

**CAUTION:** Failure to properly install the motor or over tensioning of the drive belt can result in damage and/or a significant reduction in product life.

### RSX RP Motor Assembly and Belt Tension Procedure

1. Install the motor to the RP (Reverse Parallel) case. Do not tighten the fasteners at this time.
2. Locate the belt over the pulleys and slide the drive pulley over the motor shaft. Tighten the pulley to the motor shaft.
3. Verify that there is clearance between the inside of the RP case and each pulley. Verify that the pulleys are aligned to each other.
4. Tension the belt by pulling the motor away from the drive shaft with the appropriate force from the "Total Belt Tension" column in the chart below. Tighten the motor fasteners while this force is applied to the motor.

			Tension Specs				Sonic Tension Method						Force Deflection Method					
			Total Belt Tension		Belt Span Tension Force		Natural Frequency	Tension Tolerance	Mass		Width		Span		Deflection		Deflection Force	
			lbf	N	lbf	N			Hz	Hz	lb/in	g/m	in	mm	in	mm	in	mm
RSX080	RP1	HT1	240	1,068	120 ± 20	534 ± 89	153	±15	0.408	4.7	1.42	36	7.24	184	0.11	2.8	9 ± 2	40 ± 9
	RP2	HT1	240	1,068	120 ± 20	534 ± 89	157	±16	0.408	4.7	1.42	36	7.05	179	0.11	2.8	9 ± 2	40 ± 9
RSX096	RP1	ST1	440	1,957	220 ± 20	979 ± 89	190	±8	0.408	4.7	1.42	36	7.87	200	0.12	3.0	16 ± 2	71 ± 9
		HT1	440	1,957	220 ± 20	979 ± 89	145	±6	0.408	4.7	2.44	62	7.87	200	0.12	3.0	16 ± 2	71 ± 9
	RP2	ST1	440	1,957	220 ± 20	979 ± 89	197	±8	0.408	4.7	1.42	36	7.60	193	0.12	3.0	16 ± 2	71 ± 9
		HT1	440	1,957	220 ± 20	979 ± 89	150	±6	0.408	4.7	2.44	62	7.60	193	0.12	3.0	16 ± 2	71 ± 9
RSX128	RP1	HT1	500	2,224	250 ± 20	1,112 ± 89	110	±5	0.408	4.7	2.44	62	11.024	280	0.17	4.3	19 ± 2	84.5 ± 9
	RP2	HT1	500	2,224	250 ± 20	1,112 ± 89	111	±5	0.408	4.7	2.44	62	11.087	282	0.17	4.3	19 ± 2	84.5 ± 9

5. Validate the span tension of the belt using either a sonic tension meter or force deflection method.

#### a. Sonic tension meter

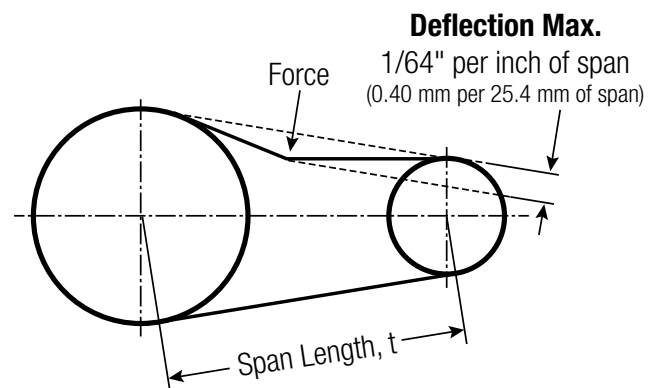
- i. Enter the mass, width, and span from the table above into the tension meter.
- ii. Test the belt using the manufacturers recommendations
- iii. Compare the span tension to the target in the "Span Tension Force"

#### b. Force deflection method

- i. At the center of the span, measure the force required to deflect the belt the distance called out in the "Deflection" column in the table above. The measured force should fall within the deflection force tolerance noted in the "Deflection Force" column.

1. Ensure one pulley is free to rotate.

2. The deflection force needs to be evenly applied across the entire belt width. Use a piece of steel or angle iron across the belt width and deflect the belt evenly.



6. Install the RP cover

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### Non-RSX RP Motor Assembly and Belt Tension Procedure

1. Install the motor to the RP case. Do not tighten the fasteners at this time.
2. Locate the belt over the pulleys and slide the drive pulley over the motor shaft. Tighten the pulley to the motor shaft.
3. Verify that there is clearance between the inside of the RP case and each pulley. Verify that the pulleys are aligned to each other.
4. Install RP cover and tighten with SCHS. Take care not to overtighten. If the cover is deflected it can interfere with the leadscrew.
5. Tension the belt by pulling the motor away from the drive shaft with the appropriate force from the chart below. Tighten the motor fasteners while this force is applied to the motor. \*Shaft diameter is the smaller of the actuator drive shaft, or the motor shaft.

Actuator		Smallest Shaft Ø		Tension Force	
		in	mm	lbf	N
Standard Torque	ALL (Unless specified below)	0.18 - 0.259	4.572 - 6.579	13	5.902
		0.260 - 0.499	6.604 - 12.675	22	9.988
		0.500 - 0.625	12.7 - 15.875	31	14.074
		0.625 and larger	15.875 and larger	40	18.160
High Torque	RSA24 HT	All	All	40	178
	RSA32 HT	Up to 0.47	Up to 12	40	178
		Over 0.47	Over 12	60	267
	RSA50 HT	All	All	60	267
	RSA64 HT	Up to 0.98	Up to 25	60	267
Over 0.98		Over 25	80	356	

Table 1: Non-RSX Belt Tension Requirements

6. If applicable, install both end caps with the screws to finalize assembly.

Belt tension force figures are based on specification derived from the Tolomatic motor product line. Alternate motors should always be verified for equivalent capabilities prior to applying the provided belt tension forces.

Tolomatic assumes no responsibility for the performance or compatibility of any non-Tolomatic supplied product. Responsibility for the installation results of any such product by non-Tolomatic personnel resides with the installer.

FIND ADDITIONAL INSTRUCTIONS AND MANUALS AT: [www.tolomatic.com](http://www.tolomatic.com)

**Note:** Motor mounting general instructions: 3600-4203

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