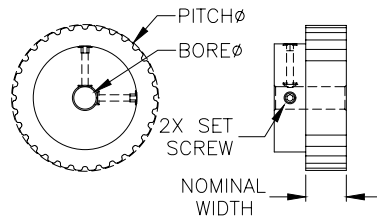




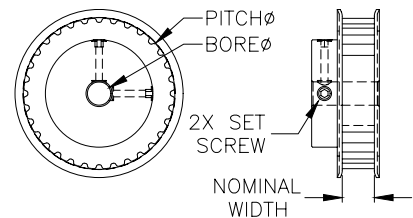
# Synchronous Belt Drive Components

## XL Synchronous Timing Belt Pulleys

Also referred to as sprockets, SureMotion XL timing pulleys have a 1/5 inch pitch and 1/4 or 3/8 inch width. Both aluminum and steel pulleys are available with a smooth bore and setscrews.



**XL Pulley with Hub, No Flange**



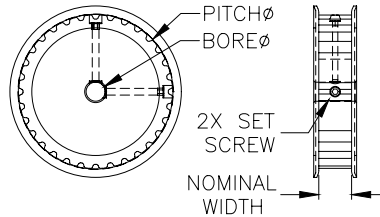
**XL Pulley with Hub and Flange**

Timing Belt Pulleys – Pitch Designation XL; Plain Bore (With Hub)																			
Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	Bore Diameter	Material*	Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	Bore Diameter	Material*
APB10XL025BF-250		0.1	10	0.25	Y	0.20	0.637	0.25	Al	APB18XL037BF-250		0.1	18	0.375	Y	0.20	1.146	0.25	Al
APB11XL025BF-250		0.1	11	0.25	Y	0.20	0.700	0.25	Al	APB19XL037BF-250		0.1	19	0.375	Y	0.20	1.210	0.25	Al
APB12XL025BF-250		0.1	12	0.25	Y	0.20	0.764	0.25	Al	APB20XL037BF-250		0.1	20	0.375	Y	0.20	1.273	0.25	Al
APB13XL025BF-250		0.1	13	0.25	Y	0.20	0.828	0.25	Al	APB21XL037BF-250		0.1	21	0.375	Y	0.20	1.337	0.25	Al
APB14XL025BF-250		0.1	14	0.25	Y	0.20	0.891	0.25	Al	APB22XL037BF-250		0.1	22	0.375	Y	0.20	1.401	0.25	Al
APB15XL025BF-250		0.1	15	0.25	Y	0.20	0.955	0.25	Al	APB23XL037BF-250		0.1	23	0.375	Y	0.20	1.464	0.25	Al
APB16XL025BF-250		0.1	16	0.25	Y	0.20	1.019	0.25	Al	APB24XL037BF-250		0.1	24	0.375	Y	0.20	1.528	0.25	Al
APB18XL025BF-250		0.1	18	0.25	Y	0.20	1.146	0.25	Al	APB25XL037BF-250		0.1	25	0.375	Y	0.20	1.592	0.25	Al
APB20XL025BF-250		0.1	20	0.25	Y	0.20	1.273	0.25	Al	APB26XL037BF-250		0.1	26	0.375	Y	0.20	1.655	0.25	Al
APB21XL025BF-250		0.1	21	0.25	Y	0.20	1.337	0.25	Al	APB28XL037BF-250		0.2	28	0.375	Y	0.20	1.783	0.25	Al
APB22XL025BF-250		0.1	22	0.25	Y	0.20	1.401	0.25	Al	APB30XL037BF-250		0.2	30	0.375	Y	0.20	1.910	0.25	Al
APB24XL025BF-250		0.1	24	0.25	Y	0.20	1.528	0.25	Al	APB32XL037BF-312		0.2	32	0.375	Y	0.20	2.037	0.312	Al
APB26XL025BF-250		0.1	26	0.25	Y	0.20	1.655	0.25	Al	APB32XL037B-312		0.2	32	0.375	N	0.20	2.037	0.312	Al
APB28XL025BF-250		0.1	28	0.25	Y	0.20	1.783	0.25	Al	APB36XL037B-312		0.3	36	0.375	N	0.20	2.292	0.312	Al
APB30XL025BF-250		0.2	30	0.25	Y	0.20	1.910	0.25	Al	APB40XL037B-312		0.4	40	0.375	N	0.20	2.546	0.312	Al
APB10XL037BF-250		0.1	10	0.375	Y	0.20	0.637	0.25	Al	APB42XL037B-312		0.4	42	0.375	N	0.20	2.674	0.312	Al
APB11XL037BF-250		0.1	11	0.375	Y	0.20	0.700	0.25	Al	APB44XL037B-312		0.4	44	0.375	N	0.20	2.801	0.312	Al
APB12XL037BF-250		0.1	12	0.375	Y	0.20	0.764	0.25	Al	APB48XL037B-312		0.5	48	0.375	N	0.20	3.056	0.312	Al
APB13XL037BF-250		0.1	13	0.375	Y	0.20	0.828	0.25	Al	APB60XL037B-375		0.6	60	0.375	N	0.20	3.820	0.375	Al
APB14XL037BF-250		0.1	14	0.375	Y	0.20	0.891	0.25	Al	APB72XL037B-375		0.9	72	0.375	N	0.20	4.584	0.375	Al
APB15XL037BF-250		0.1	15	0.375	Y	0.20	0.955	0.25	Al	SPB28XL037BF-250		0.5	28	0.375	Y	0.20	1.783	0.25	S
APB16XL037BF-250		0.1	16	0.375	Y	0.20	1.019	0.25	Al	SPB30XL037BF-312		0.6	30	0.375	Y	0.20	1.910	0.312	S
APB17XL037BF-250		0.1	17	0.375	Y	0.20	1.082	0.25	Al										

