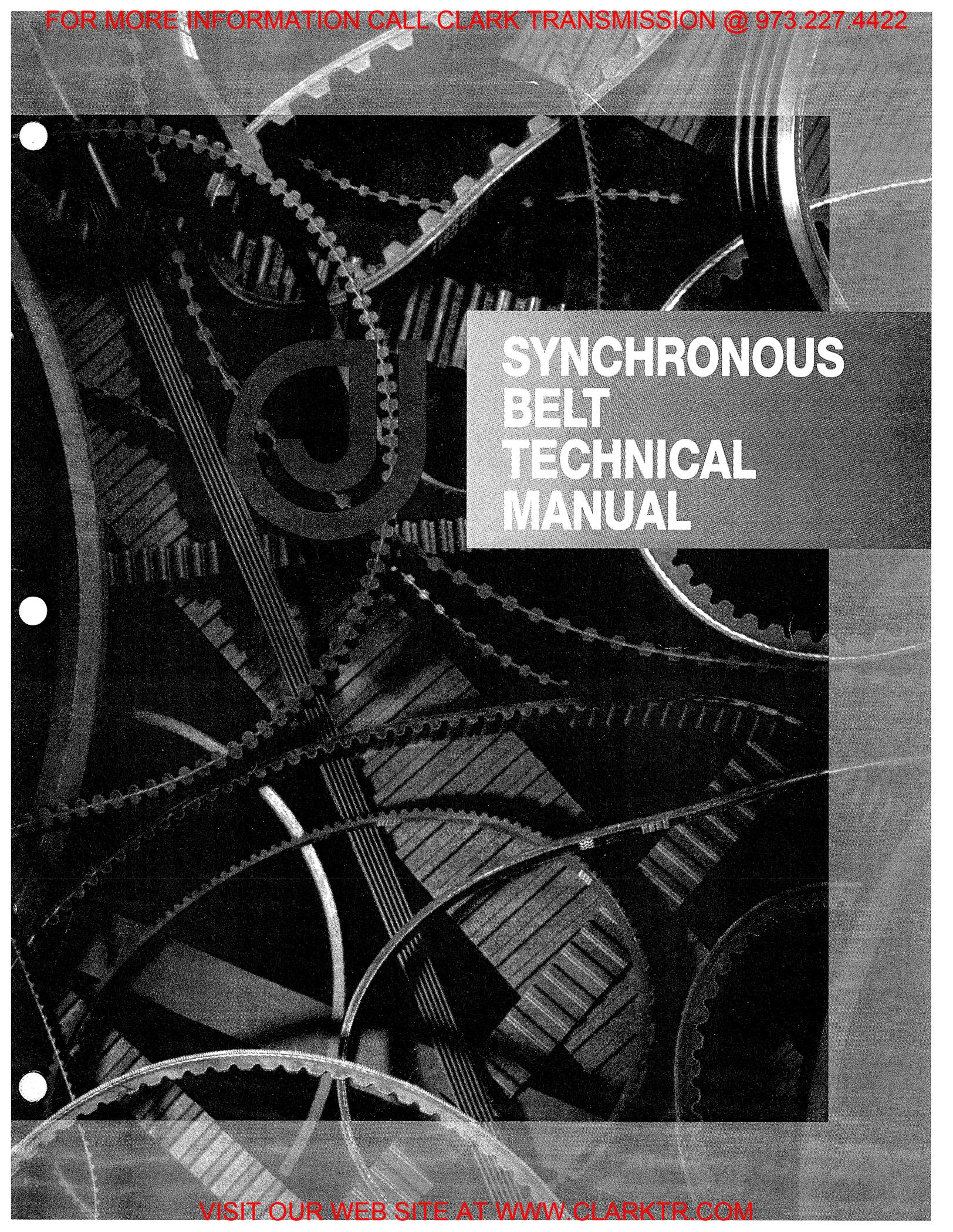


FOR MORE INFORMATION CALL CLARK TRANSMISSION @ 973.227.4422



# SYNCHRONOUS BELT TECHNICAL MANUAL

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JASON INDUSTRIAL, INC.  
**DRIVE DESIGN MANUAL**  
HTB® and Standard Synchronous Belts

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***Every Belt You'll Ever Use ...***

***Made to Perform ...***

***Priced to Compete ...***

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***The Jason Industrial Advantage***

Jason Industrial offers the country's largest and most complete stock of power transmission belts, designed to fit every need, standard or metric. What's more, we've brought together experts in timing belt manufacturing, R & D, application and marketing to run our Timing Belt Manufacturing Company, Inc. (TBMC), our state-of-the-art manufacturing plant in Greenville, SC.

***Introduction***

The **JASON Drive Design manual for HTB® and Standard Synchronous Belts** is designed to aid you in the proper belt selection for your belt drive system needs. This manual supplies you with an easy to follow example drive design, charts, tables, and helpful formulas required in determining the type **JASON Synchronous Belt** needed for your drive system.

**JASON** is capable of supplying you with a large variety of belt sizes to fit most drive applications, ranging from .0025Hp → 300Hp and pulley operating speeds from 10rpm → 20,000rpm.

**JASON** has an on staff Engineering Department which is available to assist you with any questions, and/or custom belt drive applications you may have. Our Engineering Staff takes pride in their quick and precise response to any problem which may arise.

## Features of Both JASON's HTB® and Standard Synchronous Drive Systems

### ***Positive Non-Slip Engagement***

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**JASON Synchronous Belts** provide a non-slip system giving positive engagement between the belt tooth and sprocket groove. This non-slip system allows the drive to experience no speed variations due to belt slippage, commonly seen with V-Belt drives. **JASON Synchronous Belts** also decrease maintenance due to re-tensioning. Re-tensioning is eliminated by the powerful non-stretching glass-fiber tensile cords used in the construction of synchronous belts. Where synchronization is important to your drive system, **JASON Synchronous Belts** are an excellent alternative to high maintenance gear and chain drives.

### ***High Mechanical Efficiency***

---

**JASON Synchronous Drive systems** have outstandingly high mechanical efficiency (up to 98%). **JASON Synchronous Belts** do not require friction to drive the load, which allows cooler running, reduced belt tension, and longer drive bearing life. A significant savings is obtained in power usage and maintenance down time when you use **JASON Synchronous Belts** on your drive.

### ***Economical Drive Alternative***

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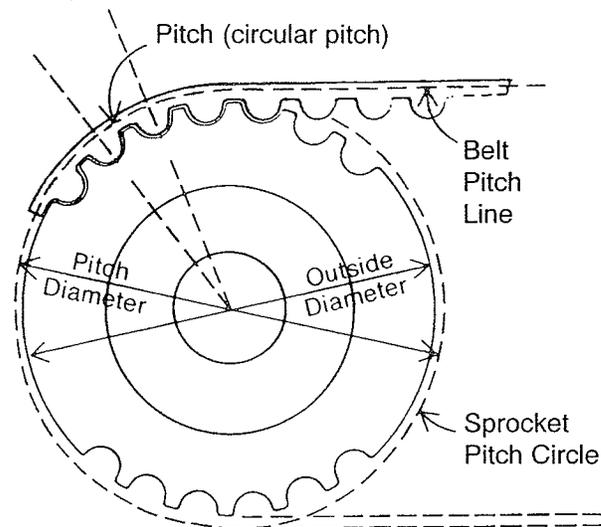
The elimination of adjustable motor bases, lubricating systems, tensioning devices, and less frequent preventive maintenance schedules can greatly decrease operation cost. **JASON Synchronous Belts** require no lubrication, and no re-tensioning, which makes for easy and clean maintenance.

### ***Constant Driven Speed***

---

**JASON Synchronous Belts** engage smoothly in a continuous meshing with each groove in the sprocket. This smooth precise engagement provides a constant angular velocity with no jerking or vibration, unlike chain drives. Belt creep and slippage, which occurs with flat and V-belts, is eliminated resulting in no loss of speed. This feature of **JASON Synchronous Belts** is a definite advantage in machines where precision is essential for proper operation.

## JASON HTB® Belt Specification



### ***HTB Belts are specified in high torque applications.***

The deeper curvilinear tooth can withstand higher loadings than can the standard trapezoid tooth shape.

There are three principal dimensions for an HTB® Belt:

- 1) pitch length
- 2) pitch
- 3) width

Belt pitch is the distance in millimeters between two adjacent tooth centers as measured on the pitch line of the belt. Belt pitch length is the total length in millimeters as measured along the pitch line. Theoretically the pitch line of the HTB® Belt lies centered within the tensile member.

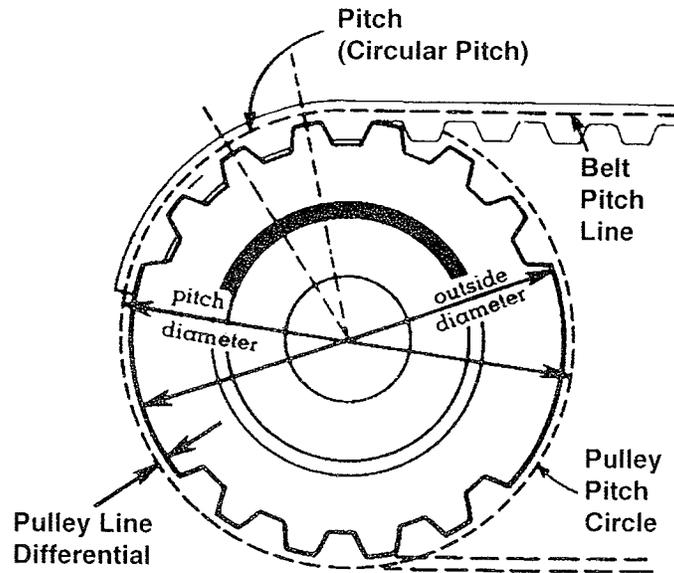
JASON HTB® Belts are made in four stock pitches (custom pitches are available, please call JASON's Engineering Dept. for details). Stock pitches available are 3mm, 5mm, 8mm, and 14mm. Below is a example for specifying a part number for HTB® Belts.

Example:

Belt Pitch Length(mm)	Belt Pitch(mm)	Belt Width(mm)
1190	14M	55

Part number for above size JASON HTB® belt → 1190-14M-55

## JASON Standard Synchronous Belt Specification



There are three principal dimensions for a Standard Synchronous Belt:

- 1) pitch length
- 2) pitch
- 3) width

Belt pitch is the distance in inches between two adjacent tooth centers as measured on the pitch line of the belt. Belt pitch length is the total length in inches as measured along the pitch line. Theoretically the pitch line of the Standard Synchronous belt lies centered within the tensile member.

**JASON Standard Synchronous belts** are made in six stock pitches (custom pitches are available, please call **JASON's Engineering Dept.** for details). Stock pitches available are :

- 1) .080 in. ⇔ MXL (mini-extra light pitch)
- 2) 1/5 in. ⇔ XL (extra light)
- 3) 3/8 in. ⇔ L (light)
- 4) 1/2 in. ⇔ H (heavy)
- 5) 7/8 in. ⇔ XH (extra heavy)
- 6) 1 1/4 in. ⇔ XXH (extra extra heavy)

Below is a example for specifying a part number for **JASON Standard Synchronous Belts**:

*Example:*

Belt Pitch Length(in.) X 10	Belt Pitch(pitch code)	Belt Width(in.) X 100
24in. X 10 = 240	3/8in. = L	3/4in. = 075

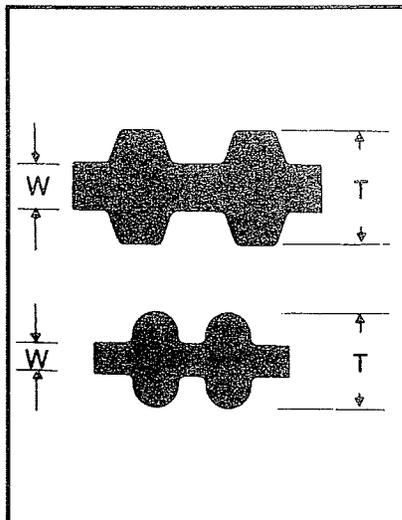
Part number for above size **JASON Standard Synchronous Belt** → 240L075

## NOMINAL TOOTH DIMENSIONS

### Standard Belts

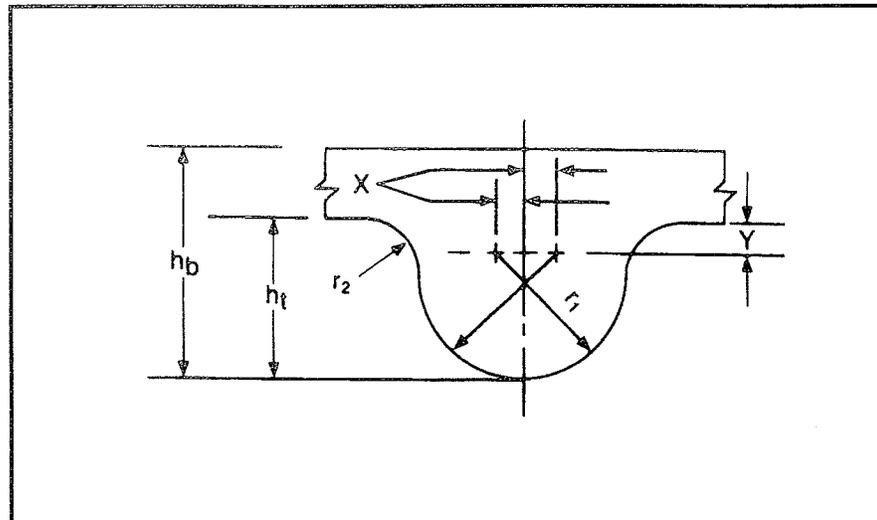
Belt Section	Pitch (inches)	$h_b$ (inch)	Tooth Angle (degrees)	$h_t$ (inches)	$b_t$ (inches)	$r_{bb}$ (inches)	$r_{bt}$ (inches)	Tooth Dimensions
MXL	0.080	0.045	40	0.018	0.030	0.005	0.005	
XL	0.200(1/5)	0.100	50	0.050	0.054	0.015	0.015	
L	0.375(3/8)	0.140	40	0.075	0.128	0.020	0.020	
H	0.500(1/2)	0.160	40	0.090	0.175	0.040	0.040	
XH	0.875(7/8)	0.450	40	0.250	0.313	0.047	0.062	
XXH	1.250(1 1/4)	0.600	40	0.375	0.477	0.060	0.090	

### Dual Belts



Pitch (inches)	T (inches)	W reference (inches)
1/5 (XL)	0.120 ± .006	.020
3/8 (L)	0.180 ± .006	.030
1/2 (H)	0.226 ± .006	.054
5mm	0.209 ± .007	.045
8mm	0.320 ± .008	.054
14mm	0.584 ± .012	.110

### HTB® Belts

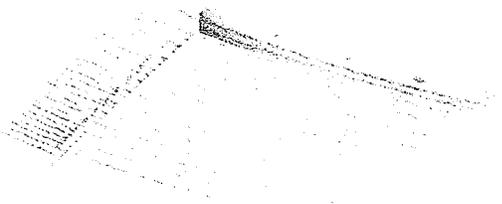


Tooth Pitch	Overall Thickness $h_b$ (inches)	Tooth Thickness $h_t$ (inches)	Curve $r_1$ (inches)	Radii		
				$r_2$ (inches)	X (inches)	Y (inches)
3mm	0.095	0.048	0.034	0.012	0.0012	0.0137
5mm	0.150	0.082	0.059	0.016	0.0020	0.0229
8mm	0.236	0.133	0.102	0.030	0.0035	0.0310
14mm	0.394	0.237	0.179	0.053	0.0060	0.0580

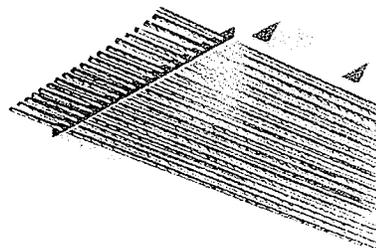
## JASON HTB® and Standard Synchronous Belt Construction

### HTB®

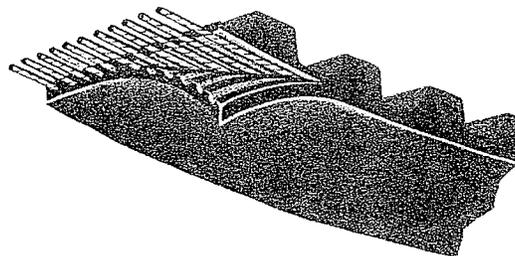
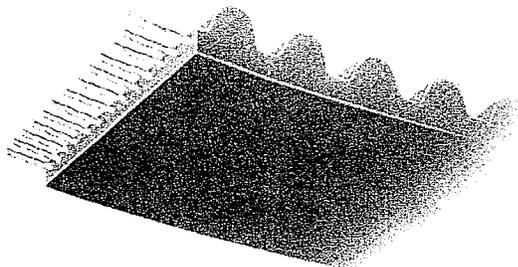
**Tensile Member:** Fiberglass cord tensile members for high tensile strength and resistance to elongation. Kevlar® fiber available on special order.



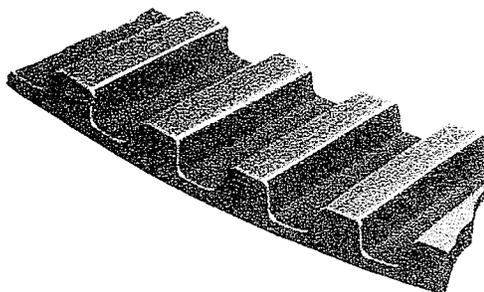
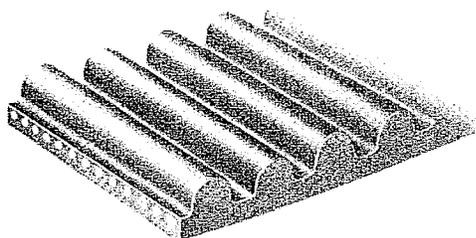
### Standard



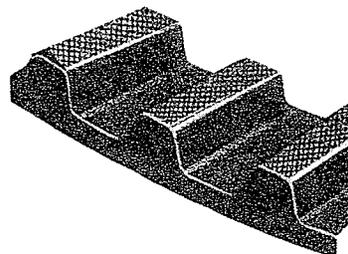
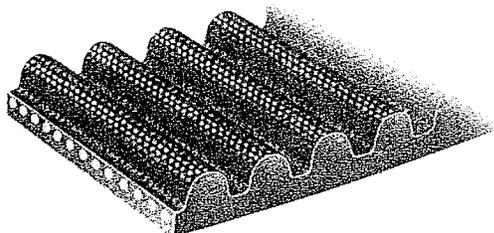
**Backing:** A durable flexible backing made from neoprene encases the tensile member. Special backings and thicknesses are available on special order.



**Neoprene Teeth:** Molded with backing. Made of a shear resistant neoprene compound. The teeth are precisely formed and accurately spaced to assure correct engagement with the sprocket grooves.



