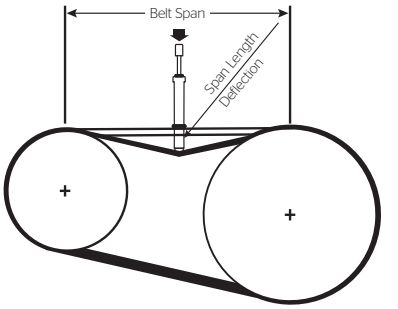
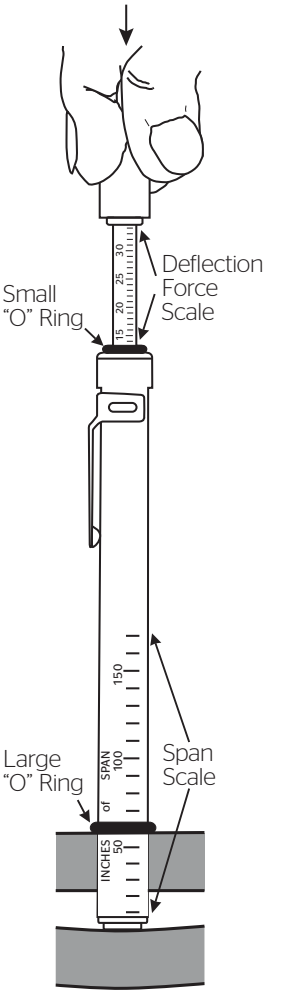
Industrial V-Belt Tension Tester

General Rules of Tensioning



1. Ideal tension is the lowest tension at which the belt will not slip under peak load condition.
2. Check tension frequency during the first 24-48 hours of operation.
3. Overtensioning shortens belt and bearing life.
4. Keep belts free from foreign material which may cause slip.
5. Make V-drive inspection on a periodic basis. Tension when slipping. Never apply belt dressing as this will damage the belt and cause early failure.

Tension Measurement Procedure



1. Measure the belt span (see sketch).
2. Position the bottom of the large "O" ring on the span scale at the measured belt span.
3. Set the small "O" ring on the deflection force scale to zero.
4. Place the tension tester squarely on one belt at the center of the belt span. Apply a force on the plunger and perpendicular to the belt span until the bottom of the large "O" ring is even with the top of the next belt or with the bottom of a straight edge laid across the sheaves.
5. Remove the tension tester and read the force applied from the bottom of the small "O" ring on the deflection force scale.
6. Compare the force you have applied with the values given in the tables on this sheet. The forces should be between the minimum and maximum shown. The maximum value is shown under "New Belt" and new belts should be tensioned at this value to allow for expected tension loss. Used belts should be maintained at the minimum value indicated in the chart.

If the belt span was measured in inches, then use the pounds of force values for comparison.

If the belt span was measured in centimeters, then use the kilograms of force values for comparison.

Tensioning tables continued on the next page.

V-Belt Tensioning Tables

Cross Section	Smallest Sheave Diameter Range (inches)	RPM Range	Belt Deflection Force (lb.) Uncogged Hy-T® Belts and Uncogged Hy-T® Torque Team® Belts New Belt	Uncogged Hy-T® Belts and Uncogged Hy-T® Torque Team® Belts Used Belt	Cogged Torque-Flex® and Machined Edge Torque Team® Belts New Belt	Cogged Torque-Flex® and Machined Edge Torque Team® Belts Used Belt
A, AX	3.0 - 3.6	1000 - 2500	5.5	3.7	6.1	4.1
		2501 - 4000	4.2	2.8	5.0	3.4
	3.8 - 4.8	1000 - 2500	6.8	4.5	7.4	5.0
		2501 - 4000	5.7	3.8	6.4	4.3
	5.0 - 7.0	1000 - 2500	8.0	5.4	9.4	5.7
		2501 - 4000	7.0	4.7	7.6	5.1
B, BX	3.4 - 4.2	860 - 2500	N/A	N/A	7.2	4.9
		2501 - 4000	N/A	N/A	6.2	4.2
	4.4 - 5.6	860 - 2500	7.9	5.3	10.5	7.1
		2501 - 4000	6.7	4.5	9.1	6.2
	5.8 - 8.6	860 - 2500	9.4	6.3	12.6	8.5
		2501 - 4000	8.2	6.0	10.9	7.3
C, CX	7.0 - 9.0	500 - 1740	17.0	11.5	21.8	14.7
		1741 - 3000	13.8	9.4	17.5	11.9
	9.5 - 16.0	500 - 1740	21.0	14.1	23.5	15.9
		1741 - 3000	18.5	12.5	21.6	14.6
D	12.0 - 16.0	200 - 850	37.0	24.9	N/A	N/A
		851 - 1500	31.3	21.2	N/A	N/A
	18.0 - 20.0	200 - 850	45.2	30.4	N/A	N/A
		851 - 1500	38.0	25.6	N/A	N/A
SPA, XPA	3.0 - 4.1	1000 - 2500	N/A	N/A	9.0	6.1
		2501 - 4000	N/A	N/A	7.9	5.2
	4.2 - 5.7	1000 - 2500	10.1	6.7	12.4	8.3
		2501 - 4000	8.3	5.6	11.2	7.4
	5.7 - 10.1	1000 - 2500	14.6	9.7	15.3	10.1
		2501 - 4000	12.6	8.5	13.7	9.2
SPC, XPC	8.3 - 14.3	500 - 1000	31.0	20.7	33.3	22.3
		1000 - 1750	28.6	19.1	32.4	21.6
	14.4 - 20.1	500 - 1000	39.3	26.3	41.8	27.9
		1000 - 1750	37.5	25.2	45.6	30.3
3V, 3VX, XZP	2.2 - 2.4	1000 - 2500	N/A	N/A	4.9	3.3
		2501 - 4000	N/A	N/A	4.3	2.9
	2.65 - 3.65	1000 - 2500	5.1	3.6	6.2	4.2
		2501 - 4000	4.4	3.0	5.6	3.8
	4.12 - 6.90	1000 - 2500	7.3	4.9	7.9	5.3
		2501 - 4000	6.6	4.4	7.3	4.9
5V, 5VX, SPB, XPB	4.4 - 6.7	500 - 1749	N/A	N/A	15.2	10.2
		1750 - 3000	N/A	N/A	13.2	8.8
		3001 - 4000	N/A	N/A	8.5	5.6
	7.1 - 10.9	500 - 1740	18.9	12.7	22.1	14.8
		1741 - 3000	16.7	11.2	20.1	13.7
	11.8 - 16.0	500 - 1740	23.4	15.5	25.5	17.1
		1741 - 3000	21.8	14.6	25.0	16.8
8V	12.5 - 17.0	200 - 850	49.3	33.0	N/A	N/A
		851 - 1500	39.9	26.8	N/A	N/A
	18.0 - 22.4	200 - 850	59.2	39.6	N/A	N/A
		851 - 1500	52.7	35.3	N/A	N/A