\* Al = Aluminum; S = Steel

# Synchronous Belt Drive Components

## XL Synchronous Timing Belt Pulleys Continued



**XL Pulley Hubless,  
With Flange**

*Table continued from previous page.*

**Timing Belt Pulleys – Pitch Designation XL; Hubless**

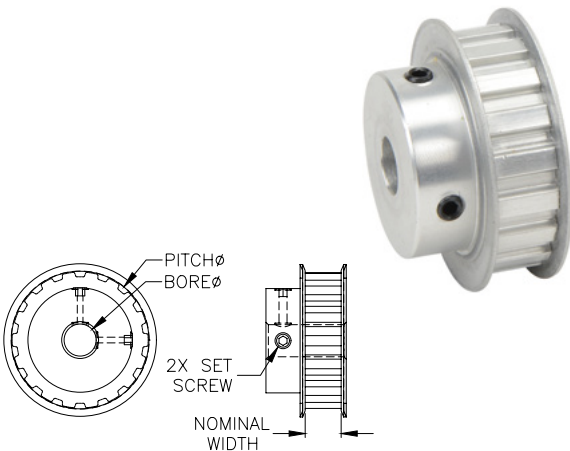
Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	Bore Diameter	Material*	Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	Bore Diameter	Material*
APB10XL037AF-250		0.1	10	0.375	Y	0.20	0.637	0.25	Al	APB20XL037AF-250		0.1	20	0.375	Y	0.20	1.273	0.25	Al
APB11XL037AF-250		0.1	11	0.375	Y	0.20	0.700	0.25	Al	APB21XL037AF-250		0.1	21	0.375	Y	0.20	1.337	0.25	Al
APB12XL037AF-250		0.1	12	0.375	Y	0.20	0.764	0.25	Al	APB22XL037AF-250		0.1	22	0.375	Y	0.20	1.401	0.25	Al
APB14XL037AF-250		0.1	14	0.375	Y	0.20	0.891	0.25	Al	APB24XL037AF-250		0.1	24	0.375	Y	0.20	1.528	0.25	Al
APB15XL037AF-250		0.1	15	0.375	Y	0.20	0.955	0.25	Al	APB28XL037AF-250		0.1	28	0.375	Y	0.20	1.783	0.25	Al
APB16XL037AF-250		0.1	16	0.375	Y	0.20	1.019	0.25	Al	APB30XL037AF-250		0.2	30	0.375	Y	0.20	1.910	0.25	Al
APB18XL037AF-250		0.1	18	0.375	Y	0.20	1.146	0.25	Al	APB32XL037AF-250		0.2	32	0.375	Y	0.20	2.037	0.25	Al

