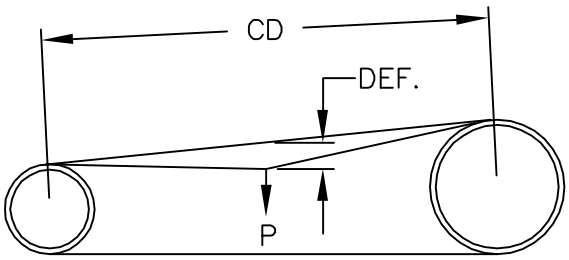
Method of Tensioning Trapezoidal Gearbelt Drives

Gearbelt drives do not need to be extremely tight such as other belt drives. (V–Belt, Poly–V, Flat Belt, etc.) If belt tension is too great, it imposes excessive, and unnecessary loading on bearings. When belt is too loose (particularly on High Torque Applications), belts may "jump" teeth. In order to tension a drive properly, the following may be followed:

FORMULA:



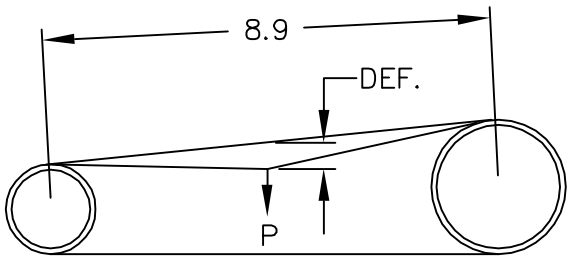
$$Ts = T + \frac{CD \times K}{L_B}$$

$$P = \frac{Ts}{16}$$

$$DEF. = \frac{CD}{64}$$

CD = Center Distance
L_B = Belt Length
Ts = Static Tension
P = Deflecting Force
DEF. = Amount of Deflection in inches
T = Tension in lbs. (from table below)
K = Constant (from table below)

EXAMPLE:



$$Ts = 70 + \left(\frac{8.9 \times 46}{24}\right)$$

$$P = \frac{87.058}{16}$$

$$DEF. = \frac{8.9}{64}$$

(i.e., belt #240H100 is 24" long, 1" wide, "H" belt.)

Ts = 87.058
P = 5.4 lbs.
DEF. = 0.140

CD = Center Distance
L_B = Belt Length
Ts = Static Tension
P = Deflecting Force
DEF. = Amount of Deflection in inches
T = Tension in lbs. (from table below)
K = Constant (from table below)

BELT SECT.	FACTORS	BELT WIDTH				
		1/2	3/4	1	1–1/2	2
3/8"P. (L)	T	11.5	19.5	27.5		
	K	9.9	17.0	24.0		
1/2"P. (H)	T		49.5	70	109	150
	K		32	46	71	95
7/8"P. (XH)	T					204
	K					190

A Belt Tension checker can be used to check both, "P" and "DEF." as obtained above.