	= 0.49
149	149.	= 0.49333
150	150.	= 0.49667
151	151.	= 0.5
152	152.	= 0.50333
153	153.	= 0.50667
154	154.	= 0.51
155	155.	= 0.51333
156	156.	= 0.51667
157	157.	= 0.52
158	158.	= 0.52333
159	159.	= 0.52667
160	160.	= 0.53
161	161.	= 0.53333
162	162.	= 0.53667
163	163.	= 0.54
164	164.	= 0.54333
165	165.	= 0.54667
166	166.	= 0.55
167	167.	= 0.55333
168	168.	= 0.55667
169	169.	= 0.56
170	170.	= 0.56333
171	171.	= 0.56667
172	172.	= 0.57
173	173.	= 0.57333
174	174.	= 0.57667
175	175.	= 0.58
176	176.	= 0.58333
177	177.	= 0.58667
178		

	178.	= 0.59
179	179.	= 0.59333
180	180.	= 0.59667
181	181.	= 0.6
182	182.	= 0.60333
183	183.	= 0.60667
184	184.	= 0.61
185	185.	= 0.61333
186	186.	= 0.61667
187	187.	= 0.62
188	188.	= 0.62333
189	189.	= 0.62667
190	190.	= 0.63
191	191.	= 0.63333
192	192.	= 0.63667
193	193.	= 0.64
194	194.	= 0.64333
195	195.	= 0.64667
196	196.	= 0.65
197	197.	= 0.65333
198	198.	= 0.65667
199	199.	= 0.66
200	200.	= 0.66333
201	201.	= 0.66667
202	202.	= 0.67
203	203.	= 0.67333
204	204.	= 0.67667
205	205.	= 0.68
206	206.	= 0.68333
207	207.	= 0.68667
208	208.	= 0.69
209	209.	= 0.69333
210	210.	= 0.69667
211	211.	= 0.7
212	212.	= 0.70333
213	213.	= 0.70667
214	214.	= 0.71
215	215.	= 0.71333
216	216.	= 0.71667
217	217.	= 0.72
218	218.	= 0.72333
219	219.	= 0.72667
220	220.	= 0.73
221	221.	= 0.73333
222	222.	= 0.73667
223	223.	= 0.74
224	224.	= 0.74333
225	225.	= 0.74667
226	226.	= 0.75
227	227.	= 0.75333
228	228.	= 0.75667
229	229.	= 0.76
230		

	230.	= 0.76333
231	231.	= 0.76667
232	232.	= 0.77
233	233.	= 0.77333
234	234.	= 0.77667
235	235.	= 0.78
236	236.	= 0.78333
237	237.	= 0.78667
238	238.	= 0.79
239	239.	= 0.79333
240	240.	= 0.79667
241	241.	= 0.8
242	242.	= 0.80333
243	243.	= 0.80667
244	244.	= 0.81
245	245.	= 0.81333
246	246.	= 0.81667
247	247.	= 0.82
248	248.	= 0.82333
249	249.	= 0.82667
250	250.	= 0.83
251	251.	= 0.83333
252	252.	= 0.83667
253	253.	= 0.84
254	254.	= 0.84333
255	255.	= 0.84667
256	256.	= 0.85
257	257.	= 0.85333
258	258.	= 0.85667
259	259.	= 0.86
260	260.	= 0.86333
261	261.	= 0.86667
262	262.	= 0.87
263	263.	= 0.87333
264	264.	= 0.87667
265	265.	= 0.88
266	266.	= 0.88333
267	267.	= 0.88667
268	268.	= 0.89
269	269.	= 0.89333
270	270.	= 0.89667
271	271.	= 0.9
272	272.	= 0.90333
273	273.	= 0.90667
274	274.	= 0.91
275	275.	= 0.91333
276	276.	= 0.91667
277	277.	= 0.92
278	278.	= 0.92333
279	279.	= 0.92667
280	280.	= 0.93
281	281.	= 0.93333
282		

	282.	= 0.93667
283	283.	= 0.94
284	284.	= 0.94333
285	285.	= 0.94667
286	286.	= 0.95
287	287.	= 0.95333
288	288.	= 0.95667
289	289.	= 0.96
290	290.	= 0.96333
291	291.	= 0.96667
292	292.	= 0.97
293	293.	= 0.97333
294	294.	= 0.97667
295	295.	= 0.98
296	296.	= 0.98333
297	297.	= 0.98667
298	298.	= 0.99
299	299.	= 0.99333
300	300.	= 0.99667
301	301.	1.
302	302.	= 2.
303	303.	= 3.
304	304.	= 4.
305	305.	= 5.
306	306.	= 6.
307	307.	= 7.
308	308.	= 8.
309	309.	= 9.
310	310.	= 10.
311	311.	= 11.
312	312.	= 12.
313	313.	= 13.
314	314.	= 14.
315	315.	= 15.
316	316.	= 16.
317	317.	= 17.
318	318.	= 18.
319	319.	= 19.
320	320.	= 20.
321	321.	= 21.
322	322.	= 22.
323	323.	= 23.
324	324.	= 24.
325	325.	= 25.
326	326.	= 26.
327	327.	= 27.
328	328.	= 28.
329	329.	= 29.
330	330.	= 30.
331	331.	= 31.
332	332.	= 32.
333	333.	= 33.
334		

	334.	= 34.
335	335.	= 35.
336	336.	= 36.
337	337.	= 37.
338	338.	= 38.
339	339.	= 39.
340	340.	= 40.
341	341.	= 41.
342	342.	= 42.
343	343.	= 43.
344	344.	= 44.
345	345.	= 45.
346	346.	= 46.
347	347.	= 47.
348	348.	= 48.
349	349.	= 49.
350	350.	= 50.
351	351.	= 51.
352	352.	= 52.
353	353.	= 53.
354	354.	= 54.
355	355.	= 55.
356	356.	= 56.
357	357.	= 57.
358	358.	= 58.
359	359.	= 59.
360	360.	60.
361	361.	0.
362	362.	
363	363.	
364	364.	
365	365.	
366	366.	
367	367.	
368	368.	
369	369.	
370	370.	
371	371.	
372	372.	
373	373.	
374	374.	
375	375.	
376	376.	
377	377.	
378	378.	
379	379.	
380	380.	
381	381.	
382	382.	
383	383.	
384	384.	
385	385.	
386		

	386.
387	387.
388	388.
389	389.
390	390.
391	391.
392	392.
393	393.
394	394.
395	395.
396	396.
397	397.
398	398.
399	399.
400	400.
401	401.
402	402.
403	403.
404	404.
405	405.
406	406.
407	407.
408	408.
409	409.
410	410.
411	411.
412	412.
413	413.
414	414.
415	415.
416	416.
417	417.
418	418.
419	419.
420	420.
421	421.
422	422.
423	423.
424	424.
425	425.
426	426.
427	427.
428	428.
429	429.
430	430.
431	431.
432	432.
433	433.
434	434.
435	435.
436	436.
437	437.
438	

	438.	
439	439.	
440	440.	
441	441.	
442	442.	
443	443.	
444	444.	
445	445.	
446	446.	
447	447.	
448	448.	
449	449.	
450	450.	
451	451.	
452	452.	
453	453.	
454	454.	
455	455.	
456	456.	
457	457.	
458	458.	
459	459.	= 0.
460	460.	
461	461.	
462	462.	
463	463.	
464	464.	
465	465.	
466	466.	
467	467.	
468	468.	
469	469.	
470	470.	
471	471.	
472	472.	
473	473.	
474	474.	
475	475.	
476	476.	
477	477.	
478	478.	
479	479.	
480	480.	