\* Al = Aluminum; S = Steel

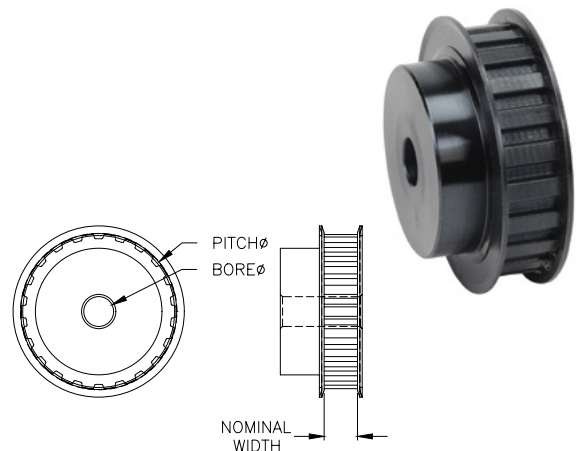
# Synchronous Belt Drive Components

## L Synchronous Timing Belt Pulleys

Also referred to as sprockets, SureMotion L timing pulleys have a 3/8 inch pitch and 1/2 or 1 inch width. Aluminum pulleys are available with a smooth bore and setscrews. Steel plain bore pulleys require machining by the end user for desired shaft mounting (i.e. bore, keyway, setscrews). Steel pulleys also available to fit Taper-Lock or QD style drive bushings. Bushings sold separately.



**L Pulley with Hub, Flange, and Setscrews**



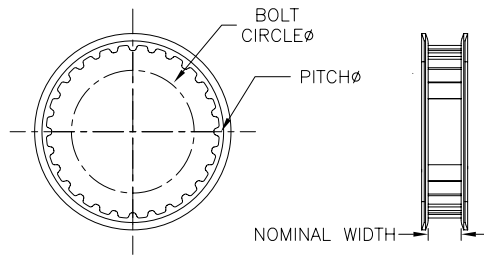
**L Pulley with Hub, Flange, No Setscrews**