Cross Section	Smallest Sheave Diameter Range (mm)	RPM Range	Belt Deflection Force (kg) Uncogged Hy-T® Belts and Uncogged Hy-T® Torque Team® Belts New Belt	Uncogged Hy-T® Belts and Uncogged Hy-T® Torque Team® Belts Used Belt	Cogged Torque-Flex® and Machined Edge Torque Team® Belts New Belt	Cogged Torque-Flex® and Machined Edge Torque Team® Belts Used Belt
A, AX	75 - 90	1000 - 2500	1.7	1.7	2.8	1.9
		2501 - 4000	1.3	1.3	2.3	1.5
	91 -120	1000 - 2500	2.0	2.0	3.4	2.3
		2501 - 4000	1.7	1.7	2.9	2.0
	121 - 175	1000 - 2500	2.4	2.4	4.3	2.6
		2501 - 4000	2.1	2.1	3.4	2.3
B, BX	85 - 105	860 - 2500	N/A	N/A	3.3	2.2
		2501 - 4000	N/A	N/A	2.8	1.9
	106 - 140	860 - 2500	2.4	2.4	4.8	3.2
		2501 - 4000	2.0	2.0	4.1	2.8
	141 - 220	860 - 2500	2.9	2.9	5.7	3.9
		2501 - 4000	2.7	2.7	4.9	3.3
C, CX	175 - 230	500 - 1740	5.2	5.2	9.9	6.7
		1741 - 3000	4.3	4.3	7.9	5.4
	231 - 400	500 - 1740	6.4	6.4	10.7	7.2
		1741 - 3000	5.7	5.7	9.8	6.6
D	305 - 400	200 - 850	11.3	11.3	N/A	N/A
		851 - 1500	9.6	9.6	N/A	N/A
	401 - 510	200 - 850	13.8	13.8	N/A	N/A
		851 - 1500	11.6	11.6	N/A	N/A
3V, 3VX, XZP	55 - 60	1000 - 2500	N/A	N/A	2.2	1.5
		2501 - 4000	N/A	N/A	2.0	1.3
	61 - 90	1000 - 2500	1.6	1.6	2.8	1.9
		2501 - 4000	1.4	1.4	2.5	1.7
	91 - 175	1000 - 2500	2.2	2.2	3.6	2.4
		2501 - 4000	2.0	2.0	3.3	2.2
5V, 5VX, SPB, XPB	110 - 170	500 - 1749	N/A	N/A	6.9	4.6
		1750 - 3000	N/A	N/A	6.0	4.0
		3001 - 4000	N/A	N/A	3.9	2.5
	171 - 275	500 - 1740	5.8	5.8	10.0	6.7
		1741 - 3000	5.1	5.1	9.1	6.2
	276 - 400	500 - 1740	7.0	7.0	11.6	7.8
		1741 - 3000	6.6	6.6	11.3	7.6
8V	315 - 430	200 - 850	15.0	15.0	N/A	N/A
		851 - 1500	15.2	12.2	N/A	N/A
	431 - 570	200 - 850	18.0	18.0	N/A	N/A
		851 - 1500	16.0	16.0	N/A	N/A

NOTE:
- The ratio of deflection to belt span is 1:64 in either units of measurement.
- Multiply table values by the number of Torque Team® ribs to achieve recommended tensioning value.

1. The table deflection forces and strand tensions are typically at maximum values to cover the broad range of loads, RPM and pulley combinations for all possible drives.
2. For drives where hub loads are critical, and for high speed drives or other drives with special circumstances, the belt deflection force and strand installation tension should be calculated by using formulas found in existing Engineering Manuals or by using the MaximizerPro™ Drive Selection Analysis Program.
3. Consult the TensionRite® Belt Frequency Meter manual for detailed information on using the frequency based tension gauge.
4. Three different levels of Continental brand tension gauges are offered to aid you in properly tensioning your power transmission belts. See your sales representative or your local authorized products power transmission distributor for more information on these tensioning gauges.

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