**Nylon Tooth Facing:** This tough, wear resistant nylon fabric protects the tooth and gives a low coefficient of friction for smooth pulley interaction.



## Comparison of Belt Constructions

Belt Type	Pitch Std(in) HTB(mm)	Cord Dia (in)	Prox Tensile Strength Per Cord (lbs.)	Number of Cord Per Inch
XL	.200	.023	50	28
L	.375	.023	50	28
H	.500	.050	200	18
XH	.875	.090	600	8
3M	3mm	.023	50	28
5M	5mm	.042	150	20
8M	8mm	.050	200	18
14M	14mm	.090	600	8

When calculating approximate ultimate tensile strengths for different belt widths, use the following formula:

$$((BW \times CPI) - 2) \times CTS = \text{Belts Ultimate Tensile Strength}$$

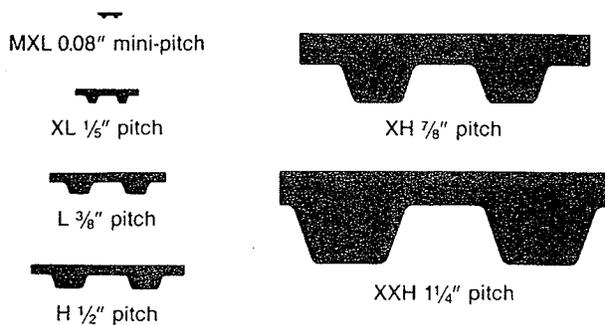
BW = Belt Width to be calculated.

CPI = Cord per Inch for Belt pitch to be calculated. (found in chart above)

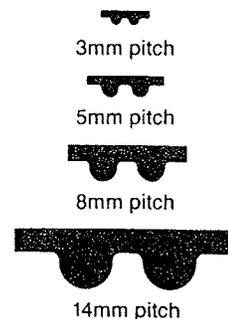
CTS = Cord Tensile Strength for pitch to be calculated.

**NOTE:** Catalog Horsepower Ratings are based on a fraction of the belts' ultimate tensile strength. Any application exceeding the belts catalog rating will result in reduced belt life. If you have any questions about your drive design application, please contact JASON Industrial's Engineering Dept. for assistance.

### Timing Belts



### HTB® Belts



## Example Problem For Selecting Proper Belt For Your Drive

### ***Step 1.) Calculate Design Horsepower:***

---

- From the Service Factor table (1a) determine the Class of the Driver (prime mover).
- Next, using Service Factor table (1b) find the type Driven machine in your system.
- Match Class of Driver with type of Driven machine to find the Service Factor for your system.
- Check Additional Service Factors table (1c) for any applicable to your system.

$$\text{Design Horsepower(Dhp)} = \text{Rated Hp} \times (\text{Basic S.F.} + \text{Additional S.F.})$$

### ***Step 2.) Determining the belt pitch to use:***

---

- Knowing the Dhp, use the Belt Pitch Selection Guides to determine the pitch.
- Where high torque and/or space limitation is a concern with your application, **JASON's** high quality line of **HTB® Belts** will meet your needs perfectly. Otherwise, **JASON's** high quality line of **Standard Synchronous Belts** will meet your application needs.
- If the belt pitch falls in the intersection of two pitches, it's good design practice to calculate a drive system using each pitch. Physical drive limitations usually determines which pitch best suits your needs.

### ***Step 3.) Belt Width Selection:***

---

- Belt width can be determined using the Belt Width Selection Tables. These tables will give you the belt width needed to support the Dhp, at given speeds for given sprocket sizes. Widths given in tables are based on stock sizes. For non-stock widths please contact **JASON's Engineering Dept.** for assistance.

#### **NOTE: DESIGN CONSIDERATIONS**

- The larger the sprocket, the less belt width required.
- Larger sprockets allow less strenuous flexing, therefore longer Service life for belt.
- Avoid drives where belt width exceeds sprocket diameter.
- At least 6 teeth in mesh with smallest pulley is required for full belt horsepower rating.

## Example Problem For Selecting Proper Belt For Your Drive (cont'd)

### Step 4.) Belt Length Selection:

- Belt pitch, width and pulley diameter should be known at this time. If any questions arise at this time, please contact **JASON** for assistance.
- Belt length (BL) is calculated by the following equation:

$$BL = 2CD + \frac{(D - d)^2}{4CD} + \frac{\pi}{2} (D + d)$$

CD = Center distance between pulleys  
D = Large pulley Pitch Diameter  
d = Small pulley Pitch Diameter  
BL = Belt Pitch Length

- After obtaining the calculated **BL** needed for your drive, use your **JASON POWER TRANSMISSION BELTS CATALOG** to find the closest stock **BL**. If the calculated BL falls between two stock **JASON BELT** lengths, the following equation can be used to calculate the **CD** for each **JASON BELT** length. Use the stock belt length which best fits your drive system. If you have any questions in choosing the proper **BL**, please contact **JASON**.

$$CD = \frac{-[2\pi (D + d) - 4BL] + [(2\pi (D + d) - 4BL)^2 - 32 (D - d)^2]^{1/2}}{16}$$

- Other useful equations can be found on the following page.

### Teeth In Mesh (TIM) Calculations:

Determine arc of contact on smaller pulley (A/Cs) using the formula in the table. Determine teeth in mesh (TIM) using the formula below:

$$TIM = \frac{A/Cs \times \text{No. of smaller pulley grooves (n)}}{360}$$

Drop any fractional part and use only the whole number as any tooth not fully engaged cannot be considered a working tooth.

If TIM is less than 6, correct design peak torque or horsepower by value shown in the table below:

Teeth In Mesh Factor Table

TIM	Design Peak Torque or Horsepower Multiplication Factor
5	1.2
4	1.5
3	2.0
2	Suggest alternate drive
1	Suggest alternate drive

## Standard Drive Design Calculations

Required	Given	Formula
Speed ratio (R)	Shaft speeds (rpm)	$R = \frac{\text{rpm (faster shaft speed)}}{\text{rpm (slower shaft speed)}}$
	Pulley diameters (D & d)	$R = \frac{D(\text{larger pulley diameter})}{d(\text{smaller pulley diameter})}$
	Number of pulley grooves (N & n)	$R = \frac{N(\text{larger pulley diameter})}{n(\text{smaller pulley groove no})}$
Horsepower (hp) (33,000 ft-lbs/minute)	Torque (T) in inch lbs Shaft speed (rpm)	$hp = \frac{T \times rpm}{63,025}$
Design horsepower (Dhp)	Effective tension(Te) in lbs Belt speed (BS) in fpm	$hp = \frac{Te \times BS}{33,000}$
Power (kw)	Rated horsepower (hp) Service factor (SF)	$Dhp = hp \times SF$
Torque (T) in inch lbs.	Horsepower (hp)	$kw = .7457 \times hp$
	Shaft horsepower (hp) Shaft speed (rpm)	$T = \frac{63,025 \times hp}{rpm}$
	Effective tension (Te) in lbs Pulley radius (R) in inches	$T = Te \times R$
Torque (T) in N - mm	Torque (T) in inch lbs	$T = 112.98 \times T$
	Shaft horsepower (hp) Belt speed (BS) in fpm	$Te = \frac{33,000 \times hp}{BS}$
Effective tension (Te) in lbs	Effective Tension (Te) in Newtons	$Te = .2248 \times Te$
	Torque (T) in inch lbs Pulley pd in inches	$Te = \frac{2 \times T}{pd}$
Effective tension (Te) in Newtons	Torque (T) in N mm Pulley pd in mm	$Te = 4.4484 \times Te$
Centrifugal tension loss (Tc) in lbs/inch width	Effective tension (Te) in lbs	$Tc = Kc \times pd^2 \times rpm^2$
	Smaller pulley pd inches Smaller pulley speed in rpm Tc constant Kc	$Ta = (Te + Tc) \times SF$
Allowable working tension (Ta)	Effective tension (Te) Centrifugal tension loss (Tc) Service factor (SF)	$SF = \frac{\text{Rated } Ta}{Te + Tc}$
Service factor (SF)	Belt width in inches Rated Ta for given belt width Calculated Te & Tc	$BS = .262 \times pd \times rpm$
Belt speed (BS) in fpm	Pulley pd in inches Pulley speed in rpm	$BS = .000524 \times pd \times rpm$
Belt speed (BS) in m/s	Pulley pd in mm Pulley speed in rpm	$BL = \frac{2C + (D - d)^2}{4C}$
Belt length (BL) in inches (approximate)	Center distance (C) in inches Pulley diameters (D & d) in inches	$+ \frac{[1.57 \times (D + d)]}{C} \left[ \frac{A/Cs = 180}{(D - d) \times 60} \right]$
Arc of contact on smaller pulley (A/Cs)	Pulley diameters (D & d) in inches Center distance (C) in inches	$T = \frac{.039 \times (RPM - rpm) \times WR^2}{t}$
Torque (T) due to flywheel effect (WR <sup>2</sup> ) in inch lbs (accel and/or decel)	Final speed (RPM) Initial speed (rpm) Flywheel effect (WR <sup>2</sup> ) in lbs ft <sup>2</sup> Time (t) in seconds	$WR^2 = \frac{F \times Z \times (D^4 - d^4)}{1467}$
Flywheel effect (WR <sup>2</sup> ) in lbs ft <sup>2</sup>	Face width of rim (F) in inches Material density (Z) in lbs/in <sup>3</sup> Outside rim diameter (D) in inches Inside rim diameter (d) in inches	

## BASIC HTB® SERVICE FACTORS

### 1a: Driver (prime mover)

Class of driver	Class I	Class II	Class III
Momentary Peak Load, % of Rated Load	149%	150 to 249%	250 to 400%
AC Electric Motors: Single Phase			all
Squirrel Cage NEMA design A 3600 rpm 1800 rpm 1200 rpm 900 rpm	40 hp up 100 hp up 15 hp up 5 hp up	1½ thru 30 hp 5 thru 75 hp ¾ thru 10 hp ½ thru 3 hp	1 thru 3 hp
NEMA design B 3600 rpm 1800 rpm 1200 rpm 900 rpm		5 hp up 5 hp up 5 hp up 2 hp up	1 ½ thru 3 hp 1 thru 3 hp ¾ thru 3 hp ½ thru 1 ½ hp
NEMA design C 1800 rpm 1200 rpm 900 rpm		15 hp up 7 ½ hp up all	5 thru 10 hp 3 and 5 hp
NEMA design D			all
NEMA design F	all		
Wound Rotor 1800 rpm 1200 rpm 900 rpm		20 hp 15 hp 7 ½ hp	2 to 15 hp 2 to 10 hp 1 to 5 hp
Synchronous		normal torque	high torque
DC Electric Motors	shunt	compound	series
Engines int combust	8 cyl up	6 cyl	4 cyl or less
Hydraulic Motors, Line Shafts			all

### 1b: Basic Service Factors of Driven Machines

Driven Machines	Class I	Class II	Class III
Agitators, Mixers liquid (paddle or propeller) semi liquid	1.2 1.3	1.4 1.5	1.6 1.7
Bakery Machinery, Dough Mixers	1.6	1.2	1.4
Brick and Clay Machinery augers, mixers, granulators pug mills	1.4 1.6	1.6 1.8	1.8 2.0
Centrifuges	1.5	1.7	
Compressors centrifugal reciprocating	1.4 1.6	1.5 1.8	1.6 2.0
Conveyors belt, light package, oven bell ore coal, sand apron, bucket, elevator, pan flight, screw	1.1 1.2 1.4 1.4	1.2 1.4 1.6 1.6	1.3 1.6 1.8 1.8
Fans, blowers Centrifugal induced draft exhausters propeller, mine fans positive blowers	1.4 1.6	1.6 1.8	1.8 2.0
Generators and Exciters	1.4	1.6	1.8
Hammer Mills	1.5	1.7	1.9
Hoists, Elevators	1.4	1.6	1.8
Laundry Machinery general extractors, washers	1.2 1.4	1.4 1.6	1.6 1.8
Line Shafts	1.2	1.4	1.6
Machine Tools drill presses, lathes, screw machines boring mills, grinders milling machines, shapers	1.2 1.3 1.3	1.4 1.5 1.5	1.6 1.7 1.7
Mills ball, rod, pebble, etc.		1.9	2.1
Paper Machinery agitators, calenders, dryers beaters, jordans, Nash pumps, pulpers	1.2 1.2	1.4 1.6	1.6 1.8
Printing Machinery presses newspaper rotary, embossing, flat bed, magazine, linotype machines, cutters, folders	1.2	1.4	1.6
Pumps centrifugal, gear, rotary, pipeline reciprocating	1.2 1.7	1.4 1.9	1.6 2.1
Rock Crushers	1.8	1.9	2.0
Rubber Plant Machinery	1.4	1.6	1.8
Textile, machinery looms, spinning frames, twisters warpers, reels	1.6 1.5	1.8 1.7	2.0 ....
Saw Mill Machinery	1.4	1.6	1.8
Screens vibrating (shakers) drum, conical	1.3 1.2	1.5 1.4	— —
Woodworking Machinery lathes, band saws jointers, circular saws, planers	1.2 1.2	1.3 1.4	— —

### 1c: Additional Service Factors

Operating Conditions	14mm Belts Only
Add for each idler	Smaller Sprocket Speed
Add for 10-16 hr service	Up to 200 rpm
Add for 16-24 hr service	201 to 400 rpm
	401 to 600 rpm

### Speed-up Drives

For speed up drives, add to the basic service factor the additional factor given below

Speed-up Ratio Range	Additional Factor	Speed-up Ratio Range	Additional Factor
1 to 1.24	none	2.50 to 3.49	30
1.25 to 1.74	.10	3.50 & over	40
1.75 to 2.49	.20		

## BASIC Synchronous Belt Service Factors

### 1a: Driver (prime mover)

Class of driver	Class I	Class II	Class III
Momentary Peak Load, % of Rated Load	149%	150 to 249%	250 to 400%
A-C Electric Motors: Single Phase			all
Squirrel Cage NEMA design A			
3600 rpm	40 hp up	1½ thru 30 hp	1 thru 3 hp
1800 rpm	100 hp up	5 thru 75 hp	
1200 rpm	15 hp up	¾ thru 10 hp	
900 rpm	5 hp up	½ thru 3 hp	
NEMA design B			
3600 rpm		5 hp up	1 ½ thru 3 hp
1800 rpm		5 hp up	1 thru 3 hp
1200 rpm		5 hp up	¾ thru 3 hp
900 rpm		2 hp up	½ thru 1 ½ hp
NEMA design C			
1800 rpm		15 hp up	5 thru 10 hp
1200 rpm		7 ½ hp up	3 and 5 hp
900 rpm		all	
NEMA design D			all
NEMA design F	all		
Wound Rotor			
1800 rpm		20 hp	2 to 15 hp
1200 rpm		15 hp	2 to 10 hp
900 rpm		7 ½ hp	1 to 5 hp
Synchronous		normal torque	high torque
D-C Electric Motors	shunt	compound	series
Engines — int combust	8 cyl up	6 cyl	4 cyl or less
Hydraulic Motors, Line Shafts			all

### Additional Service Factors 1c: for speed-up drives

For speed up drives, add to the basic service factor the additional factor given at right:

Speed-up Ratio Range	Additional Factor
1 to 1.24	none
1.25 to 1.74	.10
1.75 to 2.49	.20
2.50 to 3.49	.30
3.50 & over	.40

### 1d: for unusual conditions

For 24-hour continuous operation and/or use of an idler, add 0.2 to basic service factor. For intermittent or seasonal operation, deduct 0.2 from basic service factor.

### 1b: Basic Service Factors of Driven Machines

driven Machines	Class I	Class II	Class III
Agitators, Mixers liquid (paddle or propeller) semi liquid	1.4 1.5	1.6 1.7	1.8 1.9
Bakery Machinery, Dough Mixers	1.4	1.6	1.8
Brick and Clay Machinery augers, mixers, granulators pug mills	1.5 1.8	1.7 2.0	1.9 2.2
Centrifuges	1.7	1.9	...
Compressors reciprocating centrifugal	2.0 1.6	2.2 1.7	2.4 1.8
Conveyors belt, light package; oven belt: ore, coal, sand apron, bucket, elevator, pan flight, screw	1.3 1.6 1.7 1.7	1.5 1.7 1.8 1.9	1.5 1.8 1.9 2.0
Fans, blowers Centrifugal induced draft exhausters propellar, mine fans, positive blowers	1.6 1.8	1.8 2.0	2.0 2.2
Generators and Exciters	1.6	1.8	2.0
Hammer Mills	1.7	1.9	2.1
Hoists, Elevators	1.6	1.8	2.0
Laundry Machinery general extractors, washers	1.5 1.6	1.6 1.8	1.7 2.0
Line Shafts	1.5	1.7	1.9
Machine Tools drill presses, lathes, screw machines boring mills, grinders milling machines, shapers	1.4 1.5 1.5	1.6 1.7 1.7	1.8 1.9 1.9
Mills ball, rod, pebble, etc.	....	2.2	2.5
Paper Machinery agitators, calenders, dryers beaters, jordans, Nash pumps, pulpers	1.4 1.7	1.6 1.9	1.8 2.1
Printing Machinery presses newspaper rotary, embossing, flat bed, magazine; linotype machines; cutters; folders	1.4	1.6	1.8
Pumps centrifugal, gear, rotary, pipeline reciprocating	1.5 2.0	1.7 2.2	1.9 2.4
Rubber Plant Machinery	1.6	1.8	2.0
Saw Mill Machinery	1.6	1.8	2.0
Screens vibrating (shakers) drum, conical	1.5 1.4	1.7 1.5	.... ....
Textile, machinery looms, spinning frames, twistars warpers, reels	1.6 1.5	1.8 1.7	2.0 ....
Woodworking Machinery lathes, band saws jointers, circular saws, planers	1.3 1.4	1.4 1.6	.... ....