Timing Belt Pulleys – Pitch Designation L; Plain Bore (With Hub)																			
Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	Bore Diameter	Material *	Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	Bore Diameter	Material *
APB10L050BF-375		0.1	10	0.50	Y	0.375	1.194	0.375	Al	SPB30L050BF-500		2.4	30	0.50	Y	0.375	3.581	0.50	S
APB12L050BF-375		0.2	12	0.50	Y	0.375	1.432	0.375	Al	SPB32L050BF-500		2.8	32	0.50	Y	0.375	3.820	0.50	S
APB13L050BF-375		0.2	13	0.50	Y	0.375	1.552	0.375	Al	SPB36L050BF-500		4.0	36	0.50	Y	0.375	4.297	0.50	S
APB14L050BF-375		0.2	14	0.50	Y	0.375	1.671	0.375	Al	SPB40L050BF-500		4.7	40	0.50	Y	0.375	4.775	0.50	S
APB15L050BF-375		0.3	15	0.50	Y	0.375	1.790	0.375	Al	SPB14L100BF-375		0.8	14	1.0	Y	0.375	1.671	0.375	S
APB16L050BF-500		0.3	16	0.50	Y	0.375	1.910	0.50	Al	SPB16L100BF-500		1.1	16	1.0	Y	0.375	1.910	0.50	S
APB17L050BF-500		0.3	17	0.50	Y	0.375	2.029	0.50	Al	SPB18L100BF-500		1.4	18	1.0	Y	0.375	2.149	0.50	S
APB18L050BF-500		0.4	18	0.50	Y	0.375	2.149	0.50	Al	SPB20L100BF-500		1.7	20	1.0	Y	0.375	2.387	0.50	S
APB19L050BF-500		0.4	19	0.50	Y	0.375	2.268	0.50	Al	SPB22L100BF-625		2.1	22	1.0	Y	0.375	2.626	0.625	S
APB20L050BF-500		0.5	20	0.50	Y	0.375	2.387	0.50	Al	SPB24L100BF-625		2.4	24	1.0	Y	0.375	2.865	0.625	S
APB21L050BF-500		0.5	21	0.50	Y	0.375	2.507	0.50	Al	SPB26L100BF-625		2.8	26	1.0	Y	0.375	3.104	0.625	S
APB22L050BF-500		0.6	22	0.50	Y	0.375	2.626	0.50	Al	SPB28L100BF-625		3.3	28	1.0	Y	0.375	3.342	0.625	S
APB24L050BF-500		0.7	24	0.50	Y	0.375	2.865	0.50	Al	SPB30L100BF-625		3.8	30	1.0	Y	0.375	3.581	0.625	S
SPB22L050BF-500		1.5	22	0.50	Y	0.375	2.626	0.50	S	SPB32L100BF-625		4.5	32	1.0	Y	0.375	3.820	0.625	S
SPB24L050BF-500		1.7	24	0.50	Y	0.375	2.865	0.50	S	SPB36L100BF-625		5.7	36	1.0	Y	0.375	4.297	0.625	S
SPB26L050BF-500		1.9	26	0.50	Y	0.375	3.104	0.50	S	SPB40L100BF-625		6.8	40	1.0	Y	0.375	4.775	0.625	S
SPB28L050BF-500		2.1	28	0.50	Y	0.375	3.342	0.50	S										