FIGURE 7
Model (A4) > Transient (A5) > Joint - Rotation

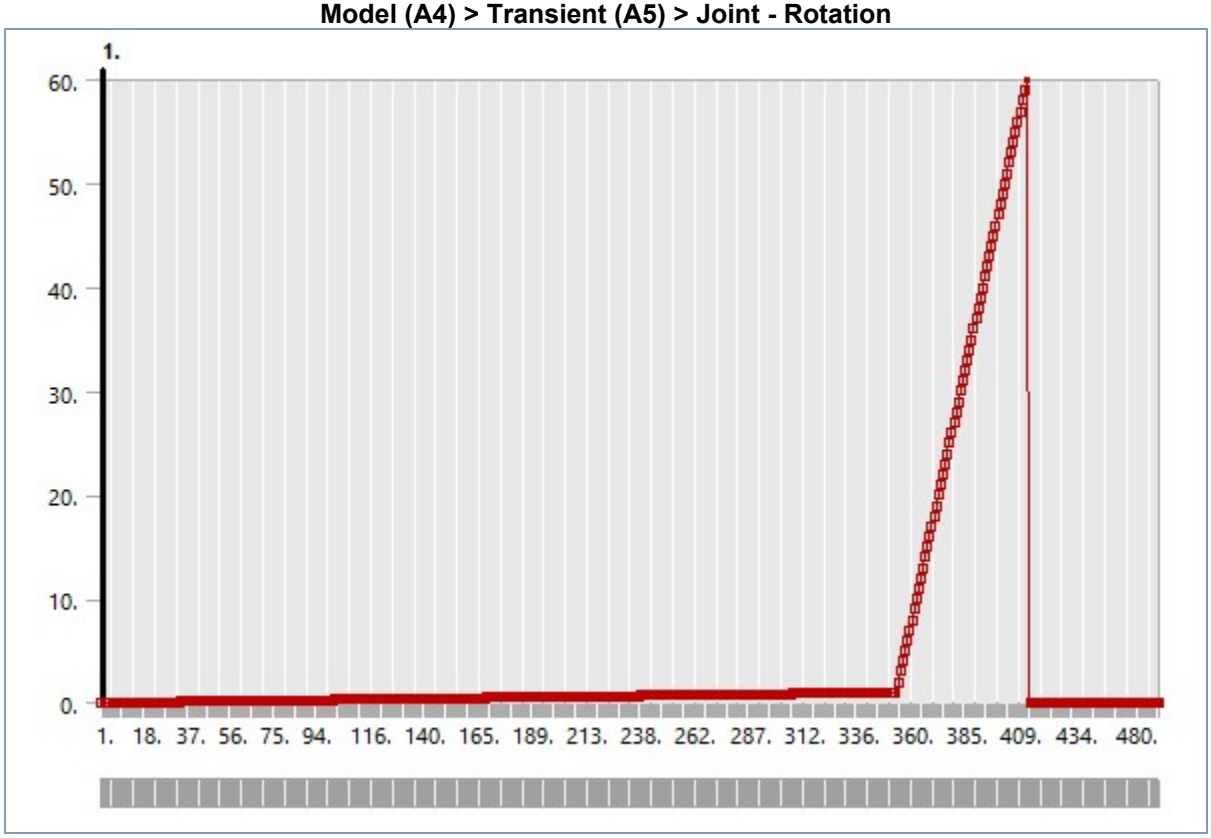


TABLE 24
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	= 0.
	1.	0.
2	2.	= 2.7778e-003
3	3.	= 5.5556e-003
4	4.	= 8.3333e-003
5	5.	= 1.1111e-002
6	6.	= 1.3889e-002
7	7.	= 1.6667e-002
8	8.	= 1.9444e-002
9	9.	= 2.2222e-002
10	10.	= 2.5e-002
11	11.	= 2.7778e-002
12	12.	= 3.0556e-002
13	13.	= 3.3333e-002
14	14.	= 3.6111e-002
15	15.	= 3.8889e-002
16	16.	= 4.1667e-002
17	17.	= 4.4444e-002
18	18.	= 4.7222e-002
19	19.	= 5.e-002
20	20.	= 5.2778e-002
21	21.	= 5.5556e-002

22	22.	= 5.8333e-002
23	23.	= 6.1111e-002
24	24.	= 6.3889e-002
25	25.	= 6.6667e-002
26	26.	= 6.9444e-002
27	27.	= 7.2222e-002
28	28.	= 7.5e-002
29	29.	= 7.7778e-002
30	30.	= 8.0556e-002
31	31.	= 8.3333e-002
32	32.	= 8.6111e-002
33	33.	= 8.8889e-002
34	34.	= 9.1667e-002
35	35.	= 9.4444e-002
36	36.	= 9.7222e-002
37	37.	= 1.e-001
38	38.	= 0.10278
39	39.	= 0.10556
40	40.	= 0.10833
41	41.	= 0.11111
42	42.	= 0.11389
43	43.	= 0.11667
44	44.	= 0.11944
45	45.	= 0.12222
46	46.	= 0.125
47	47.	= 0.12778
48	48.	= 0.13056
49	49.	= 0.13333
50	50.	= 0.13611
51	51.	= 0.13889
52	52.	= 0.14167
53	53.	= 0.14444
54	54.	= 0.14722
55	55.	= 0.15
56	56.	= 0.15278
57	57.	= 0.15556
58	58.	= 0.15833
59	59.	= 0.16111
60	60.	= 0.16389
61	61.	= 0.16667
62	62.	= 0.16944
63	63.	= 0.17222
64	64.	= 0.175
65	65.	= 0.17778
66	66.	= 0.18056
67	67.	= 0.18333
68	68.	= 0.18611
69	69.	= 0.18889
70	70.	= 0.19167
71	71.	= 0.19444
72	72.	= 0.19722
73	73.	= 0.2
74		

	74.	= 0.20278
75	75.	= 0.20556
76	76.	= 0.20833
77	77.	= 0.21111
78	78.	= 0.21389
79	79.	= 0.21667
80	80.	= 0.21944
81	81.	= 0.22222
82	82.	= 0.225
83	83.	= 0.22778
84	84.	= 0.23056
85	85.	= 0.23333
86	86.	= 0.23611
87	87.	= 0.23889
88	88.	= 0.24167
89	89.	= 0.24444
90	90.	= 0.24722
91	91.	= 0.25
92	92.	= 0.25278
93	93.	= 0.25556
94	94.	= 0.25833
95	95.	= 0.26111
96	96.	= 0.26389
97	97.	= 0.26667
98	98.	= 0.26944
99	99.	= 0.27222
100	100.	= 0.275
101	101.	= 0.27778
102	102.	= 0.28056
103	103.	= 0.28333
104	104.	= 0.28611
105	105.	= 0.28889
106	106.	= 0.29167
107	107.	= 0.29444
108	108.	= 0.29722
109	109.	= 0.3
110	110.	= 0.30278
111	111.	= 0.30556
112	112.	= 0.30833
113	113.	= 0.31111
114	114.	= 0.31389
115	115.	= 0.31667
116	116.	= 0.31944
117	117.	= 0.32222
118	118.	= 0.325
119	119.	= 0.32778
120	120.	= 0.33056
121	121.	= 0.33333
122	122.	= 0.33611
123	123.	= 0.33889
124	124.	= 0.34167
125	125.	= 0.34444
126		

	126.	= 0.34722
127	127.	= 0.35
128	128.	= 0.35278
129	129.	= 0.35556
130	130.	= 0.35833
131	131.	= 0.36111
132	132.	= 0.36389
133	133.	= 0.36667
134	134.	= 0.36944
135	135.	= 0.37222
136	136.	= 0.375
137	137.	= 0.37778
138	138.	= 0.38056
139	139.	= 0.38333
140	140.	= 0.38611
141	141.	= 0.38889
142	142.	= 0.39167
143	143.	= 0.39444
144	144.	= 0.39722
145	145.	= 0.4
146	146.	= 0.40278
147	147.	= 0.40556
148	148.	= 0.40833
149	149.	= 0.41111
150	150.	= 0.41389
151	151.	= 0.41667
152	152.	= 0.41944
153	153.	= 0.42222
154	154.	= 0.425
155	155.	= 0.42778
156	156.	= 0.43056
157	157.	= 0.43333
158	158.	= 0.43611
159	159.	= 0.43889
160	160.	= 0.44167
161	161.	= 0.44444
162	162.	= 0.44722
163	163.	= 0.45
164	164.	= 0.45278
165	165.	= 0.45556
166	166.	= 0.45833
167	167.	= 0.46111
168	168.	= 0.46389
169	169.	= 0.46667
170	170.	= 0.46944
171	171.	= 0.47222
172	172.	= 0.475
173	173.	= 0.47778
174	174.	= 0.48056
175	175.	= 0.48333
176	176.	= 0.48611
177	177.	= 0.48889
178		

	178.	= 0.49167
179	179.	= 0.49444
180	180.	= 0.49722
181	181.	= 0.5
182	182.	= 0.50278
183	183.	= 0.50556
184	184.	= 0.50833
185	185.	= 0.51111
186	186.	= 0.51389
187	187.	= 0.51667
188	188.	= 0.51944
189	189.	= 0.52222
190	190.	= 0.525
191	191.	= 0.52778
192	192.	= 0.53056
193	193.	= 0.53333
194	194.	= 0.53611
195	195.	= 0.53889
196	196.	= 0.54167
197	197.	= 0.54444
198	198.	= 0.54722
199	199.	= 0.55
200	200.	= 0.55278
201	201.	= 0.55556
202	202.	= 0.55833
203	203.	= 0.56111
204	204.	= 0.56389
205	205.	= 0.56667
206	206.	= 0.56944
207	207.	= 0.57222
208	208.	= 0.575
209	209.	= 0.57778
210	210.	= 0.58056
211	211.	= 0.58333
212	212.	= 0.58611
213	213.	= 0.58889
214	214.	= 0.59167
215	215.	= 0.59444
216	216.	= 0.59722
217	217.	= 0.6
218	218.	= 0.60278
219	219.	= 0.60556
220	220.	= 0.60833
221	221.	= 0.61111
222	222.	= 0.61389
223	223.	= 0.61667
224	224.	= 0.61944
225	225.	= 0.62222
226	226.	= 0.625
227	227.	= 0.62778
228	228.	= 0.63056
229	229.	= 0.63333
230		

