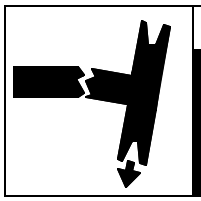
BELT TENSION CHECKER

TENSIONING V-BELT DRIVES WITH A BROWNING TENSION CHECKER

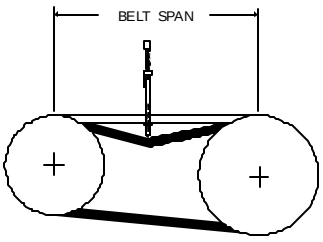
General rules of tensioning.

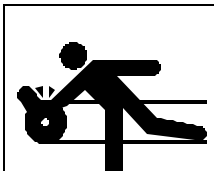
1. Ideal tension is the lowest tension at which the belt will not slip under peak load conditions.
2. Check tension frequently during the first 24 hours of operation. Check after jog start or 1-3 minutes of operation, at 8 hours, 24 hours, 100 hours and periodically thereafter are recommended.
3. Over tensioning shortens belt and bearing life.
4. Keep belts free of foreign material which may cause slip.
5. Make V-drive inspection on a periodic basis. Under-tensioned belt drives often produce audible squeal noise. Tension when slipping. Never apply belt dressing as this will damage the belt and cause early failure.



⚠CAUTION

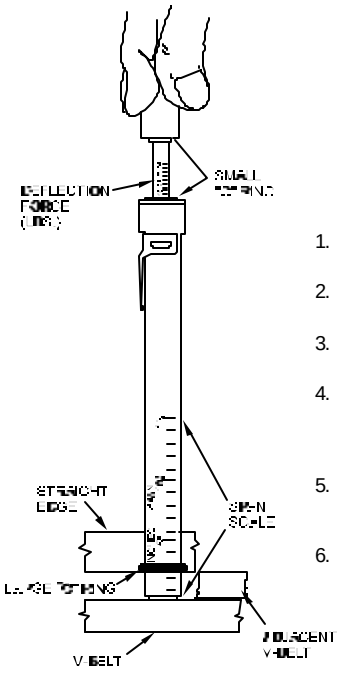
To avoid damage, supporting structure including shafts and bearings must be designed to handle transmitted loads and belt tension(s).





▲WARNING

Disconnect power before installation and maintenance. Failure to do so can result in severe injury or death.

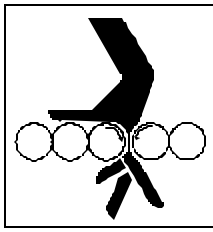


Part Number: "Belt Tension Checker"

TENSION MEASUREMENT PROCEDURE

1. Measure the belt span (see sketch).
2. Position 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 checker 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 adjacent (next) belt or with the bottom of a straight edge laid across the outside diameters of the V-belt sheaves.
5. Remove the tension checker 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 below. The force should be between the minimum and maximum shown. The maximum value is shown for "New Belt" and new belts should be tensioned at this value to allow for expected tension loss. "New Belt" tensions should be used at initial installation and after jog start or 1-3 minutes of operation. Used belts should be maintained at the minimum value as indicated in the chart. "Used Belt" tensions should be used for the 8 hour and subsequent checks. 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.

NOTE: The ratio of deflection to belt span is 1:64 in either units of measurements.

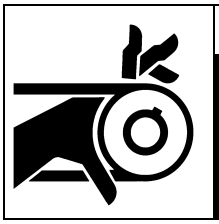


⚠WARNING

Moving equipment can cause severe injury.

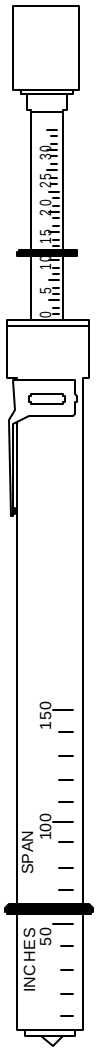
KEEP AWAY

7. Whenever possible, jog start for a few revolutions or preferably run drive for approximately 1-3 minutes and then re-tension in accordance with steps 1-6. Running the drive for a few revolutions or minutes will help seat the belt(s) in the groove(s). This relatively early re-tensioning may reduce or minimize the amount of re-tensioning required in the first 24 hours of drive service.



⚠WARNING

Guards are recommended. Drives without guards can result in severe injury or death.



SHEAVE DIAM - INCHES
DEFLECTION FORCE - LBS.