JASON INDUSTRIAL, INC. DRIVE DESIGN MANUAL  
HTB® and Standard Synchronous Belts

Minimum Pulley Diameters, Standard Belts

Pitch	Speed(rpm)	Number of Grooves
.080 in. (MXL)	20,000	24
	10,000	22
	5,000	18
	3,000	16
	2,000	14
.200 in. (XL)	1,000	12
	3,500	12
	1,750	11
.375 in. (L)	1,160	10
	3,500	20
	1,750	14
.500 in. (H)	1,160	12
	3,500	20
	1,750	18
.875 in. (XH)	1,160	16
	1,750	26
	870	24
1.25 in. (XXH)	870	22
	1,160	24
	1,750	26

Center Distance Tolerances

Belt Length (inches)	Tolerance, Center Distance (inches)
5 to 10	±.008
over 10 to 15	±.009
over 15 to 20	±.010
over 20 to 30	±.012
over 30 to 40	±.013
over 40 to 50	±.015
over 50 to 60	±.016
over 60 to 70	±.017
over 70	add .001" for every 10" spread

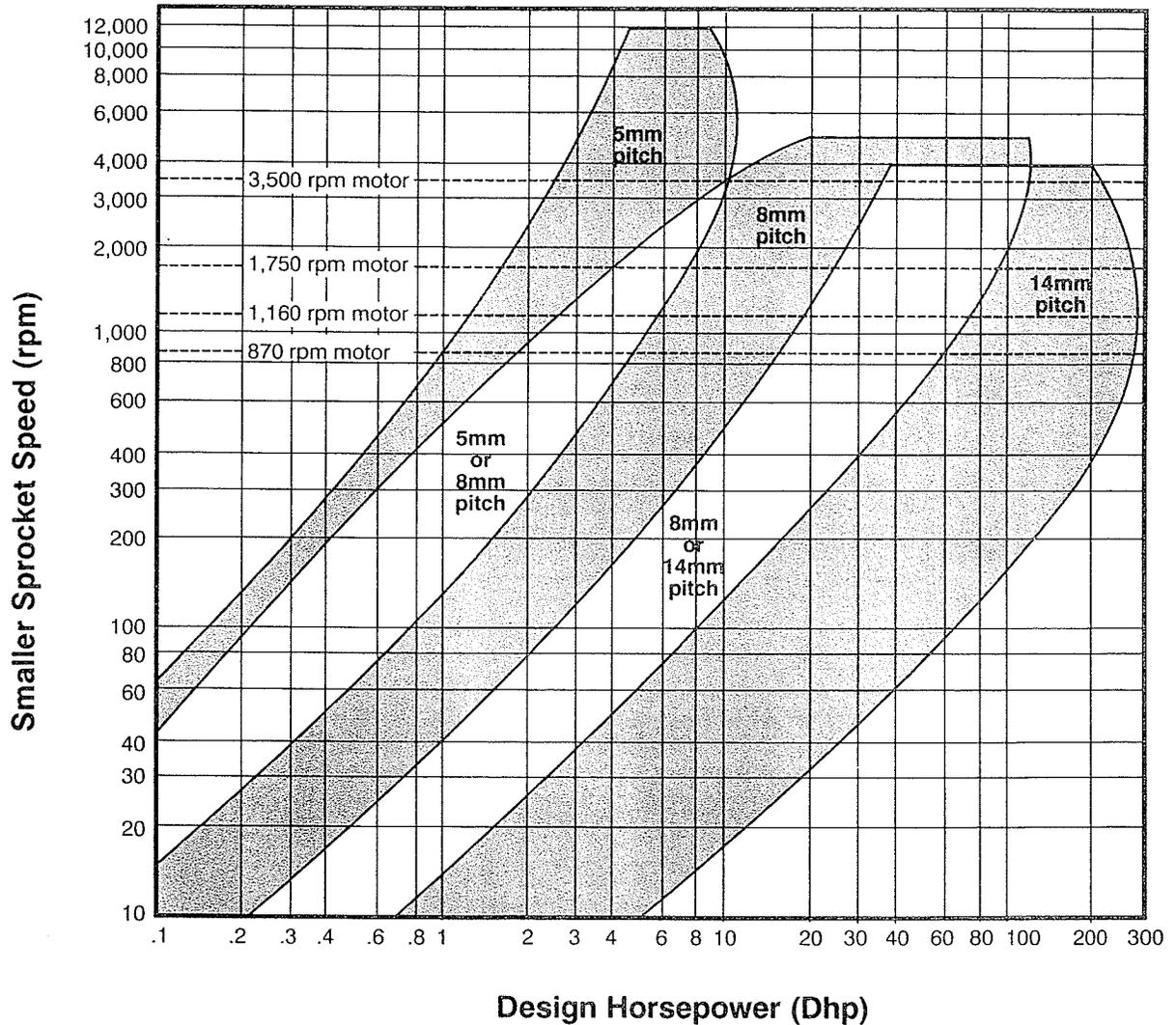
\*Belts are measured on 20 groove pulleys under the allowable working tensions.

Minimum Pulley Diameters, HTB Belts

Pitch	Speed(rpm)	Number of Grooves
3mm (3M)	10,000	34
	8,000	30
	5,000	26
	3,500	22
	3,000	18
	2,000	16
	1,160	14
5mm (5M)	8,000	34
	5,000	32
8mm (8M)	4,000	40
	3,200	36
	2,800	34
	2,000	32
	1,400	28
	870	26
	800	24
	600	22
14mm (14M)	3,500	38
	2,800	36
	2,400	34
	2,000	32
	1,600	30
	1,400	29
	1,200	28

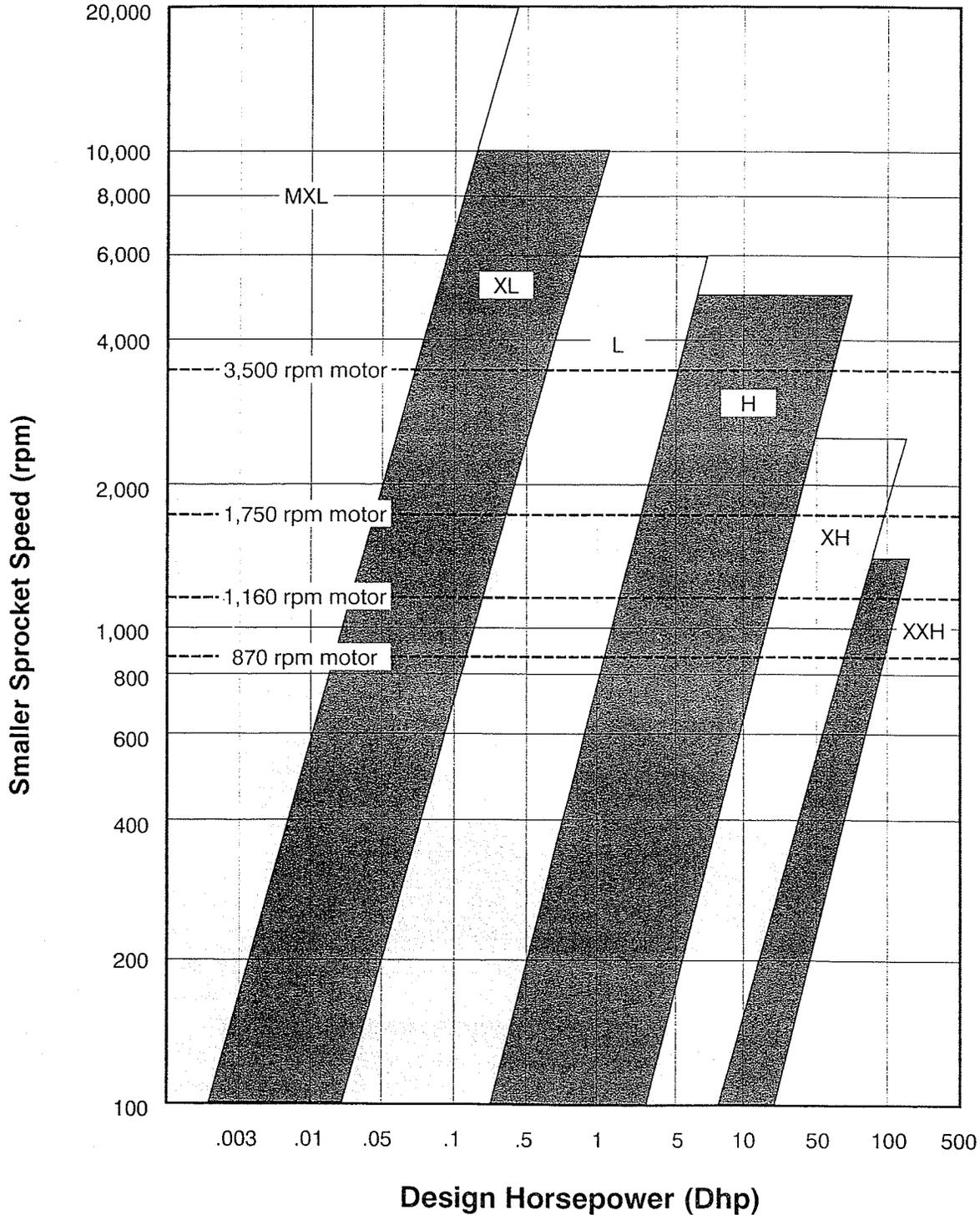
NOTE: Using a pulley groove number less than minimum will result in a reduction in belt life.

## HTB® Pitch Selection Guide



**NOTE:** The shaded areas in the graph above represent the three stock pitches and indicate for a given speed and load combination the best possible belt pitch to use. Where drive conditions result in a location on the graph close to a separating line, consider both pitches in determining drive selection.

## Standard Synchronous Belt Pitch Selection Guide



**NOTE:** The shaded areas in the graph above represent the six stock pitches and indicate for a given speed and load combination the best possible belt pitch to use. Where drive conditions result in a location on the graph close to a separating line, consider both pitches in determining drive selection.

## HTB® Width Selection Tables

### 3mm Pitch Belts

The following table represents the torque ratings for each belt in its base width at the predetermined number of grooves, pitch diameters and rpm's.

		RATED TORQUE (IN.-LBS)—6MM (.236 IN.) WIDE BELTS (3M-06)															
No. of Grooves		10	12	14	16	18	22	26	30	34	38	44	50	56	62	72	80
PD	mm* in.	9.55 .376	11.46 .451	13.37 .526	15.28 .602	17.19 .677	21.01 .827	24.83 .977	28.65 1.128	32.47 1.278	36.29 1.429	42.02 1.654	47.75 1.880	53.48 2.105	59.21 2.331	68.75 2.707	76.39 3.008
SMALLER SPROCKET rpm	10	3.3	4.0	4.8	5.6	6.5	8.3	10.2	12.3	14.5	16.8	20.5	24.6	27.7	30.7	35.7	39.6
	20	3.3	4.0	4.8	5.6	6.5	8.3	10.2	12.3	14.5	16.8	20.5	24.6	27.7	30.7	35.7	39.6
	40	3.3	4.0	4.8	5.6	6.5	8.3	10.2	12.3	14.5	16.8	20.5	24.6	27.7	30.7	35.7	39.6
	60	3.3	4.0	4.8	5.6	6.5	8.3	10.2	12.3	14.5	16.8	20.5	24.6	27.7	30.7	35.7	39.6
	100	3.3	4.0	4.8	5.6	6.5	8.3	10.2	12.3	14.5	16.8	20.5	24.6	27.7	30.7	35.7	39.6
	200	3.3	4.0	4.8	5.6	6.5	8.3	10.2	12.3	14.5	16.8	20.5	24.6	27.7	30.7	35.7	39.6
	300	3.0	3.7	4.4	5.1	5.9	7.5	9.2	11.1	13.0	15.0	18.3	21.8	24.6	27.3	31.6	35.2
	400	2.8	3.4	4.1	4.8	5.5	7.0	8.6	10.3	12.0	13.9	16.9	20.0	22.6	25.0	29.1	32.3
	500	2.7	3.3	3.9	4.5	5.2	6.6	8.1	9.7	11.3	13.1	15.8	18.8	21.2	23.4	27.2	30.2
	600	2.6	3.1	3.7	4.3	5.0	6.3	7.7	9.2	10.8	12.4	15.0	17.8	20.1	22.2	25.8	28.6
	700	2.5	3.0	3.6	4.2	4.8	6.1	7.4	8.9	10.4	11.9	14.4	17.0	19.2	21.2	24.6	27.4
	800	2.4	2.9	3.5	4.1	4.7	5.9	7.2	8.6	10.0	11.5	13.9	16.3	18.4	20.4	23.7	26.3
	870	2.4	2.9	3.4	4.0	4.6	5.8	7.0	8.4	9.8	11.2	13.5	15.9	18.0	19.9	23.1	25.6
	1000	2.3	2.8	3.3	3.6	4.4	5.6	6.8	8.1	9.4	10.8	13.0	15.3	17.2	19.1	22.1	24.6
	1160	2.2	2.7	3.2	3.7	4.3	5.4	6.5	7.8	9.1	10.4	12.5	14.6	16.5	18.2	21.2	23.5
	1450	2.1	2.6	3.0	3.5	4.0	5.1	6.2	7.3	8.5	9.8	11.7	13.7	15.4	17.1	19.8	22.0
	1600	2.0	2.5	3.0	3.4	3.9	5.0	6.0	7.2	8.3	9.5	11.4	13.3	15.0	16.5	19.2	21.3
	1750	2.0	2.5	2.9	3.4	3.9	4.9	5.9	7.0	8.1	9.3	11.1	12.9	14.6	16.1	18.7	20.7
	2000	1.9	2.4	2.8	3.3	3.7	4.7	5.7	6.7	7.8	8.9	10.7	12.4	14.0	15.4	17.9	19.8
	2500	1.9	2.3	2.7	3.1	3.5	4.4	5.4	6.4	7.4	8.4	10.0	11.6	13.0	14.4	16.6	18.4
	3000	1.8	2.2	2.6	3.0	3.4	4.2	5.1	6.1	7.0	8.0	9.4	11.0	12.3	13.5	15.6	17.3
	3500	1.7	2.1	2.5	2.9	3.3	4.1	4.9	5.8	6.7	7.6	9.0	10.4	11.7	12.8	14.8	16.3
	5000	1.6	1.9	2.3	2.6	3.0	3.7	4.5	5.2	6.0	6.8	8.0	9.2	10.2	11.1	12.7	13.8
	8000	1.4	1.7	2.0	2.3	2.6	3.3	3.9	4.5	5.1	5.7	6.6	7.3	8.0	8.5	9.1	9.3
	10000	1.3	1.6	1.9	2.2	2.5	3.0	3.6	4.1	4.6	5.1	5.7	6.3	6.6	6.8		
		TORQUE RATING (in.-lb.)—9mm(.354in.) Wide Belts(3M-09)															
10	5.4	6.7	8.0	9.3	10.7	13.7	16.9	20.3	24.0	27.8	34.0	47.0	46.0	50.9	59.1	65.7	
20	5.4	6.7	8.0	9.3	10.7	13.7	16.9	20.3	24.0	27.8	34.0	47.0	46.0	50.9	59.1	65.7	
40	5.4	6.7	8.0	9.3	10.7	13.7	16.9	20.3	24.0	27.8	34.0	47.0	46.0	50.9	59.1	65.7	
60	5.4	6.7	8.0	9.3	10.7	13.7	16.9	20.3	24.0	27.8	34.0	47.0	46.0	50.9	59.1	65.7	
100	5.4	6.7	8.0	9.3	10.7	13.7	16.9	20.3	24.0	27.8	34.0	47.0	46.0	50.9	59.1	65.7	
200	5.4	6.7	8.0	9.3	10.7	13.7	16.9	20.3	24.0	27.8	34.0	47.0	46.0	50.9	59.1	65.7	
300	5.0	6.1	7.3	8.5	9.7	12.4	15.3	18.3	21.5	24.9	30.3	36.1	40.8	45.1	52.4	58.2	
400	4.6	5.7	6.8	7.9	9.1	11.6	14.2	17.0	19.9	23.0	28.0	33.2	37.5	41.5	48.1	53.5	
500	4.4	5.4	6.4	7.5	8.6	11.0	13.4	16.0	18.8	21.7	26.2	31.1	35.1	38.8	45.1	50.1	
600	4.2	5.2	6.2	7.2	8.3	10.5	12.8	15.3	17.9	20.6	24.9	29.5	33.2	36.8	42.7	47.4	
700	4.1	5.0	6.0	6.9	8.0	10.1	12.3	14.7	17.2	19.8	23.8	28.2	31.7	35.1	40.8	45.3	
800	4.0	4.9	5.8	6.7	7.7	9.8	11.9	14.2	16.6	19.1	23.0	27.1	30.5	33.8	39.2	43.5	
870	3.9	4.8	5.7	6.6	7.6	9.6	11.7	13.9	16.2	18.6	22.4	26.4	29.8	32.9	38.2	42.5	
1000	3.8	4.6	5.5	6.4	7.3	9.2	11.3	13.4	15.6	17.9	21.5	25.3	28.5	31.6	36.7	40.7	
1160	3.6	4.5	5.3	6.2	7.1	8.9	10.8	12.9	15.0	17.2	20.7	24.3	27.3	30.2	35.1	38.9	
1450	3.5	4.2	5.0	5.8	6.7	8.4	10.3	12.2	14.1	16.2	19.4	22.7	25.5	28.3	32.8	36.4	
1600	3.4	4.1	4.9	5.7	6.5	8.2	10.0	11.8	13.8	15.7	18.8	22.0	24.8	27.4	31.8	35.3	
1750	3.3	4.1	4.8	5.6	6.4	8.0	9.8	11.6	13.4	15.4	18.4	21.5	24.1	26.7	30.9	34.3	
2000	3.2	3.9	4.7	5.4	6.2	7.8	9.4	11.2	13.0	14.8	17.7	20.6	23.2	25.6	29.7	32.9	
2500	3.1	3.7	4.4	5.1	5.9	7.4	8.9	10.5	12.2	13.9	16.5	19.2	21.6	23.9	27.6	30.6	
3000	2.9	3.6	4.2	4.9	5.6	7.0	8.5	10.0	11.6	13.2	15.7	18.2	20.4	22.5	25.9	28.7	
3500	2.8	3.5	4.1	4.7	5.4	6.8	8.2	9.6	11.1	12.6	14.9	17.3	19.3	21.3	24.5	27.1	
5000	2.6	3.2	3.8	4.3	4.9	6.2	7.4	8.7	10.0	11.3	13.3	15.2	17.0	18.6	21.1	23.0	
8000	2.3	2.8	3.4	3.9	4.4	5.4	6.5	7.5	8.5	9.5	11.0	12.3	13.4	14.3	15.5	16.1	
10000	2.2	2.7	3.2	3.6	4.1	5.0	6.0	6.9	7.7	8.6	9.7	10.6	11.3	11.7			
12000	2.1	2.6	3.0	3.4	3.9	4.7	5.5	6.3	7.0	7.7	8.4	8.9	9.1				
14000	2.0	2.5	2.9	3.3	3.7	4.4	5.2	5.8	6.3	6.8	7.2						
20000	1.8	2.2	2.5	2.9	3.1	3.6	4.0	4.2									

Shaded area indicates sprocket and rpm that will result in reduced service life.

## HTB® Width Selection Tables

### 5mm Pitch Belts

The following table represents the horsepower ratings for each belt based on Pulley Groove Number, Pitch Diameters, and pulley speed (rpm).