	230.	= 0.63611
231	231.	= 0.63889
232	232.	= 0.64167
233	233.	= 0.64444
234	234.	= 0.64722
235	235.	= 0.65
236	236.	= 0.65278
237	237.	= 0.65556
238	238.	= 0.65833
239	239.	= 0.66111
240	240.	= 0.66389
241	241.	= 0.66667
242	242.	= 0.66944
243	243.	= 0.67222
244	244.	= 0.675
245	245.	= 0.67778
246	246.	= 0.68056
247	247.	= 0.68333
248	248.	= 0.68611
249	249.	= 0.68889
250	250.	= 0.69167
251	251.	= 0.69444
252	252.	= 0.69722
253	253.	= 0.7
254	254.	= 0.70278
255	255.	= 0.70556
256	256.	= 0.70833
257	257.	= 0.71111
258	258.	= 0.71389
259	259.	= 0.71667
260	260.	= 0.71944
261	261.	= 0.72222
262	262.	= 0.725
263	263.	= 0.72778
264	264.	= 0.73056
265	265.	= 0.73333
266	266.	= 0.73611
267	267.	= 0.73889
268	268.	= 0.74167
269	269.	= 0.74444
270	270.	= 0.74722
271	271.	= 0.75
272	272.	= 0.75278
273	273.	= 0.75556
274	274.	= 0.75833
275	275.	= 0.76111
276	276.	= 0.76389
277	277.	= 0.76667
278	278.	= 0.76944
279	279.	= 0.77222
280	280.	= 0.775
281	281.	= 0.77778
282		

	282.	= 0.78056
283	283.	= 0.78333
284	284.	= 0.78611
285	285.	= 0.78889
286	286.	= 0.79167
287	287.	= 0.79444
288	288.	= 0.79722
289	289.	= 0.8
290	290.	= 0.80278
291	291.	= 0.80556
292	292.	= 0.80833
293	293.	= 0.81111
294	294.	= 0.81389
295	295.	= 0.81667
296	296.	= 0.81944
297	297.	= 0.82222
298	298.	= 0.825
299	299.	= 0.82778
300	300.	= 0.83056
301	301.	= 0.83333
302	302.	= 0.83611
303	303.	= 0.83889
304	304.	= 0.84167
305	305.	= 0.84444
306	306.	= 0.84722
307	307.	= 0.85
308	308.	= 0.85278
309	309.	= 0.85556
310	310.	= 0.85833
311	311.	= 0.86111
312	312.	= 0.86389
313	313.	= 0.86667
314	314.	= 0.86944
315	315.	= 0.87222
316	316.	= 0.875
317	317.	= 0.87778
318	318.	= 0.88056
319	319.	= 0.88333
320	320.	= 0.88611
321	321.	= 0.88889
322	322.	= 0.89167
323	323.	= 0.89444
324	324.	= 0.89722
325	325.	= 0.9
326	326.	= 0.90278
327	327.	= 0.90556
328	328.	= 0.90833
329	329.	= 0.91111
330	330.	= 0.91389
331	331.	= 0.91667
332	332.	= 0.91944
333	333.	= 0.92222
334		

	334.	= 0.925
335	335.	= 0.92778
336	336.	= 0.93056
337	337.	= 0.93333
338	338.	= 0.93611
339	339.	= 0.93889
340	340.	= 0.94167
341	341.	= 0.94444
342	342.	= 0.94722
343	343.	= 0.95
344	344.	= 0.95278
345	345.	= 0.95556
346	346.	= 0.95833
347	347.	= 0.96111
348	348.	= 0.96389
349	349.	= 0.96667
350	350.	= 0.96944
351	351.	= 0.97222
352	352.	= 0.975
353	353.	= 0.97778
354	354.	= 0.98056
355	355.	= 0.98333
356	356.	= 0.98611
357	357.	= 0.98889
358	358.	= 0.99167
359	359.	= 0.99444
360	360.	= 0.99722
361	361.	1.
362	362.	= 2.
363	363.	= 3.
364	364.	= 4.
365	365.	= 5.
366	366.	= 6.
367	367.	= 7.
368	368.	= 8.
369	369.	= 9.
370	370.	= 10.
371	371.	= 11.
372	372.	= 12.
373	373.	= 13.
374	374.	= 14.
375	375.	= 15.
376	376.	= 16.
377	377.	= 17.
378	378.	= 18.
379	379.	= 19.
380	380.	= 20.
381	381.	= 21.
382	382.	= 22.
383	383.	= 23.
384	384.	= 24.
385	385.	= 25.
386		

	386.	= 26.
387	387.	= 27.
388	388.	= 28.
389	389.	= 29.
390	390.	= 30.
391	391.	= 31.
392	392.	= 32.
393	393.	= 33.
394	394.	= 34.
395	395.	= 35.
396	396.	= 36.
397	397.	= 37.
398	398.	= 38.
399	399.	= 39.
400	400.	= 40.
401	401.	= 41.
402	402.	= 42.
403	403.	= 43.
404	404.	= 44.
405	405.	= 45.
406	406.	= 46.
407	407.	= 47.
408	408.	= 48.
409	409.	= 49.
410	410.	= 50.
411	411.	= 51.
412	412.	= 52.
413	413.	= 53.
414	414.	= 54.
415	415.	= 55.
416	416.	= 56.
417	417.	= 57.
418	418.	= 58.
419	419.	= 59.
420	420.	60.
421	421.	0.
422	422.	
423	423.	
424	424.	
425	425.	
426	426.	
427	427.	
428	428.	
429	429.	
430	430.	
431	431.	
432	432.	
433	433.	
434	434.	
435	435.	
436	436.	
437	437.	
438		

	438.	
439	439.	
440	440.	
441	441.	
442	442.	
443	443.	
444	444.	
445	445.	
446	446.	
447	447.	
448	448.	
449	449.	
450	450.	
451	451.	
452	452.	
453	453.	
454	454.	
455	455.	
456	456.	
457	457.	
458	458.	
459	459.	= 0.
460	460.	
461	461.	
462	462.	
463	463.	
464	464.	
465	465.	
466	466.	
467	467.	
468	468.	
469	469.	
470	470.	
471	471.	
472	472.	
473	473.	
474	474.	
475	475.	
476	476.	
477	477.	
478	478.	
479	479.	
480	480.	