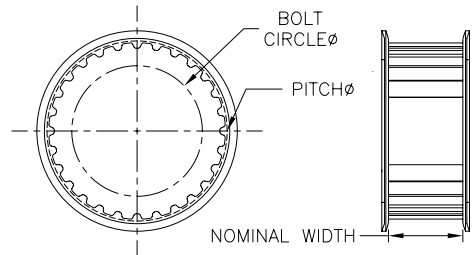
\* Al = Aluminum; S = Steel

# Suremotion Synchronous Drive Components

## L Synchronous Timing Belt Pulleys



**SQD Pulley**



**STL Pulley**

Timing Belt Pulleys – Pitch Designation L; Plain Bore (Without Hub)																			
Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	*QD Type Bushing Required	Material**	Part Number	Price	Weight (lb)	# Grooves (Teeth)	Nominal Width (in)	Flange (Y/N)	Pitch (in)	Pitch Diameter (in)	*Taper-Lock Bushing Required	Material**
<b>SQD20L050AF-JA</b>		0.6	20	0.50	Y	0.375	2.387	JA	S	<b>STL20L050AF-1108</b>		0.6	20	0.50	Y	0.375	2.387	1108	S
<b>SQD20L100AF-JA</b>		1.0	20	1.0	Y	0.375	2.387	JA	S	<b>STL20L100AF-1108</b>		0.8	20	1.0	Y	0.375	2.387	1108	S
<b>SQD22L050AF-JA</b>		0.8	22	0.50	Y	0.375	2.626	JA	S	<b>STL22L050AF-1108</b>		0.8	22	0.50	Y	0.375	2.626	1108	S
<b>SQD22L100AF-JA</b>		1.0	22	1.0	Y	0.375	2.626	JA	S	<b>STL22L100AF-1108</b>		1.2	22	1.0	Y	0.375	2.626	1108	S
<b>SQD24L050AF-SH</b>		0.6	24	0.50	Y	0.375	2.865	SH	S	<b>STL24L050AF-1210</b>		0.8	24	0.50	Y	0.375	2.865	1210	S
<b>SQD24L100AF-SH</b>		1.0	24	1.0	Y	0.375	2.865	SH	S	<b>STL24L100AF-1210</b>		1.1	24	1.0	Y	0.375	2.865	1210	S
<b>SQD26L050AF-SH</b>		0.9	26	0.50	Y	0.375	3.104	SH	S	<b>STL26L050AF-1210</b>		1.1	26	0.50	Y	0.375	3.104	1210	S
<b>SQD26L100AF-SH</b>		1.4	26	1.0	Y	0.375	3.104	SH	S	<b>STL26L100AF-1210</b>		1.4	26	1.0	Y	0.375	3.104	1210	S
<b>SQD28L050AF-SH</b>		1.1	28	0.50	Y	0.375	3.342	SH	DI	<b>STL28L050AF-1210</b>		1.5	28	0.50	Y	0.375	3.342	1210	DI
<b>SQD28L100AF-SH</b>		1.8	28	1.0	Y	0.375	3.342	SH	DI	<b>STL28L100AF-1610</b>		1.4	28	1.0	Y	0.375	3.342	1610	DI
<b>SQD30L050AF-SDS</b>		1.1	30	0.50	Y	0.375	3.581	SDS	DI	<b>STL30L050AF-1610</b>		1.3	30	0.50	Y	0.375	3.581	1610	DI
<b>SQD30L100AF-SDS</b>		1.9	30	1.0	Y	0.375	3.581	SDS	DI	<b>STL30L100AF-1610</b>		1.9	30	1.0	Y	0.375	3.581	1610	DI
<b>SQD32L050AF-SDS</b>		1.4	32	0.50	Y	0.375	3.820	SDS	DI	<b>STL32L050AF-1610</b>		1.7	32	0.50	Y	0.375	3.820	1610	DI
<b>SQD32L100AF-SDS</b>		2.3	32	1.0	Y	0.375	3.820	SDS	DI	<b>STL32L100AF-1610</b>		2.4	32	1.0	Y	0.375	3.820	1610	DI
<b>SQD36L050AF-SDS</b>		2.0	36	0.50	Y	0.375	4.297	SDS	DI	<b>STL36L050AF-1610</b>		2.3	36	0.50	Y	0.375	4.297	1610	DI
<b>SQD36L100AF-SDS</b>		2.6	36	1.0	Y	0.375	4.297	SDS	DI	<b>STL36L100AF-1610</b>		3.4	36	1.0	Y	0.375	4.297	1610	DI
<b>SQD40L050AF-SDS</b>		2.7	40	0.50	Y	0.375	4.775	SDS	DI	<b>STL40L050AF-2012</b>		3.2	40	0.50	Y	0.375	4.775	2012	DI
<b>SQD40L100AF-SDS</b>		3.5	40	1.0	Y	0.375	4.775	SDS	DI	<b>STL40L100AF-2012</b>		3.8	40	1.0	Y	0.375	4.775	2012	DI
<b>SQD44L050AF-SDS</b>		3.4	44	0.50	Y	0.375	5.252	SDS	DI	<b>STL48L050AF-2012</b>		5.5	48	0.50	Y	0.375	5.730	2012	DI
<b>SQD44L100AF-SDS</b>		4.3	44	1.0	Y	0.375	5.252	SDS	DI	<b>STL48L100AF-2012</b>		6.4	48	1.0	Y	0.375	5.730	2012	DI
<b>SQD48L050AF-SDS</b>		4.2	48	0.50	Y	0.375	5.730	SDS	DI	<b>STL60L050A-2012</b>		6.4	60	0.50	N	0.375	7.162	2012	CI
<b>SQD48L100AF-SDS</b>		5.1	48	1.0	Y	0.375	5.730	SDS	DI	<b>STL60L100A-2012</b>		11	60	1.0	N	0.375	7.162	2012	CI
<b>SQD60L050AF-SD</b>		5.5	60	0.50	Y	0.375	7.162	SD	CI	<b>STL72L050A-2012</b>		8.9	72	0.50	N	0.375	8.594	2012	CI
<b>SQD60L100AF-SD</b>		6.6	60	1.0	Y	0.375	7.162	SD	CI	<b>STL72L100A-2012</b>		12.0	72	1.0	N	0.375	8.594	2012	CI
<b>SQD72L050AF-SD</b>		8.5	72	0.50	Y	0.375	8.594	SD	CI	<b>STL84L050A-2517</b>		16.1	84	0.50	N	0.375	10.027	2517	CI
<b>SQD72L100AF-SD</b>		7.3	72	1.0	Y	0.375	8.594	SD	CI	<b>STL84L100A-2517</b>		12.2	84	1.0	N	0.375	10.027	2517	CI
<b>SQD84L050AF-SD</b>		11.9	84	0.50	Y	0.375	10.027	SD	CI										
<b>SQD84L100AF-SD</b>		9.4	84	1.0	Y	0.375	10.027	SD	CI										