HORSEPOWER RATING—15mm (.591 in.) wide belt (5M-15)														
No. of Grooves		32	34	36	38	40	44	48	52	56	60	64	68	72
PD	mm* in.	50.93 2.005	54.11 2.130	57.30 2.256	60.48 2.381	63.66 2.506	70.03 2.757	76.39 3.008	82.76 3.258	89.13 3.509	95.49 3.760	101.86 4.010	108.23 4.261	114.59 4.511
SMALLER SPROCKET rpm	10	0.016	0.018	0.019	0.020	0.022	0.025	0.028	0.032	0.034	0.036	0.039	0.041	0.044
	20	0.032	0.035	0.038	0.041	0.044	0.050	0.057	0.063	0.068	0.073	0.078	0.083	0.088
	40	0.065	0.070	0.076	0.082	0.088	0.100	0.114	0.126	0.136	0.146	0.156	0.165	0.175
	60	0.097	0.105	0.114	0.123	0.132	0.150	0.170	0.190	0.204	0.219	0.233	0.248	0.263
	100	0.162	0.175	0.190	0.204	0.219	0.251	0.284	0.316	0.340	0.365	0.389	0.413	0.438
	200	0.323	0.351	0.379	0.408	0.439	0.502	0.568	0.632	0.681	0.729	0.778	0.827	0.875
	300	0.435	0.472	0.509	0.548	0.588	0.670	0.757	0.840	0.905	0.970	1.034	1.099	1.163
	400	0.538	0.582	0.628	0.675	0.723	0.823	0.927	1.028	1.108	1.187	1.266	1.345	1.424
	500	0.634	0.686	0.739	0.793	0.849	0.965	1.086	1.203	1.295	1.388	1.480	1.572	1.665
	600	0.724	0.783	0.844	0.905	0.968	1.099	1.235	1.367	1.472	1.577	1.681	1.786	1.891
	700	0.811	0.877	0.944	1.012	1.082	1.227	1.377	1.523	1.639	1.756	1.873	1.989	2.106
	800	0.895	0.966	1.040	1.115	1.191	1.349	1.513	1.672	1.800	1.928	2.056	2.184	2.311
	870	0.952	1.027	1.105	1.184	1.265	1.432	1.605	1.773	1.908	2.044	2.179	2.315	2.450
	1000	1.054	1.137	1.223	1.310	1.398	1.581	1.770	1.953	2.103	2.252	2.401	2.550	2.698
	1160	1.175	1.267	1.361	1.457	1.555	1.756	1.964	2.166	2.331	2.496	2.660	2.825	2.988
	1400	1.348	1.453	1.559	1.668	1.779	2.006	2.240	2.467	2.654	2.841	3.027	3.213	3.397
	1450	1.383	1.490	1.599	1.711	1.824	2.056	2.295	2.527	2.719	2.910	3.100	3.290	3.479
	1600	1.485	1.600	1.717	1.836	1.956	2.204	2.458	2.704	2.908	3.112	3.314	3.516	3.717
1750	1.585	1.707	1.831	1.957	2.085	2.346	2.615	2.874	3.091	3.306	3.520	3.733	3.945	
1800	1.618	1.742	1.868	1.996	2.127	2.393	2.666	2.930	3.150	3.369	3.587	3.803	4.018	
2000	1.746	1.879	2.014	2.151	2.291	2.574	2.865	3.146	3.381	3.614	3.846	4.076	4.304	
2500	2.050	2.203	2.359	2.517	2.676	3.000	3.330	3.648	3.914	4.178	4.438	4.695	4.948	
3000	2.333	2.505	2.678	2.854	3.030	3.388	3.751	4.099	4.390	4.676	4.956	5.230	5.498	
3600	2.649	2.839	3.031	3.225	3.419	3.810	4.203	4.576	4.887	5.188	5.479	5.760	6.030	
5000	3.293	3.516	3.738	3.959	4.178	4.611	5.034	5.422	5.728	6.009	6.263	6.490	6.686	
8000	4.247	4.473	4.687	4.887	5.073	5.396	5.647							
10000	4.526	4.692	4.831	4.941										
12000	4.471													
HORSEPOWER RATING—25mm (.984 in.) wide belt (5M-25)														
SMALLER SPROCKET rpm	10	0.029	0.031	0.034	0.036	0.039	0.045	0.051	0.056	0.061	0.065	0.070	0.074	0.078
	20	0.058	0.063	0.068	0.073	0.078	0.090	0.101	0.113	0.122	0.130	0.139	0.148	0.156
	40	0.116	0.125	0.136	0.146	0.157	0.179	0.203	0.226	0.243	0.261	0.278	0.295	0.313
	60	0.173	0.188	0.203	0.219	0.235	0.269	0.304	0.339	0.365	0.391	0.417	0.443	0.469
	100	0.289	0.313	0.339	0.365	0.392	0.448	0.507	0.565	0.608	0.652	0.695	0.738	0.782
	200	0.578	0.627	0.678	0.730	0.784	0.896	1.015	1.129	1.216	1.303	1.390	1.477	1.564
	300	0.778	0.843	0.910	0.979	1.050	1.197	1.352	1.502	1.617	1.732	1.848	1.963	2.079
	400	0.961	1.041	1.122	1.206	1.292	1.470	1.657	1.838	1.979	2.120	2.261	2.403	2.544
	500	1.132	1.225	1.320	1.418	1.517	1.724	1.940	2.149	2.314	2.479	2.644	2.809	2.974
	600	1.295	1.400	1.507	1.618	1.730	1.964	2.207	2.242	2.630	2.817	3.005	3.192	3.379
	700	1.450	1.566	1.686	1.808	1.934	2.192	2.460	2.721	2.930	3.138	3.347	3.555	3.763
	800	1.599	1.727	1.858	1.992	2.129	2.411	2.703	2.987	3.216	3.445	3.674	3.902	4.131
	870	1.700	1.836	1.975	2.116	2.261	2.559	2.868	3.168	3.410	3.653	3.895	4.137	4.379
	1000	1.883	2.032	2.185	2.340	2.499	2.825	3.163	3.491	3.758	4.025	4.291	4.557	4.823
	1160	2.099	2.264	2.433	2.604	2.779	3.139	3.511	3.871	4.166	4.461	4.755	5.049	5.342
	1400	2.408	2.596	2.787	2.981	3.179	3.585	4.004	4.409	4.744	5.078	5.412	5.744	6.075
	1450	2.471	2.663	2.858	3.057	3.260	3.675	4.103	4.517	4.860	5.202	5.543	5.883	6.221
	1600	2.655	2.860	3.068	3.281	3.497	3.939	4.393	4.834	5.199	5.564	5.927	6.288	6.648
1750	2.833	3.051	3.273	3.498	3.726	4.194	4.674	5.139	5.526	5.912	6.296	6.677	7.057	
1800	2.892	3.114	3.339	3.569	3.801	4.277	4.766	5.239	5.633	6.025	6.416	6.804	7.190	
2000	3.121	3.359	3.601	3.864	4.095	4.603	5.123	5.626	6.047	6.466	6.881	7.294	7.703	
2500	3.665	3.940	4.218	4.500	4.786	5.366	5.957	6.527	7.006	7.480	7.948	8.411	8.867	
3000	4.173	4.480	4.791	5.105	5.422	6.065	6.715	7.340	7.865	8.380	8.886	9.382	9.867	
3600	4.739	5.081	5.426	5.773	6.122	6.826	7.532	8.206	8.768	9.314	9.844	10.357	10.851	
5000	5.902	6.303	6.704	7.104	7.501	8.287	9.055	9.765	10.331	10.855	11.336	11.749	12.153	
8000	7.663	8.081	8.480	8.856	9.208	9.834	10.340							
10000	8.232	8.557	8.838	9.071										
12000	8.238													

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

## HTB® PLUS Width Selection Tables

### 8mm Pitch Belts

The following tables represent the horsepower ratings for each belt at the pre-determined Number of Grooves, Pitch Diameters and rpm's.

HORSEPOWER RATING - 20MM (.79 IN.) WIDE BELT (8M-20)																		
No. of Grooves																		
	22	24	26	28	30	32	34	36	38	40	44	48	56	64	72	80		
PD	mm*	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	142.60	162.97	183.35	203.72	
	in.	2.206	2.406	2.607	2.807	3.008	3.208	3.409	3.609	3.810	4.010	4.411	4.812	5.614	6.416	7.218	8.02	
SMALLER SPROCKET rpm	10	0.03	0.03	0.04	0.05	0.05	0.06	0.08	0.09	0.09	0.10	0.10	0.11	0.14	0.15	0.18	0.19	
	20	0.05	0.06	0.08	0.09	0.10	0.13	0.14	0.15	0.18	0.19	0.21	0.23	0.26	0.30	0.34	0.38	
	40	0.11	0.13	0.15	0.18	0.21	0.24	0.28	0.31	0.35	0.38	0.41	0.45	0.53	0.60	0.68	0.75	
	60	0.16	0.19	0.23	0.26	0.31	0.36	0.41	0.46	0.53	0.56	0.63	0.68	0.80	0.91	1.03	1.14	
	100	0.28	0.31	0.38	0.45	0.53	0.60	0.69	0.78	0.88	0.95	1.04	1.14	1.33	1.51	1.70	1.89	
	200	0.55	0.61	0.75	0.89	1.04	1.20	1.38	1.56	1.75	1.89	2.08	2.24	2.58	2.90	3.23	3.55	
	300	0.83	0.90	1.08	1.29	1.50	1.74	1.99	2.25	2.54	2.74	2.99	3.23	3.71	4.19	4.65	5.11	
	400	1.09	1.19	1.40	1.66	1.95	2.25	2.58	2.93	3.29	3.55	3.88	4.19	4.80	5.41	6.01	6.60	
	500	1.36	1.49	1.71	2.04	2.39	2.75	3.15	3.56	4.01	4.34	4.73	5.11	5.86	6.60	7.33	8.04	
	600	1.64	1.79	2.03	2.40	2.80	3.24	3.70	4.20	4.73	5.11	5.56	6.01	6.89	7.75	8.60	9.43	
	700	1.91	2.09	2.33	2.75	3.23	3.73	4.25	4.81	5.41	5.86	6.38	6.89	7.90	8.88	9.84	10.79	
	800	2.19	2.38	2.61	3.10	3.63	4.19	4.79	5.43	6.10	6.60	7.18	7.75	8.88	9.98	11.05	12.11	
	870	2.38	2.59	2.81	3.34	3.91	4.51	5.16	5.85	6.58	7.10	7.73	8.35	9.55	10.74	11.89	13.01	
	1000	2.73	2.98	3.21	3.79	4.43	5.11	5.84	6.61	7.44	8.04	8.74	9.43	10.79	12.11	13.39	14.64	
	1160	3.16	3.45	3.73	4.31	5.04	5.83	6.65	7.54	8.46	9.15	9.95	10.74	12.26	13.75	15.19	16.58	
	1200	3.26	3.56	3.86	4.45	5.20	6.00	6.86	7.76	8.73	9.43	10.25	11.05	12.63	14.15	15.63	17.05	
	1400	3.81	4.15	4.49	5.09	5.95	6.88	7.85	8.89	9.98	10.79	11.71	12.63	14.40	16.10	17.74	19.31	
	1600	4.33	4.74	5.13	5.73	6.69	7.71	8.81	9.98	11.20	12.11	13.14	14.15	16.10	17.98	19.75	21.45	
	1750	4.75	5.18	5.60	6.19	7.23	8.34	9.53	10.78	12.10	13.08	14.18	15.25	17.34	19.31	21.19	22.95	
	2000	5.41	5.90	6.39	7.00	8.10	9.35	10.68	12.08	13.56	14.64	15.86	17.05	19.31	21.45	23.44	25.28	
	2400	6.48	7.05	7.63	8.36	9.46	10.91	12.45	14.08	15.80	17.05	18.43	19.75	22.26	24.55	26.63	28.46	
	2800	7.53	8.19	8.84	9.69	10.75	12.40	14.14	15.98	17.91	19.31	20.83	22.26	24.91	27.21	29.29	30.94	
	3200			10.04	10.99	11.99	13.80	15.74	17.78	19.91	21.45	23.05	24.55	27.26	29.55	31.35		
	3500					12.86	14.81	16.88	19.05	21.34	22.95	24.60	26.14	28.81	30.94			
	4000						16.39	18.65	21.03	23.53	25.28	26.95	28.46	34.69				
	4500							20.26	22.63	25.51	27.35	28.99	30.39					
	5000								24.43	27.26	29.15	30.68	31.89					
	5500									28.76	30.68	32.00						
	HORSEPOWER RATING - 30MM (1.18 IN.) WIDE BELT (8M-30)																	
	SMALLER SPROCKET rpm	10	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.13	0.14	0.15	0.16	0.18	0.21	0.24	0.26	0.30
		20	0.09	0.10	0.11	0.14	0.16	0.19	0.21	0.25	0.28	0.30	0.33	0.36	0.41	0.48	0.54	0.60
		40	0.18	0.20	0.24	0.28	0.33	0.38	0.44	0.49	0.55	0.60	0.65	0.71	0.84	0.95	1.08	1.19
		60	0.26	0.29	0.35	0.43	0.49	0.58	0.65	0.74	0.83	0.90	0.99	1.08	1.25	1.43	1.61	1.79
		100	0.43	0.49	0.59	0.70	0.83	0.95	1.09	1.23	1.39	1.49	1.64	1.79	2.09	2.39	2.69	2.98
		200	0.86	0.95	1.18	1.40	1.64	1.90	2.18	2.46	2.76	2.98	3.26	3.54	4.06	4.59	5.10	5.60
		300	1.29	1.41	1.70	2.03	2.38	2.74	3.14	3.55	4.00	4.33	4.71	5.10	5.85	7.33	7.33	8.05
		400	1.73	1.88	2.21	2.63	3.08	3.55	4.06	4.60	5.18	5.60	6.10	6.60	7.58	8.54	9.48	10.40
		500	2.15	2.35	2.70	3.21	3.75	4.34	4.96	5.63	6.33	6.84	7.45	8.05	9.24	10.40	11.55	12.68
		600	2.59	2.81	3.19	3.79	4.43	5.11	5.85	6.63	7.45	8.05	8.78	9.48	10.86	12.23	13.56	14.88
		700	3.01	3.29	3.66	4.34	5.08	5.86	6.71	7.60	8.54	9.24	10.06	10.86	12.45	14.00	15.53	17.01
		800	3.44	3.75	4.13	4.89	5.73	6.61	7.55	8.56	9.63	10.40	11.33	12.23	14.00	15.74	17.44	19.10
		870	3.74	4.08	4.45	5.28	6.16	7.13	8.14	9.23	10.36	11.21	12.19	13.16	15.08	16.94	18.75	20.53
		1000	4.30	4.69	5.08	5.96	6.98	8.06	9.21	10.43	11.73	12.68	13.79	14.88	17.01	19.10	21.14	23.11
		1160	4.99	5.44	5.89	6.81	7.95	9.19	10.50	11.89	13.36	14.44	15.70	16.94	19.35	21.69	23.96	26.18
		1200	5.15	5.61	6.09	7.01	8.20	9.46	10.81	12.25	13.76	14.88	16.16	17.44	19.93	22.33	24.66	26.91
		1400	6.00	6.55	7.09	8.04	9.39	10.84	12.38	14.01	15.75	17.01	18.49	19.93	22.73	25.41	28.01	30.51
		1600	6.85	7.48	8.09	9.03	10.55	12.18	13.91	15.74	17.68	19.10	20.73	22.33	25.41	28.38	31.21	33.90
		1750	7.49	8.16	8.84	9.76	11.40	13.16	15.03	17.01	19.10	20.63	22.38	24.09	27.38	30.51	33.49	36.30
		2000	8.55	9.31	10.08	11.05	12.79	14.76	16.83	19.06	21.40	23.11	25.04	26.91	30.51	33.90	37.08	40.01
		2400	10.23	11.13	12.03	13.19	14.94	17.23	19.66	22.23	24.95	26.91	29.10	31.21	35.20	38.86	42.20	45.16
2800		11.88	12.93	13.96	15.30	16.99	19.58	22.33	25.24	28.30	30.51	32.91	35.20	39.45	43.23	46.50	49.23	
3200				15.85	17.35	18.94	21.81	24.86	28.09	31.48	33.90	36.46	38.86	43.23	46.93	49.90		
3500						20.33	23.41	26.68	30.11	33.74	36.30	38.94	41.40	45.73	49.23			
4000							25.91	29.50	33.28	37.24	40.01	42.71	45.16	49.23				
4500								32.09	36.16	40.43	43.35	46.01	48.33					
5000									38.74	43.25	46.29	48.79	50.83					
5500										45.71	48.79	51.00						

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

JASON INDUSTRIAL, INC. DRIVE DESIGN MANUAL

HTB® and Standard Synchronous Belts

HTB® PLUS Width Selection Tables

8mm Pitch Belts

The following tables represent the horsepower ratings for each belt at the pre-determined Number of Grooves, Pitch Diameters and rpm's. These ratings must be multiplied by the applicable belt length factor to obtain the corrected horsepower rating (See Step 4 of Drive Selection Procedure).