FIGURE 8
Model (A4) > Transient (A5) > Joint - Rotation

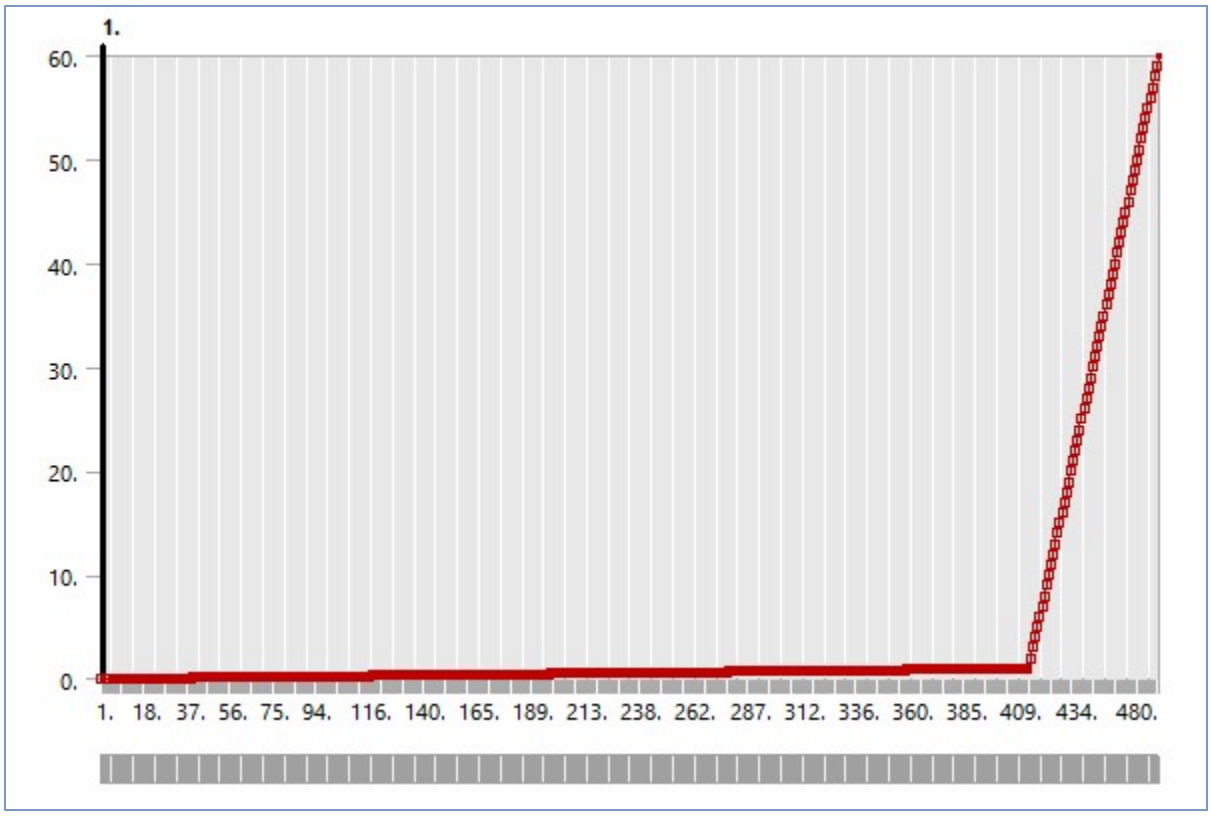


TABLE 25
Model (A4) > Transient (A5) > Joint - Rotation

Steps	Time [s]	Rotation [°]
1	0.	= 0.
	1.	0.
2	2.	= 2.381e-003
3	3.	= 4.7619e-003
4	4.	= 7.1429e-003
5	5.	= 9.5238e-003
6	6.	= 1.1905e-002
7	7.	= 1.4286e-002
8	8.	= 1.6667e-002
9	9.	= 1.9048e-002
10	10.	= 2.1429e-002
11	11.	= 2.381e-002
12	12.	= 2.619e-002
13	13.	= 2.8571e-002
14	14.	= 3.0952e-002
15	15.	= 3.3333e-002
16	16.	= 3.5714e-002
17	17.	= 3.8095e-002
18	18.	= 4.0476e-002
19	19.	= 4.2857e-002
20	20.	= 4.5238e-002
21	21.	= 4.7619e-002
22	22.	= 5.e-002
23	23.	= 5.2381e-002
24	24.	= 5.4762e-002

25	25.	= 5.7143e-002
26	26.	= 5.9524e-002
27	27.	= 6.1905e-002
28	28.	= 6.4286e-002
29	29.	= 6.6667e-002
30	30.	= 6.9048e-002
31	31.	= 7.1429e-002
32	32.	= 7.381e-002
33	33.	= 7.619e-002
34	34.	= 7.8571e-002
35	35.	= 8.0952e-002
36	36.	= 8.3333e-002
37	37.	= 8.5714e-002
38	38.	= 8.8095e-002
39	39.	= 9.0476e-002
40	40.	= 9.2857e-002
41	41.	= 9.5238e-002
42	42.	= 9.7619e-002
43	43.	= 1.e-001
44	44.	= 0.10238
45	45.	= 0.10476
46	46.	= 0.10714
47	47.	= 0.10952
48	48.	= 0.1119
49	49.	= 0.11429
50	50.	= 0.11667
51	51.	= 0.11905
52	52.	= 0.12143
53	53.	= 0.12381
54	54.	= 0.12619
55	55.	= 0.12857
56	56.	= 0.13095
57	57.	= 0.13333
58	58.	= 0.13571
59	59.	= 0.1381
60	60.	= 0.14048
61	61.	= 0.14286
62	62.	= 0.14524
63	63.	= 0.14762
64	64.	= 0.15
65	65.	= 0.15238
66	66.	= 0.15476
67	67.	= 0.15714
68	68.	= 0.15952
69	69.	= 0.1619
70	70.	= 0.16429
71	71.	= 0.16667
72	72.	= 0.16905
73	73.	= 0.17143
74	74.	= 0.17381
75	75.	= 0.17619
76	76.	= 0.17857
77		

	77.	= 0.18095
78	78.	= 0.18333
79	79.	= 0.18571
80	80.	= 0.1881
81	81.	= 0.19048
82	82.	= 0.19286
83	83.	= 0.19524
84	84.	= 0.19762
85	85.	= 0.2
86	86.	= 0.20238
87	87.	= 0.20476
88	88.	= 0.20714
89	89.	= 0.20952
90	90.	= 0.2119
91	91.	= 0.21429
92	92.	= 0.21667
93	93.	= 0.21905
94	94.	= 0.22143
95	95.	= 0.22381
96	96.	= 0.22619
97	97.	= 0.22857
98	98.	= 0.23095
99	99.	= 0.23333
100	100.	= 0.23571
101	101.	= 0.2381
102	102.	= 0.24048
103	103.	= 0.24286
104	104.	= 0.24524
105	105.	= 0.24762
106	106.	= 0.25
107	107.	= 0.25238
108	108.	= 0.25476
109	109.	= 0.25714
110	110.	= 0.25952
111	111.	= 0.2619
112	112.	= 0.26429
113	113.	= 0.26667
114	114.	= 0.26905
115	115.	= 0.27143
116	116.	= 0.27381
117	117.	= 0.27619
118	118.	= 0.27857
119	119.	= 0.28095
120	120.	= 0.28333
121	121.	= 0.28571
122	122.	= 0.2881
123	123.	= 0.29048
124	124.	= 0.29286
125	125.	= 0.29524
126	126.	= 0.29762
127	127.	= 0.3
128	128.	= 0.30238
129		

	129.	= 0.30476
130	130.	= 0.30714
131	131.	= 0.30952
132	132.	= 0.3119
133	133.	= 0.31429
134	134.	= 0.31667
135	135.	= 0.31905
136	136.	= 0.32143
137	137.	= 0.32381
138	138.	= 0.32619
139	139.	= 0.32857
140	140.	= 0.33095
141	141.	= 0.33333
142	142.	= 0.33571
143	143.	= 0.3381
144	144.	= 0.34048
145	145.	= 0.34286
146	146.	= 0.34524
147	147.	= 0.34762
148	148.	= 0.35
149	149.	= 0.35238
150	150.	= 0.35476
151	151.	= 0.35714
152	152.	= 0.35952
153	153.	= 0.3619
154	154.	= 0.36429
155	155.	= 0.36667
156	156.	= 0.36905
157	157.	= 0.37143
158	158.	= 0.37381
159	159.	= 0.37619
160	160.	= 0.37857
161	161.	= 0.38095
162	162.	= 0.38333
163	163.	= 0.38571
164	164.	= 0.3881
165	165.	= 0.39048
166	166.	= 0.39286
167	167.	= 0.39524
168	168.	= 0.39762
169	169.	= 0.4
170	170.	= 0.40238
171	171.	= 0.40476
172	172.	= 0.40714
173	173.	= 0.40952
174	174.	= 0.4119
175	175.	= 0.41429
176	176.	= 0.41667
177	177.	= 0.41905
178	178.	= 0.42143
179	179.	= 0.42381
180	180.	= 0.42619
181		

	181.	= 0.42857
182	182.	= 0.43095
183	183.	= 0.43333
184	184.	= 0.43571
185	185.	= 0.4381
186	186.	= 0.44048
187	187.	= 0.44286
188	188.	= 0.44524
189	189.	= 0.44762
190	190.	= 0.45
191	191.	= 0.45238
192	192.	= 0.45476
193	193.	= 0.45714
194	194.	= 0.45952
195	195.	= 0.4619
196	196.	= 0.46429
197	197.	= 0.46667
198	198.	= 0.46905
199	199.	= 0.47143
200	200.	= 0.47381
201	201.	= 0.47619
202	202.	= 0.47857
203	203.	= 0.48095
204	204.	= 0.48333
205	205.	= 0.48571
206	206.	= 0.4881
207	207.	= 0.49048
208	208.	= 0.49286
209	209.	= 0.49524
210	210.	= 0.49762
211	211.	= 0.5
212	212.	= 0.50238
213	213.	= 0.50476
214	214.	= 0.50714
215	215.	= 0.50952
216	216.	= 0.5119
217	217.	= 0.51429
218	218.	= 0.51667
219	219.	= 0.51905
220	220.	= 0.52143
221	221.	= 0.52381
222	222.	= 0.52619
223	223.	= 0.52857
224	224.	= 0.53095
225	225.	= 0.53333
226	226.	= 0.53571
227	227.	= 0.5381
228	228.	= 0.54048
229	229.	= 0.54286
230	230.	= 0.54524
231	231.	= 0.54762
232	232.	= 0.55
233		