Belt Cross Section	Smallest Sheave Diameter Range	RPM Range	Belt Deflection Force			
			Super Gripbelts and Unnotched Gripbands		Gripnotch Belts and Notched Gripbands	
			Used Belt	New Belt	Used Belt	New Belt
A,AX	3.0 - 3.6	1000-2500 2501-4000	3.7 2.8	5.5 4.2	4.1 3.4	6.1 5.0
	3.8 - 4.8	1000-2500 2501-4000	4.5 3.8	6.8 5.7	5.0 4.3	7.4 6.4
	5.0 - 7.0	1000-2500 2501-4000	5.4 4.7	8.0 7.0	5.7 5.1	8.4 7.6
B,BX	3.4 - 4.2	860-2500 2501-4000	- -	- -	4.9 4.2	7.2 6.2
	4.4 - 5.6	860-2500 2501-4000	5.3 4.5	7.9 6.7	7.1 6.1	10.5 9.1
	5.8 - 8.6	860-2500 2501-4000	6.3 6.0	9.4 8.9	8.5 7.3	12.6 10.9
C,CX	7.0 - 9.0	500-1740 1741-3000	11.5 9.4	17.0 13.8	14.7 11.9	21.8 17.5
	9.5 - 16.0	500-1740 1741-3000	14.1 12.5	21.0 18.5	15.9 14.6	23.5 21.6
D	12.0 - 16.0	200-850 851-1500	24.9 21.2	37.0 31.3	- -	- -
	18.0 - 20.0	200-850 851-1500	30.4 25.6	45.2 38.0	- -	- -
3V,3VX	2.2 - 2.4	1000-2500 2501-4000	- -	- -	3.3 2.9	4.9 4.3
	2.65 - 3.65	1000-2500 2501-4000	3.6 3.0	5.1 4.4	4.2 3.8	6.2 5.6
	4.12 - 6.90	1000-2500 2501-4000	4.9 4.4	7.3 6.6	5.3 4.9	7.9 7.3
5V,5VX	4.4 - 6.7	500-1749 1750-3000 3001-4000	- - -	- - -	10.2 8.8 5.6	15.2 13.2 8.5
	7.1 - 10.9	500-1740 1741-3000	12.7 11.2	18.9 16.7	14.8 13.7	22.1 20.1
	11.8 - 16.0	500-1740 1741-3000	15.5 14.6	23.4 21.8	17.1 16.8	25.5 25.0
8V	12.5 - 17.0	200-850 851-1500	33.0 26.8	49.3 39.9	- -	- -
	18.0 - 22.4	200-850 851-1500	39.6 35.3	59.2 52.7	- -	- -

SHEAVE DIAM - MILLIMETERS
DEFLECTION FORCE - KG.

Belt Cross Section	Smallest Sheave Diameter Range	RPM Range	Belt Deflection Force			
			Super Gripbelts and Unnotched Gripbands		Gripnotch Belts and Notched Gripbands	
			Used Belt	New Belt	Used Belt	New Belt
A,AX	75 - 90	1000-2500 2501-4000	1.7 1.3	2.5 1.9	1.9 1.5	2.8 2.3
	91 - 120	1000-2500 2501-4000	2.0 1.7	3.1 2.6	2.3 2.0	3.4 2.9
	121 - 175	1000-2500 2501-4000	2.4 2.1	3.6 3.2	2.6 2.3	3.8 3.4
B,BX	85 - 105	860-2500 2501-4000	- -	- -	2.2 1.9	3.3 2.8
	106 - 140	860-2500 2501-4000	2.4 2.0	3.6 3.0	3.2 2.8	4.8 4.1
	141 - 220	860-2500 2501-4000	2.9 2.7	4.3 4.0	3.9 3.3	5.7 4.9
C,CX	175 - 230	500-1740 1741-3000	5.2 4.3	7.7 6.3	6.7 5.4	9.9 7.9
	231 - 400	500-1740 1741-3000	6.4 5.7	9.5 8.4	7.2 6.6	10.7 9.8
D	305 - 400	200-850 851-1500	11.3 9.6	16.8 14.2	- -	- -
	401 - 510	200-850 851-1500	13.8 11.6	20.5 17.2	- -	- -
3V,3VX	55 - 60	1000-2500 2501-4000	- -	- -	1.5 1.3	2.2 2.0
	61 - 90	1000-2500 2501-4000	1.6 1.4	2.3 2.0	1.9 1.7	2.8 2.5
	91 - 175	1000-2500 2501-4000	2.2 2.0	3.3 3.0	2.4 2.2	3.6 3.3
5V,5VX	110 - 170	500-1749 1750-3000 3001-4000	- - -	- - -	4.6 4.0 2.5	6.9 6.0 3.9
	171 - 275	500-1740 1741-3000	5.8 5.1	8.6 7.6	6.7 6.2	10.0 9.1
	276 - 400	500-1740 1741-3000	7.0 6.6	10.6 9.9	7.8 7.6	11.6 11.3
8V	315 - 430	200-850 851-1500	15.0 12.2	22.4 18.1	- -	- -
	431 - 570	200-850 851-1500	18.0 16.0	26.8 23.9	- -	- -

SHEAVE DIAM - INCHES
DEFLECTION FORCE - LBS.

Belt Cross Section	Smallest Sheave Diameter Range	Belt Deflection Force	
		Used Belt	New Belt
3L	1.25 - 1.75 2.00 - 2.25 2.50 - 3.00	3/8 3/4 1	5/8 1 1/4 1 1/2
4L	2.10 - 2.80 3.00 - 3.50 3.70 - 5.00	5/8 1 5/8 2	1 2 1/2 3
5L	3.00 - 4.20 4.50 - 5.20	1 1/2 2 1/2	2 5/8 3 1/2

Note: 1) For gripbands (multiple or banded belts), the belt deflection force in the above tables must be multiplied by the number of ribs in the gripband. Lay a narrow steel bar such as keystock across the gripband belt and apply the belt deflection force to the bar such that all the individual ribs are deflected evenly.

2) The belt deflection force capacity of the BROWNING® belt tension checker is 33 lbs. or 15 kg. Other means of applying force must be used if force requirement is greater than this.

The above method of tensioning belt drives is to be used when a drive has been selected in accordance with the suggestions listed in the drive selection tables of the EPT (Browning) Components Catalog. **For drives with service factor greater than 1.5, consult Browning.** For exact tension calculations, use the EPT EDGE® Selection Program.

Have questions? Contact Technical Services at 1-800-626-2093.

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