HORSEPOWER RATING - 50MM (1.97 IN.) WIDE BELT (8M-50)														
No. of Grooves		20	30	32	34	36	38	40	44	48	56	64	72	80
PD	mm	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	142.60	162.97	183.35	203.72
	in.	2.807	3.008	3.208	3.409	3.609	3.810	4.010	4.411	4.812	5.614	6.416	7.218	8.020
SMALLER SPROCKET rpm	10	0.13	0.14	0.16	0.19	0.21	0.24	0.26	0.29	0.31	0.36	0.41	0.46	0.51
	20	0.24	0.29	0.33	0.38	0.43	0.48	0.51	0.56	0.63	0.73	0.83	0.93	1.04
	40	0.49	0.56	0.66	0.75	0.85	0.96	1.04	1.14	1.24	1.45	1.65	1.86	2.06
	60	0.73	0.85	0.99	1.13	1.28	1.44	1.55	1.70	1.86	2.16	2.48	2.79	3.10
	100	1.21	1.43	1.64	1.88	2.13	2.40	2.58	2.84	3.10	3.61	4.13	4.65	5.16
	200	2.43	2.84	3.29	3.76	4.26	4.79	5.16	5.66	6.13	7.04	7.94	8.83	9.70
	300	3.51	4.10	4.74	5.43	6.15	6.91	7.49	8.16	8.83	10.14	11.43	12.70	13.95
	400	4.55	5.33	6.15	7.04	7.98	8.96	9.70	10.56	11.43	13.11	14.78	16.41	18.03
	500	5.56	6.50	7.51	8.60	9.74	10.95	11.85	12.91	13.95	16.00	18.03	20.00	21.95
	600	6.55	7.66	8.85	10.13	11.48	12.90	13.95	15.19	16.41	18.81	21.18	23.49	25.78
	700	7.53	8.80	10.16	11.61	13.16	14.80	16.00	17.43	18.81	21.56	24.26	26.89	29.48
	800	8.48	9.91	11.45	13.09	14.83	16.66	18.03	19.61	21.18	24.26	27.26	30.21	33.10
	870	9.14	10.68	12.34	14.10	15.98	17.95	19.41	21.11	22.80	26.11	29.34	32.49	35.58
	1000	10.34	12.09	13.95	15.95	18.06	20.30	21.95	23.88	25.78	29.48	33.10	36.61	40.05
	1160	11.79	13.78	15.91	18.19	20.59	23.14	25.01	27.19	29.34	33.53	37.59	41.54	45.36
	1200	12.15	14.20	16.40	18.74	21.21	23.84	25.78	28.01	30.21	34.51	38.69	42.74	46.65
	1400	13.91	16.26	18.78	21.45	24.29	27.28	29.48	32.03	34.51	39.38	44.05	48.58	52.91
	1600	15.64	18.28	21.09	24.09	27.28	30.63	33.10	35.93	38.69	44.05	49.20	54.13	58.81
	1750	16.91	19.75	22.80	26.04	29.46	33.09	35.75	38.78	41.74	47.46	52.91	58.10	63.00
	2000	19.15	22.16	25.58	29.20	33.04	37.09	40.05	43.40	46.65	52.91	58.81	64.35	69.50
	2400	22.86	25.89	29.85	34.06	38.53	43.24	46.65	50.45	54.13	61.08	67.49	73.33	78.55
	2800	26.51	29.44	33.94	38.71	43.76	49.08	52.91	57.09	61.08	68.50	75.14	80.93	85.81
	3200	30.09	32.84	37.83	43.11	48.71	54.58	58.81	63.28	67.49	75.14	81.69	87.03	
	3500		35.26	40.61	46.26	52.25	58.54	63.00	67.61	71.93	79.56	85.81		
	4000			44.99	51.21	57.58	64.68	69.50	74.24	78.55	85.81			
	4500				55.75	62.83	70.25	75.36	80.06	84.18				
	5000					67.38	75.25	80.55	85.01	88.70				
	5500						79.61	85.01	89.03					
HORSEPOWER RATING - 85MM (3.35 IN.) WIDE BELT (8M-85)														
SMALLER SPROCKET rpm	10				0.33	0.38	0.41	0.45	0.50	0.54	0.63	0.71	0.81	0.90
	20				0.65	0.74	0.84	0.90	0.99	1.08	1.26	1.44	1.61	1.80
	40				1.31	1.49	1.66	1.80	1.98	2.15	2.51	2.88	3.24	3.59
	60				1.96	2.23	2.50	2.70	2.96	3.24	3.78	4.31	4.85	5.39
	100				3.26	3.71	4.16	4.49	4.94	5.39	6.29	7.19	8.09	8.98
	200				6.54	7.41	8.34	8.98	9.84	10.65	12.24	13.80	15.35	16.88
	300				9.44	10.70	12.04	13.03	14.19	15.35	17.64	19.88	22.09	24.26
	400				12.24	13.86	15.60	16.88	18.39	19.88	22.81	25.70	28.55	31.35
	500				14.95	16.95	19.05	20.61	22.45	24.26	27.84	31.35	34.80	38.19
	600				17.61	19.95	22.43	24.26	26.43	28.55	32.74	36.84	40.88	44.81
	700				20.21	22.90	25.74	27.84	30.30	32.74	37.51	42.19	46.79	51.29
	800				22.76	25.79	28.99	31.35	34.11	36.84	42.20	47.44	52.56	57.58
	870				24.53	27.79	31.23	33.78	36.74	39.68	45.43	51.04	56.53	61.89
	1000				27.75	31.43	35.33	38.19	41.54	44.83	51.29	57.58	63.71	69.69
	1160				31.64	35.83	40.25	43.51	46.30	51.04	58.33	65.40	72.78	78.95
	1200				32.59	36.91	41.48	44.83	48.73	52.56	60.05	67.31	74.36	81.20
	1400				37.31	42.24	47.45	51.29	55.71	60.05	68.51	76.66	84.54	92.11
	1600				41.91	47.45	53.29	57.58	62.50	67.31	76.66	85.64	94.19	102.41
	1750				45.30	51.26	57.58	62.20	67.46	72.63	82.60	92.11	101.16	109.73
	2000				50.80	57.49	64.54	69.69	75.53	81.20	92.11	102.41	112.09	121.09
	2400				59.29	75.25	82.25	88.20	94.23	106.36	117.56	127.80	137.00	
	2800				67.38	84.81	92.43	99.39	106.36	119.34	130.99	141.18	149.81	
	3200				75.06	93.64	102.43	110.20	117.56	130.99	142.51	151.99		
	3500				80.56	99.98	109.94	119.73	129.34	138.78	149.81			
	4000				89.20	106.90	116.66	126.09	135.45	145.00				
	4500				97.15	116.50	126.20	135.38	145.64	155.93				
	5000				117.49	137.23	147.50	157.40	167.98					
	5500					138.84	149.40	159.55						

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

## HTB® PLUS Width Selection Tables

### 14mm Pitch Belts

The following tables represent the horsepower ratings for each belt at the pre-determined Number of Grooves, Pitch Diameters and rpm's.

HORSEPOWER RATING - 40MM (1.57 IN.) WIDE BELT (14M-40)																			
No. of Grooves	28	29	30	32	34	36	38	40	44	48	52	56	60	64	68	72	80		
mm	124.78	129.23	133.69	142.60	151.52	160.43	169.34	178.25	196.08	213.90	231.73	249.55	267.38	285.21	303.03	320.86	356.51		
PD in.	4.912	5.088	5.263	5.614	5.965	6.316	6.667	7.018	7.720	8.421	9.123	9.825	10.527	11.229	11.930	12.632	14.036		
SMALLER SPROCKET rpm	10	0.30	0.31	0.33	0.35	0.39	0.45	0.54	0.63	0.69	0.75	0.81	0.88	0.94	1.01	1.08	1.14	1.31	
	20	0.61	0.64	0.65	0.70	0.78	0.89	1.06	1.26	1.39	1.51	1.64	1.76	1.89	2.01	2.14	2.26	2.63	
	40	1.23	1.26	1.31	1.40	1.55	1.78	2.13	2.51	2.76	3.03	3.28	3.53	3.78	4.03	4.28	4.53	5.25	
	60	1.84	1.90	1.96	2.10	2.33	2.66	3.20	3.78	4.15	4.53	4.90	5.29	5.66	6.04	6.41	6.79	7.88	
	100	2.94	3.16	3.28	3.49	3.88	4.44	5.33	6.29	6.91	7.55	8.18	8.80	9.43	10.06	10.69	11.31	13.11	
	200	6.11	6.33	6.55	6.90	7.75	8.88	10.65	12.30	13.83	15.09	16.34	17.60	18.85	20.10	21.35	22.61	26.20	
	300	8.39	8.80	9.28	9.63	11.51	13.30	15.28	16.53	18.90	21.90	24.13	26.36	28.24	30.11	31.99	33.86	38.36	
	400	10.29	10.91	11.56	12.14	14.36	17.50	18.79	20.26	22.98	26.35	29.39	32.44	34.90	37.35	39.31	41.28	45.31	
	500	12.05	12.85	13.69	14.50	17.01	20.50	21.96	23.62	26.61	30.25	33.66	37.08	39.69	42.29	44.46	46.64	51.10	
	600	13.68	14.68	15.69	16.73	19.49	23.28	24.89	26.71	29.90	33.74	37.45	41.15	43.84	46.51	48.85	51.18	55.96	
	700	15.21	16.39	17.56	18.85	21.81	25.85	27.59	29.56	32.91	36.88	40.81	44.75	47.45	50.15	52.60	55.04	60.04	
	800	16.68	18.01	19.36	20.88	24.01	28.24	30.11	32.20	35.68	39.73	43.83	47.93	50.60	53.28	55.79	58.30	63.41	
	870	17.66	19.19	20.56	22.24	25.49	29.83	31.78	33.94	37.48	41.56	45.75	49.94	52.56	55.19	57.71	60.25	65.38	
	1000	19.41	21.06	22.70	24.66	28.09	32.60	34.68	36.95	40.56	44.66	48.95	53.23	55.71	58.19	60.70	63.23	68.24	
	1160	21.46	23.33	25.16	27.48	31.06	35.71	37.91	40.31	43.95	47.98	52.26	56.55	58.78	60.99	63.38	65.76	70.39	
	1200	21.96	23.88	25.75	28.15	31.76	36.44	38.68	41.10	44.73	48.73	53.00	57.26	59.40	61.54	63.88	66.21	70.69	
	1400	24.35	26.46	28.56	31.34	35.09	39.83	42.18	44.69	48.24	52.04	56.10	60.16	61.81	63.45	65.38	67.38	70.85	
	1600	26.60	28.89	31.15	34.26	38.01	42.80	45.21	47.78	51.15	54.63	58.31	62.00	63.00	64.00	65.29	66.76	68.73	
	1750	28.23	30.59	32.95	36.28	40.09	44.76	47.20	49.76	52.95	56.11	59.40	62.68	63.10	63.53	64.32	65.14		
	2000	30.83	33.24	35.68	39.31	43.05	47.55	49.99	52.49	55.24	57.75	60.14	62.51	61.75	61.06	61.75			
	2400	34.89	37.00	39.41	43.28	46.76	50.76	53.05	55.30	57.03	58.18	58.53	58.88						
	2800	39.34	40.40	42.39	46.11	49.16	52.46	54.41	56.19	56.50	55.85								
	3200		44.18	45.08	47.78	50.23	52.64	54.03	55.10										
	3500			47.34	48.59	50.26	51.81	52.61											
	4000				50.36	50.44													
	HORSEPOWER RATING - 55MM (2.17 IN.) WIDE BELT (14M-55)																		
	10	0.44	0.45	0.46	0.50	0.55	0.63	0.76	0.89	0.99	1.08	1.15	1.25	1.33	1.43	1.53	1.61	1.86	
	20	0.86	0.90	0.93	0.99	1.10	1.26	1.51	1.79	1.96	2.14	2.33	2.50	2.68	2.86	3.04	3.21	3.73	
	40	1.74	1.80	1.86	1.99	2.20	2.53	3.03	3.58	3.93	4.29	4.65	5.00	5.36	5.71	6.08	6.43	7.45	
	60	2.60	2.70	2.79	2.98	3.30	3.78	4.54	5.36	5.90	6.43	6.96	7.50	8.04	8.58	9.10	9.65	11.18	
	100	4.34	4.50	4.65	4.96	5.50	6.30	7.56	8.93	9.83	10.71	11.61	12.50	13.39	14.29	15.18	16.08	18.63	
	200	8.68	8.99	9.30	9.80	11.01	12.60	15.13	17.46	19.64	21.43	23.20	24.99	26.76	28.55	30.31	32.11	37.20	
	300	11.91	12.50	13.18	13.66	16.34	18.89	21.19	23.46	26.84	31.10	34.26	37.44	40.10	42.76	45.43	48.08	54.46	
	400	14.61	15.49	16.43	17.24	20.40	24.85	26.68	28.76	32.63	37.41	41.73	46.06	49.56	53.04	55.83	58.61	64.34	
	500	17.10	18.25	19.44	20.59	24.15	29.11	31.19	33.55	37.79	42.96	47.80	51.40	56.36	60.05	63.14	66.21	72.56	
	600	19.43	20.84	22.28	23.75	27.66	33.05	35.34	37.93	42.46	47.91	53.18	58.44	62.25	66.05	69.36	72.66	79.48	
	700	21.61	23.28	24.95	26.76	30.98	36.70	39.18	41.98	46.74	52.38	57.95	63.54	67.38	71.20	74.69	78.15	86.50	
	800	23.69	25.59	27.49	29.64	34.10	40.10	42.76	45.73	50.65	56.41	62.24	68.06	71.85	75.65	79.21	82.79	90.04	
	870	25.09	27.14	29.20	31.58	36.20	42.36	45.13	48.20	53.21	59.01	64.96	70.91	74.64	78.36	81.95	85.56	92.84	
	1000	27.58	29.91	32.23	35.02	39.81	46.29	49.24	52.48	57.60	63.41	69.51	75.59	79.11	82.64	86.20	89.78	96.89	
	1160	30.48	33.13	35.73	39.01	44.10	50.71	53.84	57.24	62.41	68.14	74.21	80.30	83.46	86.60	89.99	93.38	99.94	
	1200	31.19	30.15	36.58	39.96	45.10	51.75	54.91	58.35	63.51	69.20	75.26	81.33	84.35	87.39	90.70	94.01	100.38	
	1400	34.58	37.59	40.56	44.50	49.81	56.55	59.89	63.46	68.50	73.89	79.66	85.44	87.78	90.10	92.84	95.68	100.61	
	1600	37.78	41.01	44.23	48.65	54.05	60.78	64.20	67.84	72.64	77.56	82.80	83.54	89.46	90.88	92.71	94.80	97.59	
	1750	40.08	43.44	46.78	51.53	56.93	63.56	67.03	70.66	75.19	79.68	84.35	89.00	89.60	90.20	91.34	92.49		
	2000	43.78	47.19	50.66	55.81	61.14	67.51	70.98	74.54	78.44	82.01	85.40	88.76	87.69	86.71	87.69			
	2400	49.54	52.55	55.96	61.44	66.40	72.09	75.34	78.54	80.99	82.61	83.10	83.60						
	2800	55.86	57.36	60.19	65.48	69.81	74.50	77.26	79.79	80.23	79.31								
	3200		62.73	64.04	67.85	71.33	74.75	76.71	78.25										
	3500			67.23	69.18	71.38	73.56	74.70											
	4000				71.53	71.63													

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

JASON INDUSTRIAL, INC. DRIVE DESIGN MANUAL  
HTB® and Standard Synchronous Belts

HTB® PLUS Width Selection Tables

14mm Pitch Belts

The following tables represent the horsepower ratings for each belt at the pre-determined Number of Grooves, Pitch Diameters and rpm's.

HORSEPOWER RATING - 85MM (3.35 IN.) WIDE BELT (14M-85)																		
No. of Grooves	28	29	30	32	34	36	38	40	44	46	52	56	60	64	68	72	80	
mm	124.78	129.23	133.69	142.60	151.52	160.43	169.34	178.25	196.08	213.90	231.73	249.55	267.38	285.21	303.03	320.86	356.51	
PD in	4.912	5.088	5.263	5.614	5.965	6.316	6.667	7.018	7.720	8.421	9.123	9.825	10.527	11.229	11.930	12.632	14.036	
SMALLER SPROCKET rpm	10	0.71	0.75	0.78	0.83	0.91	1.04	1.25	1.48	1.63	1.78	1.90	2.08	2.19	2.36	2.53	2.66	3.09
	20	1.44	1.49	1.54	1.64	1.83	2.09	2.50	2.95	3.25	3.55	3.85	4.14	4.43	4.73	5.03	5.33	6.16
	40	2.88	2.98	3.08	3.29	3.65	4.18	5.01	5.91	6.50	7.10	7.70	8.28	8.88	9.46	10.05	10.64	12.34
	60	4.31	4.46	4.61	4.93	5.46	6.26	7.51	8.86	9.75	10.64	11.53	12.41	13.03	14.19	15.06	15.96	18.50
	100	7.19	7.44	7.70	8.21	9.11	10.43	12.51	14.78	16.25	17.74	19.21	20.69	22.16	23.64	25.11	26.60	30.83
	200	14.36	14.88	15.39	10.23	18.21	20.85	25.03	28.91	32.50	35.54	38.40	41.35	44.29	47.24	50.16	53.14	61.58
	300	7.20	7.45	7.71	8.22	9.12	10.44	12.52	14.79	16.26	17.75	19.22	20.70	22.17	23.65	25.12	26.61	30.84
	400	24.19	25.64	27.18	28.53	33.76	41.13	44.14	47.60	54.00	61.93	69.05	76.23	82.03	87.88	92.39	96.99	106.48
	500	28.30	30.20	32.18	34.06	39.98	48.19	51.61	55.53	62.54	71.10	79.11	83.39	93.28	99.38	104.49	109.59	120.09
	600	32.14	34.48	36.86	39.30	45.79	54.70	58.48	62.78	70.28	79.29	88.00	96.70	103.03	109.30	114.80	120.26	131.51
	700	35.76	38.51	41.29	44.29	51.26	60.74	64.84	69.46	77.34	86.66	95.91	105.15	111.50	117.85	123.61	129.34	141.09
	800	39.20	42.34	45.49	49.05	56.44	66.38	70.76	75.68	83.83	93.35	103.00	112.64	118.91	125.19	131.10	137.00	149.00
	870	41.51	44.93	48.31	52.25	59.90	70.10	74.68	79.76	88.06	97.66	107.51	117.35	123.53	129.69	135.63	141.59	153.64
	1000	45.63	49.50	53.34	57.96	66.00	76.60	81.48	86.84	95.33	104.95	115.04	125.09	130.93	136.75	142.66	148.56	160.35
	1160	50.44	54.81	59.13	64.56	72.99	83.91	89.09	94.74	103.28	112.75	122.83	132.90	138.13	143.33	148.93	154.54	165.40
	1200	51.60	56.09	60.53	66.14	74.64	85.64	90.88	96.58	105.11	114.51	124.56	134.58	139.60	144.63	150.11	155.59	166.11
	1400	57.21	62.20	67.13	73.65	82.44	93.60	99.10	105.01	113.36	122.28	131.84	141.40	145.26	149.11	153.65	158.34	166.50
	1600	62.51	67.88	73.20	80.53	89.45	100.58	106.25	112.26	120.20	128.36	137.04	145.69	148.06	150.39	153.44	156.90	161.50
	1750	66.33	71.89	77.41	85.26	94.20	105.19	110.93	116.95	124.44	131.86	139.60	147.29	148.29	149.28	151.16	153.08	
	2000	72.44	78.09	83.85	92.38	101.19	111.74	117.46	123.35	129.80	135.71	141.34	146.90	145.13	143.50	145.13		
2400	81.98	86.96	92.61	101.69	109.90	119.30	124.68	129.96	134.01	136.71	137.53	138.35						
2800	92.44	94.93	99.61	108.36	115.54	123.30	127.86	132.05	132.76	131.26								
3200		103.81	105.96	112.29	118.03	123.71	126.96	129.49										
3500			111.25	114.49	118.11	121.75	123.63											
4000				117.14	118.53													
HORSEPOWER RATING - 115MM (4.53 IN.) WIDE BELT (14M-115)																		
10	1.03	1.06	1.10	1.18	1.30	1.49	1.79	2.11	2.33	2.54	2.71	2.96	3.13	3.38	3.61	3.80	4.41	
20	2.05	2.13	2.20	2.35	2.60	2.99	3.58	4.23	4.65	5.08	5.50	5.46	6.33	6.76	7.19	7.61	8.81	
40	4.11	4.25	4.40	4.70	5.21	5.96	7.16	8.45	9.30	10.14	11.01	11.84	12.69	13.53	14.38	15.21	17.64	
60	6.16	6.39	6.60	7.04	7.81	8.95	10.74	12.68	13.95	15.21	16.48	17.75	18.63	20.29	21.54	22.83	26.45	
100	10.28	10.64	11.00	11.74	13.03	14.91	17.90	21.13	23.24	25.35	27.48	29.58	31.69	33.80	35.91	38.03	44.08	
200	20.54	21.28	22.00	23.20	26.05	29.81	35.78	41.34	46.46	50.69	54.91	59.13	63.33	67.55	71.74	75.98	88.04	
300	28.18	29.59	31.18	32.34	38.66	44.69	51.33	55.53	63.51	73.59	81.08	88.59	94.90	101.19	107.50	113.76	128.88	
400	34.59	36.65	38.86	40.79	48.26	58.80	63.10	68.06	77.20	88.54	98.74	108.98	117.30	125.50	132.11	138.68	152.24	
500	40.48	43.19	46.00	48.70	57.15	68.90	73.79	79.39	89.41	101.66	113.13	124.58	133.39	142.08	149.41	156.69	171.70	
600	45.96	49.29	52.70	56.20	65.46	78.20	83.61	89.75	100.48	113.36	125.84	138.26	147.33	156.28	164.16	171.95	188.04	
700	51.13	55.06	59.03	63.33	73.29	86.84	92.71	99.31	110.58	123.91	137.15	150.34	159.45	168.49	176.76	184.93	201.73	
800	56.04	60.54	65.04	70.13	80.89	94.90	101.18	108.19	119.85	133.48	147.29	161.04	170.05	178.99	187.48	195.88	213.05	
870	59.35	64.23	69.09	74.71	85.64	100.24	106.76	114.04	125.91	139.64	153.74	167.91	176.64	185.43	193.95	202.45	219.66	
1000	65.24	70.78	76.26	82.86	94.38	109.53	116.49	124.16	136.30	150.06	164.50	178.84	187.23	195.53	204.01	212.43	229.26	
1160	72.13	78.38	84.55	92.31	104.35	119.99	127.38	135.45	147.66	161.21	175.64	190.01	197.53	204.93	212.96	220.95	236.49	
1200	73.79	80.20	86.53	94.56	106.73	122.44	129.93	138.08	150.29	163.74	178.13	192.41	199.63	206.78	214.66	222.46	237.51	
1400	81.80	88.94	95.98	105.31	117.88	133.83	141.70	150.15	162.09	174.84	188.53	202.16	207.73	213.20	219.73	226.39	238.06	
1600	89.39	97.05	104.65	115.13	127.90	143.79	151.91	160.51	171.86	183.53	195.96	208.30	211.73	215.03	219.41	224.33	230.91	
1750	94.84	102.78	110.69	121.90	134.69	150.39	158.60	167.21	177.91	188.54	199.63	210.59	212.05	213.43	216.16	218.85		
2000	103.58	111.66	119.89	132.08	144.66	159.75	167.95	176.36	185.59	194.05	202.11	210.04	207.53	205.16	200.03			
2400	117.21	124.34	132.43	145.39	157.13	170.58	178.26	185.83	191.69	195.48	196.66	197.80						
2800	132.18	135.73	142.43	154.93	165.19	176.29	182.83	188.81	189.83	187.68								
3200		148.43	151.51	160.54	168.76	176.88	181.53	185.15										
3500			159.05	163.70	168.89	174.08	176.43											
4000				169.25	169.48													