	233.	= 0.55238
234	234.	= 0.55476
235	235.	= 0.55714
236	236.	= 0.55952
237	237.	= 0.5619
238	238.	= 0.56429
239	239.	= 0.56667
240	240.	= 0.56905
241	241.	= 0.57143
242	242.	= 0.57381
243	243.	= 0.57619
244	244.	= 0.57857
245	245.	= 0.58095
246	246.	= 0.58333
247	247.	= 0.58571
248	248.	= 0.5881
249	249.	= 0.59048
250	250.	= 0.59286
251	251.	= 0.59524
252	252.	= 0.59762
253	253.	= 0.6
254	254.	= 0.60238
255	255.	= 0.60476
256	256.	= 0.60714
257	257.	= 0.60952
258	258.	= 0.6119
259	259.	= 0.61429
260	260.	= 0.61667
261	261.	= 0.61905
262	262.	= 0.62143
263	263.	= 0.62381
264	264.	= 0.62619
265	265.	= 0.62857
266	266.	= 0.63095
267	267.	= 0.63333
268	268.	= 0.63571
269	269.	= 0.6381
270	270.	= 0.64048
271	271.	= 0.64286
272	272.	= 0.64524
273	273.	= 0.64762
274	274.	= 0.65
275	275.	= 0.65238
276	276.	= 0.65476
277	277.	= 0.65714
278	278.	= 0.65952
279	279.	= 0.6619
280	280.	= 0.66429
281	281.	= 0.66667
282	282.	= 0.66905
283	283.	= 0.67143
284	284.	= 0.67381
285		

	285.	= 0.67619
286	286.	= 0.67857
287	287.	= 0.68095
288	288.	= 0.68333
289	289.	= 0.68571
290	290.	= 0.6881
291	291.	= 0.69048
292	292.	= 0.69286
293	293.	= 0.69524
294	294.	= 0.69762
295	295.	= 0.7
296	296.	= 0.70238
297	297.	= 0.70476
298	298.	= 0.70714
299	299.	= 0.70952
300	300.	= 0.7119
301	301.	= 0.71429
302	302.	= 0.71667
303	303.	= 0.71905
304	304.	= 0.72143
305	305.	= 0.72381
306	306.	= 0.72619
307	307.	= 0.72857
308	308.	= 0.73095
309	309.	= 0.73333
310	310.	= 0.73571
311	311.	= 0.7381
312	312.	= 0.74048
313	313.	= 0.74286
314	314.	= 0.74524
315	315.	= 0.74762
316	316.	= 0.75
317	317.	= 0.75238
318	318.	= 0.75476
319	319.	= 0.75714
320	320.	= 0.75952
321	321.	= 0.7619
322	322.	= 0.76429
323	323.	= 0.76667
324	324.	= 0.76905
325	325.	= 0.77143
326	326.	= 0.77381
327	327.	= 0.77619
328	328.	= 0.77857
329	329.	= 0.78095
330	330.	= 0.78333
331	331.	= 0.78571
332	332.	= 0.7881
333	333.	= 0.79048
334	334.	= 0.79286
335	335.	= 0.79524
336	336.	= 0.79762
337		

	337.	= 0.8
338	338.	= 0.80238
339	339.	= 0.80476
340	340.	= 0.80714
341	341.	= 0.80952
342	342.	= 0.8119
343	343.	= 0.81429
344	344.	= 0.81667
345	345.	= 0.81905
346	346.	= 0.82143
347	347.	= 0.82381
348	348.	= 0.82619
349	349.	= 0.82857
350	350.	= 0.83095
351	351.	= 0.83333
352	352.	= 0.83571
353	353.	= 0.8381
354	354.	= 0.84048
355	355.	= 0.84286
356	356.	= 0.84524
357	357.	= 0.84762
358	358.	= 0.85
359	359.	= 0.85238
360	360.	= 0.85476
361	361.	= 0.85714
362	362.	= 0.85952
363	363.	= 0.8619
364	364.	= 0.86429
365	365.	= 0.86667
366	366.	= 0.86905
367	367.	= 0.87143
368	368.	= 0.87381
369	369.	= 0.87619
370	370.	= 0.87857
371	371.	= 0.88095
372	372.	= 0.88333
373	373.	= 0.88571
374	374.	= 0.8881
375	375.	= 0.89048
376	376.	= 0.89286
377	377.	= 0.89524
378	378.	= 0.89762
379	379.	= 0.9
380	380.	= 0.90238
381	381.	= 0.90476
382	382.	= 0.90714
383	383.	= 0.90952
384	384.	= 0.9119
385	385.	= 0.91429
386	386.	= 0.91667
387	387.	= 0.91905
388	388.	= 0.92143
389		

	389.	= 0.92381
390	390.	= 0.92619
391	391.	= 0.92857
392	392.	= 0.93095
393	393.	= 0.93333
394	394.	= 0.93571
395	395.	= 0.9381
396	396.	= 0.94048
397	397.	= 0.94286
398	398.	= 0.94524
399	399.	= 0.94762
400	400.	= 0.95
401	401.	= 0.95238
402	402.	= 0.95476
403	403.	= 0.95714
404	404.	= 0.95952
405	405.	= 0.9619
406	406.	= 0.96429
407	407.	= 0.96667
408	408.	= 0.96905
409	409.	= 0.97143
410	410.	= 0.97381
411	411.	= 0.97619
412	412.	= 0.97857
413	413.	= 0.98095
414	414.	= 0.98333
415	415.	= 0.98571
416	416.	= 0.9881
417	417.	= 0.99048
418	418.	= 0.99286
419	419.	= 0.99524
420	420.	= 0.99762
421	421.	1.
422	422.	= 2.
423	423.	= 3.
424	424.	= 4.
425	425.	= 5.
426	426.	= 6.
427	427.	= 7.
428	428.	= 8.
429	429.	= 9.
430	430.	= 10.
431	431.	= 11.
432	432.	= 12.
433	433.	= 13.
434	434.	= 14.
435	435.	= 15.
436	436.	= 16.
437	437.	= 17.
438	438.	= 18.
439	439.	= 19.
440	440.	= 20.
441		

	441.	= 21.
442	442.	= 22.
443	443.	= 23.
444	444.	= 24.
445	445.	= 25.
446	446.	= 26.
447	447.	= 27.
448	448.	= 28.
449	449.	= 29.
450	450.	= 30.
451	451.	= 31.
452	452.	= 32.
453	453.	= 33.
454	454.	= 34.
455	455.	= 35.
456	456.	= 36.
457	457.	= 37.
458	458.	= 38.
459	459.	= 39.
460	460.	= 40.
461	461.	= 41.
462	462.	= 42.
463	463.	= 43.
464	464.	= 44.
465	465.	= 45.
466	466.	= 46.
467	467.	= 47.
468	468.	= 48.
469	469.	= 49.
470	470.	= 50.
471	471.	= 51.
472	472.	= 52.
473	473.	= 53.
474	474.	= 54.
475	475.	= 55.
476	476.	= 56.
477	477.	= 57.
478	478.	= 58.
479	479.	= 59.
480	480.	60.

Solution (A6)

TABLE 26
Model (A4) > Transient (A5) > Solution

Object Name	*Solution (A6)*
State	Underdefined
Adaptive Mesh Refinement	
Max Refinement Loops	1.
Refinement Depth	2.
Information	
Status	Done

MAPDL Elapsed Time	1 m 44 s
MAPDL Memory Used	172. MB
MAPDL Result File Size	6.75 MB
Post Processing	
Beam Section Results	No

TABLE 27
Model (A4) > Transient (A5) > Solution (A6) > Solution Information

Object Name	*Solution Information*
State	Solved
Solution Information	
Solution Output	Solver Output
Newton-Raphson Residuals	0
Identify Element Violations	0
Update Interval	2.5 s
Display Points	All
FE Connection Visibility	
Activate Visibility	Yes
Display	All FE Connectors
Draw Connections Attached To	All Nodes
Line Color	Connection Type
Visible on Results	No
Line Thickness	Single
Display Type	Lines

TABLE 28
Model (A4) > Transient (A5) > Solution (A6) > Results

Object Name	*Total Deformation*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Definition	
Type	Total Deformation
By	Time
Display Time	Last
Separate Data by Entity	No
Calculate Time History	Yes
Identifier	
Suppressed	No
Results	
Minimum	0. m
Maximum	5.8224e-002 m
Average	6.4693e-003 m
Minimum Occurs On	Part1
Maximum Occurs On	Part8
Minimum Value Over Time	
Minimum	0. m
Maximum	0. m
Maximum Value Over Time	
Minimum	1.0162e-003 m
Maximum	0.75103 m
Information	