\* "QD" is a registered trademark of Emerson Electric, "Taper-Lock" (TL) is a registered trademark of Reliance Electric.

\*\* S = Steel; DI = Ductile Iron; CI = Cast Iron

# Synchronous Belt Drive Components

## Product Overview



**Timing Pulleys**



**Bushings**

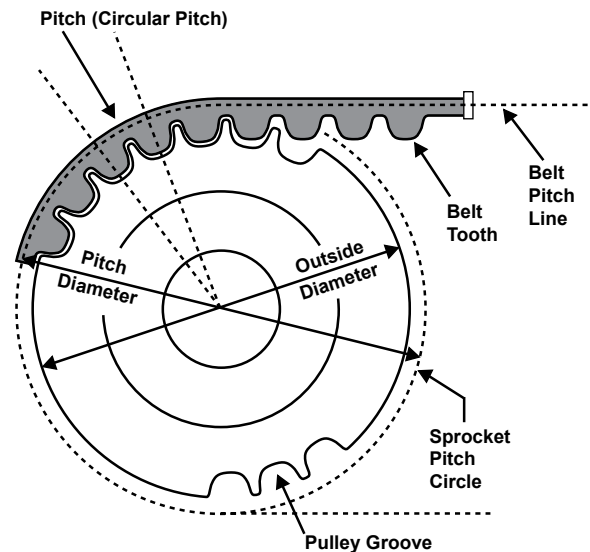


**Timing Belts**

Timing pulleys, bushings, and belts allow you to change speed and torque while connecting mechanically rotating components.

- Select pulley sizes in order to accomplish the speed or torque change that you need.
- Bushings allow you to connect the same pulleys to different sized shafts, or vice versa.
- Synchronous drive belts and pulleys utilize teeth to prevent slippage and unwanted speed variations.

Note: For pulley speeds in excess of 6,000 RPM, pulleys should be dynamically balanced.