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

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**HTB® PLUS Width Selection Tables**

**14mm Pitch Belts**

The following tables represent the horsepower ratings for each belt at the pre-determined Number of Grooves, Pitch Diameters and rpm's. These ratings must be multiplied by the applicable belt length factor to obtain the corrected horsepower rating (See Step 4 of Drive Selection Procedure).

HORSEPOWER RATING - 170MM (6.69 IN.) WIDE BELT (14M-170)													
No. of Grooves		36	38	40	44	48	52	56	60	64	68	80	
mm*		160.43	169.34	178.25	196.08	213.90	231.73	249.55	267.38	285.21	303.03	320.86	356.51
PD in.		6.316	6.667	7.018	7.720	8.421	9.123	9.825	10.527	11.229	11.930	12.632	14.036
<b>SMALLER SPROCKET rpm</b>	10	2.29	2.76	3.26	3.59	3.91	4.19	4.56	4.83	5.21	5.58	5.86	6.80
	20	4.61	5.51	6.51	7.16	7.81	8.48	9.13	9.75	10.43	11.09	11.73	13.60
	40	9.20	11.04	13.03	14.34	15.64	16.99	18.24	19.56	20.85	22.16	23.45	27.19
	60	13.80	16.55	19.55	21.50	23.45	25.40	27.36	28.71	31.28	33.21	35.18	40.78
	100	23.00	27.59	32.58	35.84	39.09	42.36	45.60	48.86	52.11	55.38	58.63	67.94
	200	45.98	55.16	63.73	71.64	78.14	84.68	91.14	97.65	104.14	110.61	117.13	135.73
	300	68.91	79.13	85.60	97.91	113.45	125.01	136.51	146.34	155.98	165.76	175.38	198.69
	400	90.68	97.29	104.93	119.03	136.49	152.25	168.01	180.88	193.49	203.71	213.80	234.69
	500	106.25	113.76	122.39	137.85	156.73	174.44	192.06	205.69	219.04	230.40	241.55	264.70
	600	120.59	128.90	138.36	154.90	174.78	194.04	213.15	227.18	240.93	253.14	265.10	289.90
	700	133.90	142.93	153.11	170.48	191.04	211.49	231.78	245.88	259.76	272.56	285.10	311.00
	800	146.34	155.98	166.80	184.78	205.78	227.11	248.28	262.21	275.95	289.09	301.98	328.45
	870	154.56	164.60	175.81	194.11	215.28	237.06	258.68	272.38	285.86	299.08	312.11	338.65
	1000	168.89	179.59	191.43	210.13	231.34	253.66	275.71	288.70	301.44	314.59	327.48	353.45
	1160	185.03	196.38	208.81	227.65	248.54	270.84	292.94	304.59	315.93	328.39	340.63	364.58
	1200	188.80	200.31	212.88	231.69	252.34	274.68	296.64	307.83	318.75	331.01	342.96	366.16
	1400	206.36	218.45	231.49	249.89	269.54	290.70	311.68	320.31	328.69	338.81	349.01	367.03
	1600	221.73	234.20	247.46	264.96	282.94	302.18	321.13	326.48	331.49	338.34	345.84	355.99
	1750	231.90	244.51	257.79	274.29	290.66	307.83	324.65	326.98	329.03	333.33	337.40	
	2000	246.34	258.93	271.90	286.11	299.15	311.79	323.80	320.00	316.30	308.44		
2400	263.03	274.83	286.48	299.16	301.35	303.25	304.95						
2800	271.84	281.85	291.08	292.65	289.33								
3200	272.74	279.86	285.43										
3500	268.43	272.51											

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

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## Standard Synchronous Belt Width Selection Tables

Following horsepower rating charts are based on a 1 inch belt width, pulley groove number, pulley pitch diameter, pulley rpm's. For widths other than 1 inch, use width factor tables below belt pitch charts.

### .080 inch Pitch (MXL) Driver Torque Ratings (in.-lbs.)

Driver - number of grooves and pitch code pitch diameter (in.)										
Belt Width	10 MXL	12 MXL	14MXL	16 MXL	18 MXL	20 MXL	22 MXL	24 MXL	28 MXL	30 MXL
	.255	.306	.357	.407	.458	.509	.560	.611	.713	.764
.12	.29	.35	.40	.46	.52	.57	.63	.69	.81	.86
.19	.48	.58	.67	.77	.86	.96	1.05	1.115	1.34	1.44
.25	.67	.80	.94	1.07	1.20	1.34	1.47	1.61	1.87	2.01

### 1/5 inch Pitch (XL) Horsepower Capacity Rating

HORSEPOWER RATING—50MM (1.97 IN.) WIDE BELT (8M-50)														
No. of Grooves														
	10XL	11XL	12XL	14XL	15XL	16XL	18XL	20XL	21XL	22XL	24XL	26 XL	30 XL	
PD	in.	.637	.700	.764	.891	.955	1.019	1.146	1.273	1.337	1.401	1.528	1.783	1.910
SMALLER PULLEY rpm	100	.02	.02	.02	.03	.03	.03	.04	.04	.04	.04	.05	.06	.06
	200	.04	.04	.05	.06	.06	.07	.07	.08	.08	.09	.10	.11	.12
	300	.06	.07	.07	.09	.09	.10	.11	.12	.13	.13	.14	.17	.18
	400	.08	.09	.10	.11	.12	.13	.14	.16	.17	.17	.19	.23	.24
	500	.10	.11	.12	.14	.15	.16	.18	.20	.21	.22	.24	.29	.30
	600	.12	.13	.14	.17	.18	.19	.22	.24	.26	.27	.29	.34	.37
	700	.14	.15	.17	.20	.21	.23	.26	.28	.30	.31	.34	.40	.43
	800	.16	.17	.19	.23	.24	.26	.30	.33	.34	.36	.40	.46	.49
	900	.18	.20	.22	.26	.27	.30	.33	.37	.39	.40	.44	.51	.55
	1000	.20	.22	.24	.29	.31	.33	.37	.41	.43	.45	.49	.57	.62
	1100	.22	.25	.26	.31	.34	.36	.40	.45	.47	.49	.54	.63	.68
	1160	.23	.26	.28	.33	.36	.38	.42	.46	.50	.52	.56	.66	.71
	1200	.24	.27	.29	.34	.37	.39	.44	.49	.52	.54	.59	.68	.74
	1300	.28	.29	.31	.37	.40	.42	.48	.53	.56	.58	.64	.74	.80
	1400	.28	.31	.34	.40	.43	.46	.52	.57	.60	.63	.69	.80	.86
	1500	.30	.34	.36	.43	.46	.49	.55	.61	.64	.67	.74	.86	.92
	1600	.33	.36	.40	.46	.49	.53	.59	.65	.69	.72	.79	.91	.98
	1700	.35	.38	.42	.49	.52	.56	.63	.67	.73	.77	.83	.97	1.04
	1750	.36	.39	.43	.50	.53	.58	.64	.72	.75	.79	.86	1.00	1.07
	1800	.37	.40	.44	.51	.55	.59	.66	.74	.77	.81	.88	1.03	1.10
	2000	.41	.45	.49	.57	.62	.65	.74	.82	.86	.90	.98	1.15	1.23
	2200	.45	.49	.54	.63	.68	.72	.81	.90	.94	.99	1.08	1.25	1.34
	2400	.49	.54	.59	.68	.74	.79	.88	.98	1.03	1.07	1.18	1.37	1.46
	2600	.53	.58	.64	.74	.80	.85	.96	1.06	1.12	1.17	1.25	1.48	1.58
	2800	.57	.63	.69	.80	.86	.92	1.03	1.15	1.20	1.26	1.37	1.59	1.71
	3000	.61	.67	.74	.86	.92	.98	1.10	1.23	1.28	1.34	1.46	1.71	1.82
	3200	.65	.72	.79	.91	.98	1.05	1.18	1.30	1.37	1.43	1.56	1.81	1.94
	3400	.69	.77	.83	.97	1.04	1.11	1.25	1.38	1.45	1.52	1.66	1.92	2.05
	3500	.72	.78	.86	1.00	1.07	1.15	1.28	1.42	1.49	1.57	1.71	1.98	2.11
	3600	.74	.81	.88	1.03	1.10	1.18	1.32	1.46	1.54	1.61	1.75	2.03	2.16
	3800	.78	.83	.93	1.09	1.17	1.24	1.39	1.54	1.62	1.70	1.84	2.13	2.27
	4000	.82	.90	.98	1.15	1.23	1.30	1.46	1.63	1.71	1.78	1.94	2.24	2.39
	4200	.86	.94	1.03	1.20	1.28	1.37	1.53	1.71	1.78	1.86	2.03	2.35	2.50
	4400	.90	.99	1.08	1.25	1.34	1.43	1.61	1.78	1.86	1.95	2.12	2.45	2.61
	4600	.94	1.03	1.13	1.31	1.40	1.50	1.68	1.86	1.95	2.04	2.21	2.55	2.71
	4800	.98	1.07	1.18	1.37	1.46	1.56	1.75	1.94	2.03	2.13	2.30	2.65	2.82
	5000	1.02	1.12	1.23	1.42	1.52	1.63	1.82	2.01	2.11	2.20	2.39	2.75	2.92
	5500	-	-	-	-	1.67	1.78	2.00	2.20	2.30	2.41	2.61	2.99	3.18
	6000	-	-	-	-	1.82	1.94	2.16	2.39	2.50	2.61	2.82	3.23	3.41
	6500	-	-	-	-	1.96	2.09	2.34	2.57	2.69	2.80	3.03	3.42	3.64
	7000	-	-	-	-	2.11	2.24	2.50	2.75	2.87	2.99	3.23	3.65	3.84
	7500	-	-	-	-	2.25	2.39	2.66	2.92	3.05	3.18	3.41	3.84	4.03
	8000	-	-	-	-	-	-	2.82	3.10	3.23	3.34	3.59	4.02	4.21
	8500	-	-	-	-	-	-	2.97	3.26	3.39	3.52	3.76	4.19	4.37
	9000	-	-	-	-	-	-	3.13	3.41	3.55	3.68	3.92	4.34	4.51
	9500	-	-	-	-	-	-	3.28	3.56	3.70	3.83	4.07	4.47	4.63
	10000	-	-	-	-	-	-	3.41	3.71	3.84	3.97	4.21	4.59	4.72

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

# Standard Synchronous Belt Width Selection Tables

## 3/8 inch Pitch (L) Horsepower Capacity Ratings

No. of Grooves	SMALLER PULLEY rpm																											
	10L	12L	13L	14L	15L	16L	17L	18L	19L	20L	21L	22L	24L	26L	28L	30L	32L	36L	40L	44L	48L							
PD in.	1.194	1.432	1.552	1.671	1.790	1.910	2.029	2.149	2.268	2.387	2.507	2.626	2.865	3.104	3.342	3.581	3.820	4.297	4.775	5.252	5.730							
100	.05	.06	.07	.07	.08	.08	.09	.09	.10	.10	.11	.12	.13	.14	.15	.16	.17	.19	.21	.23	.25							
200	.10	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.25	.27	.29	.31	.33	.38	.42	.46	.50							
300	.16	.19	.20	.22	.23	.25	.27	.28	.30	.31	.33	.34	.38	.41	.44	.47	.50	.56	.63	.69	.75							
400	.21	.25	.27	.29	.31	.33	.35	.38	.40	.42	.44	.46	.50	.54	.58	.62	.67	.75	.83	.92	1.00							
500	.26	.31	.34	.37	.39	.42	.44	.47	.50	.52	.55	.57	.63	.68	.73	.78	.83	.94	1.04	1.14	1.24							
600	.31	.37	.41	.44	.47	.50	.53	.56	.59	.63	.66	.69	.75	.80	.87	.94	1.00	1.12	1.24	1.36	1.49							
700	.37	.44	.47	.51	.55	.58	.62	.66	.69	.73	.77	.80	.87	.95	1.02	1.09	1.16	1.30	1.45	1.59	1.73							
800	.42	.50	.54	.58	.62	.67	.71	.75	.79	.83	.87	.92	.99	1.08	1.16	1.24	1.32	1.49	1.65	1.85	2.05							
870	.45	.54	.59	.63	.68	.73	.77	.82	.86	.91	.95	1.00	1.08	1.17	1.26	1.35	1.44	1.61	1.79	1.91	2.14							
900	.47	.56	.61	.66	.70	.75	.80	.84	.89	.94	.98	1.03	1.12	1.21	1.30	1.40	1.49	1.67	1.85	2.03	2.21							
1000	.52	.62	.68	.73	.78	.83	.89	.94	.99	1.04	1.09	1.14	1.24	1.34	1.44	1.55	1.65	1.85	2.05	2.25	2.44							
1100	.57	.69	.75	.80	.86	.92	.97	1.03	1.08	1.14	1.20	1.25	1.36	1.48	1.59	1.70	1.81	2.03	2.25	2.46	2.67							
1160	.60	.72	.79	.85	.91	.97	1.03	1.08	1.14	1.20	1.26	1.32	1.44	1.56	1.67	1.79	1.91	2.14	2.36	2.59	2.81							
1200	.63	.75	.81	.88	.94	1.00	1.06	1.12	1.18	1.24	1.30	1.36	1.49	1.61	1.73	1.85	1.97	2.21	2.44	2.67	2.90							
1300	.68	.81	.88	.95	1.01	1.08	1.15	1.12	1.28	1.34	1.41	1.48	1.61	1.74	1.87	2.00	2.13	2.38	2.63	2.88	3.12							
1400	.73	.87	.95	1.02	1.09	1.16	1.23	1.30	1.38	1.45	1.52	1.59	1.73	1.87	2.01	2.15	2.29	2.56	2.82	3.09	3.34							
1500	.78	.94	1.02	1.09	1.16	1.24	1.32	1.40	1.47	1.55	1.62	1.70	1.85	2.00	2.15	2.30	2.44	2.73	3.01	3.29	3.55							
1600	.83	1.00	1.08	1.16	1.24	1.32	1.41	1.49	1.57	1.65	1.73	1.81	1.97	2.13	2.28	2.44	2.60	2.90	3.20	3.48	3.76							
1700	.89	1.06	1.15	1.23	1.32	1.41	1.49	1.58	1.66	1.75	1.83	1.92	2.09	2.26	2.42	2.59	2.75	3.07	3.38	3.68	3.97							
1750	.91	1.09	1.17	1.27	1.36	1.45	1.54	1.62	1.71	1.80	1.89	1.98	2.05	2.32	2.49	2.66	2.83	3.15	3.47	3.77	4.06							
1800	-	1.12	1.21	1.30	1.39	1.49	1.58	1.67	1.76	1.85	1.94	2.03	2.21	2.38	2.56	2.73	2.90	3.23	3.55	3.86	4.16							
1900	-	1.18	1.27	1.38	1.47	1.57	1.66	1.76	1.85	1.95	2.04	2.14	2.32	2.51	2.69	2.87	3.05	3.39	3.73	4.05	4.35							
2000	-	1.24	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.44	2.63	2.82	3.01	3.19	3.56	3.89	4.23	4.54							
2200	-	1.36	1.48	1.59	1.70	1.81	1.92	2.03	2.14	2.25	2.35	2.46	2.67	2.88	3.08	3.28	3.49	3.86	4.23	4.67	4.89							
2400	-	1.49	1.61	1.73	1.85	1.97	2.09	2.21	2.32	2.44	2.56	2.67	2.90	3.12	3.34	3.56	3.76	4.17	4.54	4.89	5.21							
2500	-	1.55	1.68	1.80	1.92	2.05	2.17	2.30	2.42	2.54	2.66	2.78	3.01	3.24	3.47	3.68	3.90	4.30	4.69	5.04	5.35							
2600	-	1.61	1.74	1.87	2.00	2.13	2.26	2.38	2.51	2.63	2.76	2.88	3.12	3.36	3.59	3.81	4.03	4.44	4.83	5.17	5.48							
2800	-	1.73	1.87	2.01	2.14	2.29	2.42	2.56	2.69	2.82	2.96	3.09	3.34	3.59	3.83	4.06	4.29	4.71	5.10	5.44	5.73							
3000	-	1.85	2.00	2.15	2.29	2.44	2.59	2.73	2.87	3.01	3.15	3.29	3.55	3.81	4.06	4.30	4.54	4.97	5.35	5.68	5.94							
3200	-	2.00	2.16	2.32	2.48	2.64	2.80	2.96	3.12	3.28	3.44	3.60	3.87	4.14	4.41	4.68	4.95	5.42	5.78	6.05	6.23							
3400	-	2.26	2.42	2.58	2.75	2.91	3.07	3.22	3.37	3.53	3.68	3.83	4.10	4.37	4.64	4.91	5.18	5.67	6.03	6.23	6.39							
3500	-	2.32	2.49	2.65	2.83	2.99	3.15	3.31	3.46	3.62	3.77	3.92	4.19	4.46	4.73	5.00	5.27	5.78	6.14	6.23	6.31							
3600	-	-	2.55	2.73	2.90	3.07	3.23	3.39	3.55	3.71	3.86	4.02	4.29	4.56	4.83	5.10	5.37	5.90	6.21	6.33	6.31							
3800	-	-	2.69	2.86	3.03	3.20	3.37	3.54	3.71	3.88	4.05	4.22	4.49	4.76	5.03	5.30	5.57	6.12	6.33	6.31	6.23							
4000	-	-	2.83	3.00	3.17	3.34	3.51	3.68	3.85	4.02	4.19	4.36	4.63	4.90	5.17	5.44	5.71	6.27	6.33	6.31	6.23							
4200	-	-	-	-	3.15	3.34	3.53	3.72	3.88	4.06	4.23	4.40	4.72	5.01	5.28	5.52	5.74	6.08	6.28	6.35	6.23							
4400	-	-	-	-	3.28	3.49	3.67	3.86	4.04	4.22	4.40	4.57	4.89	5.19	5.44	5.68	5.88	6.18	6.33	6.31	6.09							
4600	-	-	-	-	3.41	3.63	3.82	4.01	4.20	4.38	4.56	4.73	5.05	5.34	5.59	5.82	6.01	6.26	6.35	6.23	5.89							
4800	-	-	-	-	3.54	3.77	3.96	4.17	4.35	4.54	4.72	4.89	5.20	5.48	5.73	5.94	6.12	6.31	6.32	6.10	5.63							
5000	-	-	-	-	3.67	3.91	4.10	4.31	4.50	4.68	4.86	5.04	5.35	5.63	5.86	6.06	6.20	6.34	6.26	5.92	5.30							
5200	-	-	-	-	3.81	4.03	4.23	4.45	4.63	4.82	5.01	5.18	5.48	5.88	6.15	6.29	6.27	6.34	6.16	5.69	4.91							
5400	-	-	-	-	3.93	4.17	4.37	4.59	4.77	4.96	5.14	5.31	5.61	5.88	6.07	6.23	6.32	6.30	6.01	5.41	4.44							
5600	-	-	-	-	4.05	4.29	4.50	4.72	4.91	5.09	5.28	5.44	5.73	5.98	6.16	6.28	6.34	6.24	5.83	5.06	3.89							
5800	-	-	-	-	4.17	4.42	4.62	4.84	5.04	5.22	5.40	5.57	5.84	6.07	6.23	6.32	6.34	6.14	5.60	4.66	3.27							
6000	-	-	-	-	4.29	4.55	4.75	4.97	5.15	5.34	5.52	5.68	5.93	6.15	6.28	6.35	6.33	6.01	5.32	4.19	2.57							