Time	480. s
Load Step	480
Substep	1
Iteration Number	965

FIGURE 9
Model (A4) > Transient (A5) > Solution (A6) > Total Deformation

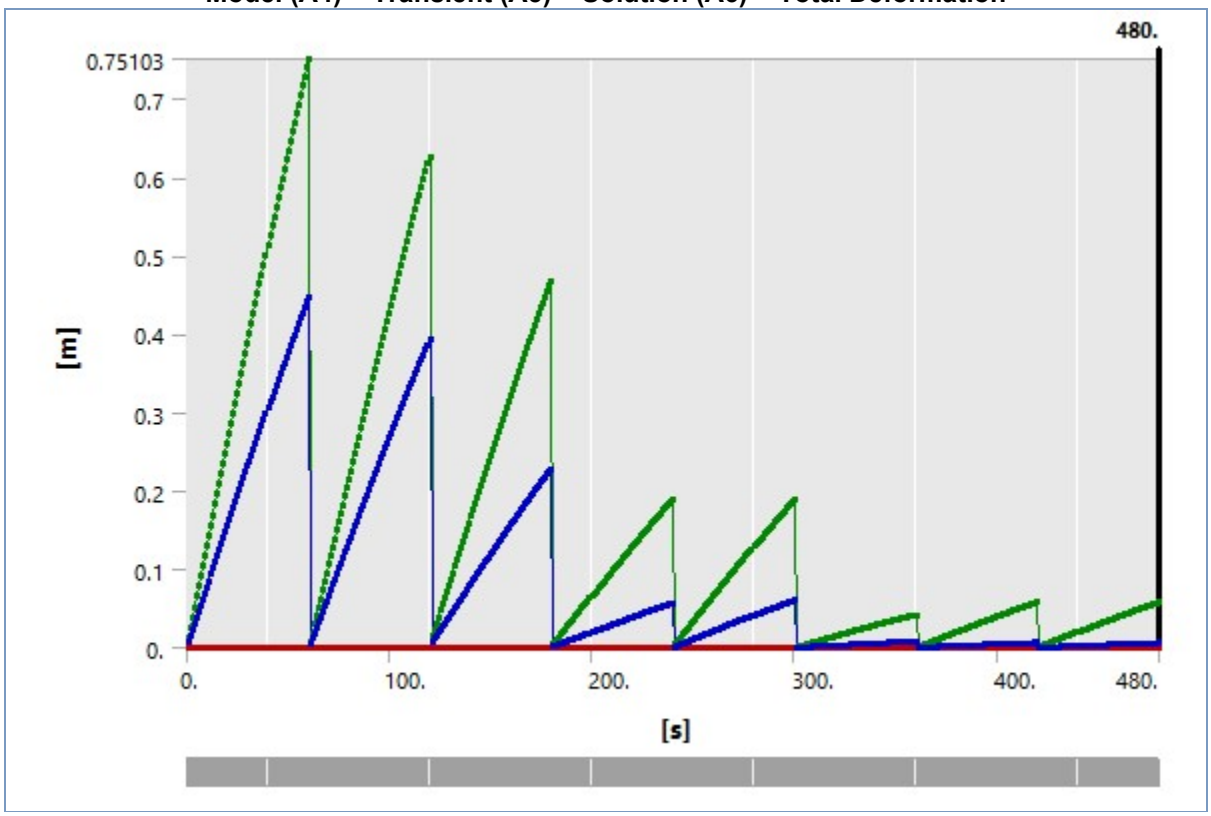


TABLE 29
Model (A4) > Transient (A5) > Solution (A6) > Total Deformation

Time [s]	Minimum [m]	Maximum [m]	Average [m]
1.		1.3062e-002	7.7767e-003
2.		2.614e-002	1.5561e-002
3.		3.9218e-002	2.3345e-002
4.		5.2293e-002	3.1129e-002
5.		6.5366e-002	3.8911e-002
6.		7.8435e-002	4.6692e-002
7.		9.1499e-002	5.447e-002
8.		0.10456	6.2244e-002
9.		0.11761	7.0015e-002
10.		0.13065	7.7782e-002
11.		0.14368	8.5544e-002
12.		0.15671	9.33e-002
13.		0.16972	0.10105
14.		0.18272	0.10879
15.		0.19571	0.11653
16.		0.20869	0.12426
17.		0.22165	0.13198
18.		0.23459	0.13969

19.		0.24752	0.14739
20.		0.26043	0.15508
21.		0.27332	0.16276
22.		0.28619	0.17043
23.		0.29904	0.17808
24.		0.31187	0.18573
25.		0.32467	0.19336
26.		0.33745	0.20098
27.		0.35021	0.20858
28.		0.36294	0.21617
29.		0.37564	0.22374
30.		0.38832	0.23129
31.		0.40097	0.23883
32.		0.41359	0.24636
33.		0.42617	0.25386
34.		0.43873	0.26135
35.		0.45125	0.26881
36.		0.46375	0.27626
37.		0.4762	0.28369
38.		0.48862	0.29109
39.		0.50101	0.29848
40.		0.51335	0.30584
41.		0.52566	0.31318
42.		0.53793	0.3205
43.		0.55016	0.32779
44.		0.56235	0.33507
45.		0.5745	0.34231
46.		0.5866	0.34953
47.		0.59866	0.35673
48.		0.61067	0.3639
49.		0.62264	0.37104
50.		0.63457	0.37815
51.		0.64644	0.38524
52.		0.65827	0.3923
53.		0.67005	0.39932
54.		0.68177	0.40632
55.		0.69345	0.41329
56.		0.70507	0.42023
57.		0.71665	0.42714
58.		0.72816	0.43401
59.		0.73963	0.44086
60.		0.75103	0.44767
61.		7.9482e-003	5.269e-003
62.		1.864e-002	1.207e-002
63.		2.9587e-002	1.8914e-002
64.		4.0546e-002	2.5766e-002
65.		5.1507e-002	3.262e-002
66.		6.2467e-002	3.9472e-002
67.		7.3424e-002	4.6323e-002
68.		8.4376e-002	5.3171e-002
69.		9.5323e-002	6.0015e-002
70.		0.10626	6.6855e-002
71.			

		0.1172	7.3691e-002
72.		0.12812	8.0522e-002
73.		0.13904	8.7347e-002
74.		0.14994	9.4165e-002
75.		0.16084	0.10098
76.		0.17172	0.10778
77.		0.18259	0.11458
78.		0.19345	0.12137
79.		0.20429	0.12815
80.		0.21512	0.13492
81.		0.22593	0.14168
82.		0.23673	0.14842
83.		0.24751	0.15516
84.		0.25827	0.16189
85.		0.26901	0.16861
86.		0.27973	0.17531
87.		0.29043	0.182
88.		0.30111	0.18867
89.		0.31177	0.19534
90.		0.3224	0.20198
91.		0.33301	0.20862
92.		0.34359	0.21523
93.		0.35415	0.22183
94.		0.36469	0.22842
95.		0.37519	0.23499
96.		0.38567	0.24154
97.		0.39612	0.24807
98.		0.40654	0.25458
99.		0.41693	0.26108
100.		0.42729	0.26755
101.		0.43761	0.27401
102.		0.44791	0.28044
103.		0.45817	0.28686
104.		0.46839	0.29325
105.		0.47859	0.29962
106.		0.48874	0.30597
107.		0.49886	0.31229
108.		0.50894	0.31859
109.		0.51899	0.32487
110.		0.52899	0.33112
111.		0.53896	0.33735
112.		0.54888	0.34356
113.		0.55877	0.34973
114.		0.56861	0.35589
115.		0.57841	0.36201
116.		0.58817	0.36811
117.		0.59788	0.37418
118.		0.60755	0.38022
119.		0.61717	0.38623
120.		0.62675	0.39222
121.		1.5383e-002	7.7748e-003
122.		2.3383e-002	1.1676e-002
123.			