## Drive Component Selection

1. Determine required torque (ft·lbs) and rpm of driven shaft.
2. Determine design horsepower:

$$DHP = \frac{T \cdot N \cdot sf}{5,252}$$

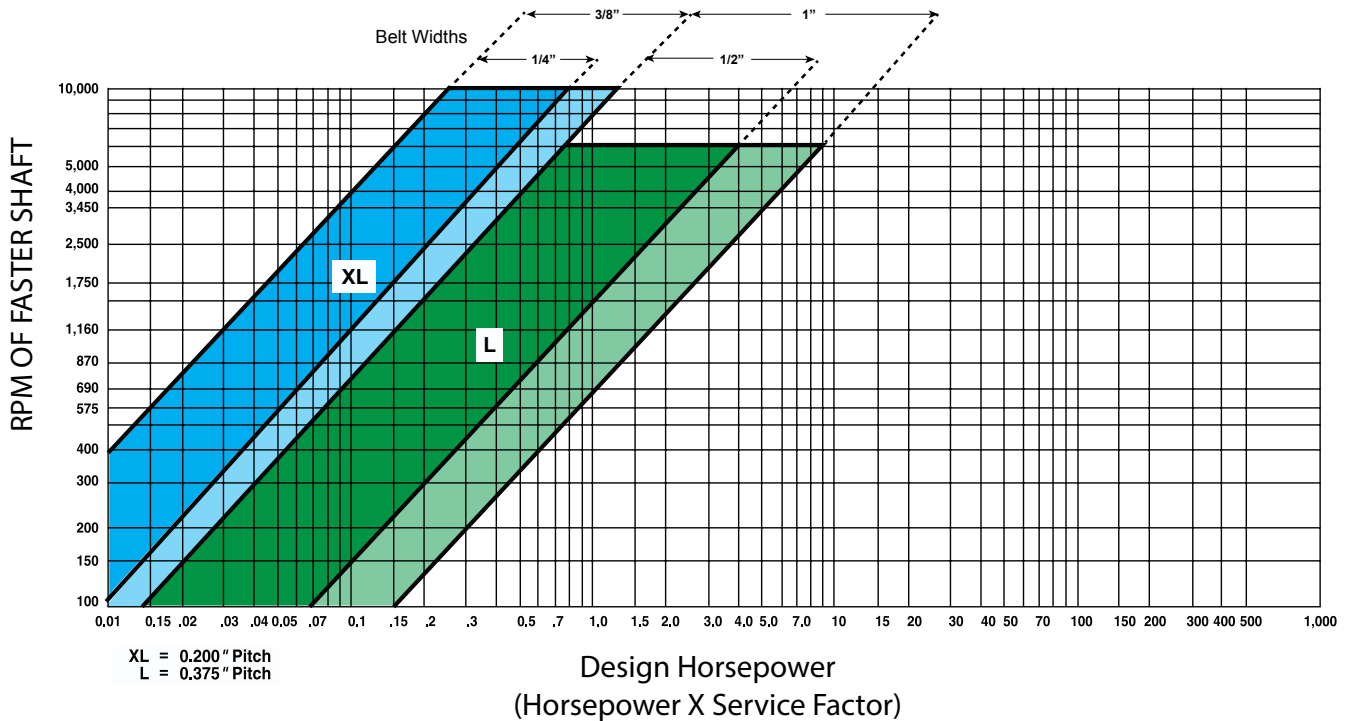
Where: T = torque (ft·lb)  
 N = rpm  
 sf = service factor per table

Service Factors			
Machine Type	<8hr per day	8-16 hr per day	Continuous
Smooth Running	1.0	1.2	1.4
Light Shock Loads	1.3	1.5	1.7
Heavy Shock Loads	1.7	1.9	2.1

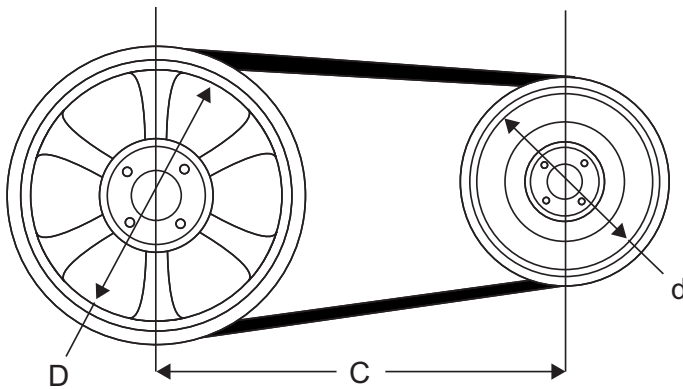
3. Determine Pitch (XL or L) required by reading Design Horsepower Chart.
4. Select driver and driven pulleys to match desired speed or torque change.
5. Determine belt length.

# Synchronous Belt Drive Components

## Design Horsepower Chart



## Drive Component Selection Continued



### Belt Length Calculations

$$L = 2C + 1.57(D + d) + \frac{(D-d)^2}{4C}$$

Where:

- L = Length of belt at pitch line (in inches)
- C = Center distance (in inches)
- D = Pitch diameter (in inches) of large sprocket
- d = Pitch diameter (in inches) of small sprocket