NOTE: To obtain hp capacity for widths other than one inch use value in table, multiplied by width factor. EXAM- PLE: A one-inch wide belt running on a 22 L driver pulley at 1750 rpm has a capacity of 1.98 hp. To find the hp capacity of a one-half inch wide belt (L 050) multiply 1.98 x .42 = .83 hp/one-half inch wide.

Belt Width	1/8	7/16	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2	2-1/2	3
Width Factor	.28	.35	.42	.57	.71	.86	1.0	1.29	1.56	1.84	2.14	2.72	3.36

JASON INDUSTRIAL, INC. DRIVE DESIGN MANUAL  
HTB® and Standard Synchronous Belts

**Standard Synchronous Belt Width Selection Tables**  
*1/2 inch Pitch (H) Horsepower Capacity Ratings*

No. of Grooves	14H	16H	17H	18H	19H	20H	21H	22H	24H	26H	28H	30H	32H	36H	40H	44H	48H
	PD in.	2.228	2.546	2.706	2.865	3.024	3.183	3.342	3.501	3.820	4.138	4.456	4.775	5.093	5.730	6.368	7.003
100	.25	.28	.30	.32	.34	.35	.37	.39	.42	.46	.50	.53	.57	.64	.71	.78	.85
200	.50	.57	.60	.64	.67	.71	.74	.78	.85	.92	.99	1.06	1.13	1.27	1.41	1.56	1.70
300	.74	.85	.90	.96	1.01	1.06	1.11	1.17	1.27	1.38	1.49	1.59	1.70	1.91	2.12	2.33	2.54
400	.99	1.13	1.20	1.27	1.34	1.41	1.49	1.56	1.70	1.84	1.98	2.12	2.26	2.54	2.82	3.10	3.38
500	1.24	1.41	1.50	1.59	1.68	1.77	1.86	1.94	2.12	2.30	2.47	2.65	2.82	3.17	3.52	3.87	4.22
600	1.49	1.70	1.80	1.91	2.02	2.12	2.23	2.33	2.54	2.75	2.96	3.17	3.38	3.80	4.22	4.64	5.05
700	1.73	1.98	2.10	2.23	2.35	2.47	2.59	2.72	2.96	3.21	3.45	3.70	3.94	4.43	4.91	5.40	5.88
800	1.98	2.26	2.40	2.54	2.68	2.82	2.96	3.10	3.38	3.66	3.94	4.22	4.50	5.05	5.60	6.15	6.69
870	2.15	2.46	2.61	2.76	2.91	3.07	3.22	3.37	3.68	3.98	4.28	4.58	4.89	5.49	6.08	6.67	7.26
900	2.23	2.54	2.70	2.86	3.01	3.17	3.33	3.49	3.80	4.11	4.43	4.74	5.05	5.67	6.29	6.89	7.50
1000	2.47	2.82	3.00	3.17	3.35	3.52	3.70	3.87	4.22	4.57	4.91	5.26	5.60	6.29	6.96	7.63	8.30
1100	2.72	3.10	3.30	3.49	3.68	3.87	4.06	4.26	4.64	5.02	5.40	5.77	6.15	6.90	7.63	8.36	9.08
1160	2.86	3.27	3.47	3.68	3.88	4.08	4.28	4.48	4.89	5.28	5.68	6.08	6.48	7.26	8.03	8.60	9.55
1200	-	3.38	3.59	3.80	4.01	4.22	4.43	4.64	5.05	5.46	5.88	6.29	6.69	7.50	8.30	9.08	9.86
1300	-	3.66	3.89	4.12	4.34	4.57	4.79	5.01	5.46	5.91	6.35	6.79	7.23	8.10	8.95	9.79	10.62
1400	-	3.94	4.19	4.43	4.67	4.91	5.15	5.39	5.87	6.35	6.83	7.30	7.77	8.69	9.60	10.49	11.36
1500	-	4.22	4.48	4.74	5.00	5.26	5.51	5.77	6.28	6.79	7.30	7.80	8.30	9.28	10.24	11.18	12.09
1600	-	4.50	4.78	5.05	5.33	5.60	5.87	6.15	6.69	7.23	7.77	8.30	8.82	9.86	10.87	11.85	12.80
1700	-	4.77	5.07	5.36	5.65	5.94	6.23	6.52	7.10	7.67	8.23	8.79	9.34	10.43	11.49	12.51	13.50
1750	-	4.91	5.22	5.52	5.81	6.11	6.41	6.71	7.30	7.88	8.46	9.03	9.60	10.71	11.79	12.84	13.84
1800	-	5.05	5.36	5.67	5.98	6.28	6.59	6.89	7.50	8.10	8.69	9.28	9.86	10.99	12.09	13.15	14.18
1900	-	5.42	5.66	5.98	6.30	6.62	6.94	7.26	7.90	8.53	9.15	9.76	10.36	11.55	12.69	13.78	14.83
2000	-	5.60	5.95	6.28	6.62	6.96	7.30	7.63	8.29	8.95	9.60	10.24	10.87	12.10	13.27	14.40	15.46
2100	-	-	-	6.59	6.94	7.29	7.65	8.00	8.69	9.37	10.05	10.71	11.36	12.63	13.84	14.99	16.08
2200	-	-	-	6.89	7.26	7.63	8.00	8.36	9.08	9.79	10.49	11.18	11.85	13.16	14.40	15.57	16.66
2300	-	-	-	7.20	7.58	7.96	8.34	8.72	9.47	10.21	10.93	11.64	12.33	13.68	14.94	16.13	17.23
2400	-	-	-	7.50	7.90	8.29	8.69	9.08	9.85	10.62	11.37	12.09	12.80	14.18	15.46	16.66	17.76
2500	-	-	-	7.80	8.21	8.62	9.03	9.44	9.23	11.02	11.80	12.54	13.27	14.68	15.98	17.18	18.27
2600	-	-	-	8.10	8.52	8.95	9.37	9.79	10.61	11.42	12.22	12.98	13.72	15.16	16.47	17.67	18.75
2800	-	-	-	8.69	9.14	9.59	10.04	10.49	11.35	12.21	13.05	13.84	14.61	16.09	17.41	18.60	19.63
3000	-	-	-	9.28	9.75	10.23	10.70	11.18	12.08	12.98	13.85	14.67	15.46	16.96	18.27	19.42	20.38
3200	-	-	-	9.85	10.36	10.85	11.35	11.85	12.79	13.72	14.63	15.46	16.27	17.78	19.06	20.14	20.99
3400	-	-	-	10.43	10.95	11.47	11.99	12.51	13.48	14.45	15.37	16.22	17.03	18.53	19.76	20.75	21.46
3500	-	-	-	10.71	11.24	11.77	12.31	12.84	13.82	14.80	15.74	16.59	17.40	18.89	20.08	21.01	21.63
3600	-	-	-	-	-	12.07	12.62	13.16	14.16	15.15	16.09	16.95	17.75	19.22	20.37	21.24	21.77
3800	-	-	-	-	-	12.67	13.23	13.79	14.81	15.82	16.78	17.63	18.42	19.85	20.89	21.60	21.92
4000	-	-	-	-	-	13.24	13.82	14.40	15.44	16.46	17.43	18.27	19.04	20.40	21.31	21.83	21.90
4200	-	-	-	-	-	13.81	14.41	15.00	16.04	17.08	18.05	18.87	19.61	20.88	21.62	21.93	21.70
4400	-	-	-	-	-	14.36	14.97	15.57	16.63	17.67	18.62	19.42	20.12	21.27	21.83	21.87	21.32
4600	-	-	-	-	-	14.90	15.52	16.13	17.18	18.22	19.16	19.90	20.57	21.58	21.92	21.67	20.73
4800	-	-	-	-	-	15.42	16.05	16.67	17.71	18.74	19.66	20.37	20.96	21.81	21.89	21.30	19.93
5000	-	-	-	-	-	15.93	16.56	17.19	18.22	19.23	20.12	20.77	21.29	21.95	21.73	20.77	-
5200	-	-	-	-	-	16.41	17.05	17.69	18.69	19.68	20.53	21.11	21.54	21.99	21.44	20.06	-
5400	-	-	-	-	-	16.89	17.53	18.16	19.13	20.09	20.90	21.39	21.73	21.93	21.02	-	-
5600	-	-	-	-	-	17.34	17.98	18.61	19.55	20.47	21.22	21.62	21.85	21.76	20.48	-	-
5800	-	-	-	-	-	17.77	18.41	19.04	19.93	20.80	21.49	21.78	21.89	21.50	19.75	-	-
6000	-	-	-	-	-	18.19	18.82	19.44	20.27	21.10	21.70	21.88	21.85	21.12	-	-	-

NOTE: To obtain hp capacity for widths other than one inch use value in table, multiplied by width factor.

EXAMPLE: A one inch wide H belt running on a 30 H driver pulley at 1750 rpm has a capacity of 9.03 hp. To find the hp capacity of a two-inch wide belt (H 200) multiply 9.03 x 2.14 = 19.32 hp/two inch wide.

Belt Width	1/2	3/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2	2-1/2	3	3-1/2	4	5	6	7	8
Width Factor	.42	.57	.71	.86	1.0	1.29	1.56	1.84	2.14	2.72	3.36	4.06	4.76	6.15	7.50	8.89	10.32

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

## Standard Synchronous Belt Width Selection Tables

### 7/8 inch Pitch (XH) Horsepower Capacity Ratings

		No. of Grooves										
		18XH	20XH	22XH	24XH	26XH	28XH	30XH	32XH	40XH		
		PD	in.	5.013	5.570	6.127	6.685	7.241	7.799	8.356	8.913	11.141
SMALLER PULLEY rpm	100	.76	.84	.93	1.01	1.11	1.18	1.26	1.34	1.68		
	200	1.51	1.68	1.85	2.02	2.19	2.36	2.52	2.69	3.37		
	300	2.28	2.52	2.78	3.03	3.28	3.54	3.78	4.03	5.02		
	400	3.03	3.37	3.70	4.03	4.37	4.70	5.02	5.36	6.66		
	480	3.63	4.03	4.43	4.82	5.22	5.62	6.00	6.40	7.95		
	500	3.78	4.20	4.61	5.02	5.44	5.85	6.26	6.71	8.26		
	510	3.86	4.29	4.71	5.12	5.54	5.97	6.37	6.80	8.42		
	570	4.30	4.77	5.25	5.72	6.17	6.65	7.10	7.56	9.36		
	600	4.53	5.02	5.52	6.00	6.50	6.98	7.47	7.95	9.82		
	680	5.12	5.68	6.24	6.80	7.34	7.88	8.42	8.96	11.04		
	700	5.27	5.84	6.42	6.98	7.54	8.10	8.66	9.21	11.35		
	800	6.00	6.66	7.31	7.95	8.59	9.21	9.83	10.44	12.80		
	900	6.74	7.46	8.19	8.90	9.59	10.29	10.97	11.64	14.18		
	1000	7.47	8.26	9.06	9.82	10.59	11.35	12.08	12.80	15.51		
	1160	8.61	9.51	10.41	11.29	12.13	12.97	13.79	14.57	17.44		
	1200	-	9.83	10.75	11.64	12.51	13.37	14.29	14.99	17.89		
	1300	-	10.59	11.57	12.51	13.44	14.32	15.18	16.01	18.94		
	1400	-	11.35	12.37	13.37	14.32	15.25	16.14	16.98	19.87		
	1500	-	12.08	13.15	14.19	15.18	16.14	17.03	17.89	20.71		
	1600	-	12.80	13.98	14.99	16.01	16.98	17.14	18.82	21.42		
	1700	-	13.50	14.66	15.78	16.80	17.78	18.68	19.51	21.99		
	1750	-	13.85	15.03	16.14	17.17	18.16	19.06	19.87	22.22		
	1800	-	-	15.37	16.51	17.56	18.53	19.42	20.22	22.35		
	1900	-	-	16.07	17.22	18.65	19.23	20.69	20.86	22.70		
	2000	-	-	16.74	17.89	18.94	19.87	20.71	21.42	22.84		
	2100	-	-	17.39	18.53	19.56	20.48	21.25	21.88	22.81		
	2300	-	-	18.59	19.70	20.67	21.47	22.11	22.55	22.30		
	2400	-	-	19.19	20.22	21.14	21.88	22.42	22.75	21.65		
	2500	-	-	-	20.71	21.57	22.22	22.64	22.84	20.89		
	2600	-	-	-	21.14	21.94	22.49	22.80	22.82	19.92		
	2800	-	-	-	21.89	22.49	22.81	22.81	22.47	-		
	3000	-	-	-	22.42	22.80	21.78	20.42	18.48	-		
	3500	-	-	-	22.81	22.34	21.29	-	-	-		
	3600	-	-	-	22.51	22.02	20.72	18.73	-	-		
	3800	-	-	-	22.80	21.41	18.22	-	-	-		
	4000	-	-	-	21.85	19.92	-	-	-	-		
	4200	-	-	-	20.31	18.33	-	-	-	-		
	4400	-	-	-	19.20	-	-	-	-	-		
	4600	-	-	-	-	-	-	-	-	-		
	4800	-	-	-	-	-	-	-	-	-		
5000	-	-	-	-	-	-	-	-	-			

NOTE: To obtain hp capacity for widths other than one inch use value in table, multiplied by width factor. EXAMPLE: A one-inch wide SH belt running on a 30 XH driver pulley at 1160 rpm has a capacity of 13.79 hp. To find the hp capacity of a four-inch wide belt (XH 400) multiply 13.79 x 4.76 = 65.64 hp/four inch wide.