		3.1412e-002	1.5586e-002
124.		3.945e-002	1.9499e-002
125.		4.749e-002	2.3413e-002
126.		5.5531e-002	2.7326e-002
127.		6.3569e-002	3.1237e-002
128.		7.1603e-002	3.5147e-002
129.		7.9633e-002	3.9054e-002
130.		8.7658e-002	4.2959e-002
131.		9.5677e-002	4.6861e-002
132.		0.10369	5.0759e-002
133.		0.11169	5.4654e-002
134.		0.11969	5.8544e-002
135.		0.12768	6.2431e-002
136.		0.13565	6.6313e-002
137.		0.14362	7.0189e-002
138.		0.15158	7.4061e-002
139.		0.15952	7.7927e-002
140.		0.16746	8.1788e-002
141.		0.17538	8.5642e-002
142.		0.18329	8.949e-002
143.		0.19118	9.3331e-002
144.		0.19906	9.7166e-002
145.		0.20693	0.10099
146.		0.21478	0.10481
147.		0.22261	0.10862
148.		0.23043	0.11243
149.		0.23823	0.11622
150.		0.24602	0.12001
151.		0.25378	0.12379
152.		0.26153	0.12756
153.		0.26925	0.13132
154.		0.27696	0.13507
155.		0.28465	0.13881
156.		0.29231	0.14254
157.		0.29995	0.14626
158.		0.30758	0.14996
159.		0.31517	0.15366
160.		0.32275	0.15735
161.		0.3303	0.16102
162.		0.33783	0.16468
163.		0.34533	0.16833
164.		0.3528	0.17197
165.		0.36025	0.1756
166.		0.36768	0.17921
167.		0.37507	0.18281
168.		0.38244	0.18639
169.		0.38978	0.18996
170.		0.39709	0.19352
171.		0.40437	0.19706
172.		0.41163	0.20059
173.		0.41885	0.20411
174.		0.42604	0.2076
175.			

		0.4332	0.21109
176.		0.44032	0.21456
177.		0.44742	0.21801
178.		0.45448	0.22144
179.		0.46151	0.22486
180.		0.4685	0.22827
181.		4.211e-003	1.2961e-003
182.		7.2904e-003	2.1676e-003
183.		1.0505e-002	3.1156e-003
184.		1.3761e-002	4.0874e-003
185.		1.7032e-002	5.0691e-003
186.		2.0312e-002	6.0556e-003
187.		2.3595e-002	7.0448e-003
188.		2.688e-002	8.0353e-003
189.		3.0165e-002	9.0265e-003
190.		3.3449e-002	1.0018e-002
191.		3.6732e-002	1.1009e-002
192.		4.0013e-002	1.2e-002
193.		4.3292e-002	1.2991e-002
194.		4.6568e-002	1.3981e-002
195.		4.9841e-002	1.497e-002
196.		5.311e-002	1.5958e-002
197.		5.6376e-002	1.6945e-002
198.		5.9637e-002	1.7931e-002
199.		6.2895e-002	1.8916e-002
200.		6.6147e-002	1.9899e-002
201.		6.9395e-002	2.0881e-002
202.		7.2638e-002	2.1862e-002
203.		7.5875e-002	2.2841e-002
204.		7.9106e-002	2.3818e-002
205.		8.2332e-002	2.4793e-002
206.		8.5551e-002	2.5767e-002
207.		8.8764e-002	2.6739e-002
208.		9.197e-002	2.7709e-002
209.		9.517e-002	2.8676e-002
210.		9.8362e-002	2.9642e-002
211.		0.10155	3.0605e-002
212.		0.10472	3.1567e-002
213.		0.10789	3.2525e-002
214.		0.11105	3.3482e-002
215.		0.11421	3.4435e-002
216.		0.11735	3.5387e-002
217.		0.12048	3.6335e-002
218.		0.12361	3.7281e-002
219.		0.12673	3.8224e-002
220.		0.12983	3.9164e-002
221.		0.13293	4.0101e-002
222.		0.13602	4.1035e-002
223.		0.13909	4.1967e-002
224.		0.14216	4.2894e-002
225.		0.14521	4.3819e-002
226.		0.14826	4.474e-002
227.			

		0.15129	4.5658e-002
228.		0.15431	4.6573e-002
229.		0.15732	4.7484e-002
230.		0.16032	4.8391e-002
231.		0.1633	4.9295e-002
232.		0.16628	5.0195e-002
233.		0.16924	5.1091e-002
234.		0.17218	5.1984e-002
235.		0.17512	5.2872e-002
236.		0.17804	5.3756e-002
237.		0.18094	5.4637e-002
238.		0.18384	5.5513e-002
239.		0.18672	5.6385e-002
240.		0.18958	5.7253e-002
241.		3.8856e-003	1.0632e-003
242.		7.134e-003	2.1196e-003
243.		1.0389e-002	3.1792e-003
244.		1.3646e-002	4.2394e-003
245.		1.6902e-002	5.2995e-003
246.		2.0158e-002	6.3593e-003
247.		2.3412e-002	7.4188e-003
248.		2.6665e-002	8.4777e-003
249.		2.9915e-002	9.5361e-003
250.		3.3164e-002	1.0594e-002
251.		3.641e-002	1.1651e-002
252.		3.9653e-002	1.2707e-002
253.		4.2893e-002	1.3762e-002
254.		4.613e-002	1.4815e-002
255.		4.9364e-002	1.5868e-002
256.		5.2594e-002	1.692e-002
257.		5.5819e-002	1.797e-002
258.		5.9041e-002	1.9019e-002
259.		6.2258e-002	2.0067e-002
260.		6.547e-002	2.1113e-002
261.		6.8677e-002	2.2157e-002
262.		7.1879e-002	2.32e-002
263.		7.509e-002	2.4241e-002
264.		7.8336e-002	2.528e-002
265.		8.1576e-002	2.6317e-002
266.		8.481e-002	2.7352e-002
267.		8.8038e-002	2.8385e-002
268.		9.1259e-002	2.9416e-002
269.		9.4473e-002	3.0445e-002
270.		9.7679e-002	3.1471e-002
271.		0.10088	3.2495e-002
272.		0.10407	3.3516e-002
273.		0.10725	3.4535e-002
274.		0.11043	3.5552e-002
275.		0.1136	3.6565e-002
276.		0.11676	3.7576e-002
277.		0.11991	3.8584e-002
278.		0.12305	3.9589e-002
279.			

		0.12618	4.0591e-002
280.		0.1293	4.159e-002
281.		0.13241	4.2585e-002
282.		0.13551	4.3578e-002
283.		0.1386	4.4567e-002
284.		0.14168	4.5553e-002
285.		0.14475	4.6535e-002
286.		0.14781	4.7514e-002
287.		0.15086	4.8489e-002
288.		0.1539	4.946e-002
289.		0.15692	5.0428e-002
290.		0.15993	5.1391e-002
291.		0.16293	5.2351e-002
292.		0.16592	5.3307e-002
293.		0.1689	5.4259e-002
294.		0.17186	5.5207e-002
295.		0.17481	5.615e-002
296.		0.17775	5.7089e-002
297.		0.18067	5.8024e-002
298.		0.18358	5.8955e-002
299.		0.18647	5.9881e-002
300.		0.18935	6.0802e-002
301.		1.0806e-003	2.2644e-004
302.		1.7008e-003	3.3419e-004
303.		2.3871e-003	4.6078e-004
304.		3.0955e-003	5.9454e-004
305.		3.8137e-003	7.3157e-004
306.		4.5368e-003	8.7029e-004
307.		5.2625e-003	1.01e-003
308.		5.9898e-003	1.1502e-003
309.		6.7179e-003	1.2908e-003
310.		7.4463e-003	1.4316e-003
311.		8.1749e-003	1.5725e-003
312.		8.9033e-003	1.7135e-003
313.		9.6314e-003	1.8544e-003
314.		1.0359e-002	1.9953e-003
315.		1.1086e-002	2.1362e-003
316.		1.1812e-002	2.2769e-003
317.		1.2538e-002	2.4175e-003
318.		1.3263e-002	2.5579e-003
319.		1.3986e-002	2.6982e-003
320.		1.4709e-002	2.8383e-003
321.		1.5431e-002	2.9782e-003
322.		1.6152e-002	3.1179e-003
323.		1.6871e-002	3.2573e-003
324.		1.7589e-002	3.3965e-003
325.		1.8306e-002	3.5355e-003
326.		1.9021e-002	3.6742e-003
327.		1.9735e-002	3.8126e-003
328.		2.0448e-002	3.9508e-003
329.		2.1158e-002	4.0886e-003
330.		2.1868e-002	4.2262e-003
331.			