Belt Width	1	1-1/4	1-1/2	1-3/4	2	2-1/2	3	3-1/2	4	5	6	7	8	9	10	11	12	13	14
Width Factor	1.00	1.29	1.56	1.84	2.14	2.72	3.36	4.06	4.76	6.15	7.50	8.89	10.32	11.70	13.10	14.41	15.84	17.16	18.62

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

## Standard Synchronous Belt Width Selection Tables

### 1-1/4 inch Pitch (XXH) Horsepower Capacity Ratings

		No. of Grooves								
		18XXH	20XXH	22XXH	24XXH	26XXH	30XXH	34XXH	40XXH	
PD in.		7.162	7.958	8.753	9.549	10.345	11.937	13.528	15.925	
SMALLER PULLEY rpm	100	1.33	1.48	1.63	1.77	1.92	2.21	2.51	2.95	
	200	2.66	2.95	3.24	3.54	3.84	4.42	5.00	5.87	
	300	3.98	4.42	4.85	5.29	5.72	6.59	7.45	8.73	
	400	5.29	5.87	6.44	7.02	7.60	8.73	9.85	11.49	
	480	6.33	7.02	7.70	8.39	9.06	10.40	11.71	13.61	
	500	6.63	7.31	8.02	8.73	9.43	10.81	12.17	14.13	
	510	6.72	7.45	8.17	8.59	9.61	11.02	12.39	14.39	
	570	7.50	8.31	9.11	9.90	10.68	12.23	13.73	15.89	
	600	7.88	8.73	9.57	10.40	11.22	12.83	14.39	16.62	
	700	9.15	10.13	11.09	12.03	12.96	14.77	16.51	18.93	
	800	10.40	11.49	12.56	13.62	14.64	16.62	18.49	21.02	
	870	11.03	12.43	13.58	14.70	15.79	17.86	19.78	22.34	
	900	11.69	12.83	14.00	15.15	16.23	18.37	20.31	22.86	
	1000	12.83	14.14	15.40	16.26	17.80	20.01	21.98	24.44	
	1100	14.00	15.40	16.94	18.00	19.26	21.50	23.45	25.70	
	1200	-	16.62	18.03	19.37	20.62	22.86	24.71	26.62	
	1300	-	17.80	19.26	19.88	21.88	24.07	25.75	27.18	
	1400	-	18.93	20.41	21.79	23.03	25.10	26.54	27.33	
	1500	-	19.99	21.50	22.86	24.07	25.95	27.06	27.05	
	1600	-	21.02	25.52	23.84	24.98	26.62	27.32	26.33	
	1700	-	21.99	23.45	24.71	25.75	27.07	27.27	25.11	
	1750	-	22.43	23.88	25.11	26.08	27.22	27.12	24.31	
	1800	-	22.87	24.29	25.47	26.38	27.31	26.89	23.36	
	1900	-	23.69	25.04	26.11	26.86	27.31	26.18	-	
	2000	-	24.44	25.70	26.62	27.18	27.06	25.11	-	
	2100	-	25.11	26.24	27.00	27.33	26.56	23.66	-	
	2300	-	26.21	27.03	27.33	27.09	24.74	-	-	
	2400	-	26.62	27.24	27.28	28.58	23.36	-	-	
2500	-	29.95	27.33	27.06	26.07	-	-	-		
2600	-	27.18	27.30	25.40	22.95	-	-	-		
3000	-	27.07	25.79	23.36	-	-	-	-		

NOTE: To obtain hp capacity for widths other than one inch use value in table, multiplied by width factor. EXAMPLE: A one-inch wide XXH belt running on a 30 XXH driver pulley at 1750 rpm has a capacity of 27.22 hp. To find the hp capacity of a five-inch wide belt (XXH 500) multiply 27.22 x 6.15 = 167.4 hp/five inch wide.

Belt Width	1	2	2-1/2	3	3-1/2	4	5	6	7	8	9	10	11	12	13	14
Width Factor	1.00	2.14	2.72	3.36	4.06	4.76	6.15	7.50	8.89	10.32	11.70	13.10	14.41	15.84	17.16	18.62

Shaded area indicates sprocket and rpm which can be used only if a reduction in belt service life is allowable.

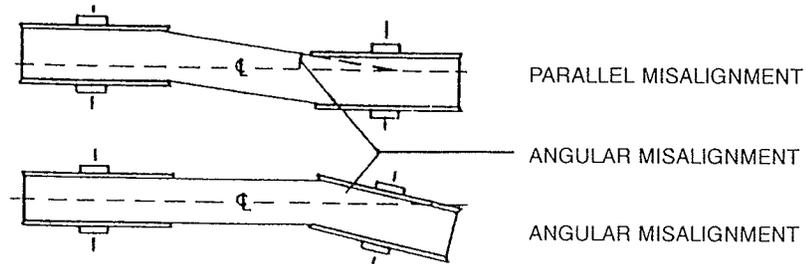
## Timing Belt Installation and Design Suggestions

### ***Belt Installation and Drive Alignment***

A good drive design allows provisions for the proper center distance or idler adjustment for proper belt tensioning. When installing a timing belt **never** force or roll the belt over the pulley flange. This will cause damage to the tensile member of the belt, severely decreasing the belt operating life.

Timing belt life is also decreased with the misalignment of pulleys. Misalignment leads to uneven belt wear and premature tensile failure due to uneven loading of tensile members and tracking problems.

#### ***Misalignment Types:***



The misalignment angle, shown in the figure above, should not exceed .25° or 1/16 in. per foot of center distance span.

$$\text{Misalignment Angle} = \text{Parallel Misalignment} + \text{Angular Misalignment}$$

Misalignment of the pulleys can be checked using a straightedge across the face of both pulleys.

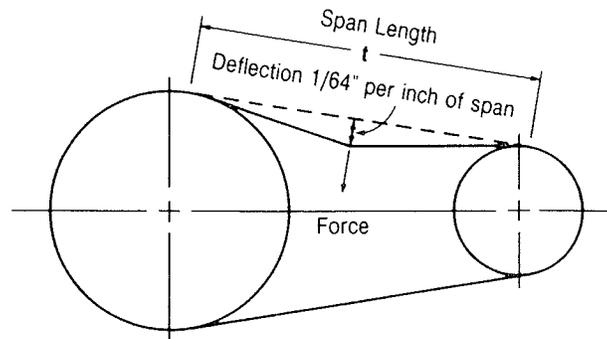
### ***TIMING BELT TENSIONING INSTRUCTIONS:***

HTB® and Standard Timing Belts should be installed to fit pulleys snugly, neither too tight nor too loose. The belt's positive grip eliminates the need for high initial tension. When a belt is installed with a snug but not overly tight fit, longer belt life, less bearing wear and more quiet operation will result. Overtight belts can cause early failure and should be avoided. With high torque a loose belt may "jump teeth" upon startup. If such occurs, the tension should be increased gradually until satisfactory operation is achieved.

To properly tension a timing belt, place belt on pulley and adjust take-up until the belt teeth mesh securely with the pulley groove. Measure belt span "t". Then tighten belt so that it deflects 1/64 in. for every inch of belt span when forced as specified in the Deflection Force Table applied to the top of the belt. For belts wider than two inches, a metal or wooden strip 1 to 2 inches wide should be placed across the belt between it and the tester to prevent distortion.

The range of deflection forces in the table are normally adequate for drive installation. Actual installation tension required depend on peak loads, system rigidity, number of teeth in mesh, etc.

Measure the span length "t" as shown in the sketch below:



**Timing Belt Tensioning Deflection Force Table**

Belt Pitch	Belt Width	Deflection Force
<b>HTB 3MM</b> (3mm)	6mm	3 to 6 oz.
	9mm	5 to 10 oz.
	15mm	7½ to 15 oz.
<b>HTB 5MM</b> (5mm)	9mm	9 to 18 oz.
	15mm	1 to 2 lb.
	25mm	1½ to 3 lb.
<b>HTB 8MM</b> (8mm)	20mm	2 to 4 lb.
	30mm	3 to 6 lb.
	50mm	7 to 11 lb.
	85mm	11 to 19 lb.
<b>HTB 14MM</b> (14mm)	40mm	5 to 11 lb.
	55mm	8 to 17 lb.
	85mm	14 to 27 lb.
	115mm	20 to 40 lb.
	170mm	30 to 60 lb.
<b>MXL</b> (.080 in.)	1/8 inch	1 oz.
	3/16 inch	1 to 1½ oz.
	1/4 inch	2 oz.
	5/16 inch	2 to 2½ oz.
<b>XL</b> (1/5 in.)	1/4 inch	2½ oz.
	5/16 inch	3 oz.
	3/8 inch	3½ oz.
<b>L (3/8 in.)</b>	1/2 inch	7 oz.
	3/4 inch	11 oz.
	1 inch	1 lb.
<b>H (1/2 in.)</b>	3/4 inch	2 lb.
	1 inch	2½ lb.
	1½ inch	4 lb.
	2 inch	5½ lb.
	3 inch	8½ lb.
<b>XH</b> (7/8 in.)	2 inch	7½ lb.
	3 inch	11½ lb.
	4 inch	16½ lb.
<b>XXH</b> (1 1/4 in.)	2 inch	9 lb.
	3 inch	14 lb.
	4 inch	20 lb.
	5 inch	26 lb.

### ***Drive Design Suggestions***

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- Proper service factors should be used in order to supply your design with the proper belt selection. A general guideline for a timing belts Allowable Working Tension  $\cong$  5%  $\rightarrow$  6% of the belt's ultimate tensile strength.
- Pulley diameters should never be smaller than the belt's width.
- Horsepower ratings are based on six or more teeth in mesh with the smallest pulley in the drive.
- If the center distance is  $\geq$  8 times the diameter of the smaller pulley, both pulleys should be flanged.
- Belt speed should not exceed 6500 fpm. (10,000 fpm for mini pitch belts)
- Belts are rated to operate a minimum of 4,000 hours if design instructions are properly followed.
- Idlers, either inside or outside, should be avoided if possible. If an idler must be used, it should be installed on the slack side of the belt. Inside idlers must be grooved. Outside flat idlers can not be crowned. Both type idlers must exceed the smallest diameter pulley. The arc of contact should be held to a minimum. Inside idlers should be placed 1/3 the center distance from the largest pulley. Outside idlers should be  $\geq$  1.33 times the size of the smallest pulley, and placed 1/3 of the center distance away from the smallest pulley.
- Never crimp fiberglass cord belts. Crimping will cause damage to fibers, resulting in premature belt failure.

## **General Belt Maintenance**

### ***Handling and Storage***

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- Belts should be stored to avoid any sharp bends or crimping, which will cause belt cord damage.
- During belt storage, they should be protected from moisture, temperature extremes, and direct sunlight.
- Under proper storage conditions belts will meet the criteria covered in RMA Bulletin IP-3-4. (eight years storage life without reduced performance)

### ***Ambient Temperature During Operation***

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- Belt performance is unaffected by temperatures ranging between -30°F  $\rightarrow$  185°F (-34°C  $\rightarrow$  85°C)

### ***Environmental Conditions***

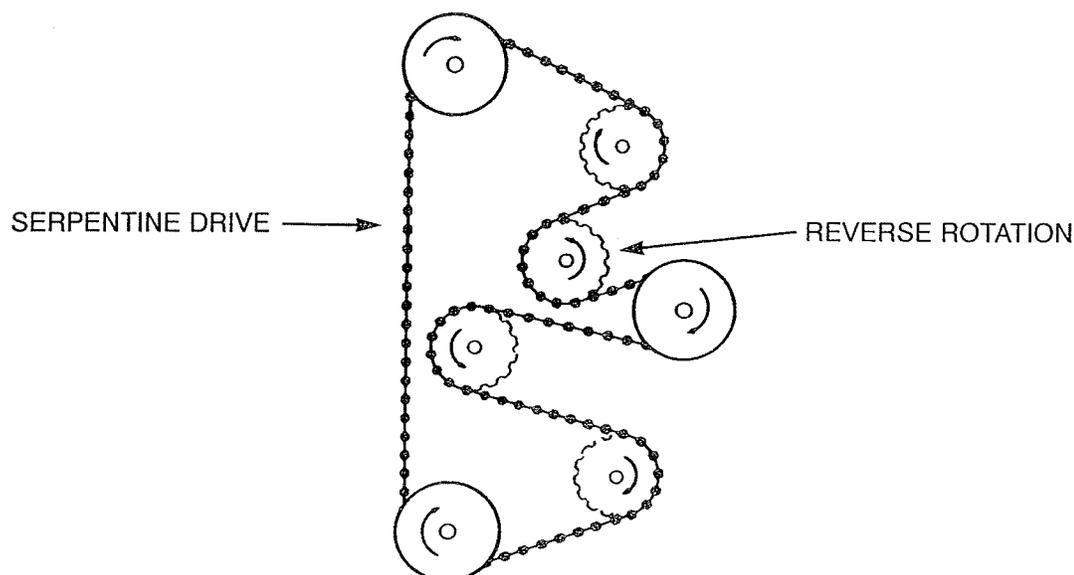
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- High debris environments can cause belt damage by packing into pulley grooves, causing improper tooth engagement. Debris build up will reduce belt life, and increase pulley wear. Debris type must also be taken in consideration for severity of wear.
- Care should be taken to protect drive from corrosive chemicals and moisture.

## Belt and Drive Troubleshooting

Problem	Diagnosis	Remedy
<b>Belt Tracking</b>	<ul style="list-style-type: none"> <li>Belt running partly off unflanged pulley.</li> <li>Large pulley not flanged for drive w/ CD exceeding 8 times small pulley PD.</li> <li>Excessive belt edge wear</li> </ul>	<ul style="list-style-type: none"> <li>Check pulley alignment.</li> </ul>
<b>Pulley Flange Failure</b>	<ul style="list-style-type: none"> <li>Belt forced flange off.</li> </ul>	<ul style="list-style-type: none"> <li>Check pulley alignment.</li> </ul>
<b>Excessive Belt Edge Wear</b>	<ul style="list-style-type: none"> <li>Belt too wide for pulley.</li> <li>Flange damaged.</li> <li>Low belt tension.</li> <li>Belt tracking problem.</li> </ul>	<ul style="list-style-type: none"> <li>Check pulley alignment.</li> <li>Repair flange.</li> <li>Check installation procedure.</li> <li>See Above</li> </ul>
<b>Belt Tensile Break</b>	<ul style="list-style-type: none"> <li>Crimped belt during handling.</li> <li>Excessive shock load.</li> <li>Rolled belt over pulley flange.</li> <li>Subliminal pulley diameter.</li> </ul>	<ul style="list-style-type: none"> <li>Proper handling.</li> <li>Design for higher capacity.</li> <li>Proper installation technique.</li> <li>Check min. pulley specs.</li> </ul>
<b>Belt Tooth Shear</b>	<ul style="list-style-type: none"> <li>Excessive shock load.</li> <li>Smallest pulley &lt; 6 teeth in mesh.</li> <li>Worn pulley grooves.</li> <li>Misaligned drive.</li> </ul>	<ul style="list-style-type: none"> <li>Design for higher capacity.</li> <li>Redesign drive.</li> <li>Replace pulley.</li> <li>Check alignment.</li> </ul>
<b>Belt Premature Tooth Wear</b>	<ul style="list-style-type: none"> <li>Improper belt tension.</li> <li>Misaligned drive.</li> <li>Worn pulley grooves.</li> <li>Damaged pulley.</li> <li>Excessive load.</li> <li>Excessive environmental debris</li> </ul>	<ul style="list-style-type: none"> <li>Proper installation.</li> <li>Check alignment.</li> <li>Replace pulley.</li> <li>Replace pulley.</li> <li>Design for higher capacity.</li> <li>Use closed belt guard.</li> </ul>
<b>Cracking of Belt</b>	<ul style="list-style-type: none"> <li>Reverse bending (backside idler)</li> <li>Harsh chemical exposure</li> <li>Extreme low operating temp.</li> <li>Extreme high temp.</li> <li>Subliminal pulley PD</li> </ul>	<ul style="list-style-type: none"> <li>Use inside idler.</li> <li>Protect drive w/ cover.</li> <li>Check operating temp. and correct.</li> <li>Follow min. pulley specs.</li> </ul>
<b>Unusual Pulley Wear</b>	<ul style="list-style-type: none"> <li>Pulley material has low wear resistance.</li> <li>Misaligned drive.</li> <li>Excessive debris environment.</li> <li>Excessive load.</li> <li>Improper belt tension.</li> </ul>	<ul style="list-style-type: none"> <li>Change pulley material.</li> <li>Check alignment.</li> <li>Use closed belt guard.</li> <li>Redesign for higher capacity.</li> <li>Follow proper installation procedure.</li> </ul>
<b>Excessive Temperature Generation From Drive</b>	<ul style="list-style-type: none"> <li>Misaligned drive.</li> <li>Improper belt tension.</li> <li>Drive bearing failure.</li> </ul>	<ul style="list-style-type: none"> <li>Check alignment.</li> <li>Check proper installation</li> <li>Replace Bearing</li> </ul>

## DUAL HTB® AND STANDARD SYNCHRONOUS BELT SPECIFICATIONS



### ***Dual Timing Belt Construction***

Dual sided timing belts are designed for serpentine drives or when reverse rotation is required. JASON's Dual Timing Belt is constructed with the same cord tensile member and nylon jacket as JASON's single sided timing belt on the drive side. The precision ground back side tooth is formed from a fiber reinforced neoprene composite.

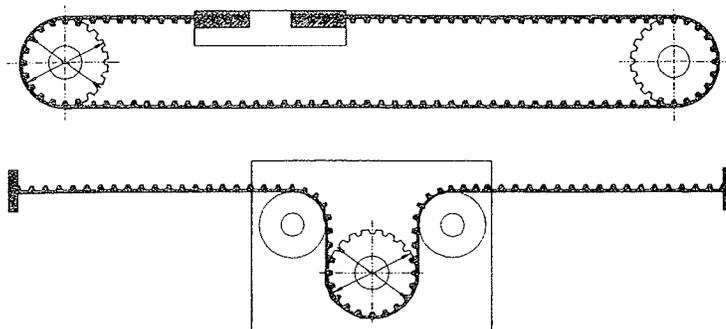
### ***Dual Timing Belt Specification***

- JASON Dual Timing Belts hold the same Center Distance Tolerance as JASON's single sided belt. (refer to page 12)
- Dual Timing Belts have the same horsepower rating as single sided belt.
- Ground side is limited to 50% of the total belt horsepower rating.
- Dual Timing Belts are also available in a open ended configuration.
- When specifying a part number for Dual Timing Belts, use the same method as single side timing belts, except with a "D" prefix.

example: D1200-8M-30

D → Dual Timing Belt Prefix  
1200 → Belt Length  
8M → Pitch  
30 → Belt Width

## OPEN-END SYNCHRONOUS BELT SPECIFICATIONS



Open-End Belting has the same construction and meet the same drive specifications as JASON's Endless Timing Belts. The same special construction and backings that are available for Endless Timing Belts can also be applied to Open-End Belting. Open-End Belting is available in XL, L, H, XH, 5M, 8M, 14M and in Dual L, Dual H, Dual 8m & Dual 14M.

Open-End Belts are widely used in actuator type systems. There are many examples of some applications for Open-End Belting, such as, robotics arms, linear actuator, X-Y positioning tables, door openers, etc.

JASON Industrial carries a large line of Open-End Belting accessories, such as, Fixing/Clamping Plates, and pulleys in a variety of pitches and widths. Please contact JASON's Sales Personnel for ordering information.

## SPECIAL TIMING BELT CUSTOM CONSTRUCTION

### ***OEM Custom Belts:***

- Custom OEM belts can be manufactured with unique pitches, pitch lengths, and/or tooth profiles. (Special tooling maybe required, please contact JASON's Engineering Dept. for details.)

### ***Special Backing:***

- Thicknesses  $\leq 3/8$  inch for both endless and open-end belt constructions.
- Non-Marking compounds
- 40 Durometer Gum Rubber compounds
- Extra Backing in Standard Neoprene
- Available in a variety of colors and durometers.

### ***Special Cord Configuration:***

- Kevlar®
- S or Z twist cord construction for forced belt tracking.

### ***Special Belt Thickness Tolerance:***

- Standard thickness tolerance  $\rightarrow$  Class 2 =  $\pm .010$  in.
- Special  $\rightarrow$  Class 1 =  $\pm .005$  in.

### ***Spliced Open-End Belts:***

- If your drive design requires a spliced belt due to the belt length requirement, power rating of finger spliced belt is 60% of full power rating.

### ***Custom Belt Widths:***

- JASON can supply you with any belt width you require, up to full sleeve width.