		2.2575e-002	4.3634e-003
332.		2.3281e-002	4.5002e-003
333.		2.3985e-002	4.6368e-003
334.		2.4687e-002	4.7729e-003
335.		2.5388e-002	4.9087e-003
336.		2.6086e-002	5.0442e-003
337.		2.6782e-002	5.1792e-003
338.		2.7476e-002	5.3138e-003
339.		2.8169e-002	5.4481e-003
340.		2.8858e-002	5.5819e-003
341.		2.9546e-002	5.7153e-003
342.		3.0232e-002	5.8482e-003
343.		3.0915e-002	5.9807e-003
344.		3.1595e-002	6.1127e-003
345.		3.2274e-002	6.2443e-003
346.		3.295e-002	6.3753e-003
347.		3.3623e-002	6.5059e-003
348.		3.4293e-002	6.636e-003
349.		3.4961e-002	6.7656e-003
350.		3.5627e-002	6.8946e-003
351.		3.6289e-002	7.0231e-003
352.		3.6949e-002	7.1511e-003
353.		3.7606e-002	7.2785e-003
354.		3.826e-002	7.4054e-003
355.		3.8911e-002	7.5317e-003
356.		3.9559e-002	7.6574e-003
357.		4.0204e-002	7.7825e-003
358.		4.0846e-002	7.907e-003
359.		4.1485e-002	8.0309e-003
360.		4.2121e-002	8.1542e-003
361.		1.0162e-003	2.0969e-004
362.		2.0323e-003	3.2286e-004
363.		3.0482e-003	4.3601e-004
364.		4.0639e-003	5.4913e-004
365.		5.0793e-003	6.6223e-004
366.		6.0944e-003	7.7527e-004
367.		7.1089e-003	8.8827e-004
368.		8.1229e-003	1.0012e-003
369.		9.1363e-003	1.1141e-003
370.		1.0149e-002	1.2269e-003
371.		1.1161e-002	1.3396e-003
372.		1.2172e-002	1.4522e-003
373.		1.3182e-002	1.5647e-003
374.		1.4191e-002	1.6771e-003
375.		1.5199e-002	1.7894e-003
376.		1.6206e-002	1.9015e-003
377.		1.7212e-002	2.0135e-003
378.		1.8216e-002	2.1254e-003
379.		1.9219e-002	2.2371e-003
380.		2.0221e-002	2.3486e-003
381.		2.1221e-002	2.46e-003
382.		2.2219e-002	2.5712e-003
383.			

		2.3216e-002	2.6822e-003
384.		2.4211e-002	2.793e-003
385.		2.5204e-002	2.9036e-003
386.		2.6195e-002	3.014e-003
387.		2.7184e-002	3.1242e-003
388.		2.8171e-002	3.2342e-003
389.		2.9156e-002	3.3439e-003
390.		3.0139e-002	3.4533e-003
391.		3.1119e-002	3.5625e-003
392.		3.2097e-002	3.6715e-003
393.		3.3073e-002	3.7801e-003
394.		3.4046e-002	3.8885e-003
395.		3.5016e-002	3.9966e-003
396.		3.5984e-002	4.1044e-003
397.		3.6949e-002	4.2119e-003
398.		3.7911e-002	4.3191e-003
399.		3.8871e-002	4.426e-003
400.		3.9827e-002	4.5325e-003
401.		4.0781e-002	4.6387e-003
402.		4.1731e-002	4.7446e-003
403.		4.2678e-002	4.8501e-003
404.		4.3622e-002	4.9552e-003
405.		4.4562e-002	5.06e-003
406.		4.5499e-002	5.1644e-003
407.		4.6433e-002	5.2684e-003
408.		4.7363e-002	5.372e-003
409.		4.829e-002	5.4752e-003
410.		4.9213e-002	5.578e-003
411.		5.0132e-002	5.6804e-003
412.		5.1047e-002	5.7824e-003
413.		5.1958e-002	5.8839e-003
414.		5.2866e-002	5.985e-003
415.		5.3769e-002	6.0856e-003
416.		5.4668e-002	6.1858e-003
417.		5.5564e-002	6.2856e-003
418.		5.6455e-002	6.3848e-003
419.		5.7341e-002	6.4836e-003
420.		5.8223e-002	6.5819e-003
421.		1.0162e-003	1.1291e-004
422.		2.0323e-003	2.2581e-004
423.		3.0482e-003	3.3869e-004
424.		4.064e-003	4.5155e-004
425.		5.0794e-003	5.6437e-004
426.		6.0944e-003	6.7715e-004
427.		7.1089e-003	7.8988e-004
428.		8.123e-003	9.0255e-004
429.		9.1364e-003	1.0152e-003
430.		1.0149e-002	1.1277e-003
431.		1.1161e-002	1.2401e-003
432.		1.2172e-002	1.3525e-003
433.		1.3182e-002	1.4647e-003
434.		1.4191e-002	1.5768e-003
435.			

		1.5199e-002	1.6888e-003
436.		1.6206e-002	1.8007e-003
437.		1.7212e-002	1.9124e-003
438.		1.8216e-002	2.024e-003
439.		1.9219e-002	2.1355e-003
440.		2.0221e-002	2.2468e-003
441.		2.1221e-002	2.3579e-003
442.		2.2219e-002	2.4688e-003
443.		2.3216e-002	2.5795e-003
444.		2.4211e-002	2.6901e-003
445.		2.5204e-002	2.8004e-003
446.		2.6195e-002	2.9106e-003
447.		2.7184e-002	3.0205e-003
448.		2.8171e-002	3.1301e-003
449.		2.9156e-002	3.2396e-003
450.		3.0139e-002	3.3488e-003
451.		3.1119e-002	3.4577e-003
452.		3.2097e-002	3.5664e-003
453.		3.3073e-002	3.6748e-003
454.		3.4046e-002	3.7829e-003
455.		3.5016e-002	3.8907e-003
456.		3.5984e-002	3.9982e-003
457.	0.	3.6949e-002	4.1055e-003
458.		3.7912e-002	4.2124e-003
459.		3.8871e-002	4.319e-003
460.		3.9827e-002	4.4253e-003
461.		4.0781e-002	4.5312e-003
462.		4.1731e-002	4.6368e-003
463.		4.2678e-002	4.742e-003
464.		4.3622e-002	4.8469e-003
465.		4.4563e-002	4.9514e-003
466.		4.55e-002	5.0555e-003
467.		4.6433e-002	5.1593e-003
468.		4.7363e-002	5.2626e-003
469.		4.829e-002	5.3656e-003
470.		4.9213e-002	5.4681e-003
471.		5.0132e-002	5.5702e-003
472.		5.1047e-002	5.6719e-003
473.		5.1959e-002	5.7732e-003
474.		5.2866e-002	5.874e-003
475.		5.3769e-002	5.9744e-003
476.		5.4669e-002	6.0743e-003
477.		5.5564e-002	6.1738e-003
478.		5.6455e-002	6.2728e-003
479.		5.7341e-002	6.3713e-003
480.		5.8224e-002	6.4693e-003

Material Data

Structural Steel

TABLE 30

Structural Steel > Constants

Density	7850 kg m^-3
Coefficient of Thermal Expansion	1.2e-005 C^-1
Specific Heat	434 J kg^-1 C^-1
Thermal Conductivity	60.5 W m^-1 C^-1
Resistivity	1.7e-007 ohm m

TABLE 31
Structural Steel > Color

Red	Green	Blue
132	139	179

TABLE 32
Structural Steel > Compressive Ultimate Strength

Compressive Ultimate Strength Pa
0

TABLE 33
Structural Steel > Compressive Yield Strength

Compressive Yield Strength Pa
2.5e+008

TABLE 34
Structural Steel > Tensile Yield Strength

Tensile Yield Strength Pa
2.5e+008

TABLE 35
Structural Steel > Tensile Ultimate Strength

Tensile Ultimate Strength Pa
4.6e+008

TABLE 36
Structural Steel > Isotropic Secant Coefficient of Thermal Expansion

Zero-Thermal-Strain Reference Temperature C
22

TABLE 37
Structural Steel > S-N Curve

Alternating Stress Pa	Cycles	Mean Stress Pa
3.999e+009	10	0
2.827e+009	20	0
1.896e+009	50	0
1.413e+009	100	0
1.069e+009	200	0
4.41e+008	2000	0
2.62e+008	10000	0
2.14e+008	20000	0
1.38e+008	1.e+005	0
1.14e+008	2.e+005	0
8.62e+007	1.e+006	0

TABLE 38
Structural Steel > Strain-Life Parameters

Strength Coefficient Pa	Strength Exponent	Ductility Coefficient	Ductility Exponent	Cyclic Strength Coefficient Pa	Cyclic Strain Hardening Exponent
9.2e+008	-0.106	0.213	-0.47	1.e+009	0.2

TABLE 39
Structural Steel > Isotropic Elasticity

Young's Modulus Pa	Poisson's Ratio	Bulk Modulus Pa	Shear Modulus Pa	Temperature C
2.e+011	0.3	1.6667e+011	7.6923e+010	

TABLE 40
Structural Steel > Isotropic Relative Permeability

Relative Permeability
10000